Founded in 1976, Samtec is much more than just another connector company. We put people first, along with a commitment to exceptional service, quality products and innovative technologies that take the industry further faster. This is enabled by our unique, fully integrated business model, which allows for true collaboration and innovation without the limits of traditional business models.

We believe that taking care of our customers and our employees is paramount in how we approach our business, and this belief is deeply ingrained throughout Samtec worldwide.

INNOVATIVE TECHNOLOGIES
From standard cataloged products to unique high-performance design, Samtec’s SOLUTION BLOCKS are designed to support any interconnectivity need, regardless of application, performance requirements or environment.

Silicon-to-Silicon

Core Board-to-Board

SUDDEN SERVICE®
Samtec is the service leader in the industry, offering unmatched technical support, free product samples and access to online resources, and innovative online tools to help streamline the design process.
General Policy Statement: Unless otherwise agreed by Samtec in writing, all sales of Samtec products are subject to Samtec’s Terms and Conditions of Sale located at https://www.samtec.com/about/legal#samtecterms. Federal Supply Code: 55322
Samtec’s integrated approach provides high-level design and development of advanced interconnect systems and technologies, along with industry-leading expertise that allows us to offer effective strategies and support for optimizing the entire signal channel of high-performance systems.
Samtec is structured like no other company in the interconnect industry. We work in a fully integrated capacity that enables true collaboration and results in uniquely innovative PRODUCTS because our technology teams are not limited by the boundaries of traditional business units.
Samtec’s Sudden Service® provides unmatched global service, free access to data and industry leading tools, along with engineering support, to help you design, develop, test and deliver the best solution for any complex application.

AWARD-WINNING SERVICE
#1 in Bishop’s Customer Survey of the Electronic Connector Industry.

Samtec has been consistently rated as the #1 connector company in North America, Europe and Asia. This is the highest overall rating in the Bishop & Associates’ U.S., Europe and Asia Customer Surveys of the Electronic Connector Industry.
This new designation allows customers to quickly and easily identify availability of over 200,000 of Samtec’s most popular connectors and cables – guaranteed to ship in 1-day.

Look for the Reserve badge throughout samtec.com to quickly determine if your part number is eligible, along with current availability, quantity breaks and pricing. Hundreds of part numbers are being added daily!

Free product samples, shipped in 24-hours or less have been a cornerstone of Samtec Sudden Service® since the company was founded. Visit samtec.com to quickly request your sample.

An innovative shipping program that bridges the gap between manufacturing facilities and customers, allowing for manufacturing flexibility without increased costs, and with even faster lead-times. Contact ecustomerservice@samtec.com to learn more.
Samtec has developed innovative search, design, and validation tools to help customers quickly and easily find the right solution. Whether you prefer to search by product name or characteristics, browse through pictures, or build an assembly by entering physical specifications, Samtec offers a tool to make your search easier than ever.

Browse through a highlight reel of Samtec’s most popular products to find the ideal solution for your application, view specifications, check availability, order samples and more. To find your solution, visit samtec.com/picturesearch.

Input specific options to quickly build a complete high-speed cable assembly, view specs, prints, 3D models, and instantly request samples and quotes. Visit samtec.com/cablebuilder.

Quickly build mated connector sets using a wide variety of user-defined search parameters and filters, view specs and order samples all with one online design tool. Visit samtec.com/solutionator to start building.

Innovative design tool blends data to project performance in a user-defined system, providing insertion loss, crosstalk, eye diagrams, sample requests and more. Visit samtec.com/simulator.
Samtec is committed to the continuous evolution of our award-winning website, providing customers with innovative design tools, technical resources and support needed to make finding, designing and ordering the right product as easy and streamlined as possible.

Downloads
3D MODELS, SPECS, PRINTS & MORE

Samtec’s extensive library of downloadable resources is unmatched in the industry. From 3D Models and Test Reports, Interconnect Symbols and Footprints, Product Videos, Design Guides, Specifications and so much more – Samtec offers immediate and unlimited access to all the documentation you need to select the right solution for your application. Visit samtec.com to start exploring.

3D Models
Quickly configure, preview and download models in more than 150 different formats, including AutoCad, Solid Edge, Inventor and many more.

Test Reports
Samtec provides immediate access to a variety of testing and qualification reports for our products, including high-speed characterization, thermal, frequency and time domain, Extended Life Product™, Severe Environment Testing, and others.

PCB Footprint / eCAD Models
Instantly view, download and design with over 200,000 ready-to-use eCAD models. These detailed models have been formatted to work with leading schematic captures and include accurate assembly, silkscreen and 3D features.

Technical Library
Samtec’s online Technical Library contains a wealth of resources, including Prints & Specifications, White Papers, Application Notes, Test Reports, Product Videos, Design Guides, Processing Information and much more.

mySamtec™ account.samtec.com
Samtec's user-friendly eCommerce platform allows you to quickly and easily check product availability and pricing, as well as place and manage your orders online.
MODIFIED & CUSTOM SOLUTIONS

INDUSTRY-LEADING SUPPORT & EXPERTISE

• Full engineering, design and prototype support
• Design, simulation and processing assistance
• Dedicated Application Specific Product engineers and technicians
• Industry-leading Customer Service
• Quotes and samples turned around in 24 hours
• Flexible, quick-turn in-house manufacturing
• Customer specific testing - AS9102 FAIs available
• ITAR compliant with U.S. based manufacturing
• Contact the Application Specific Products Group at asp@samtec.com to discuss your application

EXPRESS MODIFICATIONS & ENGINEERED CUSTOMS

• Up to 50 µ" Gold and Tin Lead plating available
• Polarized positions
• Modified stack heights, latching and screw downs
• Modified contacts, bodies, stamping, plating, wiring, molding and much more
• Ruggedizing features including strain relief, plastic housings, screw downs, latches, locks, etc.
• Mix-and-match cable end options for application specific requirements
• Many non-cataloged cable standards available, including 75 Ω micro coax & high-density twinax solutions
• Solutions for Optics in extreme environments (in development): Samtec MIL-coat protected, salt-fog impenetrable, mitigation for tin whiskers, fungal resistant, extreme shock and vibration, full support for liquid immersion cooling

Visit samtec.com/custom for details.
HIGH-SPEED HIGH-DENSITY ARRAYS

EXTREME DENSITY • HIGH-PERFORMANCE • MAXIMUM DESIGN FLEXIBILITY

16-17 NOVARAY® EXTREME DENSITY & PERFORMANCE ARRAYS (NVAM, NVAF)

18-19 0.635 mm PITCH ACCELERATE® HP HIGH-PERFORMANCE ARRAYS (APM6, APF6)

20-21 0.635 mm PITCH ACCELERATE® HD HIGH-DENSITY ARRAYS (ADM6, ADF6)

22-25 1.27 mm PITCH SEARAY™ OPEN-PIN-FIELD ARRAYS (SEAF, SEAM)

26-27 SEARAY™ 0.80 mm PITCH OPEN-PIN-FIELD ARRAYS (SEAM8, SEAF8)

28-29 1.27 mm PITCH LP ARRAY™ LOW-PROFILE ARRAYS (LPAM, LPAF)
**EXTREME PERFORMANCE HIGH-DENSITY ARRAYS**

(0.80 mm) .0315" x (1.80 mm) .071" PITCH

**FEATURES & BENEFITS**

- 112 Gbps PAM4 per channel
- 112 fully shielded differential pairs per square inch
- 4.0 Tbps aggregate data rate - 9 IEEE, 400 G channels
- Extremely low crosstalk to 40 GHz+
- Incredibly tight impedance control
- Minimal variance in data rate as stack height increases
- 40% less space vs traditional arrays with the same data throughout

**KEY SPECIFICATIONS**

<table>
<thead>
<tr>
<th>STACK HEIGHTS</th>
<th>TOTAL PAIRS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>CURRENT RATING</th>
<th>WORKING VOLTAGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 mm &amp; 10 mm</td>
<td>Up to 32 pairs</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 μ&quot; (1.27 μm) Ni</td>
<td>2.1 A per pin (signal) 9.6 A per pin (ground)</td>
<td>200 VAC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**EXTREME PERFORMANCE**

**HIGH-DENSITY ARRAYS**

(0.80 mm) .0315" x (1.80 mm) .071" PITCH

**FEATURES & BENEFITS**

- 112 Gbps PAM4 per channel
- 112 fully shielded differential pairs per square inch
- 4.0 Tbps aggregate data rate - 9 IEEE, 400 G channels
- Extremely low crosstalk to 40 GHz+
- Incredibly tight impedance control
- Minimal variance in data rate as stack height increases
- 40% less space vs traditional arrays with the same data throughout

**KEY SPECIFICATIONS**

<table>
<thead>
<tr>
<th>STACK HEIGHTS</th>
<th>TOTAL PAIRS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>CURRENT RATING</th>
<th>WORKING VOLTAGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 mm &amp; 10 mm</td>
<td>Up to 32 pairs</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 μ&quot; (1.27 μm) Ni</td>
<td>2.1 A per pin (signal) 9.6 A per pin (ground)</td>
<td>200 VAC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**samtec.com/NovaRay**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## 0.80 mm x 1.80 mm PITCH • EXTREME PERFORMANCE ARRAYS

### NVAM
**Terminal**

### NVAF
**Socket**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>STYLE</th>
<th>NO. OF ROWS</th>
<th>NO. OF BANKS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>SOLDER TYPE</th>
<th>K</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVAM</td>
<td>-DP</td>
<td>-02</td>
<td>-1</td>
<td>-02.0</td>
<td>-S</td>
<td>-2</td>
<td>-K</td>
<td>-TR</td>
</tr>
<tr>
<td>NVAF</td>
<td></td>
<td>-03</td>
<td>-2</td>
<td>-05.0</td>
<td></td>
<td></td>
<td></td>
<td>-FR</td>
</tr>
</tbody>
</table>

- **-DP** = 4 pairs per wafer
- **-02** = 1 Bank
- **-03** = 2 Banks
- **-02.0** = (2 mm) .0787 (NVAM only)
- **-05.0** = (5 mm) .1969
- **-S** = 30 µ" (0.76 µm) Gold on contact area, Matte Tin on solder tail
- **-2** = Lead-Free Solder Charge
- **-K** = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad
- **-TR** = Tape & Reel
- **-FR** = Full Reel Tape & Reel (must order maximum quantity per reel, contact Samtec for quantity breaks)

### NVAM Board Mates: NVAF

### NVAF Board Mates: NVAM

**Notes:**

- Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com/NVAM](http://samtec.com/NVAM)

**MATED HEIGHTS***

<table>
<thead>
<tr>
<th>NVAF LEAD STYLE</th>
<th>NVAM LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-02.0</td>
<td>-05.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. OF BANKS</th>
<th>A</th>
<th>LEAD STYLE</th>
<th>B</th>
<th>NO. OF ROWS</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>(21.75)</td>
<td>-02.0</td>
<td>(5.46)</td>
<td>-02</td>
<td>(7.80)</td>
</tr>
<tr>
<td></td>
<td>854</td>
<td></td>
<td>360</td>
<td></td>
<td>362</td>
</tr>
<tr>
<td>-2</td>
<td>(37.75)</td>
<td>-05.0</td>
<td>(8.46)</td>
<td>-03</td>
<td>(9.60)</td>
</tr>
<tr>
<td></td>
<td>1.486</td>
<td></td>
<td>.333</td>
<td></td>
<td>.378</td>
</tr>
</tbody>
</table>

**AGGREGATE DATA RATE (NRZ)**

<table>
<thead>
<tr>
<th>448 Gbps</th>
<th>672 Gbps</th>
<th>896 Gbps</th>
<th>1344 Gbps</th>
<th>1792 Gbps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bank</td>
<td>2 Bank</td>
<td>2 Row</td>
<td>3 Row</td>
<td>4 Row</td>
</tr>
<tr>
<td>8 Pairs</td>
<td>12 Pairs</td>
<td>16 Pairs</td>
<td>24 Pairs</td>
<td>32 Pairs</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

View complete specifications at: [samtec.com/NVAF](http://samtec.com/NVAF)
ACCELERATE® HP

HIGH-PERFORMANCE ARRAY SYSTEM
(0.635 mm) .025” PITCH

FEATURES & BENEFITS

- Flexible open-pin-field and cost optimized, extreme performance solution
- Low-profile 5 mm stack height and up to 10 mm
- 0.635 mm pitch
- Four row design with up to 400 total pins; roadmap to 1,000+ pins
- Data rate capable of PCIe® Gen 5 and 100 GbE
- In Development: Cable assembly designs, 6, 8 and 10 rows, additional position counts

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>STACK HEIGHTS</th>
<th>TOTAL PINS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 mm - 10 mm</td>
<td>40 - 400</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ” (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**(0.635 mm) .025" PITCH • 112 Gbps PAM4 OPEN-PIN-FIELD ARRAYS**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>NO. OF ROWS</th>
<th>SOLDER TYPE</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM6</td>
<td>–020, –060, –100 (per row)</td>
<td>-01.5 = 1.5 mm (APM6 only)</td>
<td>–L = 10 µ&quot; (0.25 µm) Gold on contact area, Matte Tin on tail</td>
<td>–04</td>
<td>–2 = Lead-Free Solder Balls</td>
<td>(Leave blank for no alignment pin)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-06.5 = 6.5 mm (APM6 only)</td>
<td>–S = 30 µ&quot; (0.76 µm) Gold on contact area, Matte Tin on tail</td>
<td></td>
<td>–A = Alignment Pin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>03.50 = 3.5 mm (APF6 only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**APM6**

**Board Mates:**

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>A</th>
<th>LEAD STYLE</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>–020</td>
<td>(17.82) .701</td>
<td>–01.5</td>
<td>(3.33) .131</td>
</tr>
<tr>
<td>–060</td>
<td>(43.22) 1.701</td>
<td>–06.5</td>
<td>(8.33) .328</td>
</tr>
<tr>
<td>–100</td>
<td>(68.62) 2.701</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MATED HEIGHTS**

<table>
<thead>
<tr>
<th>APF6 LEAD STYLE</th>
<th>APM6 LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01.5</td>
<td>06.5</td>
</tr>
<tr>
<td>-03.5</td>
<td>10.00 mm .394*</td>
</tr>
</tbody>
</table>

* Processing conditions will affect mated height.

**APF6**

**Board Mates:**

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>–020</td>
<td>(17.82) .701</td>
</tr>
<tr>
<td>–060</td>
<td>(43.22) 1.701</td>
</tr>
<tr>
<td>–100</td>
<td>(68.62) 2.701</td>
</tr>
</tbody>
</table>

**Notes:** Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?APM6](samtec.com?APM6)

View complete specifications at: [samtec.com?APF6](samtec.com?APF6)
ACCELERATE® HD

HIGH-DENSITY SLIM BODY ARRAYS
(0.635 mm) .025" PITCH

FEATURES & BENEFITS

• Up to 240 positions in 4-row design (400 positions in development)
• Low-profile 5 mm stack heights
• Slim 5 mm width body design
• Edge Rate® contact system optimized for signal integrity performance
• Open-pin-field for grounding and routing flexibility
• Right-angle (ADF6-RA) and other stack heights in development
• PCIe® 5.0 capable
• Compatible with mPower® (UMPT/UMPS) for a power signal solution

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>TOTAL POSITIONS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>WORKING VOLTAGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.635 mm) .025&quot;</td>
<td>40 - 240</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>1.34 A per pin (4 pins powered)</td>
<td>Testing now</td>
<td>Yes</td>
</tr>
</tbody>
</table>

samtec.com/AcceleRateHD

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### Series - No. of Positions - Lead Style - Plating Option - No. of Rows - Solder Type - Option - "X" R

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>NO. OF ROWS</th>
<th>SOLDER TYPE</th>
<th>OPTION</th>
<th>&quot;X&quot; R</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM6</td>
<td>–10, –20, –30, –40, –50, –60 (per row)</td>
<td>–01.5 1.5 mm (ADM6 only)</td>
<td>–L 10 μm (0.25 μm) Gold on contact area, Matte Tin on tail</td>
<td>–04 Four Rows</td>
<td>–2 Lead-Free Solder Ball</td>
<td>–TR Tape &amp; Reel</td>
<td>–FR Full reel Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks)</td>
</tr>
<tr>
<td>ADF6</td>
<td>–03.5 3.5 mm (ADF6 only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–A Alignment Pin</td>
<td></td>
</tr>
</tbody>
</table>

**ADM6**
- **Board Mates:** ADF6
- **Standoffs:** JSO

**ADF6**
- **Board Mates:** ADM6
- **Standoffs:** JSO

**Notes:**
Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?ADM6](http://samtec.com?ADM6)

View complete specifications at: [samtec.com?ADF6](http://samtec.com?ADF6)

**Mated Heights**

<table>
<thead>
<tr>
<th>ADF6 LEAD STYLE</th>
<th>ADM6 LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01.5 1.5 mm</td>
<td>–01.5</td>
</tr>
<tr>
<td>–03.5 3.5 mm</td>
<td>(5 mm) .197</td>
</tr>
</tbody>
</table>

* Processing conditions will affect mated height.

**Mated Heights**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
FEATURES & BENEFITS

- Maximum grounding & routing flexibility
- Up to 560 single-ended I/Os or 140 differential pairs
- Rugged Edge Rate® contacts
- Compatible with UMPT/UMPS for power/signal flexibility
- Cable mates (SEAC Series) and Jack Screw Standoffs (USO Series) also available
- Standards: VITA 47, VITA 57.1 FMC, VITA 57.4 FMC+, VITA 74 VNX, PISMO™ 2
- Supports high-speed protocols such as Ethernet, PCI Express®, Fibre Channel & InfiniBand

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>TOTAL PINS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>WORKING VOLTAGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.27 mm x 1.27 mm</td>
<td>7 mm - 18.5 mm</td>
<td>40 - 560</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>2.7 A per pin (10 adjacent pins powered) 7 mm stack height</td>
<td>240 VAC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable
(1.27 mm) .050” PITCH • SEAM/SEAF SERIES

### SEAM
- **Terminal**
- **SEAF**

Board Mates: SEAF, SEAFP
Standoffs: JSO

SEAF: -15 only available in -04 Row
SEAM: -15 only available in -04 Row with -02.0 Lead Style, and -10 Row with any Lead Style;

Specify LEAD STYLE from chart

- **LEAD STYLE A**
  - 02.0 (4.60) .181
  - 03.0 (5.59) .220
  - 03.5 (6.10) .240
  - 06.5 (9.14) .360
  - 07.0 (9.60) .378
  - 09.0 (11.60) .457
  - 11.0 (13.60) .535

- **LEAD STYLE B**
  - 04 (7.06) .278
  - 05, 06, 08 (9.60) .378
  - 10 (14.68) .578

- **LEAD STYLE C**
  - -05 (5.05) .199
  - -06 (6.05) .238
  - -08 (9.14) .360
  - -10 (12.14) .478

- **LEAD STYLE D**
  - -07.5 (7.54) .297
  - -10 (13.28) .523

### SEAF
- **Socket**

Board Mates: SEAM, SEAMP, SEAR, SEAMI
Cable Mates: SEAC
Standoffs: JSO

View complete specifications at: [samtec.com?SEAM](http://samtec.com?SEAM)

View complete specifications at: [samtec.com?SEAF](http://samtec.com?SEAF)

### MATED HEIGHTS

<table>
<thead>
<tr>
<th>SEAM LEAD STYLE</th>
<th>SEAF LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-05.0</td>
<td>-06.0</td>
</tr>
<tr>
<td>7 mm</td>
<td>8 mm</td>
</tr>
<tr>
<td>8 mm</td>
<td>9 mm</td>
</tr>
<tr>
<td>8.5 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td>11.5 mm</td>
<td>12.5 mm</td>
</tr>
<tr>
<td>12 mm</td>
<td>13 mm</td>
</tr>
<tr>
<td>14 mm</td>
<td>15 mm</td>
</tr>
<tr>
<td>16 mm</td>
<td>17 mm</td>
</tr>
</tbody>
</table>

### STANDARDS

- **VITA 47**
- **VITA 57.1 FMC**
- **VITA 57.4 FMC+**
- **VITA 74 VNX**
- **PISMO™2**

Visit [www.samtec.com/standards](http://www.samtec.com/standards) for more information.

Notes:

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
SERIES - POSITIONS PER ROW - 01 - PLATING OPTION - NO. OF ROWS - SOLDER TYPE - RA - OPTIONS - "X"R

SEAM
Right-Angle Terminal
-20
-30
-40
-50

SEAF
Right-Angle Socket

- L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail
- S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail
- 1 = Tin/Lead Alloy Solder Charge
- 2 = Lead-Free Solder Charge
- GP = Guide Post/Hole
- K = Polyimide Film Pick & Place Pad
- LP = Latch Post (Available with SEAF in -06 Row with 30 positions only; Required for mating to SEAC)
- TR = Tape & Reel
- FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

SEAM-RA
Board Mates: SEAF, SEAF-RA, SEAFP

SEAF-RA
Board Mates: SEAM, SEAFP
Cable Mates: SEAC

View complete specifications at: samtec.com?SEAM-RA & samtec.com?SEAF-RA


SEAM
Terminal with Guide post
-20, -30, -40, -50

SEAM-GP
Board Mates: SEAF-RA-GP

- L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail
- S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail
- 1 = Tin/Lead Alloy Solder Charge
- 2 = Lead-Free Solder Charge
- GP = Guide Post/Hole
- TR = Tape & Reel
- FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

View complete specifications at: samtec.com?SEAM

Note: Some lengths, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### SEAMP
- **Series:** Terminal
- **Positions per Row:** 
  - 10, 20, 30, 40, 50
- **Lead Style:** 
  - 02.0 (SEAMP only)
  - 05.0 (SEAMP only)
- **Plating Option:** 
  - L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail
  - S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail
- **No. of Rows:** 
  - 04, 06, 08, 10
- **Option:** 
  - GP = Guide Post (SEAMP only)
- **Packaging:** 
  - TR = Tape & Reel
  - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**Board Mates:**
- SEAM, SEAF-RA-GP, SEAFP

**Cable Mates:**
- SEAC

**No. of positions x (1.27) .050 + (4.98) .196**

### SEAFP
- **Series:** Socket
- **Positions per Row:** 
  - 40, 50
- **Lead Style:** 
  - 02.0 (SEAFP only)
- **Plating Option:** 
  - L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail
  - S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail
- **No. of Rows:** 
  - 04, 06, 08, 10
- **Option:** 
  - GP = Guide Post (SEAMP only)
- **Packaging:** 
  - TR = Tape & Reel
  - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**Board Mates:**
- SEAM, SEAF-RA

**Cable Mates:**
- SEAC

**No. of positions x (1.27) .050 + (5.82) .229**

View complete specifications at: samtec.com?SEAMP & samtec.com?SEAFP

### SEAR
- **Series:** 85 Ω Tuned Riser
- **Positions per Row:** 
  - 40, 50
- **Lead Style:** 
  - 10.0 = 20 mm Mated Height
  - 20.0 = 30 mm Mated Height
  - 30.0 = 40 mm Mated Height
- **No. of Rows:** 
  - 06, 08, 10

**Board Mates:**
- SEAF

**No. of positions x (1.27) .050 + (5.18) .204**

View complete specifications at: samtec.com?SEAR & samtec.com?SEAMI

### SEAMI
- **Series:** 85 Ω Tuned Terminal
- **Positions per Row:** 
  - 40, 50
- **Plating Option:** 
  - L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail
  - S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail
- **No. of Rows:** 
  - 08, 10
- **Solder Type:** 
  - 1 = Tin/Lead Alloy SolderCharge
  - 2 = Lead-Free Solder Charge
- **"X"R**

**Board Mates:**
- SEAF

**Note:** Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: samtec.com?SEAR & samtec.com?SEAMI

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SEARRAY™ 8mm
ULTRA HIGH-DENSITY, HIGH-SPEED OPEN-PIN-FIELD ARRAYS
(0.80 mm) .0315" PITCH

FEATURES & BENEFITS

- 0.80 mm (.0315") pitch grid
- 50% board space savings versus .050" (1.27 mm) pitch arrays
- Performance up to 28 Gbps NRZ/56 Gbps PAM4
- Rugged Edge Rate® contact system
- Up to 720 I/Os
- 7 mm and 10 mm stack heights
- Solder charge terminations for ease of processing
- Lower insertion/withdrawal forces

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>TOTAL PINS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>CURRENT RATING</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.80 mm</td>
<td>7 mm &amp; 10 mm</td>
<td>up to 720 I/Os</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>1.3 A per pin (10 adjacent pins powered)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

MAXIMUM GROUNDING & ROUTING FLEXIBILITY

Differential Pair
Single-Ended
Power

0.80 mm pitch vs. 1.27 mm pitch (actual size shown; 60 pins)

samtec.com/SEARAY8

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
(0.80 mm) .0315" PITCH • ULTRA HIGH-DENSITY ARRAYS

**SEAF8-RA**

**Board Mates:** SEAM8  
**Cable Mates:** ESCA  
**Standoffs:** JSO

**Notes:** Some sizes, styles and options are non-standard, non-returnable

**MATED HEIGHTS**

<table>
<thead>
<tr>
<th>SEAF8 LEAD STYLE</th>
<th>SEAM8 LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-02.0</td>
<td>-02.0</td>
</tr>
<tr>
<td>-05.0</td>
<td>-05.0</td>
</tr>
<tr>
<td>-0.50</td>
<td>-0.50</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

**View complete specifications at:** [samtec.com?SEAF8-RA](http://www.samtec.com?SEAF8-RA)
LOW-PROFILE OPEN-PIN-FIELD ARRAYS
(1.27 mm) .050" PITCH

FEATURES & BENEFITS

• 4 mm, 4.5 mm, 5 mm stack heights
• Up to 400 I/Os
• 4, 6 and 8 row designs
• .050" (1.27 mm) pitch
• Dual beam contact system
• Solder crimp termination for ease of processing
• Board stacking standoffs available to assist unmating and reduce risk for component damage on board

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>TOTAL PINS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>CURRENT RATING</th>
<th>WORKING VOLTAGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.27 mm x 1.27 mm</td>
<td>Up to 400 I/Os</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>2.2 A per pin (8 adjacent pins powered)</td>
<td>250 VAC</td>
<td>YES</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### LPAM
**Board Mates:** LPAM
**Standoffs:** JSO, SO

### LPAF
**Board Mates:** LPAF
**Standoffs:** JSO, SO

#### MATED HEIGHTS*

<table>
<thead>
<tr>
<th>LPAM LEAD STYLE</th>
<th>LPAF LEAD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-03.0</td>
<td>-03.5</td>
</tr>
<tr>
<td>-01.0</td>
<td>(4.00) .157</td>
</tr>
<tr>
<td></td>
<td>(4.50) .177</td>
</tr>
<tr>
<td>-01.5</td>
<td>(4.50) .177</td>
</tr>
<tr>
<td></td>
<td>(5.00) .197</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

---

**Notes:**
Some sizes, styles and options are non-standard, non-returnable.

---

View complete specifications at: [samtec.com?LPAM](http://samtec.com/LPArray)
**JACK SCREW STANDOFF**

**JSO SERIES**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>BOARD STACKER</th>
<th>A</th>
<th>B</th>
<th>BOARD STACK HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>–0415</td>
<td>2.50</td>
<td>.98</td>
<td>4 mm</td>
</tr>
<tr>
<td>–0515</td>
<td>3.50</td>
<td>.13</td>
<td>5 mm</td>
</tr>
<tr>
<td>–0715</td>
<td>5.50</td>
<td>.21</td>
<td>7 mm</td>
</tr>
<tr>
<td>–0815</td>
<td>6.50</td>
<td>.25</td>
<td>8 mm</td>
</tr>
<tr>
<td>–1015</td>
<td>8.50</td>
<td>.33</td>
<td>10 mm</td>
</tr>
<tr>
<td>–1115</td>
<td>9.50</td>
<td>.37</td>
<td>11 mm</td>
</tr>
<tr>
<td>–1615</td>
<td>14.50</td>
<td>.57</td>
<td>16 mm</td>
</tr>
</tbody>
</table>

**Notes:**
- Standoffs are designed, 0.15 mm longer than connector stack heights to allow for processing variables.
- Some sizes, styles and options are non-standard, non-returnable.

**ALSO AVAILABLE**

MOQ Required

Other heights

Locking compound removed

**APPLICATION**

Components are to be packaged in separate bags unassembled.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
HIGH-SPEED COMPRESSION INTERPOSERS

HIGH DENSITY • ULTRA-LOW PROFILE • HIGHLY CUSTOMIZABLE

0.80 mm PITCH Z-RAY® HIGH-SPEED COMPRESSION INTERPOSERS (ZA8, ZA8H)

1.00 mm PITCH Z-RAY® HIGH-SPEED COMPRESSION INTERPOSERS (ZA1)

Z-RAY® COMPRESSION HARDWARE (ZD, ZSO, ZHSI)

1.00 mm PITCH LOW-PROFILE COMPRESSION INTERPOSERS (GMI)
HIGH-SPEED COMPRESSION INTERPOSER
(0.80 mm) .0315" AND (1.00 mm) .0394" PITCH

FEATURES & BENEFITS

- Dual compression contacts or single compression with solder balls
- BeCu Micro-formed contacts
- Performance up to 14 Gbps (ZAX Series) and 56 Gbps (ZA8H Series)
- Low-profile body height for a short signal path
- Highly customizable solutions
- Visit samtec.com/ZRDP for ultra-low profile Z-Ray® cable assembly

Design & Construction

- One-piece design assembled into rugged low profile FR4 substrate under high pressure and temperature
- Built standard with a 1 mm board-to-board thickness
- Contacts are designed using BeCu foils that have been formed into the “beam” structure

PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>Single Compression w/ Solder Balls</th>
<th>Dual Compression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series</strong></td>
<td>ZA8  0.80 mm  25</td>
<td>ZA1  1.00 mm  20</td>
</tr>
<tr>
<td><strong>Pitch</strong></td>
<td>Kapton Core N/A</td>
<td>FR4 Core 1.00 mm 1.00 to 3 mm</td>
</tr>
<tr>
<td><strong>Max Row</strong></td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td><strong>Max Column</strong></td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td><strong>Thickness</strong></td>
<td>Kapton Core N/A</td>
<td>FR4 Core 0.33 mm 0.5 to 3 mm</td>
</tr>
<tr>
<td><strong>Thickness Tolerance</strong></td>
<td>±10%</td>
<td>±10%</td>
</tr>
<tr>
<td><strong>Deflection / Normal Force per Pin</strong></td>
<td>0.20 mm / 30g</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-55°C to +105°C (Single Cycle only above 85°C)</td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ZA8 - POSITIONS PER ROW -10, -20, -30, -40

-1 = Single Compression with Solder Balls (-10 & -20 positions only)

-2 = Dual Compression (-10, -20, -30 & -40 positions only)

TERMINATION -1.00 = (1.00 mm) .040” Height

PLATING OPTION -Z = 6 µ” (0.15 µm) Gold in contact area

HEIGHT -0.33 = (0.33 mm) .013” Height

SOLDER TYPE -1 = Lead

-2 = Lead-Free

NO. OF ROWS -10 = Ten Rows

NO. OF POSITIONS PER ROW

-10 = Ten Rows
-20 = Twenty Rows
-30 = Thirty Rows
-40 = Forty Rows

PLATING OPTION -Z = 6 µ” (0.15 µm) Gold in contact area

SOLDER TYPE -1 = Lead

-2 = Lead-Free

NO. OF ROWS

-10 = Ten Rows
-20 = Twenty Rows

POSITIONS PER ROW

A B

20 X 20 DUAL COMPRESSION

20 X 10 COMPRESSION WITH SOLDER BALLS

10 X 10 COMPRESSION WITH SOLDER BALLS

A B

40 X 20 DUAL COMPRESSION

20 X 20 DUAL COMPRESSION

20 X 10 COMPRESSION WITH SOLDER BALLS

10 X 10 COMPRESSION WITH SOLDER BALLS

Notes:

Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/ZRAY

ZA8H - NO. OF POSITIONS -06, -12, -24
(See Chart Below For Number of Pairs)

-0.33 = (0.33 mm) .013” Height

PLATING OPTION -Z = 6 µ” (0.15 µm) Gold in contact over 40 µ” to 100 µ” (1.02 µm - 2.54 µm) Nickel

NO. OF ROWS -04 = Four Rows

-07 = Seven Rows

NO. OF POSITIONS

-06 = Six Positions
-12 = Twelve Positions
-24 = Twenty-Four Positions

NO. OF ROWS

-04 = Four Rows
-07 = Seven Rows

Notes:

Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/ZRAY

samtec.com/ZRAY

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(1.00 mm) .0394” PITCH • HIGH-SPEED COMPRESSION INTERPOSER

ZA1

- POSITIONS PER ROW
- TERMINATION
- HEIGHT
- PLATING OPTION
- NO. OF ROWS
- SOLDER TYPE

-10, -20, -30, -40

-1
-2

= Single Compression with Solder Balls (-10 & -20 positions only)
= Dual Compression (-10, -20, -30 & -40 positions only)

-1.00

= (1.00 mm) .040” Height

-Z

= 6 µ” (0.15 µm) Gold in contact area

= Ten Rows

= Lead
= Lead-Free

APPLICATION

Dual compression or single compression with solder balls

40 X 10 DUAL COMPRESSION

POSITIONS PER ROW

A

B

-10

-20

-30

-40

(14.30)

(24.30)

(38.30)

(48.30)

.563

.957

N/A

.449

.843

N/A

A

B

(11.00)

.433

(1.09)

.043

(1.00)

.039

A

B

20 X 10 DUAL COMPRESSION

20 X 10 COMPRESSION WITH SOLDER BALLS

10 X 10 COMPRESSION WITH SOLDER BALLS

Ultimate Design Flexibility

- Configurations for any application, complete with detailed footprints
- Customer-specific stack heights, pin counts, insulator shapes and plating thicknesses
- Customizable in X-Y-Z axes
- Quick-turn customization with minimal NRE and tooling charges
- Various compression and alignment configurations

View complete specifications at: samtec.com?ZA1

Z-Ray® interposers are highly customizable and are available in a wide variety of custom geometries and pin counts.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
PRESS-FIT ALIGNMENT HARDWARE

**ZSO**
- **STACK HEIGHT**
  
  -0100
  
  = 1.00 mm (.0394")

View complete specifications at: [samtec.com?ZSO](samtec.com?ZSO)

**ZD**
- **DIAMETER**
  
  -1.00
  
  = 1.00 mm (.0394")

- **LENGTH**
  
  -03.7
  
  = 03.7 mm (.146")

View complete specifications at: [samtec.com?ZD](samtec.com?ZD)

**ZHSI**
- **STACK HEIGHT**

  Specify STACK HEIGHT from chart below

  -01
  
  = Slot Head

View complete specifications at: [samtec.com?ZHSI](samtec.com?ZHSI)

<table>
<thead>
<tr>
<th>STACK HEIGHT</th>
<th>PCB 1 THICKNESS</th>
<th>PCB 2 THICKNESS</th>
<th>INTERPOSER HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>(1.57) 0.062</td>
<td>(1.57) 0.062</td>
<td>(1.00) 0.039</td>
</tr>
<tr>
<td>.02</td>
<td>(2.36) 0.093</td>
<td>(2.36) 0.093</td>
<td>(1.00) 0.039</td>
</tr>
<tr>
<td>.02</td>
<td>(2.36) 0.093</td>
<td>(2.36) 0.093</td>
<td>(1.00) 0.039</td>
</tr>
<tr>
<td>.02</td>
<td>(3.18) 0.125</td>
<td>(1.57) 0.062</td>
<td>(1.00) 0.039</td>
</tr>
<tr>
<td>.03</td>
<td>(3.18) 0.125</td>
<td>(2.36) 0.093</td>
<td>(1.00) 0.039</td>
</tr>
</tbody>
</table>

Notes:
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ZRAY](samtec.com?ZRAY)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
LOW-PROFILE COMPRESSION INTERPOSER

(1.00 mm) .0394" PITCH • GMI SERIES

SPECIFICATIONS
GMI - POSITIONS PER ROW - STYLE - BOARD SPACING - PLATING OPTION - ROWS
-10, -20, -30  -2  = Dual Compression  -1.27 = (1.27 mm), .050" Board Space  -G = 10 µ" (0.25 µm) Gold on contact area  -10 = Ten Rows

PROCESSING
Lead-Free Solderable: Yes
SMT Lead Complanarity:
(0.05 mm) .002” (10-20)"
(0.08 mm) .003” (30)"
*.004” stencil solution may be available; contact ipg@samtec.com

Notes:
Some lengths, styles and options are non-standard, non-returnable

GMI Series is an ideal low-cost solution for board stacking, module-to-board or LGA interface

Notes:
Some lengths, styles and options are non-standard, non-returnable

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
HIGH-SPEED MEZZANINE SYSTEMS

25+ Gbps PERFORMANCE • INTEGRAL GROUND PLANE • EDGE RATE® CONTACTS

Q STRIP® INTEGRAL GROUND PLANE INTERCONNECTS
- 0.50 mm (.0197") Pitch (QTH, QSH)
- 0.80 mm (.0315") Pitch (QTE, QSE)
- 0.635 mm (.025") Pitch (QTS, QSS)

Q RATE® SLIM BODY INTEGRAL GROUND PLANE INTERCONNECTS
- 0.80 mm (.0315") Pitch (QRM8, QRF8)

Q2™ RUGGED INTEGRAL GROUND PLANE INTERCONNECTS
- 0.635 mm (.025") Pitch (QMS, QFS)
- 0.635 mm (.025") Pitch Shielded (QMSS, QFSS)

EDGE RATE® RUGGED HIGH-SPEED INTERCONNECTS
- 0.50 mm (.0197") Pitch (ERM5, ERF5)
- 0.635 mm (.025") Pitch (ERM6, ERF6)
- 0.80 mm (.0315") Pitch (ERM8, ERF8)

Q Series® Solutions for Power Applications .......................................................... 45
Q Series® Right-Angle & Edge Mount Systems ....................................................... 46-47
HIGH-SPEED GROUND PLANE MEZZANINE CONNECTORS

FEATURES & BENEFITS

- Designed for high-speed board-to-board applications where signal integrity is essential
- Q Strip® low-profile connectors on 0.50 mm, 0.635 mm and 0.80 mm pitches
- Q Rate® slim connectors with Edge Rate® contacts on 0.80 mm pitch with a 1.20 mm contact wipe
- Q2™ rugged connectors on 0.635 mm pitch with increased insertion depth for rugged applications
- Right-angle, edge mount, EMI shielding, power and RF options
- Differential pair and single-ended routing

INTEGRAL GROUND / POWER PLANE

- Surface mount ground plane between two signal rows improves electrical performance
- Significantly reduces row-to-row crosstalk
- Integral metal plane for power to 25 Amps

samtec.com/QSeries

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
<table>
<thead>
<tr>
<th>Board Mates:</th>
<th>QTH – PINS PER ROW NO. OF PAIRS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>TYPE</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSH</td>
<td>–030, –060, –090</td>
<td>–F</td>
<td>–D</td>
<td>–K</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(60 total pins per bank = –D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(20 pairs per bank = –D–DP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Mates:</td>
<td>–030, –060, –090</td>
<td>–C</td>
<td>–D</td>
<td>–TR</td>
<td></td>
</tr>
<tr>
<td>HQCD, HQDP</td>
<td>(60 total pins per bank = –D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(20 pairs per bank = –D–DP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specifications**

- **Insulator Material:** Liquid Crystal Polymer
- **Contact Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ (1.27 µm) Ni
- **Current Rating:** Contact: 2 A per pin (2 pins powered), Ground Plane: 25 A per ground plane (1 ground plane powered)
- **Operating Temp Range:** -55 °C to +125 °C
- **Voltage Rating:** 175 VAC (5 mm Stack Height)
- **Max Cycles:** 100

**Processing**

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) 0.004” max (0.03-060) (0.15 mm) 0.006” max (090)* 0.004” stencil solution may be available; contact IPG@samtec.com
- **Board Stacking:** For applications requiring more than two connectors contact ipg@samtec.com

**Standards**

- **PISMO™ 1:** Visit samtec.com/standards for more information.

**Note:** Some lengths, styles and options are non-standard, non-returnable.

See pg 46-47 for Right-Angle & Edge Mount options.
**QTE Board Mates:** QSE

**QSE Board Mates:** QTE

**QTE/QSE**

**Cable Mates:** EQCD, EQDP

**Standoffs:** SO

### Specifications

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>HEIGHT WITH QSE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01</td>
<td>(4.27) .168</td>
<td>(5.00) .197</td>
</tr>
<tr>
<td>–02</td>
<td>(7.26) .286</td>
<td>(8.00) .315</td>
</tr>
<tr>
<td>–03</td>
<td>(10.27) .404</td>
<td>(11.00) .433</td>
</tr>
<tr>
<td>–04</td>
<td>(15.25) .600</td>
<td>(16.00) .630</td>
</tr>
<tr>
<td>–05</td>
<td>(18.26) .718</td>
<td>(19.00) .748</td>
</tr>
<tr>
<td>–07</td>
<td>(24.24) .954</td>
<td>(25.00) .984</td>
</tr>
<tr>
<td>–09</td>
<td>(13.26) .522</td>
<td>(14.00) .551</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height. See SO Series for board space tolerances.

### Processing

**Lead-Free Solderable:** Yes

**SMT Lead COPLANARITY:** (0.10 mm) .004" max (020-060)

**Board Stacking:** For applications requiring more than two connectors contact ipg@samtec.com

**Extended Life Product:** 10 YEAR MFG

**High Mating Cycles:** 100

**Operational Temp Range:** -55 °C to +125 °C

**Voltage Rating:** 225 VAC when mated & 5 mm Stack Height

**Max Cycles:** 100

**Current Rating:** Contact: 2 A per pin (2 pins powered) Ground Plane: 23 A per ground plane (1 ground plane powered)

**Note:** Some lengths, styles and options are non-standard, non-returnable.
QTS Board Mates: QSS

QSS Board Mates: QTS

QTS/QSS
Cable Mates: SQCD
Standoffs: SO

SPECIFICATIONS

Insulator Material: Liquid Crystal Polymer
Contact Material: Phosphor Bronze
Plating: Au or Sn over 50 μ" (1.27 μm) Ni
Current Rating: Contact: 1.8 A per pin (2 pins powered) Ground Plane: 23.1 A per ground plane (1 ground plane powered)
Operating Temp Range: -55 °C to +125 °C
Voltage Rating: 285 VAC
Max Cycles: 100

PROCESSING Lead–Free Solderable: Yes
QTS SMT Lead Coplanarity: (0.10 mm) 0.004" max
(Q05-075)
QSS SMT Lead Coplanarity: (0.10 mm) 0.004" max
(0.05-075)
(0.15 mm) 0.006" max (075)*
*0.004" stencil solution may be available; contact ipg@samtec.com
Board Stacking: For applications requiring more than two connectors contact ipg@samtec.com

Note:
Some lengths, styles and options are non-standard, non-returnable.

See pg 46-47 for Right-Angle & Edge Mount options.
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

QMS
Board Mates: QFS

QFS
Board Mates: QMS

QMS/QFS
Cable Mates: 6QCD
Standoffs: SO, JSOM

SPECIFICATIONS
Insulator Material: Liquid Crystal Polymer
Contact & Ground Plane Material: Phosphor Bronze
Plating: Au over 50 µ" (1.27 µm) Ni (Tin on Ground Plane Tail)
Current Rating: 15.7 A per ground plane (1 ground plane powered)
Operating Temp Range: -25 °C to +125 °C
Voltage Rating: 300 VAC when mated

PROCESSING
Lead-Free Solderable: Yes
QMS SMT Lead Coplanarity: (0.10 mm) .004" max (026-052) (0.15 mm) .006" max (078)* (.004" stencil solution may be available; contact IPG@samtec.com)
QFS SMT Lead Coplanarity: (0.10 mm) .004" max (026-078) Board Stacking: For applications requiring more than two connectors contact ipg@samtec.com

STANDARDS
SUMIT™
PCI/104-Express™
PCI/104-Express™ OneBank
Visit samtec.com/standards for more information, including mated heights and complete part numbers.

Note:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/QMS

View complete specifications at: samtec.com/QFS

See pg 46-47 for Right-Angle & Edge Mount options.
QMSS
Board Mates: QFSS

QFSS
Board Mates: QMSS

QMSS/QFSS
Standoffs: SO

**SPECIFICATIONS**

| Insulator Material: | Liquid Crystal Polymer |
| Plane & Shield Material: | Phosphor Bronze |
| Plating: | Au over 50 µ" (1.27 µm) Ni (Tin on Ground Plane Tail) |
| Operating Temp Range: | -55 °C to +125 °C |
| Voltage Rating: | 300 VAC when mated |

**QMSS**

<table>
<thead>
<tr>
<th>PINS PER ROW</th>
<th>NO. OF PAIRS</th>
<th>PLATING OPTION</th>
<th>TYPE</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-026, -052, -078</td>
<td>(52 total pins per bank / 40 signals + 12 grounds to shield = –D)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-016, -032, -048</td>
<td>(16 pairs per bank = –D–DP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-L</td>
<td>= 10 µ&quot; (0.25 µm) gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-D</td>
<td>= Single-Ended</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-D–DP</td>
<td>= Differential Pair</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**QMSS Board Mates:** QFSS

**QMSS/QFSS Standoffs:** SO

**PROCESSING**

Lead–Free Solderable: Yes
SMT Lead Coplanarity: (0.10 mm) 004" max (026-078)
Board Stacking: For applications requiring more than two connectors contact ipg@samtec.com

**QMSS – PC4 OPTION**

No. of Banks x (21.34) .840 + (0.51) .020

| No. of Banks x (21.34) .840 + (13.21) .520 |
| (7.26) | .286 |
| (6.35) | .250 |
| (6.73) | .296 |
| (7.52) | .260 |

**QFSS**

<table>
<thead>
<tr>
<th>PINS PER ROW</th>
<th>NO. OF PAIRS</th>
<th>PLATING OPTION</th>
<th>TYPE</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-026, -052, -078</td>
<td>(52 total pins per bank / 40 signals + 12 grounds to shield = –D)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-016, -032, -048</td>
<td>(16 pairs per bank = –D–DP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-L</td>
<td>= 10 µ&quot; (0.25 µm) gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-D</td>
<td>= Single-Ended</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-D–DP</td>
<td>= Differential Pair</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**QFSS Board Mates:** QMSS

**QMSS/QFSS Standoffs:** SO

**QFSS – PC4 OPTION**

No. of Banks x (21.34) .840 - (0.51) .020

| No. of Banks x (21.34) .840 + (1.02) .040 |
| (8.13) | .320 |
| (0.89) | .320 |
| (0.89) | .320 |
| (7.06) | .278 |
| (7.44) | .293 |

**PACKAGING OPTION**


**QMSS**

View complete specifications at: samtec.com/QMSS

**QFSS**

View complete specifications at: samtec.com/QFSS

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.
### Specifications

**Insulator Material:**
Black LCP

**QRM8 Terminal Material:**
Phosphor Bronze

**QRF8 Contact Material:**
BeCu

**Ground Plane Material:**
Phosphor Bronze

**Plating:**
Au or Sn over 50 μ" (1.27 μm) Ni

**Current Rating:**
Contact: 2.2 A per pin (2 pins powered)
Ground: 8.5 A per ground plane (1 ground plane powered)

**Operating Temp Range:**
-55 °C to +125 °C

**Voltage Rating:**
215 VAC

**Max Cycles:**
100

---

### PROCESSING

**Lead-Free Solderable:**
Yes

**SMT Lead Coplanarity:**
(0.10 mm) .004" max
(018-026) 0.15 mm. .006" max
(036-078)* 0.40 mm. .016" max

*S.04" stencil solution may be available; contact IPG@samtec.com

**Board Stacking:**
For applications requiring more than two connectors contact ipg@samtec.com

---

**Extended Life Product**
See SO Series for board space tolerances.

---

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

---

View complete specifications at: [samtec.com/QRM8](http://samtec.com/QRM8)

---

View complete specifications at: [samtec.com/QRF8](http://samtec.com/QRF8)
HIGH-SPEED SIGNAL & POWER COMBINATIONS

**Q2™ Rugged Signal/Power**
- Integral power/ground plane rated for up to 15.7 amps
- Optional integral power pins rated at 4 amps
- Wide variety of standard high-speed mating cable assemblies
- Combination signal/power cable assemblies
- 0.635 mm pitch with choice of stack heights
- Rugged contact system with increased insertion depth
- See QMS/QFS Series

**Q Strip® High-Speed Signal/Power**
- Integral power/ground plane rated for up to 25 amps
- Wide variety of standard high-speed mating cables
- Low profile (5 mm) to elevated (25 mm) stack heights
- Choice of pitches: QTH/QSH Series (0.50 mm pitch), QTS/QSS Series (0.635 mm pitch), and QTE/QSE Series (0.80 mm pitch)

**Q Rate® Slim Body High-Speed Signal/Power**
- Widely accepted industry standard power/ground plane rated for up to 8.5 amps
- Signal Integrity optimized Edge Rate® contact is robust when “zippered” during unmating
- Slim 4.60 mm body width on 0.80 mm pitch
- 7 mm to 14 mm stack heights
- See QRM8/QRF8 Series

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
RIGHT-ANGLE & EDGE MOUNT HIGH-SPEED GROUND PLANE CONNECTORS

- Right-Angle and Edge Mount designs for coplanar and perpendicular mating
- Q Strip® Right-Angle High-Speed Connectors on 0.50 mm & 0.635 mm pitches
- Q2™ Right-Angle & Edge Mount Rugged High-Speed Connectors on 0.635 mm pitch
- Q Rate™ Right-Angle Slim Body High-Speed Connectors on 0.80 mm pitch
- Visit samtec.com/QSeries for complete specifications and ordering information

Q STRIP® HIGH-SPEED GROUND PLANE CONNECTORS

(0.50 mm) .0197” PITCH RIGHT-ANGLE GROUND PLANE HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PINS PER ROW NO. OF PAIRS</th>
<th>PLATING</th>
<th>TYPE</th>
<th>RA</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTH-RA</td>
<td>QTH Header</td>
<td>-030, -060, -090</td>
<td>-F = Gold Flash on contact, Matte Tin on tails</td>
<td>-D = Single-Ended</td>
<td>-PGP = Plastic Guide Post (QTH only)</td>
</tr>
<tr>
<td></td>
<td>QSH Socket</td>
<td>-020, -040, -060</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold contact, Matte Tin on tails</td>
<td>-D–DP = Differential Pair</td>
<td></td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com?QTH-RA or samtec.com?QSH-RA

(0.635 mm) .025” PITCH RIGHT-ANGLE GROUND PLANE HEADER

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POSITIONS PER ROW</th>
<th>01</th>
<th>PLATING</th>
<th>D</th>
<th>RA</th>
<th>WT</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTS-RA</td>
<td>QTS Header</td>
<td>-025, -050, -075</td>
<td>-F = Gold Flash on Signal Pins and Ground Plane, Matte Tin on tails</td>
<td>-WT = Weld Tab (N/A with -025 Positions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QSS Socket</td>
<td>(50 total Positions per bank)</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on Signal Pins and Ground Plane, Matte Tin on tails</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QSS-RA</td>
<td>QSS Socket</td>
<td>-025, -050, -075</td>
<td>-F = Gold Flash on Signal Pins and Ground Plane, Matte Tin on tails</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Socket</td>
<td>(50 total Positions per bank)</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on Signal Pins and Ground Plane, Matte Tin on tails</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?QTS-RA or samtec.com?QSS-RA

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
### Q2™ HIGH-SPEED GROUND PLANE CONNECTORS

#### (0.635 mm) .025" PITCH RIGHT-ANGLE GROUND PLANE HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PINS PER ROW NO. OF PAIRS</th>
<th>PLATING</th>
<th>TYPE</th>
<th>RA</th>
<th>MG</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-D = (52 total pins per bank)</td>
<td>-D=DP</td>
<td>= Differential Pair</td>
<td></td>
<td></td>
<td>-TR = Tape &amp; Reel (-016, -026, -032 &amp; -052 only)</td>
</tr>
<tr>
<td></td>
<td>-016, -032, -048</td>
<td>-SL</td>
<td>= Gold Flash on contact, Matte Tin on tails</td>
<td></td>
<td></td>
<td>-FR = Full Real Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-016, -026, -032 &amp; -052 only)</td>
</tr>
<tr>
<td></td>
<td>-D=DP = (16 pairs per bank)</td>
<td>-L</td>
<td>= 10 µ&quot; (0.25 µm) Gold on Signal Pins and Ground Plane, Matte Tin on tails</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com/QMS-RA or samtec.com/QFS-RA

#### (0.635 mm) .025" PITCH EDGE MOUNT GROUND PLANE HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POSITIONS PER ROW</th>
<th>PLATING</th>
<th>D</th>
<th>EM2</th>
<th>END OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QMS-EM</td>
<td>-026, -052, -078</td>
<td>-SL</td>
<td>-PC4</td>
<td>-TR</td>
<td>-FR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-D = (60 total pins per bank)</td>
<td>= 4 Power Pins per end (QMS only)</td>
<td></td>
<td>= Tape &amp; Reel (-026 &amp; -052 only)</td>
<td>= Full Real Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-026 &amp; -052 only)</td>
<td></td>
</tr>
<tr>
<td>QFS-EM</td>
<td>-026, -052, -078</td>
<td>-SL</td>
<td>-PC4</td>
<td>-TR</td>
<td>-FR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-D = (20 pairs per bank)</td>
<td>= 4 Power Pins per end (QMS only)</td>
<td></td>
<td>= Tape &amp; Reel (-026 &amp; -052 only)</td>
<td>= Full Real Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-026 &amp; -052 only)</td>
<td></td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com/QMS-EM or samtec.com/QFS-EM

#### Q RATE® SLIM BODY HIGH-SPEED GROUND PLANE CONNECTORS

#### (0.80 mm) .0315" PITCH RIGHT-ANGLE SLIM BODY GROUND PLANE HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POSITIONS PER ROW</th>
<th>PLATING</th>
<th>RA</th>
<th>GP</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRM8-RA</td>
<td>-026, -052, -078</td>
<td>-L</td>
<td>-GP</td>
<td>-K</td>
<td>-TR</td>
</tr>
<tr>
<td></td>
<td>(52 total positions per bank)</td>
<td>= 10 µ&quot; (0.25 µm) Gold contact, Matte Tin on tails</td>
<td>= Guide Post (Requires -GP on mating connector)</td>
<td>= Polymide film Pick &amp; Place Fid (-026 &amp; -052 only)</td>
<td>= Tape &amp; Reel (-026, -052 only)</td>
</tr>
<tr>
<td>QRF8-RA</td>
<td>-026, -052, -078</td>
<td>-L</td>
<td>-GP</td>
<td>-K</td>
<td>-TR</td>
</tr>
<tr>
<td></td>
<td>(-GP Required)</td>
<td>= 10 µ&quot; (0.25 µm) Gold contact, Matte Tin on tails</td>
<td>= Guide Post (Requires -GP on mating connector)</td>
<td>= Polymide film Pick &amp; Place Fid (-026 &amp; -052 only)</td>
<td>= Tape &amp; Reel (-026, -052 only)</td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?QRM8-RA or samtec.com?QRF8-RA

samtec.com/QSeries

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
RUGGED HIGH-SPEED STRIPS

FEATURES & BENEFITS

Edge Rate® rugged high-speed connector strips are designed for high speed, high cycle applications, and enabled by Samtec’s signal integrity-optimized Edge Rate® contact system.

- Choice of 0.50 mm, 0.635 mm or 0.80 mm pitch
- 0.50 mm pitch system offers up to 40% PCB space savings vs. 0.80 mm pitch
- 0.635 mm pitch system with extremely slim 2.5 mm body width
- Rugged latching, locking and 360º shielding
- Up to 1.5 mm contact wipe; robust when "zippered" during unmating
- Compatible with UMPT/UMPS for power/signal flexibility

EDGE RATE® STACK HEIGHT FLEXIBILITY
(actual size in mm)

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>TOTAL PINS / PAIRS</th>
<th>INSULATOR MATERIAL</th>
<th>TERMINAL MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERX6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERMS/ERF5</td>
<td>0.50 mm</td>
<td>7-12 mm</td>
<td>20-150</td>
<td>Black LCP</td>
<td>Phosphor Bronze or BeCu (ERM5), BeCu (ERF5)</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>Yes</td>
</tr>
<tr>
<td>ERX5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERX6</td>
<td>0.635 mm</td>
<td>5 mm</td>
<td>20-120</td>
<td></td>
<td>Copper Alloy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERX8</td>
<td>0.80 mm</td>
<td>7-18 mm</td>
<td>10-200</td>
<td></td>
<td>Phosphor Bronze or BeCu (ERM8), BeCu (ERF8)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

**SERIES**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POSITIONS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERM5</td>
<td>-010, -020, -030, -040, -050, -060, -070, -075</td>
<td>-02.0 = 2 mm Body Height (ERM5 only)</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on Tail</td>
<td>-TR = Tape &amp; Reel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-04.0 = 4 mm Body Height (ERM5 only)</td>
<td>(required in callout)</td>
<td>-FR = Full Reel Tape &amp; Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-05.0 = 5 mm Body Height</td>
<td>-K = (3.50 mm) .138° DIA Polyimide Film Pick &amp; Place Pad (ERM5 –04.0 –05.0 and Lead Style only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-07.0 = 7 mm Body Height (ERF5 only &amp; Available up to 50 Pos. only)</td>
<td>-P = Plastic Pick &amp; Place Pad (ERM5 –02.0 Lead Style only; ERM5 –010 Positions and ERF5 Not Available)</td>
<td></td>
</tr>
</tbody>
</table>

**ERM5** Board Mates: ERF5

**ERF5** Board Mates: ERM5

**See complete specifications at:** samtec.com?ERM5 or samtec.com?ERF5

**MATED HEIGHT**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A (ERM5)</th>
<th>B (ERF5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-02.0</td>
<td>(4.84) .191</td>
<td>N/A</td>
</tr>
<tr>
<td>-04.0</td>
<td>(6.84) .269</td>
<td>N/A</td>
</tr>
<tr>
<td>-05.0</td>
<td>(7.84) .309</td>
<td>(4.91) .193</td>
</tr>
<tr>
<td>-07.0</td>
<td>N/A</td>
<td>(6.91) .272</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

**ERF5**

**POSITIONS PER ROW**

<table>
<thead>
<tr>
<th>POSITIONS PER ROW</th>
<th>PLATING OPTION</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>-010, -020, -030, -040, -050</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on Tail</td>
<td>-TR = Tape &amp; Reel</td>
</tr>
</tbody>
</table>

**ERF5-RA**

**Board Mates:** ERM5

View complete specifications at: samtec.com?ERF5-RA

**Note:** Some lengths, styles and options are non-standard, non-returnable.

samtec.com/EdgeRate
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

ERM6
- POSITIONS PER ROW - 01.5
- PLATING OPTION - DV - A
- OPTION - K - "X"R

-010, -020, -030, -040, -050, -060 (Standard Sizes)

- L = 10 µ" (0.25 µm)
  Gold on contact, Matte Tin on tail

-TR = Tape & Reel

-WT = Weld Tab

-L = 10 µ" (0.25 µm)

View complete specifications at: samtec.com?ERM6

ERM6 Board Mates:
 ERF6

ERM6
- POSITIONS PER ROW - 03.5
- PLATING OPTION - DV - A
- OPTION - K - "X"R

-010, -020, -030, -040, -050, -060 (Standard Sizes)

- L = 10 µ" (0.25 µm)
  Gold on contact, Matte Tin on tail

-TR = Tape & Reel

-WT = Weld Tab

-L = 10 µ" (0.25 µm)

View complete specifications at: samtec.com?ERF6

ERF6 Board Mates:
 ERM6

Notes:
Kapton pad and tape & reel packaging are standard.
Some lengths, styles and options are non-standard, non-returnable.
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

### TYPE

<table>
<thead>
<tr>
<th>ERM8</th>
<th>ERF8</th>
</tr>
</thead>
<tbody>
<tr>
<td>= Header</td>
<td>= Socket</td>
</tr>
</tbody>
</table>

### POSITIONS PER ROW

- ERM8: -050, -010, -011, -013, -020, -025, -030, -035, -040, -049, -050, -060, -070, -075, -100
- ERF8: (100 Position Only Available with ERM8-09.0 & ERF8-05.0 Lead Styles; -L or -EGP N/A)

### LEAD STYLE

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>DV</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>–L</td>
<td>= 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>–S</td>
<td>= 30 µ&quot; (0.76 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OPTIONS

- **–DS**: Differential Pair (ERM8–05.0 Lead Style with –010, –013, –025, –049 Positions only)
- **–L**: Latching (ERM8–05.0 & –09.0 Lead Styles only & –EGP Option N/A) (ERF8–05.0 Lead Style only and –L to –EGP Option N/A)
- **–EGP**: Extended Guide Post (ERM8–05.0 & ERF8–07.0 Lead Style Only & –L Option N/A)
- **–DSP**: Differential Pair with Extended Guide Post (ERM8–05.0 Lead Style with –013 and –025 Positions only)
- **–K**: Polyimide Film Pick & Place Pad (–02.0 Lead Style N/A)
- **–P**: Pick & Place Pad (ERM8 and –02.0 & -05.0 Lead Styles only)
- **–TR**: Tape & Reel
- **–FR**: Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

### "X"R

- **A**: (ERM8)
- **B**: (ERF8)

### View complete specifications at: samtec.com?ERM8

### View complete specifications at: samtec.com?ERF8

### Note:

Some lengths, styles and options are non-standard, non-returnable.
### ERM8-RA

**Board Mates:** ERF8  
**Cable Mates:** ERCD

#### Specifications
- **Positions Per Row:** 01
- **Plating Option:** D
- **Options:**
  - L: Gold on contact area, Matte Tin on tail
  - K: (6.00 mm) .236" DIA Polyimide Film Pick & Place Pad
  - TR: Tape & Reel
  - FR: Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**View complete specifications at:** samtec.com?ERM8-RA

### ERM8-EM

**Board Mates:** ERF8  
**Cable Mates:** ERCD

#### Specifications
- **Positions Per Row:** 01
- **Plating Option:** D
- **Options:**
  - L: (1.60 mm) .062" Thick PCB
  - L: Latching (Mates to ERF8 Lead Style –05.0 or –RA Only)
  - DS: Differential Pair (~013 & –025 Position only) (Hot Swap)
  - DSS: Differential Pair + Extended Guide Post Shield (~025 Position Only) (Hot Swap)

**View complete specifications at:** samtec.com?ERM8-EM

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.
### ERF8-RA

**Board Mates:**
ERM8

**Cable Mates:**
ERCD, ERDP

**Parameters:**
- **01:** Positions Per Row
- **D:** Latching
- **RA:** Tape & Reel
- **"X"R:** Full Reel Tape & Reel

**Options:**
- **L:** Gold on contact area, Matte Tin on tail
- **EGPS:** Extended Guide Post Shield

**Dimensions:**
- (5.75) .226
- (11.35) .447
- (6.25) .246

View complete specifications at: [samtec.com?ERF8-RA](http://samtec.com?ERF8-RA)

### ERF8-EM

**Board Mates:**
ERM8

**Parameters:**
- **01:** Positions Per Row
- **D:** Latching
- **EM2:** Extended Guide Post Shield
- **"X"R:** Tape & Reel

**Options:**
- **L:** Gold on contact area, Matte Tin on tail
- **EGPS:** Extended Guide Post Shield

**Dimensions:**
- (5.60) .220
- (6.80) .268
- (7.27) .296

View complete specifications at: [samtec.com?ERF8-EM](http://samtec.com?ERF8-EM)

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(0.80 mm) .0315" PITCH • SHIELDED HIGH-SPEED HEADERS & SOCKETS

**TYPE**
- **ERM8** = Shielded Terminal
- **ERF8** = Shielded Socket

**POSITIONS PER ROW**
- **-010**
- **-020**
- **-025**
- **-030**

**LEAD STYLE**
- **-02.0** = 2 mm (ERM8 with -S only)
- **-05.0** = 5 mm (ERM8 with -S & ERM8 with -EGPS & -DSS only)
- **-07.0** = 7 mm (ERF8 with -EGPS only)
- **-09.0** = 9 mm (ERM8 with -EGPS & -DSS only)

**PLATING OPTION**
- **-L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **-S** = 30 µ" (0.76 µm) Gold on contact, Matte Tin on tail

**DV**
- **-S** = Shield (Lead Styles: ERM8 –02.0 only; ERF8 –05.0 only)
- **-EGPS** = Extended Guide Post Shield (Lead Styles: ERM8 –05.0 & -09.0 only; ERF8 –07.0 only)
- **-DSS** = Differential Pair with Extended Guide Post Shield (ERM8 only, with –05.0 & -09.0 Lead Styles, –10 & –025 Pos. only)
- **-K** = Polyimide Film Pick & Place Pad (–02.0 Lead Style N/A)
- **-P** = Pick & Place Pad (ERM8 –02.0 & -05.0 Lead Styles only)

**"X"R OPTIONS**
- **-TR** = Tape & Reel
- **-FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**View complete specifications at:** samtec.com?ERM8

**ERM8-S**
Board Mates:
See "Mated Height" Chart
(Note: ERF8-S does not mate with ERM8-EGPS)

**ERF8-S**
Board Mates:
See "Mated Height" Chart
(Note: ERM8-EGPS does not mate with ERF8-S)

**View complete specifications at:** samtec.com?ERF8

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

**samtec.com/EdgeRate**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ULTRA MICRO INTERCONNECTS

SPACE SAVING DESIGNS • RUGGED HERMAPHRODITIC • ULTRA FINE PITCH

RAZOR BEAM™

0.50 mm Pitch Hermaphroditic Connectors (LSHM) ................................................................. 56-57
0.635 mm Pitch Hermaphroditic Connectors (LSS) ................................................................. 58
0.80 mm Pitch Hermaphroditic Connectors (LSEM) ................................................................. 58

MICRO BLADE & BEAM STRIPS

0.40 mm Pitch Low-Profile Strips (ST4, SS4) ......................................................................... 59
0.50 mm Pitch Low-Profile Strips (ST5, SS5, SLH, TLH) ......................................................... 60-61
FINITE PITCH
SELF MATING CONNECTORS
(0.50 mm) .0197" PITCH

FEATURES & BENEFITS
• Ten stack height options from 5.00 mm to 12.00 mm
• 0.50 mm, 0.635 mm or 0.80 mm pitches
• Audible click when mated
• Mating and unmating forces approximately 4-6x greater than typical micro pitch connectors
• Self-mating system reduces inventory cost
• Parallel, perpendicular and coplanar systems
• Shield option
• Lubricated option

ACTUAL SIZE SHOWN
SLIM BODY DESIGNS
(40 total positions each)

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>SMT COPLANARITY</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>Au or Sn over 50 μ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>LSHM: 2.0 A per pin LSS: 1.7 A per pin LSEM: 1.8 A per pin</td>
<td>(0.10 mm).004&quot; max</td>
<td>Yes</td>
</tr>
</tbody>
</table>

samtec.com/RazorBeam

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
LSHM

**NO. PINS PER ROW**

- Vertical: Specify LEAD STYLE from chart
- Right-angle:
  - 01 = Standard
  - L1 = Lubricated

**LEAD STYLE**

- F = Gold flash on contact, Matte Tin on tail
- L = 10 µ (0.25 µm) Gold on contact, Matte Tin on tail

**PLATING OPTION**

- DV = Vertical
- DH = Right-angle (Lead style –01 & –L1 only)
- RH = Reverse Right-angle (Lead style –01 & –L1 only)

**TAIL OPTION**

- S = With Shield
- N = Without Shield

**SHIELD OPTION**

- K = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad

**"X"R**

- TR = Tape & Reel
- FR = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**LEAD STYLE**

-02.5 & –03.0 (5.00) .196
-02.5 & –04.0 (6.50) .256
-03.0 & –03.0 (6.00) .236
-02.5 & –04.0 (6.50) .256
-03.0 & –04.0 (7.00) .276
-04.0 & –04.0 (8.00) .315
-02.5 & –06.0 (8.50) .335
-03.0 & –06.0 (9.00) .354
-04.0 & –06.0 (10.00) .394
-06.0 & –06.0 (12.00) .472

*Processing conditions will affect mated height.

**LEAD STYLE**

(0.50 mm) .0197" PITCH • RUGGED HERMAPHRODITIC CONNECTORS

View complete specifications at: samtec.com?LSHM

Note:

Some lengths, styles and options are non-standard, non-returnable.
(0.635 mm) .025" PITCH • RUGGED HERMAPHRODITIC CONNECTORS

**LSS** - 1

**NO. PINS PER ROW**

10, 20, 30, 40, 50

**LEAD STYLE**

Specify **LEAD STYLE** from chart

**PLATING OPTION**

- **F** = Gold flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

**DV**

- **DV**

**A**

- **A**

**OPTION**

- **K** = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad
- **TR** = Tape & Reel
- **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**LEAD STYLE**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>(4.45) .1752</td>
</tr>
<tr>
<td>.02</td>
<td>(7.45) .2933</td>
</tr>
<tr>
<td>.03</td>
<td>(5.45) .2146</td>
</tr>
</tbody>
</table>

**Processing conditions will affect mated height.**

View complete specifications at: samtec.com/LSS

(0.80 mm) .0315" PITCH • RUGGED HERMAPHRODITIC CONNECTORS

**LSEM** - 1

**NO. PINS PER ROW**

10, 20, 30, 40, 50

**LEAD STYLE**

Specify **LEAD STYLE** from chart

**PLATING OPTION**

- **F** = Gold flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

**TAIL OPTION**

- **DV** = Vertical
- **DH** = Right-angle (Lead style –01 only)

**A**

- **A**

**N**

- **N**

**K**

- **K**

**“X”R**

- **TR** = Tape & Reel
- **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**LEAD STYLE**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>N/A</td>
</tr>
<tr>
<td>.03</td>
<td>(4.45) .175</td>
</tr>
<tr>
<td>.04</td>
<td>(5.45) .215</td>
</tr>
<tr>
<td>.06</td>
<td>(7.45) .293</td>
</tr>
</tbody>
</table>

**LEAD STYLE**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01 &amp; .01</td>
<td>(6.00) .236</td>
</tr>
<tr>
<td>.01 &amp; .03</td>
<td>(7.00) .276</td>
</tr>
<tr>
<td>.03 &amp; .03</td>
<td>(8.00) .315</td>
</tr>
<tr>
<td>.01 &amp; .02</td>
<td>(9.00) .354</td>
</tr>
<tr>
<td>.02 &amp; .03</td>
<td>(10.00) .394</td>
</tr>
<tr>
<td>.02 &amp; .02</td>
<td>(12.00) .472</td>
</tr>
</tbody>
</table>

**No. of positions x**

| (0.635 mm) .025'' |
| (0.80 mm) .0315'' |

**Processing conditions will affect mated height.**

View complete specifications at: samtec.com/LSEM

samtec.com/RazorBeam

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
# Micro Blade & Beam Socket & Header

## SS4/ST4 Series

### Specifications

- **Insulator Material:** Black LCP
- **Contact Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +125 °C
- **Current Rating:** 1.6 A per pin (2 pins powered)

### Processing

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm), .004° max

### Mated Height *

<table>
<thead>
<tr>
<th>ST4 Lead Style</th>
<th>SS4 Lead Style</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.00</td>
<td>(2.85)</td>
<td>.112</td>
<td>.138</td>
</tr>
<tr>
<td>-3.50</td>
<td>(3.50)</td>
<td>.132</td>
<td>.157</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

---

Note: Some lengths, styles and options are non-standard, non-returnable.

---

samtec.com?SS4 or samtec.com?ST4

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**MICRO BLADE & BEAM SOCKET & HEADER**

(0.50 mm) .0197" PITCH • SS5/ST5 SERIES

**Specifications**

- **Insulator Material:** Black LCP
- **Contact Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +125 °C
- **Current Rating:** 1.6 A per pin (2 pins powered)

**Processing**

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm).004" max

**Mated Height**

<table>
<thead>
<tr>
<th>ST5 Lead Style</th>
<th>SS5 Lead Style</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.00</td>
<td>(4.00 mm)</td>
<td>.157&quot;</td>
<td>.177&quot;</td>
</tr>
<tr>
<td>-3.50</td>
<td>(4.50 mm)</td>
<td>.139&quot;</td>
<td>.157&quot;</td>
</tr>
<tr>
<td>-1.00</td>
<td>(3.50)</td>
<td>.121&quot;</td>
<td>.141&quot;</td>
</tr>
<tr>
<td>-1.50</td>
<td>(4.00)</td>
<td>.146&quot;</td>
<td>.166&quot;</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

**Also Available**

Other lead styles (MOQ Required)

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

samtec.com?SS5 or samtec.com?ST5
## ULTRA-LOW PROFILE HEADER & SOCKET

(0.50 mm) .0197" PITCH • SLH/TLH SERIES

### SPECIFICATIONS

**Insulator Material:**
Black Liquid Crystal Polymer

**Contact Material:**
Copper Alloy

**Plating:**
Au over 50 µ" (1.27 µm) Ni

**Current Rating:**
2.1 A per pin (2 pins powered)

**Operating Temp Range:**
-55 °C to +125 °C

### PROCESSING

**Lead–Free Solderable:**
Yes

**SMT Lead Coplanarity:**
(0.10 mm) .004” max

**Board Stacking:**
For applications requiring two or more connectors per board, contact ipg@samtec.com

---

<table>
<thead>
<tr>
<th>SLH Mates:</th>
<th>SLH</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLH</td>
<td>-010, -020, -030 (Per Row)</td>
<td>-1.50 =1.50 mm</td>
<td>-G</td>
<td>= 10 µ&quot; (0.25 µm) Gold in contact, Gold flash on tail</td>
<td>-A = Alignment Pin</td>
<td>-K = (3.00 mm) .118” DIA Polyimide Film Pick &amp; Place Pad</td>
<td></td>
</tr>
</tbody>
</table>

**No. of positions per row x**

\[(0.50) .01969 + (4.06) .160\]

---

<table>
<thead>
<tr>
<th>TLH Mates:</th>
<th>TLH</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLH</td>
<td>-010, -020, -030 (Per Row)</td>
<td>-0.50 =0.50 mm</td>
<td>-G</td>
<td>= 10 µ&quot; (0.25 µm) Gold in contact, Gold flash on tail</td>
<td>-A = Alignment Pin</td>
<td>-K = (3.00 mm) .118” DIA Polyimide Film Pick &amp; Place Pad</td>
<td></td>
</tr>
</tbody>
</table>

**No. of positions per row x**

\[(0.50) .01969 + (3.00) .118\]

---

Note:
Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**PRECISION BOARD STACKING STANDOFF**

**SO SERIES**

### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>SO</th>
<th>BOARD STACKER</th>
<th>LEAD STYLE</th>
<th>THREAD STYLE</th>
<th>01</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Material</strong></td>
<td>Aluminum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Locking Compound</strong></td>
<td>Nylon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify BOARD STACKER from chart

- **–01** = Female Thread/Press-In (-0515 thru –0865 only)
- **–02** = Male/Male Thread (-0515 and –1115 thru –2515 only)
- **–03** = Male/Female Thread (-0815 thru –2515 only)
- **–05** = Female/Female Thread (-1524 thru –2515 only)
- **–L** = –02 & –03 Lead Style thread locking compound (Leave blank for –01 Lead Style)

### INDUSTRY STANDARD SOLUTIONS

Requires Standoff SO-1524-03-01-01-L or JSOM-1524-02 for 15.24 mm or SO-2215-02-01-01-L for 22 mm board spacing. Connectors designed to not fully seat when mated. For more information on the JSOM, visit samtec.com/JSOM

<table>
<thead>
<tr>
<th>INDUSTRY STANDARD</th>
<th>INTERCONNECTS</th>
<th>TERMINAL</th>
<th>SOCKET</th>
<th>BANKS</th>
<th>STACK HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMIT™</td>
<td>ASP-129637-01</td>
<td>ASP-129646-01</td>
<td>1</td>
<td>15.24 mm</td>
<td></td>
</tr>
<tr>
<td>PC/104-Express™</td>
<td>ASP-129637-03</td>
<td>ASP-129646-03</td>
<td>3</td>
<td>15.24 mm</td>
<td></td>
</tr>
<tr>
<td>PC/104-Express™</td>
<td>ASP-129637-13</td>
<td>ASP-129646-22</td>
<td>1</td>
<td>15.24 mm</td>
<td></td>
</tr>
<tr>
<td>PC/104-Express™</td>
<td>ASP-142781-01</td>
<td>ASP-129646-01</td>
<td>1</td>
<td>22 mm</td>
<td></td>
</tr>
<tr>
<td>PC/104-Express™</td>
<td>ASP-142781-02</td>
<td>ASP-129646-02</td>
<td>2</td>
<td>22 mm</td>
<td></td>
</tr>
<tr>
<td>PC/104-Express™</td>
<td>ASP-142781-03</td>
<td>ASP-129646-03</td>
<td>3</td>
<td>22 mm</td>
<td></td>
</tr>
</tbody>
</table>

### ALSO AVAILABLE

**MOQ Required**

- Other heights
- Stainless Steel
- Locking compound removed
- Other materials and threading
- No Hardware

**Notes:**

Standoffs are designed, 0.15 mm longer than connector stack heights to allow for processing variables.

Some sizes, styles and options are non-standard, non-returnable.

<table>
<thead>
<tr>
<th>BOARD STACKER</th>
<th>A</th>
<th>BOARD STACK HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>–0515</td>
<td>(5.15) .203</td>
<td>5 mm</td>
</tr>
<tr>
<td>–0715</td>
<td>(7.15) .282</td>
<td>7 mm</td>
</tr>
<tr>
<td>–0815</td>
<td>(8.15) .321</td>
<td>8 mm</td>
</tr>
<tr>
<td>–0865</td>
<td>(8.65) .341</td>
<td>8.5 mm</td>
</tr>
<tr>
<td>–1115</td>
<td>(11.15) .439</td>
<td>11 mm</td>
</tr>
<tr>
<td>–1215</td>
<td>(12.15) .478</td>
<td>12 mm</td>
</tr>
<tr>
<td>–1524</td>
<td>(15.24) .600</td>
<td>15.09 mm</td>
</tr>
<tr>
<td>–1615</td>
<td>(16.15) .636</td>
<td>16 mm</td>
</tr>
<tr>
<td>–1890</td>
<td>(18.90) .744</td>
<td>18.75 mm</td>
</tr>
<tr>
<td>–1915</td>
<td>(19.15) .754</td>
<td>19 mm</td>
</tr>
<tr>
<td>–2515</td>
<td>(25.15) .990</td>
<td>25 mm</td>
</tr>
</tbody>
</table>

Components are to be packaged in separate bags unassembled.

samtec.com?SO

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
# HIGH-SPEED EDGE CARD SYSTEMS

SPEEDS TO 56 Gbps • RUGGED EDGE RATE® CONTACTS • VARIETY OF OPTIONS

## HIGH-SPEED EDGE CARD INTERCONNECTS

<table>
<thead>
<tr>
<th>Pitch</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.60 mm</td>
<td>0.60 mm Pitch Edge Rate® Socket (HSEC6)</td>
<td>65</td>
</tr>
<tr>
<td>0.80 mm</td>
<td>0.80 mm Pitch Rugged Edge Card Socket (HTEC8)</td>
<td>66</td>
</tr>
<tr>
<td>0.80 mm</td>
<td>0.80 mm Pitch Edge Rate® Socket (HSEC8)</td>
<td>67-70</td>
</tr>
<tr>
<td>1.00 mm</td>
<td>1.00 mm Pitch Edge Rate® Socket (HSEC1)</td>
<td>71</td>
</tr>
</tbody>
</table>

## MICRO/MINI EDGE CARD INTERCONNECTS

<table>
<thead>
<tr>
<th>Pitch</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50 mm</td>
<td>0.50 mm Pitch Micro Socket (MEC5)</td>
<td>73</td>
</tr>
<tr>
<td>0.635 mm</td>
<td>0.635 mm Pitch Micro Socket (MEC6)</td>
<td>74</td>
</tr>
<tr>
<td>0.80 mm</td>
<td>0.80 mm Pitch Micro Edge Socket (MEC8)</td>
<td>75-76</td>
</tr>
<tr>
<td>1.00 mm</td>
<td>1.00 mm Pitch Mini Edge Card Socket (MEC1)</td>
<td>77-78</td>
</tr>
<tr>
<td>1.27 mm</td>
<td>1.27 mm Pitch Mini Edge Card Socket (MECF)</td>
<td>79</td>
</tr>
<tr>
<td>2.00 mm</td>
<td>2.00 mm Pitch Mini Edge Card Socket (MEC2)</td>
<td>79</td>
</tr>
</tbody>
</table>

## PCI EXPRESS® INTERCONNECTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express® &amp; Low-Profile PCI Express® Sockets (PCIE)</td>
<td>81</td>
</tr>
<tr>
<td>PCI Express® 4.0 &amp; 5.0 Sockets (PCIE-G4 &amp; PCIE-G5)</td>
<td>82</td>
</tr>
<tr>
<td>1.00 mm Pitch High-Speed Through Board Socket (SAL1)</td>
<td>83</td>
</tr>
</tbody>
</table>
HIGH-SPEED EDGE CARD SYSTEMS
0.60 mm, 0.80 mm and 1.00 mm PITCH

FEATURES & BENEFITS
• 56 Gbps PAM4 performance
• PCI Express® 3.0, 4.0 and 5.0
• Edge Rate® contacts optimized for signal integrity performance and cycle life
• Up to 200 positions available
• Vertical, right-angle, edge mount, pass-through orientations
• Power/signal combo, press-fit tails, rugged weld tabs, locks and latches
• Mating cable assemblies available

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PITCH</th>
<th>TOTAL POSITIONS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEC6</td>
<td>0.60 mm</td>
<td>56-168</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>-55 °C to +125 °C</td>
<td>0.8 A (12 pins)</td>
<td>300 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>HTEC8</td>
<td>0.80 mm</td>
<td>40-200</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>-55 °C to +125 °C</td>
<td>3.0 A (2 pins)</td>
<td>215 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>HSEC8</td>
<td>0.80 mm</td>
<td>18-200</td>
<td>Black LCP</td>
<td>BeCu</td>
<td>-55 °C to +125 °C</td>
<td>2.8 A (2 pins)</td>
<td>240 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>HSEC1</td>
<td>1.00 mm</td>
<td>20-140</td>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>2.2 A (2 pins)</td>
<td>215 VAC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
HSEC6 Card Mates: (1.60 mm) .062" card

**STANDARDS**

SFF-TA-1002
Visit www.samtec.com/standards for more information.

Note:
Polyimide film pick & place pad is standard.
Some sizes, styles and options are non-standard, non-returnable.

---

View complete specifications at: samtec.com/HSEC6-DV

samtec.com/EdgeCard

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
HTEC8
Card Mates:
(1.60 mm) .062" thick card

HTEC8
POSITIONS PER ROW

- 1

20, 30, 40, 50, 60, 80, 100

PLATING OPTION

- L
  = 10 µ (0.25 µm)
  Gold on contact area, Matte Tin on tail

- S
  = 30 µ (0.76 µm)
  Gold on contact area, Matte Tin on tail

DV

OPTION

- Leave blank for no alignment pin
- A
  = Alignment Pin
- WT
  = Weld Tab
  (-A option required)

OTHER OPTIONS

- K
  = (7.00 mm) .276’ DIA
  Polymide Pick & Place Pad

- TR
  = Tape & Reel
  (20 thru 60 positions only)
  (Leave blank for tray)

- FR
  = Full Reel Tape & Reel
  (must order max. quantity per reel, contact Samtec for quantity breaks)
  (20 thru 60 positions only)
  (Leave blank for tray)

Note:
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/HTEC8

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
### Specifications

**HSEC8-DV**

Card Mates:
- (1.60 mm) .062" card
- (2.36 mm) .093" card

HSC8-

Cable Mates:
- ECDP

**Positions Per Row**

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>09†</td>
<td>(4.50)</td>
<td>(11.80)</td>
</tr>
<tr>
<td>13†</td>
<td>(6.10)</td>
<td>(15.00)</td>
</tr>
<tr>
<td>25†</td>
<td>(6.10)</td>
<td>(24.60)</td>
</tr>
<tr>
<td>37†</td>
<td>(18.10)</td>
<td>(34.20)</td>
</tr>
<tr>
<td>40†</td>
<td>(18.90)</td>
<td>(36.60)</td>
</tr>
<tr>
<td>49†</td>
<td>(22.90)</td>
<td>(43.80)</td>
</tr>
<tr>
<td>50†</td>
<td>(22.90)</td>
<td>(44.60)</td>
</tr>
<tr>
<td>60†</td>
<td>(26.90)</td>
<td>(52.60)</td>
</tr>
<tr>
<td>70†</td>
<td>(26.90)</td>
<td>(60.60)</td>
</tr>
<tr>
<td>80†</td>
<td>(26.90)</td>
<td>(68.60)</td>
</tr>
<tr>
<td>100†</td>
<td>(26.90)</td>
<td>(84.60)</td>
</tr>
</tbody>
</table>

**Positions Per Row**

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>09†</td>
<td>(4.50)</td>
<td>(11.80)</td>
</tr>
<tr>
<td>13†</td>
<td>(6.10)</td>
<td>(15.00)</td>
</tr>
<tr>
<td>25†</td>
<td>(6.10)</td>
<td>(24.60)</td>
</tr>
<tr>
<td>37†</td>
<td>(18.10)</td>
<td>(34.20)</td>
</tr>
<tr>
<td>40†</td>
<td>(18.90)</td>
<td>(36.60)</td>
</tr>
<tr>
<td>49†</td>
<td>(22.90)</td>
<td>(43.80)</td>
</tr>
<tr>
<td>50†</td>
<td>(22.90)</td>
<td>(44.60)</td>
</tr>
<tr>
<td>60†</td>
<td>(26.90)</td>
<td>(52.60)</td>
</tr>
<tr>
<td>70†</td>
<td>(26.90)</td>
<td>(60.60)</td>
</tr>
<tr>
<td>80†</td>
<td>(26.90)</td>
<td>(68.60)</td>
</tr>
<tr>
<td>100†</td>
<td>(26.90)</td>
<td>(84.60)</td>
</tr>
</tbody>
</table>

**Note:**
- Some sizes, styles, and options are non-standard, non-returnable.

**View complete specifications at:** samtec.com?HSEC8-DV
**HSEC8-RA**

**Card Mates:**
(1.60 mm) .062" thick card, HSC8

**Cable Mates:**
ECDP

**HSEC8-EM**

**Card Mates:**
(1.60 mm) .062" thick card, HSC8

**Cable Mates:**
ECDP

**Note:**
Some sizes, styles and options are non-standard, non-returnable.

**PLATING OPTION**

<table>
<thead>
<tr>
<th>Position</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>(43.80) 1.724</td>
<td>(18.90) 0.744</td>
<td>(36.60) 1.441</td>
</tr>
<tr>
<td>50</td>
<td>(51.80) 2.039</td>
<td>(22.90) 0.902</td>
<td>(44.60) 1.756</td>
</tr>
<tr>
<td>60</td>
<td>(59.80) 2.345</td>
<td>(26.90) 1.059</td>
<td>(52.60) 2.071</td>
</tr>
<tr>
<td>40-BL</td>
<td>(51.30) 2.020</td>
<td>(18.90) 0.744</td>
<td>(36.60) 1.441</td>
</tr>
<tr>
<td>50-BL</td>
<td>(59.30) 2.335</td>
<td>(22.90) 0.902</td>
<td>(44.60) 1.756</td>
</tr>
<tr>
<td>60-BL</td>
<td>(67.30) 2.650</td>
<td>(26.90) 1.059</td>
<td>(52.60) 2.071</td>
</tr>
</tbody>
</table>

**Positions per Row**

- **A**: (18.90) .744
- **B**: (22.90) .902
- **C**: (36.60) 1.441

**Other Options**

- **EM2**
  = (1.60 mm) .062" thick PCB

**View complete specifications at:** samtec.com/HSEC8-EM

**View complete specifications at:** samtec.com/HSEC8-RA

**Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.**
### HSEC8-PE

**Card Mates:**
(1.60 mm) .062" thick card, HSC8

<table>
<thead>
<tr>
<th>HSEC8</th>
<th>1</th>
<th>POSITIONS PER ROW</th>
<th>CARD THICKNESS</th>
<th>PLATING OPTION</th>
<th>DV</th>
<th>A</th>
<th>PE</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.60 mm) .062&quot; thick card</td>
<td>01</td>
<td>-L</td>
<td>-S</td>
<td>-K</td>
<td>-TR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10, 13, 20</td>
<td>(1.60 mm) .062&quot; thick card</td>
<td>10 µ (0.25 µm) Gold on contact area, Matte Tin on tail</td>
<td>10 µ (0.25 µm) Gold on contact area, Matte Tin on tail</td>
<td>30 µ (0.76 µm) Gold on contact area, Matte Tin on tail</td>
<td>(5.50 mm) .217&quot; DIA Polyimide Film Pick &amp; Place Pad</td>
<td>Tape &amp; Reel Packaging</td>
</tr>
</tbody>
</table>

**Note:** Some sizes, styles and options are non-standard, non-returnable.
### HSEC8-DP
Card Mates:
(1.60 mm) .062” thick card

<table>
<thead>
<tr>
<th>NUMBER OF PAIRS</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>0.685</td>
<td>0.591</td>
<td>0.559</td>
<td>0.171</td>
<td>0.360</td>
<td>0.094</td>
<td>0.472</td>
</tr>
<tr>
<td>12</td>
<td>0.874</td>
<td>0.748</td>
<td>0.748</td>
<td>0.265</td>
<td>0.454</td>
<td>0.283</td>
<td>0.661</td>
</tr>
<tr>
<td>16</td>
<td>1.063</td>
<td>0.969</td>
<td>0.937</td>
<td>0.360</td>
<td>0.549</td>
<td>0.378</td>
<td>1.039</td>
</tr>
<tr>
<td>20</td>
<td>1.252</td>
<td>1.157</td>
<td>1.126</td>
<td>0.454</td>
<td>0.643</td>
<td>0.381</td>
<td>1.606</td>
</tr>
<tr>
<td>32</td>
<td>1.819</td>
<td>1.724</td>
<td>1.693</td>
<td>0.738</td>
<td>0.927</td>
<td>0.378</td>
<td>2.740</td>
</tr>
<tr>
<td>56</td>
<td>2.953</td>
<td>2.858</td>
<td>2.827</td>
<td>1.305</td>
<td>1.494</td>
<td>1.228</td>
<td>2.740</td>
</tr>
</tbody>
</table>

#### Notes:
- Some sizes, styles and options are non-standard, non-returnable.
- View complete specifications at: samtec.com/HSEC8-DP

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
HSEC1-DV
Card Mates:
(1.60 mm) .062" thick card

POSITIONS PER ROW
-010, -020, -030, -040, -050, -060, -070

CARD THICKNESS
-01
= (1.60 mm) .062" thick card

PLATING OPTION
-L
= 10 µ" (0.25 µm) Gold on contact area, Matte Tin on tail
-S
= 30 µ" (0.76 µm) Gold on contact area, Matte Tin on tail

DV
-00
=A or -WT required in callout
-A
= Alignment Pin (Not available with -WT)
-S
= Tape & Reel (Required for 10-60 positions)
-WT
= Weld tab (Not available with -A)

OTHER OPTIONS
-K
= (7.01 mm) .276" DIA Polyimide Film
Pick & Place Pad
-TR
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

(No. of Positions x (1.00) .03937 + (6.50) .256
(No. of Positions x (1.00) .03937 + (9.50) .374

POSITIONS PER ROW

A
B
C (with -A)
D (with -WT)

-010
(11.30) .445
N/A
(13.25) .522
(14.50) .571

-020
(21.30) .839
N/A
(23.25) .915
(24.50) .965

-030
(31.30) 1.232
N/A
(33.25) 1.309
(34.50) 1.358

-040
(44.30) 1.744
(19.15) .754
(46.25) 1.821
(47.50) 1.870

-050
(54.30) 2.138
(24.15) .951
(56.25) 2.215
(57.50) 2.264

-060
(64.30) 2.531
(29.15) 1.148
(66.25) 2.608
(67.50) 2.657

-070
(74.30) 2.925
(34.15) 1.344
(76.25) 3.002
(77.50) 3.051

Note:
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?HSEC1-DV

samtec.com/EdgeCard

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
MICRO EDGE CARD SYSTEMS
0.50 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm PITCH

FEATURES & BENEFITS
• Up to 56 Gbps PAM4
• PCI Express® 4.0 (MEC5 Series)
• Solutions for .062” (1.60 mm), and .093” (2.36 mm) thick cards
• Choice of pitch: 0.50 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm
• Vertical, right-angle, edge mount
• Available in surface mount and through-hole

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PITCH</th>
<th>TOTAL POSITIONS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC5</td>
<td>0.50 mm</td>
<td>60-200</td>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>1.5 A (2 pins)</td>
<td>125 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>MEC6</td>
<td>0.635 mm</td>
<td>20-140</td>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>2.4 A (2 pins)</td>
<td>195 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>MEC8</td>
<td>0.80 mm</td>
<td>20-140</td>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>1.8 A (4 pins)</td>
<td>185 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>MEC1</td>
<td>1.00 mm</td>
<td>20-140</td>
<td>Black LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>2.2 A (2 pins)</td>
<td>250 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>MECF</td>
<td>1.27 mm</td>
<td>10-100</td>
<td>Black/Natural LCP</td>
<td>BeCu</td>
<td>-55 °C to +125 °C</td>
<td>3.5 A (2 pins)</td>
<td>280 VAC</td>
<td>Yes</td>
</tr>
<tr>
<td>MEC2</td>
<td>2.00 mm</td>
<td>10-100</td>
<td>Black/Natural LCP</td>
<td>BeCu</td>
<td>-55 °C to +125 °C</td>
<td>3.5 A (2 pins)</td>
<td>238 VAC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**MEC5-DV**

Card Mates:
(1.60 mm) .062” thick card with standard board tolerance

<table>
<thead>
<tr>
<th>No. of Positions</th>
<th>(0.50)</th>
<th>.0197 + (10.38)</th>
<th>.409</th>
</tr>
</thead>
</table>

**MEC5-RA**

Card Mates:
(1.60 mm) .062” thick card with standard board tolerance

<table>
<thead>
<tr>
<th>No. of Positions</th>
<th>(0.50)</th>
<th>.0197 + (10.38)</th>
<th>.409</th>
</tr>
</thead>
</table>

**Positions Per Row**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>23.38</td>
<td>17.10</td>
<td>11.17</td>
</tr>
<tr>
<td>40</td>
<td>28.38</td>
<td>22.10</td>
<td>16.09</td>
</tr>
<tr>
<td>50</td>
<td>35.88</td>
<td>29.60</td>
<td>21.76</td>
</tr>
<tr>
<td>60</td>
<td>40.88</td>
<td>34.60</td>
<td>26.83</td>
</tr>
<tr>
<td>70</td>
<td>45.88</td>
<td>39.60</td>
<td>31.90</td>
</tr>
<tr>
<td>80</td>
<td>50.88</td>
<td>44.60</td>
<td>36.97</td>
</tr>
</tbody>
</table>

**Note:**
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?MEC5-DV](samtec.com?MEC5-DV)

View complete specifications at: [samtec.com?MEC5-RA](samtec.com?MEC5-RA)
MEC6 - 1

**POSITIONS PER ROW** - 02

**PLATING OPTION** - DV - A - OPTION

- **L** = 10 µ" (0.25 µm)
  Gold on contact, Matte Tin on tail

- **K** = (5.50 mm) 2.17" DIA Polymide Pick & Place Pad

Leave blank for Tray Packaging

- **TR** = Tape & Reel

- **FR** = Full Reel Tape & Reel
  (must order max. quantity per reel; contact Samtec for quantity breaks)

**MEC6-DV**

Card Mates:
(1.60 mm) .062" thick card

**MEC6-RA**

Card Mates:
(1.60 mm) .062" thick card

**View complete specifications at:** samtec.com?MEC6-DV

**View complete specifications at:** samtec.com?MEC6-RA

---

**Note:**
Some sizes, styles and options are non-standard, non-returnable.
MEC8-VP

Card Mates:
(1.60 mm) .062” thick card

MEC8-DV

Card Mates:
(1.60 mm) .062” thick card

View complete specifications at: samtec.com?MEC8-DV

View complete specifications at: samtec.com?MEC8-VP

Note:
Some sizes, styles and options are non-standard, non-returnable.
### MEC8-EM

**Card Mates:**
(1.60 mm) .062” thick card

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>(18.90)</td>
<td>(36.60)</td>
</tr>
<tr>
<td>50</td>
<td>(22.90)</td>
<td>(44.60)</td>
</tr>
<tr>
<td>60</td>
<td>(26.90)</td>
<td>(52.60)</td>
</tr>
<tr>
<td>70</td>
<td>(30.90)</td>
<td>(60.60)</td>
</tr>
</tbody>
</table>

Note: Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?MEC8-EM

---

### MEC8-RA1

**Card Mates:**
(1.60 mm) .062” thick card

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>(6.10)</td>
<td>(15.00)</td>
</tr>
<tr>
<td>25</td>
<td>(18.10)</td>
<td>(34.20)</td>
</tr>
<tr>
<td>37</td>
<td>(18.90)</td>
<td>(36.60)</td>
</tr>
<tr>
<td>40</td>
<td>(22.90)</td>
<td>(43.80)</td>
</tr>
<tr>
<td>50</td>
<td>(44.60)</td>
<td>(52.60)</td>
</tr>
</tbody>
</table>

Leave blank for Tray Packaging

- **TR** = Tape & Reel
- **FR** = Full Reel Tape & Reel (must order max. quantity per reel, contact Samtec for quantity breaks)

View complete specifications at: samtec.com?MEC8-RA

---

### MEC8

**Card Mates:**
(1.60 mm) .062” thick card

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 13, 20, 25, 30, 37, 40, 49, 50</td>
<td>(0.80) .0315 + (7.80) .307</td>
<td>(8.50) .335</td>
</tr>
</tbody>
</table>

- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

View complete specifications at: samtec.com?MEC8-EM

---

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### MEC1

**positions per row**

- 05, 08, 20, 30, 40, 50, 60, 70

**plating option**

- **F** = Gold flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **D**
- **NP** = No Polarization (05, 08, 20 & 30 positions only)
- **NP** = No Polarization (05, 08, 20 & 30 positions only)
- **A** = Alignment Pin metal or plastic at Samtec discretion
- **K** = (7.87 mm) .310" DIA Polyimide film Pick & Place Pad
- **TR** = Tape & Reel (05-60 only)
- **FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (05-60 only)

**other options**

- **R**

---

### Positions Per Row

<table>
<thead>
<tr>
<th>Positions Per Row</th>
<th>Polarized Positions (No Contact)</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>3, 4</td>
</tr>
<tr>
<td>08</td>
<td>5, 6</td>
</tr>
<tr>
<td>20</td>
<td>15, 16</td>
</tr>
<tr>
<td>30</td>
<td>21, 22</td>
</tr>
<tr>
<td>40</td>
<td>31, 32</td>
</tr>
<tr>
<td>50</td>
<td>41, 42</td>
</tr>
<tr>
<td>60</td>
<td>31, 32, 63 &amp; 64</td>
</tr>
<tr>
<td>70</td>
<td>53, 54, 115 &amp; 116</td>
</tr>
</tbody>
</table>

---

**Note:**

Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com/MEC1](http://samtec.com/MEC1)

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(1.00 mm) .0394" PITCH • RIGHT-ANGLE/EDGE MOUNT EDGE CARD SOCKET

MEC1 - 1 POSITIONS PER ROW - 02 PLATING OPTION - D - RA1 - NP - SL - "X"R

05, 08, 20, 30, 40, 50, 60, 70

- F = Gold Flash on contact, Matte Tin on tail
- L = 10 µ (0.25 µm) Gold on contact, Matte Tin on tail

MEC1-RA
Card Mates:
(1.60 mm) .062" thick card

(No. of Positions + 2) x (1.00) .03937 + (12.45) .490

View complete specifications at: samtec.com?MEC1-RA

MEC1-EM
Card Mates:
(1.60 mm) .062" thick card

(No. of Positions + 2) x (1.00) .03937

View complete specifications at: samtec.com?MEC1-EM

Note:
Some sizes, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(1.27 mm) .050" PITCH • MINI EDGE CARD SOCKET

**MECF**

**Card Mates:**
- (1.60 mm) .062" thick card
- (2.36 mm) .093" thick card

**Positions per Row**
- -05, -08, -20, -30, -40, -50

**Card Thickness**
- -01 = (1.60 mm) .062" thick card
- -02 = (2.36 mm) .093" thick card

**Plating Option**
- -L = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

**DV Option**
- -WT = Weld Tabs (Standard on -02 card thickness, optional on -01 card thickness)
- -K = Polyimide film pick & place pad (¬"X"R only)

**"X"R Option**
- Leave blank for tubes

View complete specifications at: samtec.com?MECF-DV

---

(2.00 mm) .0787" PITCH • MINI EDGE CARD SOCKET

**MEC2**

**Card Mates:**
- (1.60 mm) .062" thick card
- (2.36 mm) .093" thick card

**MEC2-DV**

**Card Mates:**
- (1.60 mm) .062" thick card
- (2.36 mm) .093" thick card

**Positions per Row**
- -05, -08, -20, -30, -40, -50

**Card Thickness**
- -01 = (1.60 mm) .062" thick card
- -02 = (2.36 mm) .093" thick card

**Plating Option**
- -L = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

**DV Option**
- -DV = Vertical Surface Mount
- -TH1 = Through-hole

**"X"R Option**
- Leave blank for tubes

View complete specifications at: samtec.com?MEC2-DV & samtec.com?MEC2-TH

---

Note:
Some sizes, styles and options are non-standard, non-returnable.
**PCI EXPRESS® EDGE CARD SOCKETS**  
(1.00 mm) .0394" PITCH

**FEATURES & BENEFITS**
- 1.00 mm pitch
- Supports 1, 4, 8 and 16 PCI Express® links
- PCIE® 3.0 Solution (PCIE)
- PCIE® 4.0 Solution with low-profile design for space savings (PCIE-LP)
- PCIE® 4.0 with slim body design (PCIE-G4)
- PCIE® 5.0 Solution with differential pair signaling (PCIE-G5)
- Vertical, right-angle and edge mount
- Mates with .062" (1.60 mm) thick cards
- Alignment pin and weld tab options

**KEY SPECIFICATIONS**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>TOTAL PINS (LANES)</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
<th>PCIE® COMPATIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIE</td>
<td>36 (x1), 64 (x4), 98 (x8), 164 (x16) -TH = Black Nylon -EMS2 &amp; -TH = LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>2.4 A (2 pins)</td>
<td>215 VAC</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>PCIE-LP</td>
<td>36 (x1), 64 (x4), 98 (x8), 164 (x16)</td>
<td>LCP</td>
<td>Phosphor Bronze</td>
<td>-55 °C to +125 °C</td>
<td>2.1 A (2 pins)</td>
<td>215 VAC</td>
<td>4.0</td>
</tr>
<tr>
<td>PCIE-G4</td>
<td>36 (x1), 64 (x4), 98 (x8), 164 (x16)</td>
<td>LCP</td>
<td>Copper Alloy</td>
<td>-55 °C to +125 °C</td>
<td>2.2 A (2 pins)</td>
<td>300 VAC</td>
<td>4.0</td>
</tr>
<tr>
<td>PCIE-G5</td>
<td>36 (x1), 64 (x4), 98 (x8), 164 (x16)</td>
<td>LCP</td>
<td>Copper Alloy</td>
<td>-55 °C to +125 °C</td>
<td>3.2 A (2 pins)</td>
<td>235 VAC</td>
<td>5.0</td>
</tr>
</tbody>
</table>
## PCIE

### Card Mates:
1.60 mm
.062” card

### Cable Mates:
PCIE

### Number of Positions
-036, -064, -098, -164

### PLating Option
- **F**
  - Gold flash on contact, Tin on tail

### Tail Option
- **EMS2**
  - Edge Mount

### Options
- **-036**
- **-064**
- **-098**
- **-164**

### POSITIONS A

<table>
<thead>
<tr>
<th>Positions</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>-036 (x1)</td>
<td>(25.00) .984</td>
</tr>
<tr>
<td>-064 (x4)</td>
<td>(39.00) 1.535</td>
</tr>
<tr>
<td>-098 (x8)</td>
<td>(56.00) 2.205</td>
</tr>
<tr>
<td>-164 (x16)</td>
<td>(89.00) 3.504</td>
</tr>
</tbody>
</table>

---

## PCIE-LP

### Card Mates:
1.60 mm
.062” card

### Cable Mates:
PCIE

### Number of Lanes
-01, -04, -08, -16

### PLating Option
- **F**
  - Gold Flash on contact, Matte Tin on tail

### Tail Option
- **WT**
  - Weld Tab

### Options
- **-WT** (For -16 lanes only leave blank for Tray Packaging)
- **-K**
  - Polyimide film Pick & Place Pad

### Packaging
- **-TR**
  - Tape & Reel (Available with -01, -04, -08 lanes only)

### Number of Lanes

<table>
<thead>
<tr>
<th>Number of Lanes</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(26.60) 1.047</td>
</tr>
<tr>
<td>-04</td>
<td>(40.60) 1.598</td>
</tr>
<tr>
<td>-08</td>
<td>(57.60) 2.268</td>
</tr>
<tr>
<td>-16</td>
<td>(90.60) 3.567</td>
</tr>
</tbody>
</table>

---

Note:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?PCIE](samtec.com?PCIE)

View complete specifications at: [samtec.com?PCIE-LP](samtec.com?PCIE-LP)

---

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.
PCIE-G5
Card Mates:
(1.60 mm) .062" card

PCIE-G4
Card Mates:
(1.60 mm) .062" card

PCIE-G5-04-01-X-DP-A SHOWN

PCIE-G5-04-01-X-DP-A-WT SHOWN

(1.00 mm) .0394" PITCH • PCI EXPRESS® 5.0 SOCKET

PCIE - G5 - NUMBER OF LANES - 01 - PLATING OPTION - DP - A - OPTION

-01, -04, -08, -16
-F = Gold flash on contact, Matte Tin on tail
-S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail

-01 (24.40) .961 (26.70) 1.051
-04 (38.40) 1.512 (40.70) 1.602
-08 (55.40) 2.181 (57.70) 2.272
-16 (88.40) 3.480 (90.70) 3.571

-WT = Weld Tab

View complete specifications at: samtec.com?PCIE-G5

PCIE-G4-04-01-X-DP-A SHOWN

PCIE-G4-04-01-X-DP-A-WT SHOWN

(1.00 mm) .0394" PITCH • PCI EXPRESS® 4.0 SOCKET

PCIE - G4 - NUMBER OF LANES - 01 - PLATING OPTION - DV - OPTION

-01, -04, -08, -16
-F = Gold flash on contact, Matte Tin on tail
-S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail

-01, -04, -08, -16
-F = Gold flash on contact, Matte Tin on tail
-S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail

View complete specifications at: samtec.com?PCIE-G4

Note: Some lengths, styles and options are non-standard, non-returnable.

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

PRELIMINARY
**HIGH-SPEED THROUGH BOARD SOCKET**

(1.00 mm) .0394" PITCH • SAL1 SERIES

---

**SAL1**

Card Mates:
(1.60 mm) .062" or (2.36 mm) .093" card

**SPECIFICATIONS**

- **Insulator Material:** Black LCP
- **Contact Material:** BeCu
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -65 °C to +125 °C
- **Current Rating:** 2.9 A per pin

**PROCESSING**

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max

**OTHER SOLUTION**

Card pass-through option. See HSEC8-PE Series.

---

**APPLICATIONS**

Pass-Through

Low Profile

Same side mount

---

Notes:

- While optimized for 50 Ω applications, this connector with alternative signal/ground patterns may also perform well in certain 75 Ω applications.
- Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?SAL1

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## METROLOGY

<table>
<thead>
<tr>
<th></th>
<th>MEC5</th>
<th>HSEC6</th>
<th>MEC6</th>
<th>MEC8</th>
<th>HSEC8</th>
<th>HSEC8-DP</th>
<th>HTEC8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch</td>
<td>0.50 mm</td>
<td>0.60 mm</td>
<td>0.635 mm</td>
<td>0.80 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Pin Counts</td>
<td>60-300</td>
<td>56, 84, 140, 168</td>
<td>20-140</td>
<td>18-200</td>
<td>16, 24, 32, 40, 64, 112</td>
<td>40-200</td>
<td></td>
</tr>
<tr>
<td>Linear Density (circuits/mm)</td>
<td>3.30</td>
<td>2.35, 2.36, 2.46, 2.47</td>
<td>2.67</td>
<td>2.19</td>
<td>2.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Card Thickness</td>
<td>.062&quot; &amp; .093&quot;</td>
<td>.062&quot;</td>
<td>.062&quot;</td>
<td>.062&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientations Available</td>
<td>V, RA</td>
<td>V, RA, EM, PF</td>
<td>V, RA, EM, PT</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MECHANICAL PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>SAL1</th>
<th>MEC1</th>
<th>HSEC1</th>
<th>PCIE-LP</th>
<th>PCIE</th>
<th>MECF</th>
<th>MEC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Normal Force per Circuit (GRF)</td>
<td>50</td>
<td>96</td>
<td>100</td>
<td>60</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wipe (mm)</td>
<td>1.10</td>
<td>1.20</td>
<td>2.00</td>
<td>2.10</td>
<td>2.00</td>
<td>2.48</td>
<td>1.91</td>
</tr>
<tr>
<td>Mating/Unmating Force per Circuit (GRF)</td>
<td>30/25</td>
<td>46</td>
<td>50/30</td>
<td>40/20</td>
<td>TBD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ELECTRICAL PERFORMANCE (LOW FREQUENCY)

<table>
<thead>
<tr>
<th></th>
<th>SAL1</th>
<th>MEC1</th>
<th>HSEC1</th>
<th>PCIE-LP</th>
<th>PCIE</th>
<th>MECF</th>
<th>MEC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Carrying Capacity (Amps)</td>
<td>1.5 (2 pins)</td>
<td>0.8 (12 pins)</td>
<td>2.4 (2 pins)</td>
<td>1.8 (4 pins)</td>
<td>2.8 (2 pins)</td>
<td>2.7 (2 pins)</td>
<td>3.0 (2 pins)</td>
</tr>
<tr>
<td>Working Voltage (VAC)</td>
<td>125</td>
<td>300</td>
<td>195</td>
<td>185</td>
<td>240</td>
<td>235</td>
<td>215</td>
</tr>
<tr>
<td>PCIe® Compatibility</td>
<td>4.0</td>
<td>5.0</td>
<td>2.0</td>
<td>2.0</td>
<td>4.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### ELECTRICAL PERFORMANCE (HIGH FREQUENCY)

<table>
<thead>
<tr>
<th></th>
<th>SAL1</th>
<th>MEC1</th>
<th>HSEC1</th>
<th>PCIE-LP</th>
<th>PCIE</th>
<th>MECF</th>
<th>MEC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed to be Impedance Matched</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel Performance Metric (Gbps)</td>
<td>56 PAM4</td>
<td>14</td>
<td>25</td>
<td>28</td>
<td>56 PAM4</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Characteristic Impedance (Single-Ended, 30 ps rise time, Ohms)</td>
<td>42-55</td>
<td>85</td>
<td>46-58</td>
<td>41-56</td>
<td>43-58</td>
<td>Differential Pair</td>
<td></td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>SAL1</th>
<th>MEC1</th>
<th>HSEC1</th>
<th>PCIE-LP</th>
<th>PCIE</th>
<th>MECF</th>
<th>MEC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durability (Cycles)</td>
<td>100</td>
<td>25</td>
<td>100</td>
<td>1,000</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG Tested</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Au is the only interface finish available. Recommended operating environment is a controlled environment.

All products are tested to a standard amplitude and frequency; this parameter gives an average resistance change as a result of that standardized test.
HIGH-SPEED BACKPLANE SYSTEMS

HIGH-DENSITY • DESIGN FLEXIBILITY • HIGH RELIABILITY

86-91 ExaMAX®
ExaMAX® Vertical & Right-Angle Headers (EBTM) .......................................................... 87
ExaMAX® Right-Angle Receptacles (EBTF-RA) .......................................................... 88
ExaMAX® Direct-Mate Orthogonal Headers (EBDM-RA) .................................................. 88
Power Modules for ExaMAX® (EPTT, EPTS) .......................................................... 89
Guidance Modules for ExaMAX® (EGBM, EGBF) .................................................. 89
ExaMAX® Cable Systems (EBCM, EBCF, EBCB, EBCL) .................................................. 90-91

92-94 XCede® HD
XCede® HD Backplane Headers & Receptacles (HDTM, HDTF) .................................................. 92-94
XCede® HD Power Modules (HPTS) .......................................................... 94
ExaMAX®

HIGH-SPEED BACKPLANE CONNECTOR & CABLE SYSTEMS
(2.00 mm) .0787" PITCH

FEATURES & BENEFITS

ExaMAX® High-Speed Backplane System
• Meets a variety of industry specifications
• Exceeds OIF CEI-28G-LR specification for 28 Gbps standards
• 24 - 72 pair designs (4 and 6 pairs; 6, 8, 10 and 12 columns)
• Wafer design increases isolation for reduced crosstalk
• Press-fit tails provide a reliable electrical connection

ExaMAX® High-Speed Backplane Cable Assemblies
• 30 & 34 AWG Eye Speed® Ultra Low Skew Twinax Cable offers improved signal integrity, increased flexibility and routability
• Highly customizable with modular flexibility
• Reduce costs due to lower layer counts
• Multiple end options available

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 mm</td>
<td>LCP</td>
<td>Copper Alloy</td>
<td>Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +105 °C</td>
<td>4.2 A per pin</td>
</tr>
</tbody>
</table>

samtec.com/ExaMAX

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
### EBMT-NO. OF PAIRS PER COLUMN - COLUMN PITCH - PLATING - ORIENTATION - GUIDANCE - KEYING

- **EBTM**
- **NO. OF PAIRS PER COLUMN**
- **COLUMNS**
- **COLUMN PITCH**
- **PLATING**
- **ORIENTATION**
- **1**
- **GUIDANCE**
- **KEYING**

#### EBTM-VA Board Mates: EBTF-RA
Cable Mates: EBCF

#### EBTM-RA Board Mates: EBTF-RA
Cable Mates: EBCF

#### KEYING (-VT)
- **-L / -R**
  - **-A**
  - **-B**
  - **-C**
  - **-D**
  - **-E**
  - **-F**
  - **-G**
  - **-H**

#### KEYING (-RA)
- **-L / -R**
  - **-A**
  - **-B**
  - **-C**
  - **-D**
  - **-E**
  - **-F**
  - **-G**
  - **-H**

### Notes:
Some lengths, styles and options are non-standard, non-returnable. ExaMAX® is a registered trademark of AFCI.

View complete specifications at: [samtec.com/ExaMAX](samtec.com/ExaMAX)
EBDM-PAIRS - COLUMNS - 2.0 - PLATING - RA - 1 - GUIDANCE - KEYING

EBDM-RA
Board Mates: EBTM, EBDM-RA
Cable Mates: EBCF

EBTF-RA
Board Mates: EBTM, EBDM-RA
Cable Mates: EBCM

Notes:
Some lengths, styles and options are non-standard, non-returnable.
ExaMAX® is a registered trademark of AFCI.

View complete specifications at: samtec.com?EBTF-RA
samtec.com/ExaMAX

View complete specifications at: samtec.com?EBDM-RA

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**ExaMAX® POWER MODULES**

### (2.00 mm) .0787" PITCH TERMINAL POWER MODULES

<table>
<thead>
<tr>
<th>EPTS</th>
<th>POSITIONS PER ROW</th>
<th>PLATING</th>
<th>HEIGHT</th>
<th>D</th>
<th>ORIENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mates with: EPTS</td>
<td>–2</td>
<td>–P = Palladium with flash Gold on contacts, Matte Tin on tails</td>
<td>–11.5</td>
<td>–RA</td>
<td>= Right-Angle</td>
</tr>
</tbody>
</table>

- **–2**: 4 Positions
- **–P**: Palladium with flash Gold on contacts, Matte Tin on tails
- **–11.5**: (11.50 mm) .453"
- **–RA**: Right-Angle

Visit website for dimensions.

### (2.00 mm) .0787" PITCH SOCKET POWER MODULES

<table>
<thead>
<tr>
<th>EPTS</th>
<th>POSITIONS PER ROW</th>
<th>PLATING</th>
<th>D</th>
<th>ORIENTATION</th>
<th>PIN STAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mates with: EPTT</td>
<td>–2</td>
<td>–P = Palladium with flash Gold on contacts, Matte Tin on tails</td>
<td>–VT = Vertical</td>
<td>–RA = Right-Angle</td>
<td>–01 thru –06</td>
</tr>
</tbody>
</table>

- **–2**: 4 Positions
- **–P**: Palladium with flash Gold on contacts, Matte Tin on tails
- **–VT**: Vertical
- **–RA**: Right-Angle
- **–01 thru –06**: (-RA available with -04 only. Visit website for dimensions.)


**ExaMAX® GUIDE MODULES**

### TERMINAL GUIDE MODULES

<table>
<thead>
<tr>
<th>EGBM</th>
<th>ORIENTATION</th>
<th>THREADING</th>
<th>LENGTH</th>
<th>CARD SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mates with: EGBF</td>
<td>–VT = Vertical</td>
<td>Leave Blank for -RA</td>
<td>Leave Blank for -RA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–RA = Right-Angle</td>
<td>–1 = External</td>
<td>–18.3 = 18.30 mm (.720&quot;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>–2 = Internal (25.3 Length only)</td>
<td>–25.3 = 25.30 mm ( .996&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

- **–VT**: Vertical
- **–RA**: Right-Angle
- **–18.3**: 18.30 mm (.720")
- **–25.3**: 25.30 mm (.996")
- **–20**: 20 mm (.787")


### SOCKET GUIDE MODULES

<table>
<thead>
<tr>
<th>EGBF</th>
<th>ORIENTATION</th>
<th>CARD SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mates with: EGBM</td>
<td>–RA = Right-Angle</td>
<td>–20 = 20 mm (.787&quot;)</td>
</tr>
</tbody>
</table>

- **–RA**: Right-Angle
- **–20**: 20 mm (.787")

Notes:
Some lengths, styles and options are non-standard, non-returnable.
ExaMAX® is a registered trademark of AFCI.

samtec.com/ExaMAX

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ExaMAX®

(2.00 mm) .0787" PITCH • BACKPLANE CABLES

EBCM — GAUGE/ SIG. MAP — PAIRS PER COLUMN — COLUMNS — END 1 PIN — END 1 GUIDE — END 1 KEY — CABLE LENGTH — END 2 PIN — END 2 GUIDE — END 2 KEY

Cable Header

-1 = 34 AWG/Tx to Rx Sig. Map
-2 = 30 AWG/Tx to Rx Sig. Map
-3 = 34 AWG/1:1 Sig. Map
-4 = 30 AWG/1:1 Sig. Map

EBCM Mates with:
EBCF, EBTM, EBCB

EBCF — GAUGE/ SIG. MAP — PAIRS COLUMN — COLUMNS — END 1 PIN — END 1 GUIDE — END 1 KEY — CABLE LENGTH — END 2 PIN — END 2 GUIDE — END 2 KEY

Cable Socket

-1 = 34 AWG/Tx to Rx Sig. Map
-2 = 30 AWG/Tx to Rx Sig. Map
-3 = 34 AWG/1:1 Sig. Map
-4 = 30 AWG/1:1 Sig. Map

EBCF Mates with:
EBCM, EBTM, EBCB

Notes:
Some lengths, styles and options are non-standard, non-returnable.
ExaMAX® is a registered trademark of AFCI.

View complete specifications at: samtec.com/EBCM

View complete specifications at: samtec.com/EBCF

samtec.com/ExaMAX

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### ExaMAX® Panel Retention Brackets & Latching Shrouds

**EBCL**

**Vertical Latching Shroud**

**NO. OF PAIRS**

<table>
<thead>
<tr>
<th>NO. OF PAIRS</th>
<th>NO. OF COLUMNS</th>
<th>MOUNTING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–4, –6</td>
<td>–04, –06, –08, –10, –12, –14, –16</td>
<td>(Leave Blank for Standard)</td>
</tr>
<tr>
<td></td>
<td>–1, –2, –4 (-2 &amp; –4 banks available with –08, –10, –12, –14, –16 columns only)</td>
<td>= Side Lugs (=1 Bank Only)</td>
</tr>
</tbody>
</table>

**Notes:**

Some lengths, styles and options are non-standard, non-returnable.

ExaMAX® is a registered trademark of AFCI.

### EBCB

**Panel Retention Bracket**

**NO. OF PAIRS**

<table>
<thead>
<tr>
<th>NO. OF PAIRS</th>
<th>NO. OF COLUMNS</th>
<th>NO. OF BANKS</th>
<th>MOUNTING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–6</td>
<td>–04, –06, –08, –10, –12, –14, –16</td>
<td>–1, –2, –4</td>
<td>= Side Lugs (=1 Bank Only)</td>
</tr>
</tbody>
</table>

View complete specifications at: [samtec.com?EBCB](samtec.com?EBCB)

### EBCM

Cable Assembly Locks into EBCB Retention Bracket

**NO. OF PAIRS**

<table>
<thead>
<tr>
<th>NO. OF PAIRS</th>
<th>NO. OF COLUMNS</th>
<th>MOUNTING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–4, –6</td>
<td>–04, –06, –08, –10, –12, –14, –16</td>
<td>–1, –2, –4</td>
</tr>
</tbody>
</table>

View complete specifications at: [samtec.com?EBCM](samtec.com?EBCM)

### EBCF

**NO. OF PAIRS**

<table>
<thead>
<tr>
<th>NO. OF PAIRS</th>
<th>NO. OF COLUMNS</th>
<th>MOUNTING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–4, –6</td>
<td>–04, –06, –08, –10, –12, –14, –16</td>
<td>–1, –2, –4</td>
</tr>
</tbody>
</table>

View complete specifications at: [samtec.com?EBCF](samtec.com?EBCF)
FEATURES & BENEFITS

• Small form factor and modular design provides significant space-savings and flexibility
• High-performance system
• Up to 84 differential pairs per linear inch
• 3, 4 and 6-pair designs on 4, 6 and 8 columns
• Integrated power, guidance, keying and end walls available
• 85 Ω and 100 Ω options
• Combine any configuration of modules to create one integrated receptacle (BSP Series); corresponding terminal modules are individually mounted to the backplane
• Press-fit extraction and insertion tool options; please visit samtec.com/tooling for details

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.80 mm</td>
<td>LCP</td>
<td>Phosphor Bronze (HDTM Series)</td>
<td>Au or Sn over 50 µ (1.27 µm) Ni</td>
<td>-40 °C to + 105 °C (HDTX Series)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Copper Alloy (HDTF &amp; HPTS Series)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MODULAR DESIGN

Signal, Power & Keying / Guidance options can be customized in any configuration

HIGH-DENSITY, SMALL FORM FACTOR

(Both shown with six 4-pair, 8 column receptacles)

XCede® HD
Up to 84 pairs per linear inch

Traditional Backplane
Up to 76 pairs per linear inch

samtec.com/XCedeHD

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

-3, -4, -6 = Pairs Per Column
-04, -06, -08 =

-1 = (.4495 mm) .0177" Drill

-2 = (.5511 mm) .0217" Drill

-0 = Open (No Walls)

-1 = Left

-2 = Right

-4 = Left Polarizing (–4 Pairs N/A)

-5 = Right Polarizing (–4 Pairs N/A)

-4 or -5 = Polarizing Only; Leave Blank for No Guidance

-1 = 3 mm Wipe Signal / 4 mm Wipe Ground

-2 = 2 mm Wipe Signal / 4 mm Wipe Ground

-3 = 3 mm Wipe Signal / 3 mm Wipe Ground

-4 = 2 mm Wipe Signal / 3 mm Wipe Ground

-5 = 2 mm Wipe Signal / 2 mm Wipe Ground

-4 or -5 = Polarizing Only; Leave Blank for No Keying

-1 thru -H = Position of Flat on Key (See Table)

-A thru -H = Position of Flat on Key (See Table)

NO. OF COLUMNS

<table>
<thead>
<tr>
<th>PAIRS PER COLUMN</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>-03</td>
<td>(15.10) .594</td>
<td>(13.15) .518</td>
</tr>
<tr>
<td>-04</td>
<td>(18.70) .736</td>
<td>(16.75) .659</td>
</tr>
<tr>
<td>-06</td>
<td>(25.90) 1.020</td>
<td>(23.95) .943</td>
</tr>
</tbody>
</table>

KEYING

-<L / R>

-<A> -<B> -<C> -<D> -<E> -<F> -<G> -<H>

Notes:
Some lengths, styles and options are non-standard, non-returnable.
XCeDe® is a registered trademark of Amphenol.

View complete specifications at: samtec.com/HDTM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**Xcede HD**

*(1.80 mm) .071” PITCH • HIGH-DENSITY BACKPLANE RECEPTACLE*

**HDTF**
- **PAIRS PER COLUMN**
  -3, –4, –6
- **NO. OF COLUMNS**
  -04, –06, –08
- **PLATING**
  –S = 30 µ" (0.76 µm) Gold on Contact Area, Matte Tin on Tail
- **RA**
- **WAFERS**
- **IMPEDANCE**
  –LC = Standard
  –HS = High-Speed
  –100 = 100 Ω
  –085 = 85 Ω

**HDTF Board Mates:**
HDTM

**ALSO AVAILABLE**
Power and keying/guidance modules also are available but require a single customizable BSP product. Contact HSBP@samtec.com.

**View complete specifications at:** samtec.com?HDTF

---

**HPTS**
- **BODY HEIGHT**
  Based on Pair Count of Signal Modules (HDTF Series).
  -3 = For use with 3 pair HDTF Series
  -4 = For use with 4 pair HDTF Series
  -6 = For use with 6 pair HDTF Series
- **PLATING**
  –S = 30 µ" (0.76 µm) Gold on Contact Area, Matte Tin on Tail
- **ORIENTATION**
  –VT = Vertical

**HPTS Mates with:**
BSP (See HDTF for more information.)

**View complete specifications at:** samtec.com?HPTS

---

Notes:
Some lengths, styles and options are non-standard, non-returnable.
Xcede® is a registered trademark of Amphenol.
HIGH-SPEED CABLE & I/O SYSTEMS

UP TO 112 Gbps PAM4 • FLYOVER® TECHNOLOGY • ULTRA LOW SKEW TWINAX • MICRO COAX CABLE

FLYOVER® SYSTEMS

- Flyover® QSFP Cable Systems (FQSFP, FQSFP-DD) ................................................................. 98-101
- NovaRay® Extreme Density & Performance Systems (NVAC, NVAM-C) ........................................ 102-103
- AcceleRate® Slim Cable Systems (ARC6, ARF6) ........................................................................ 104-105
- Si-Fly™ Low-Profile, High-Density Cable System (CPC, CPI) .................................................. 106-107
- Copper FireFly™ Cable Systems (ECUE, PCUE, UECS, UCC8) ................................................ 108-110

COAX & TWINAX

- Edge Card Cables (FEDP, FCDP, ECDP) ................................................................................... 111-112
- Twinax Cable Systems (HQDP, EQDP, ERDP) ........................................................................... 113-114
- Razor Beam™ Hermaphroditic Coax Cable System (HLCD) ..................................................... 115
- Coax Cables (HQCD, EQCD, ERCD) .......................................................................................... 116-117
- SEARAY™ & SEARAY™ 0.80 mm Cables (SEAC, ESCA) .......................................................... 118-119
- PCI Express® System (PCIEC) .................................................................................................... 120
- Cost-Effective Cable System (FCF8, FCS8) ............................................................................... 121

HIGH-SPEED I/O

- Eye Speed® Cable Systems (HDLSP, HD16, EPLSP, ER18-RA) .................................................. 122-123
- SFP+ Passive Jumpers (SFPE, MECT) ......................................................................................... 124
- USB 2.0 (USB, USBR) .................................................................................................................. 125-126
Samtec Flyover® technology breaks the constraints of traditional signaling substrate and hardware offerings by routing signals via ultra low skew twinax cable versus through lossy PCB. This results in a cost-effective, high-performance and heat efficient answer to the challenges of 56 Gbps bandwidths and beyond.

ULTRA LOW SKEW TWINAX CABLE TECHNOLOGY
- Ideal for 28 – 112+ Gbps applications
- Tight coupling between signal conductors
- Ultra low skew twinax < 3.5 ps/meter (intrapair)
- Improved signal integrity and eye pattern opening
- Increased bandwidth and reach

PERFORMANCE & COST ADVANTAGES
- 28 - 56 Gbps NRZ and beyond
- Simplified board layout
- Less expensive PCB materials, fewer PCB layers
- Eliminates expensive re-timers

THERMAL IMPROVEMENT

SUPPORT
Fully integrated Technology Centers for full system optimization from Silicon-to-Silicon, including Samtec’s High-Speed Cable Group.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
CABLE SPECIFICATIONS

ULTRA LOW SKEW TWINAX CABLE

Samtec’s proprietary co-extruded Eye Speed® twinax cable technology eliminates the performance limitations and inconsistencies of individually extruded dielectric twinax cabling; improving signal integrity, bandwidth and reach for high-performance system architectures.

- Micro cellular dielectric extrusion
- Critical dimensions measured at every dielectric spool
- Inline laser and CAPAC devices for capacitance monitoring and diameter control
- In-process stats summary sheet for Cpk acceptance

<table>
<thead>
<tr>
<th>NOMINAL PERFORMANCE SPECIFICATIONS</th>
<th>28 AWG</th>
<th>30 AWG</th>
<th>32 AWG</th>
<th>34 AWG</th>
<th>36 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 GHz (28G NRZ/56G PAM4) 0.25 m</td>
<td>-1.0</td>
<td>-1.2</td>
<td>-1.5</td>
<td>-1.8</td>
<td>-2.2</td>
</tr>
<tr>
<td>1.00 m</td>
<td>-4.1</td>
<td>-4.7</td>
<td>-5.9</td>
<td>-7.5</td>
<td>-8.9</td>
</tr>
<tr>
<td>28 GHz (56G NRZ/112G PAM4) 0.25 m</td>
<td>-1.5</td>
<td>-1.8</td>
<td>-2.2</td>
<td>-2.7</td>
<td>-3.2</td>
</tr>
<tr>
<td>1.00 m</td>
<td>-6.1</td>
<td>-7.1</td>
<td>-8.7</td>
<td>-10.9</td>
<td>-13.0</td>
</tr>
</tbody>
</table>

Density / Flexibility
- Good
- Good
- Better
- Best
- Best

Eye Speed® Ultra Low Skew Twinax Cable is available in engineered impedance configurations of 85 Ω, 92 Ω and 100 Ω.

MICRO COAX CABLE

- Foaming introduces air voids for signal to travel faster
- Solid extrusion of foamed dielectric provides a constant and more durable construction
- Lighter weight and smaller size with higher bandwidth capabilities at longer lengths
- 26 - 38 AWG cable available
- Choice of signal conductor, shield and FEP dielectric to meet performance and cost specifications

<table>
<thead>
<tr>
<th>NOMINAL PERFORMANCE SPECIFICATIONS</th>
<th>30 AWG</th>
<th>32 AWG</th>
<th>34 AWG</th>
<th>36 AWG</th>
<th>38 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 GHz (10 Gbps) 0.25 m IL (dB)</td>
<td>-0.9</td>
<td>-1.0</td>
<td>-1.3</td>
<td>-2.2</td>
<td>-2.6</td>
</tr>
<tr>
<td>1.00 m</td>
<td>-3.4</td>
<td>-3.3</td>
<td>-6.0</td>
<td>-6.9</td>
<td>-8.5</td>
</tr>
<tr>
<td>10 GHz (20 Gbps) 0.25 m IL (dB)</td>
<td>-1.4</td>
<td>-1.6</td>
<td>-2.2</td>
<td>-3.5</td>
<td>-4.0</td>
</tr>
<tr>
<td>1.00 m</td>
<td>-5.1</td>
<td>-5.5</td>
<td>-9.0</td>
<td>-10.7</td>
<td>-12.7</td>
</tr>
</tbody>
</table>

Density / Flexibility
- Good
- Better
- Better
- Best
- Best

Eye Speed® Micro Coax Cable is available in engineered impedance configurations of 50 Ω and 75 Ω.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
QSFP28 and QSFP-DD systems utilize Samtec Flyover® technology to route data above lossy PCB, simplifying board layout and extending signal reach. The modular design enables optimized systems that improve heat management, increase signal integrity performance, build in scalability for future upgrades and reduces costs by creating a multifunction board.

**FEATURES & BENEFITS**

QSFP28 and QSFP-DD systems utilize Samtec Flyover® technology to route data above lossy PCB, simplifying board layout and extending signal reach. The modular design enables optimized systems that improve heat management, increase signal integrity performance, build in scalability for future upgrades and reduces costs by creating a multifunction board.

**FLYOVER® QSFP28 SYSTEM**
- 4 Channels (x4 bidirectional, 8 differential pairs)
- ~100 Gbps 28G NRZ aggregate
  (~200 Gbps 56G PAM4; 400 Gbps 112G PAM4)
- Compatible with all MSA QSFP pluggables
- Heat dissipation: ~3.5 W/cable
- Eye Speed® 30 or 34 AWG twinax cable
- Multiple end 2 options for design flexibility
- Evaluation Kits available (REF-205303-X.XX-XX and REF-200471-X.XX-XX), visit samtec.com/kits

**FLYOVER® QSFP DOUBLE DENSITY**
- 8 Channels (x8 bidirectional, 16 differential pairs)
- ~200 Gbps 28G NRZ aggregate
  (~400 Gbps 56G PAM4; 800 Gbps 112G PAM4)
- Belly–to–belly mating for maximum density
- Backward compatible with QSFP modules
- Heat dissipation: ~7+ W/cable
- Variety of end 2 options
- Evaluation Kits available (REF-205605-X.XX-XX and REF-203423-X.XX-XX), visit samtec.com/kits

**Roadmap: Flyover® QSFP-DD 800G**

Samtec is developing Flyover® solutions for 800G including:
- Single to multiple ganged ports
- Belly-to-belly and mezzanine stack configurations
- Contact HDR@samtec.com for more information.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLYOVER® QSFP28 CABLE ASSEMBLY

**FQSFP**
- **LEAD STYLE**
  -01
  = 10 Low-Speed, 8 Pairs High-Speed
  
- **CABLE LENGTH**
  -“XX.X”
  = Length in inches
  04.0” (101.6 mm) minimum
  
- **PLATING**
  -L
  = 10 µ" (0.25 µm)
  Gold over
  50 µ" (1.27 µm)
  Ni on contact area,
  Matte Tin on tail
  
- **CONTACT TYPE**
  -PF
  = Press-fit
  
- **END OPTION**
  –03
  = ECUE
  –04
  = ARC6-8

---

**Notes:**
- Some sizes, styles and options are non-standard, non-returnable.

---

**HEAT SINKS**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>HEAT SINK HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-QSFP-P1-01</td>
<td>(4.20 mm) .165”</td>
</tr>
<tr>
<td>HS-QSFP-P1-02</td>
<td>(6.50 mm) .256”</td>
</tr>
<tr>
<td>HS-QSFP-P1-03</td>
<td>(13.50 mm) .531”</td>
</tr>
<tr>
<td>HS-QSFP-P1-04</td>
<td>(1.50 mm) .059”</td>
</tr>
</tbody>
</table>

For Light Pipe, add -LP to the end of part number.
View complete specifications at samtec.com?HS-QSFP

**LIGHT PIPES**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>NO. OF PORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP-FQSFP-1</td>
<td>1 pipe</td>
</tr>
<tr>
<td>LP-FQSFP-2</td>
<td>2 pipes</td>
</tr>
<tr>
<td>LP-FQSFP-4</td>
<td>4 pipes</td>
</tr>
</tbody>
</table>

View complete specifications at samtec.com?LP-FQSFP

---

**View complete specifications at:**
- samtec.com?FQSFP & samtec.com?QSFP

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLYOVER® QSFP DOUBLE DENSITY

FQSFP - DD - LEAD STYLE - FOOTPRINT - CABLE LENGTH - END 2 OPTION

-01 = 20 Low-Speed, 16 Pairs High-Speed

-A = Primary

-B = Secondary (Belly-to-Belly only)

-“XX.X” = Length in inches 04.0” (101.6 mm) minimum

-3 = ARC6-16

Note:
Some sizes, styles and options are non-standard, non-returnable.

OAL = CABLE LENGTH + (17.27) 0.68

View complete specifications at: samtec.com?FQSFP-DD

TOOLING
Press-fit: CAT-PT-FQSFP-DD-01

Additional end options such as NovaRay® available; contact HDR@samtec.com
CAGE & HEAT SINK FOR FQSFP-DD

**QSFP-DD**

- **STACK**
  - 1 = Single Stack
- **NO. OF PORTS**
  - 1 = One Port
  - 3 = Three Ports
- **EMI PANEL OPTION**
  - S = Spring Fingers
- **FLYOVER**
  - F = Flyover

**HS–QSFP–DD–P1–2 SHOWN**

**TOOLING**

Press-fit: CAT-PT-FQSFP-DD-02

View complete specifications at: samtec.com?QSFP-DD

**HS–QSFP–DD–P1–2 SHOWN**

**HEAT SINK STYLE**

- P1 = Pin (Aluminum)

**HEAT SINK HEIGHT**

- 1 = (4.20 mm) .165" height
- 2 = (6.50 mm) .256" height
- 3 = (13.50 mm) .531" height

View complete specifications at: samtec.com?HS-QSFP-DD

**Note:**
Some sizes, styles and options are non-standard, non-returnable.
112 Gbps PAM4 per channel
- 4.0 Tbps aggregate data rate - 9 IEEE 400G channels
- Innovative, fully shielded differential pair design enables extremely low crosstalk (to 40 GHz) and tight impedance control
- 112 differential pairs per square inch
- 34 AWG ultra-low skew twinax cable
- 92 Ω solution addresses both 85 Ω and 100 Ω applications
- Industry leading aggregate data rate density - 2x the data rate in 60% of the space
- 8 to 32 differential pairs; up to 72+ pairs in development
- Panel I/O solution in development

---

**FEATURES & BENEFITS**

<table>
<thead>
<tr>
<th>Aggregate Data Rate (NRZ)</th>
<th>448 Gbps</th>
<th>672 Gbps</th>
<th>896 Gbps</th>
<th>1344 Gbps</th>
<th>1792 Gbps</th>
<th>4032 Gbps*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bank</td>
<td>2 Bank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 Bank*</td>
</tr>
<tr>
<td>2 Row</td>
<td>3 Row</td>
<td>4 Row</td>
<td>2 Row</td>
<td>3 Row</td>
<td>4 Row</td>
<td>6 Row*</td>
</tr>
<tr>
<td>8 Pairs</td>
<td>12 Pairs</td>
<td>16 Pairs</td>
<td>24 Pairs</td>
<td>32 Pairs</td>
<td>72 Pairs*</td>
<td></td>
</tr>
</tbody>
</table>

*In development

---

Two reliable points of contact guaranteed
BGA attach for density and optimized trace breakout region

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**EXTREME DENSITY & PERFORMANCE SYSTEM**

<table>
<thead>
<tr>
<th>NVAC</th>
<th>STYLE</th>
<th>CABLE STYLE</th>
<th>NO. OF ROWS</th>
<th>NO. OF BANKS</th>
<th>CABLE LENGTH</th>
<th>01</th>
<th>PIN OUT</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-DP</td>
<td>= 4 pairs per wafer</td>
<td>-34 AWG, 92 Ω Cable</td>
<td>-2 – 2 Rows</td>
<td>-1 – 1 Bank</td>
<td>“XX.X” (152.4 mm) 06.0” minimum</td>
<td>-1 = Pin A01 to Pin AN</td>
<td>-L = Latch</td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td>= 34 AWG, 100 Ω Cable</td>
<td>-3 – 3 Rows</td>
<td>-2 – 2 Banks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-3</td>
<td>= 34 AWG, 92 Ω Cable</td>
<td>-4 – 4 Rows</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NVAC**

**Board Mates:**

**NVAM-C**

Notes:
Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

View complete specifications at: [samtec.com?NVAC](http://samtec.com?NVAC)

---

<table>
<thead>
<tr>
<th>NVAM</th>
<th>STYLE</th>
<th>NO. OF ROWS</th>
<th>NO. OF BANKS</th>
<th>02.0</th>
<th>PLATING OPTIONS</th>
<th>SOLDER TYPE</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-DP</td>
<td>= 4 pairs per wafer</td>
<td>-1 – 1 Bank</td>
<td>-2 – 2 Banks</td>
<td>-S  = 30 µ” (0.76 µm) Gold on contact area, Matte Tin on solder tail</td>
<td>-2 = Lead-Free Solder Charge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-02</td>
<td>= 2 Rows</td>
<td>-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-03</td>
<td>= 3 Rows</td>
<td>-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-04</td>
<td>= 4 Rows</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NVAM-C**

**Cable Mates:**

**NVAC**

Notes:
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?NVAM-C](http://samtec.com?NVAM-C)

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SLIM, DIRECT ATTACH CABLE ASSEMBLIES
(0.635 mm) .025" PITCH

FEATURES & BENEFITS

- Slimmest cable assembly in the industry - 7.6 mm width
- High-density 2-row design
- 8 and 16 differential pair configurations (24 pair in development)
- 34 AWG, 100 Ω Eye Speed® ultra low skew twinax cable
- Mating board level socket (ARF6 Series) features standard rugged weld tabs for increased stability on the PCB
- Rugged metal latching and shielding
- Supports 56 Gbps PAM4 (28 Gbps NRZ) applications
- Utilizes Samtec’s Flyover® Technology to simplify board layout and extend signal reach

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>CABLE</th>
<th>SIGNAL ROUTING</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.635 mm) .025&quot;</td>
<td>34 AWG Eye Speed® ultra low skew twinax</td>
<td>100 Ω Differential</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 μ&quot; (1.27 μm) Ni</td>
<td>-40 °C to +125 °C</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**ARC6**

**Board Mates:**
ARC6

**Notes:**
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

View complete specifications at: samtec.com?ARC6

**ARF6**

**Cable Mates:**
ARC6

**Notes:**
Tape & Reel packaging and K-Dot are standard.
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?ARF6

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.

-24 PRELIMINARY
112 Gbps PAM4, LOW-PROFILE HIGH-DENSITY CABLE SYSTEM

FEATURES & BENEFITS

- Ultra-high density configuration adjacent to the IC package
- Up to 16 pairs in an incredibly low 3.4 mm profile
- An extremely low profile allows Si-Fly™ connectors to reside under heat sinks or other cooling hardware
- Co-packaged interconnect option eludes the BGA and routes signals from the silicon package through a long-reach cable, supporting 5x the signal reach of traditional PCB solutions
- Extreme channel performance enabling 25.6 TB aggregate with a path to 51.2 TB
- 112 Gbps PAM4 per lane

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>CABLE</th>
<th>SIGNAL ROUTING</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 AWG ultra low skew twinax</td>
<td>92 Ω</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
</tr>
</tbody>
</table>

Roadmap:
Co-packaged interconnect configuration for advanced 112G+ data rate requirements

8.4 mm minimum height required for mating

In development: Rugged latching configuration provides a secure connection directly adjacent to the IC package for increased signal integrity performance

samtec.com/Si-Fly

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 0.6 mm CO-PACKAGED CABLE & INTERCONNECT

**CPC**
- **STYLE**
  - `-01`
    - = 8 Pairs
  - `-1`
    - = 34 AWG ultra low skew twinax cable
- **CABLE STYLE**
  - `-1``
    - = Wire Length in Inches
    - `06.0*` (152.4 mm) minimum
- **CABLE LENGTH**
  - `-02`
    - = CPC to CPC
  - `-1`
    - = Pin 1 to Pin 16
  - `-2`
    - = Pin 1 to Pin 1
- **END 2**
- **WIRING OPTION**

**CPC**

Board Mates:
- CPI

**Notes:**
- Latching configuration not shown. Currently in development.
- Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

View complete specifications at: [samtec.com?CPI](samtec.com?CPI)

---

**CPI**
- **NO OF POSITIONS**
  - `-025`
    - (Per Row)
    - (8 Differential Pairs)
  - `-01`
    - = Surface Mount
  - `-02`
    - = Overhang Mount
- **LEAD STYLE**
- **ROW**
  - `-1`
    - = 1 Row
  - `-2`
    - = 2 Row
- **PLATING OPTION**
  - `-H`
    - = 30 µ" (0.76 µm)
    - Gold on contact area, Tin on tail
  - `-2`
    - = Lead-Free Solder Ball
  - `-1`
    - = Surface Mount
- **SOLDER TYPE**
- **WELD TAB**

**CPI**

Cable Mates:
- CPC

**Note:**
- Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?CPI](samtec.com?CPI)
FEATURES & BENEFITS

- Pin compatible with optical FireFly™ using the same connector system
- Data connection is taken “off board” for easier routing
- Low-cost solution for seamless integration of new and existing designs
- Low-profile housing for space savings
- x4 bidirectional or x12 unidirectional
- Variety of end 2 termination options

Standard Copper (ECUE)
- 14 Gbps
- 100 Ω, 34 AWG or 36 AWG Eye Speed® twinax cable

Optimized Copper (ECUE-2)
- 28 Gbps card design
- 100 Ω, 34 AWG Eye Speed® ultra low skew twinax cable
- Optimized for use with connector UEC5-2

PCI Express®-Over-FireFly™ Copper (PCUE)
- PCIe® 4.0
- 100 Ω, 34 AWG Eye Speed® ultra low skew twinax cable
- Optimized for use with connector UEC5-2

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO OF PAIRS</th>
<th>ASSEMBLY LENGTH</th>
<th>CABLE TYPE</th>
<th>END 2 OPTION</th>
<th>WIRING OPTION</th>
<th>DATA RATE</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECUE</td>
<td>–08</td>
<td>–“XXX”</td>
<td>–T1</td>
<td>–FF</td>
<td>–01</td>
<td>–1</td>
<td>–D1</td>
</tr>
<tr>
<td></td>
<td>= Eight Pair</td>
<td>= Assembly Length in Centimeters (007 cm to 999 cm)</td>
<td>= 36 AWG twinax (–12 pairs only)</td>
<td>= FireFly™ (Mates with UEC5/UCC8)</td>
<td>= Pin A1 to Pin A19</td>
<td>= 14 Gbps (–T1 or –T2 only)</td>
<td>Leave blank for standard FireFly™</td>
</tr>
<tr>
<td></td>
<td>–T1</td>
<td></td>
<td>–T2</td>
<td>–FF</td>
<td>–02</td>
<td>–2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= Twelve Pair</td>
<td></td>
<td>= 34 AWG twinax (–08 pairs only)</td>
<td>–FF (Mates with UEC5/UCC8)</td>
<td>= Pin A1 to Pin B1</td>
<td>= 28 Gbps (–T3 only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–T3</td>
<td>= 34 AWG ultra low skew twinax (–08 pairs only)</td>
<td>–FF (Mates with UEC5/UCC8)</td>
<td>–FF (Mates with UEC5/UCC8)</td>
<td>–FF (Mates with UEC5/UCC8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- All FireFly™ designs, specifications and components are preliminary and subject to change without notice.
- Cable lengths longer than 150 cm (59.06") are not supported with S.I. test data.

View complete specifications at: samtec.com?ECUE

<table>
<thead>
<tr>
<th>SERIES</th>
<th>SPEED</th>
<th>NO. OF CHANNELS</th>
<th>CABLE LENGTH</th>
<th>END 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCUE</td>
<td>–G4</td>
<td>–04</td>
<td>–“XXX”</td>
<td>–FF</td>
</tr>
<tr>
<td></td>
<td>= Gen 4 Speed</td>
<td>= 8 pairs</td>
<td>= Overall Length in Centimeters (010 cm to 999 cm)</td>
<td>= FireFly™ (Mates with UEC5/UCC8)</td>
</tr>
</tbody>
</table>

Notes:
- Supports PCIe® sideband signals.
- Two additional low speed channels compatible with PCUO or custom usage.
- Decoupling capacitors in-line with signals on PCB.

View complete specifications at: samtec.com?PCUE

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**RUGGED MICRO FLYOVER® SOCKET SYSTEM**

**UEC5**

- **NO. OF POSITIONS**
  -019 (Per Row)

- **DATA RATE**
  -1 = Up to 16 Gbps
  -2 = 28 Gbps+

- **PLATING OPTION**
  -H = 30 µ” (0.76 µm)
  Gold on contact, Gold flash on tail
  (-1 Data Rate only)

- **WELD TAB**
  -1 = Through-hole
  -2 = Surface Mount

- **OPTION**
  -A = Alignment Pin
  (Available with Data Rate –1 only)

- **PACKAGING**
  Leave blank for Tape & Reel

**Board Mates:**
ECUE, ECUO, PCUO, PCUE, ETUO

**UEC5-019-2-X-D-RA-1**

**UEC5-019-1-X-D-RA-1-A**

*Note: PCB footprints are not interchangeable for –1 and –2 data rate versions.*

View complete specifications at: samtec.com?UEC5-1 & samtec.com?UEC5-2

---

**UCC8**

- **NO. OF POSITIONS**
  -010

- **PLATING OPTION**
  -H = 30 µ” (0.76 µm)
  Gold on contact, Gold flash on tail

- **WELD TAB**
  -1 = Through-hole

- **PACKAGING**
  Leave blank for Tape & Reel

**FR** = Full Reel Tape & Reel

(must order max. quantity per reel; contact Samtec for quantity breaks)

**Board Mates:**
ECUE, ECUO, PCUO, PCUE, ETUO

**UCC8**

- **PLATING OPTION**
  -H = 30 µ” (0.76 µm)
  Gold on contact, Gold flash on tail

**Note:** Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?UCC8

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
HIGH-SPEED EDGE CARD CABLE & SOCKET
(0.50 mm) .0197” PITCH • FEDP/FCDP SERIES

### FEDP
- NO. OF PAIRS
- CABLE LENGTH
- END 1
- END 2
- CABLE TYPE

### FCDP
- NO. OF PAIRS
- PLATING OPTION
- ROW
- OPTION

#### SPECIFICATIONS

**Cable:**
- 34 AWG Eye Speed® ultra low skew twinax

**Signal Routing:**
- 100 Ω

**Operating Temp Range:**
- -40 °C to +125 °C

**Current Rating:**
- 1.3 A per pin (2 pins powered)

**Contact Material:**
- Copper Alloy

**Insulator Material:**
- Black LCP

**Plating:**
- Au or Sn over 50 µ” (1.27 µm) Ni

**Shield Material:**
- Copper Alloy

**Current Rating:**
- 1.3 A per pin (2 pins powered)

**Note:**
- Some sizes, styles and options are non-standard, non-returnable.

### Note:
- For speeds up to 28G NRZ/56G PAM4, FEDP must be paired with FQSFP and FQSFP-DD. Contact hdr@samtec.com for more information.
- Some sizes, styles and options are non-standard, non-returnable.

---

#### FEDP
- **Mates:** FCDP-DV, FCDP-RA

#### FCDP
- **Mates:** FEDP

---

#### Cable & Socket
- **Pitch:** .0197” (0.50 mm)
- **Contact & Socket:** FEDP/FCDP Series

---

**Contact & Socket:** samtec.com?FEDP, samtec.com?FCDP-DV or samtec.com?FCDP-RA

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ECDP
Mates:
HSEC8 (–L2 option),
HSEC8 (–BL option)

SPECIFICATIONS
Cable:
30 AWG twinax cable
Plating:
Edge Card = ENIG,
3-10 microinches
Operating Temp Range:
-25 °C to +105 °C
Current Rating:
2.3 A per pin
(2 adjacent pins powered)
Impedance:
100 Ω Differential
Bend Radius:
(3.18 mm) .125"
Pinout Map:
See web address below

<table>
<thead>
<tr>
<th>NO. OF PAIRS</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>-04</td>
<td>(20.85) .821</td>
</tr>
<tr>
<td>-08</td>
<td>(24.05) .947</td>
</tr>
<tr>
<td>-16</td>
<td>(33.66) 1.325</td>
</tr>
<tr>
<td>-32</td>
<td>(52.86) 2.081</td>
</tr>
</tbody>
</table>

OAL = Wire Length + (16.89) .665

Notes:
- Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder
- Some lengths, styles and options are non-standard, non-returnable.

CABLE CONNECTOR

<table>
<thead>
<tr>
<th>CABLE</th>
<th>CONNECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECDP-04</td>
<td>HSEC8-109-XX</td>
</tr>
<tr>
<td>ECDP-08</td>
<td>HSEC8-113-XX</td>
</tr>
<tr>
<td>ECDP-16</td>
<td>HSEC8-125-XX</td>
</tr>
<tr>
<td>ECDP-32</td>
<td>HSEC8-149-XX</td>
</tr>
</tbody>
</table>

samtec.com?ECDP

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
# Q PAIRS® TWINAX CABLE ASSEMBLIES

(0.50 mm) .0197” & (0.80 mm) .0315” PITCH • HQDP/EQDP SERIES

---

## Specifications

- **Cable**: 30 AWG twinax ribbon
- **Signal Routing**: 100 Ω Differential
- **Cable Bending Radius**: (3.18 mm) 1/8” min
- **Plating**: Au over 50 µ” (1.27 µm) Ni
- **Current Rating**:
  - EQDP = 500 mA per pin
  - HQDP = 400 mA per pin (6 adjacent pins powered)
- **Propagation Delay**: 4.67 nsec/meter
- **Operating Temp Range**: -25 °C to +105 °C
- **Skew (pair-to-pair)**: <10 ps/ft
- **Skew (within a pair)**: <5 ps/ft
- **EMI Performance**: FCC Class A

---

## WIRING REQUIREMENTS

<table>
<thead>
<tr>
<th>WIRING OPTION</th>
<th>END OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 or 6</td>
<td>TTR, TBL, STL, SBR, TEU, SED to TTR, TBL, STL, SBR, TED, SEU or TTL, TBR, STR, SBL, TED, SEU to TTL, TBR, STR, SBL, TEU, SED</td>
</tr>
<tr>
<td>7 or 8</td>
<td>TTR, TBL, STL, SBR, TEU, SED to TTR, TBL, STL, SBR, TED, SEU or TTL, TBR, STR, SBL, TED, SEU to TTL, TBR, STR, SBL, TEU, SED</td>
</tr>
</tbody>
</table>

---

## Wire Length

- **HQDP** (0.50 mm) .0197” pitch
- **EQDP** (0.80 mm) .0315” pitch

**End Assemblies**:
- Specified from chart
- Leave blank for no Screw Option
- **F** = End No. 1
- **S** = End No. 2
- **B** = Both Ends

---

## Design considerations

- Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder
- This Series is non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**ERDP**

**ERDP - NO. POSITIONS PER ROW - WIRE LENGTH - END NO. 1 - END NO. 2 - WIRING OPTION - LATCH**

<table>
<thead>
<tr>
<th>ERDP</th>
<th>NO. POSITIONS PER ROW</th>
<th>WIRE LENGTH</th>
<th>END NO. 1</th>
<th>END NO. 2</th>
<th>WIRING OPTION</th>
<th>LATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>–013</td>
<td>= 8 Pair</td>
<td>–“XX.XX” = Wire Length in Inches (43.7 mm) 01.72” minimum</td>
<td>–TTR = Terminal, Top Right</td>
<td>–5 = Pin 1 to Pin 1</td>
<td>–5 = Pin 1 to Pin 1</td>
<td>Specify LATCH from chart (Required callout)</td>
</tr>
<tr>
<td>–025</td>
<td>= 16 Pair</td>
<td></td>
<td>–TTL = Terminal, Top Left</td>
<td>–6 = Pin 1 to Pin 2</td>
<td>–6 = Pin 1 to Pin 2</td>
<td></td>
</tr>
<tr>
<td>–049</td>
<td>= 32 Pair</td>
<td></td>
<td>–TBR = Terminal, Bottom Left</td>
<td>–7 = Pin 1 to Pin N -1</td>
<td>–7 = Pin 1 to Pin N -1</td>
<td></td>
</tr>
<tr>
<td>–049</td>
<td>= 32 Pair</td>
<td></td>
<td>–TBL = Terminal, Bottom Left</td>
<td>–8 = Pin 1 to Pin N</td>
<td>–8 = Pin 1 to Pin N</td>
<td></td>
</tr>
</tbody>
</table>

---

**SPECIFICATIONS**

Cable: 30 AWG twinax ribbon cable

**Signal Routing:**

100 Ω Differential

**Plating:**

Au over 50 μ” (1.27 μm) Ni

**Operating Temp Range:**

-25 °C to +105 °C

**Cable:**

30 AWG twinax ribbon cable

**Signal Routing:**

100 Ω Differential

**Plating:**

Au over 50 μ” (1.27 μm) Ni

**Operating Temp Range:**

-25 °C to +105 °C

---

**NOTES**

Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

Some lengths, styles and options are non-standard, non-returnable.

---

**END NO.1 (–STL SHOWN)**

**END NO.2 (–TTR SHOWN)**

---

**LATCH**

**ASSEMBLY**

<table>
<thead>
<tr>
<th>LATCH</th>
<th>ASSEMBLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>–L</td>
<td>End No. 1 Standard Latch, End No. 2 Standard Latch</td>
</tr>
<tr>
<td>–R</td>
<td>End No. 1 Squeeze Latch, End No. 2 Standard Latch</td>
</tr>
<tr>
<td>–D</td>
<td>Both Ends Standard Latch</td>
</tr>
<tr>
<td>–N</td>
<td>No Housing Both Ends Standard Latch</td>
</tr>
<tr>
<td>–B</td>
<td>Both Ends Squeeze Latch</td>
</tr>
<tr>
<td>–F</td>
<td>End No. 1 Screw Option, End No. 2 Friction Latch</td>
</tr>
<tr>
<td>–S</td>
<td>End No. 1 Screw Option, End No. 2 Friction Latch</td>
</tr>
<tr>
<td>–C</td>
<td>Both Ends Screw Option</td>
</tr>
<tr>
<td>–G</td>
<td>End No. 1 Screw Option, End No. 2 Screw Option</td>
</tr>
<tr>
<td>–T</td>
<td>End No. 1 Squeeze Latch, End No. 2 Screw Option</td>
</tr>
</tbody>
</table>

*B, C & T option only available with

* –TEX on both ends

† –A, C option only available with

† –TEX on second end

* –B, F option only available with

* –TEX on first end

---

**ERDP**

**ERF8 (-L), ERM8 (-L)**

(Mating connectors require latching option –L)

---

**EYE® SPEED CABLE**

**EDGEBR® TWINAX CABLE ASSEMBLIES**

(0.80 mm) .0315” PITCH • ERDP SERIES

**14 Gbps**

---

**Notes:**

Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

Some lengths, styles and options are non-standard, non-returnable.

---

samtec.com?ERDP

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
HLCD Mates: LSHM

**SPECIFICATIONS**

Cable: 38 AWG 50 Ω coax cable
Signal Routing: 50 Ω Single-Ended
Plating: Au over 50 μ" (1.27 μm) Ni
Operating Temp Range: -25 °C to +105 °C
Current Rating: 0.9 A per pin (2 pins powered)

<table>
<thead>
<tr>
<th>END TO END</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical to Vertical</td>
<td>(21.84) .860</td>
</tr>
<tr>
<td>Vertical to Right-angle</td>
<td>(25.35) .998</td>
</tr>
<tr>
<td>Vertical to Reversed Right-angle</td>
<td></td>
</tr>
<tr>
<td>Right-angle to Right-angle</td>
<td></td>
</tr>
<tr>
<td>Right-angle to Reversed Right-angle</td>
<td>(28.85) 1.136</td>
</tr>
<tr>
<td>Reversed Right-angle to Reversed Right-angle</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

Some lengths, styles and options are non-standard, non-returnable.

---

END NO. 1 (–TR SHOWN) END NO. 2 (–TD SHOWN)

OAL = Wire Length + A

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**Q STRIP® COAX CABLE ASSEMBLIES**

(0.50 mm) .0197" & (0.80 mm) .0315" PITCH • HQCD/EQCD SERIES

**HQCD**
- Mates: QTH, QSH
- **SERIES**
  - HQCD = (0.50 mm) .0197" pitch
  - EQCD = (0.80 mm) .0315" pitch
- **NO. OF POSITIONS PER ROW**
  -030, -060, -090 (HQCD Series)
  -020, -040, -060 (EQCD Series)
- **WIRE LENGTH**
  -"XX.XX" = Wire Length in Inches (43.7 mm) 01.72" minimum
- **END NO. 1**
  -1 = Pin 1 to Pin 1
  -2 = Pin 1 to Pin 2
  -3 = Pin 1 to Second to Last Pin
  -4 = Pin 1 to Last Pin
- **END NO. 2**
  - Leave blank for no Screw Mount & Retention End Option
- **WIRING OPTION**
  - -F = Screw Mount End No. 1 only (Not available with XPX options)
  - -S = Screw Mount End No. 2 only
  - -B = Screw Mount Both Ends (Not available with XPX options)
- **END OPTIONS**
  - Specify END ASSEMBLIES from chart

**EQCD**
- Mates: QTE, QSE
- **SERIES**
  - HQCD = (0.50 mm) .0197" pitch
  - EQCD = (0.80 mm) .0315" pitch
- **NO. OF POSITIONS PER ROW**
  -030, -060, -090 (HQCD Series)
  -020, -040, -060 (EQCD Series)
- **WIRE LENGTH**
  -"XX.XX" = Wire Length in Inches (43.7 mm) 01.72" minimum
- **END NO. 1**
  -1 = Pin 1 to Pin 1
  -2 = Pin 1 to Pin 2
  -3 = Pin 1 to Second to Last Pin
  -4 = Pin 1 to Last Pin
- **END NO. 2**
  - Leave blank for no Screw Mount & Retention End Option
- **WIRING OPTION**
  - -F = Screw Mount End No. 1 only (Not available with XPX options)
  - -S = Screw Mount End No. 2 only
  - -B = Screw Mount Both Ends (Not available with XPX options)
- **END OPTIONS**
  - Specify END ASSEMBLIES from chart

**SPECIFICATIONS**
- Cable: 38 AWG micro coax ribbon
- Signal Routing: 50 Ω Single-Ended
- Overall Length: (95.3 mm) 37.5" to (1 m) 40" standard
- Cable Flexing Life: >10,000 cycles
- Cable Bending Radius: <2.5mm
- Plating: Au over 50 µ" (1.27 µm) Ni
- Current Rating: EQCD = 500 mA per pin
  HQCD = 300 mA per pin
  (6 adjacent pins powered)
- Cable Propagation Delay: 4.77 nsec/meter
- Operating Temp Range: -25 °C to +105 °C
- Unmating Force (-RT1 option): -RT1 option increases unmating force up to 50%

**Notes:**
- Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder
- This Series is non-standard, non-returnable.

**END MOUNT**
- **TPU** Terminal, Panel Mount, Notch Up
- **TPD** Terminal, Panel Mount, Notch Down
- **SBU** Socket, Panel Mount, Notch Up
- **SBD** Socket, Panel Mount, Notch Down

**END 1 OR END 2**
- **SURFACE MOUNT**
  - TTR = Terminal, Top Mount, Notch Right
  - TTL = Terminal, Top Mount, Notch Left
  - TBR = Terminal, Bottom Mount, Notch Right
  - TBL = Terminal, Bottom Mount, Notch Left
  - STR = Socket, Top Mount, Notch Right
  - STL = Socket, Top Mount, Notch Left
  - SBR = Socket, Bottom Mount, Notch Right
  - SBL = Socket, Bottom Mount, Notch Left

```
<table>
<thead>
<tr>
<th>END 1 OR END 2</th>
<th>SURFACE MOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTR: Terminal, Top Mount, Notch Right</td>
<td></td>
</tr>
<tr>
<td>TTL: Terminal, Top Mount, Notch Left</td>
<td></td>
</tr>
<tr>
<td>TBR: Terminal, Bottom Mount, Notch Right</td>
<td></td>
</tr>
<tr>
<td>TBL: Terminal, Bottom Mount, Notch Left</td>
<td></td>
</tr>
<tr>
<td>STR: Socket, Top Mount, Notch Right</td>
<td></td>
</tr>
<tr>
<td>STL: Socket, Top Mount, Notch Left</td>
<td></td>
</tr>
<tr>
<td>SBR: Socket, Bottom Mount, Notch Right</td>
<td></td>
</tr>
<tr>
<td>SBL: Socket, Bottom Mount, Notch Left</td>
<td></td>
</tr>
</tbody>
</table>
```

**Cable Lengths:**
- OAL = Wire Length + (24.13) .950
- Wire Length ± (1.27) .050

**Design Your Full Cable Assembly:**
- With Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

**Notes:**
- Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder
- This Series is non-standard, non-returnable.

**Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.**
ERCD

Mates: ERF8 (-L), ERM8 (-L)
(Mating connectors require latching option –L)

SPECIFICATIONS

Cable:
34 AWG coax
ribbon cable

Signal Routing:
50 Ω Single-Ended

Plating:
Au over 50 µ" (1.27 µm) Ni

Operating Temp Range:
-25 °C to +105 °C

Current Rating:
1.3 A per pin
(2 pins powered)

Notes:
Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

Some lengths, styles and options are non-standard, non-returnable.

END TO END B

DV to DV (23.47) .924
DV to Edge Mount (-TEX) (26.69) 1.051
Edge Mount (-TEX) (29.92) 1.178

LATCH ASSEMBLY

- TTR = Terminal, Top Right
- TTL = Terminal, Top Left
- TBR = Terminal, Bottom Right
- TBL = Terminal, Bottom Left
- STR = Socket, Top Right
- STL = Socket, Top Left
- SBR = Socket, Bottom Right
- SBL = Socket, Bottom Left
- TEU = Terminal, Edge Mount Up
- TED = Terminal, Edge Mount Down
- –L End No. 1 Standard Latch, End No. 2 Squeeze Latch
- –R End No. 1 Squeeze Latch, End No. 2 Standard Latch
- –D Both Ends Standard Latch
- –N No Housing
- –B Both Ends Squeeze Latch
- –F End No. 1 Screw Option, End No. 2 Friction Latch
- –S End No. 1 Friction Latch, End No. 2 Screw Option
- –C Both Ends Screw Option
- –T End No. 1 Screw Option, End No. 2 Standard Latch

* B option only available with –TEX on both ends.
† L, K, S option only available with –TEX on second end.
♦ R & T option only available with –TEX on first end.

END TO END B

DV to DV (23.47) .924
DV to Edge Mount (-TEX) (26.69) 1.051
Edge Mount (-TEX) (29.92) 1.178

OAL = Wire Length + B

ERCD - NO. POSITIONS PER ROW - WIRE LENGTH - END NO. 1 - END NO. 2 - WIRING OPTION - LATCH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–010</td>
<td>(22.66) .892</td>
</tr>
<tr>
<td></td>
<td>–013</td>
<td>(25.00) .987</td>
</tr>
<tr>
<td></td>
<td>–020</td>
<td>(30.66) 1.207</td>
</tr>
<tr>
<td></td>
<td>–025</td>
<td>(34.65) 1.364</td>
</tr>
<tr>
<td></td>
<td>–030</td>
<td>(38.66) 1.522</td>
</tr>
<tr>
<td></td>
<td>–040</td>
<td>(46.66) 1.837</td>
</tr>
<tr>
<td></td>
<td>–050</td>
<td>(54.66) 2.152</td>
</tr>
<tr>
<td></td>
<td>–060</td>
<td>(62.66) 2.467</td>
</tr>
</tbody>
</table>

Specify LATCH from chart (Required callout)

samtec.com?ERCD

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### Specifications

**Cable:** 36 AWG 50 Ω coax, or 32 AWG 100 Ω twinax
**Signal Routing:** 50 Ω Single-Ended, or 100 Ω Differential Pair
**Plating:** Au over 50 µ" (1.27 µm) Ni
**Operating Temp Range:**
- -40 °C to +125 °C (coax)
- -25 °C to +105 °C (twinax)

### Signal Routing

Product has some lines dedicated to ground. For single-ended and differential pair signal/ground assignments see signal routing information on the assembly print at the web address above. Design your High-Speed Cable with Samtec’s High-Speed Cable Solutionator® at www.samtec.com/hdr

### Other Solutions

Other end options
Mixed SEAC end types
300 positions or greater

**Notes:**
Mixed latch styles not available
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

PCIe® 2.0 & 3.0 capable
PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

Some lengths, styles and options are non-standard, non-returnable.
**SEARAY™ MICRO COAX CABLE ASSEMBLY**

(0.80 mm) .0315” PITCH • ESRA SERIES

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>ESCA Mates:</th>
<th>SEAM8, SEAF8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESCA</strong></td>
<td><strong>NO. OF PINS PER ROW</strong></td>
</tr>
<tr>
<td>–20, –30</td>
<td>–08 = Eight Rows</td>
</tr>
<tr>
<td>–20</td>
<td>0.931</td>
</tr>
<tr>
<td>–30</td>
<td>1.246</td>
</tr>
<tr>
<td>–30</td>
<td>1.246</td>
</tr>
<tr>
<td>–30</td>
<td>1.246</td>
</tr>
</tbody>
</table>

**Cable:**
34 AWG micro ribbon coax cable

**Signal Routing:**
50 Ω Single-Ended

**Plating:**
Au over 50 μ" (1.27 μm) Ni

**Operating Temp Range:**
-25 °C to +105 °C

**Notes:**
Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

For complete signal mapping, see www.samtec.com?ESCA
For other alternative mapping options, contact hdr@samtec.com.
**PCI EXPRESS® JUMPERS**

(1.00 mm) .0394" PITCH • PCIEC SERIES

---

**SPECIFICATIONS**

- **Cable:**
  - Eye Speed® 30 AWG twinax or
  - Eye Speed® 32 AWG twinax;
  - 30 AWG insulated ribbon

- **Operating Temp:**
  - -25 °C to +105 °C

- **Contact:**
  - Phosphor Bronze

- **Plating:**
  - Au or Sn over 50 µ" Ni

- **Performance:**
  - Supports PCIe® Gen 2 & 3

- **Bend Radius:**
  - (3.18 mm) .125"

- **-EM Connector:**
  - Black Nylon

- **Card Insertion Depth:**
  - (8.00 mm) .315"

---

**APPLICATIONS**

- Loop back Extender (From one PCIe® slot to another PCIe® slot)
- Ser-Des Physical Extender (From one PCIe® slot to another PCIe® Ser-Des)
- Physical Extender for easy troubleshooting of PCIe® card debug and analysis (PCIe® slot to Emulator or Analyzer)

---

**OAL = Wire Length + L**

**Notes:**
- Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)
- PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG
- This Series is non-standard, non-returnable.

---

**CABLE OPTION**

- **IMPEDANCE**
  - 85 Ω
  - 100 Ω
  - **BLANK**
    - 32 AWG TAPED SHIELD
    - NOT AVAILABLE*
  - **--CP** (With Power Lines)
    - 32 AWG TAPED SHIELD
    - NOT AVAILABLE*
  - **--P** (With Power Lines)
    - 32 AWG TAPED SHIELD
    - NOT AVAILABLE*

* Contact hdr@samtec.com for information

---

**END TO END**

<table>
<thead>
<tr>
<th>END NO. 1</th>
<th>END NO. 2</th>
<th>CABLE OPTION</th>
<th>IMPEDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-EC</td>
<td>-EC</td>
<td>Leave blank</td>
<td>85 Ω</td>
</tr>
<tr>
<td>-EC</td>
<td>-EM</td>
<td>Specify CABLE</td>
<td>Leave blank</td>
</tr>
</tbody>
</table>

---

**NO. OF POSITIONS**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>-036 (x1)</td>
<td>(20.30)</td>
</tr>
<tr>
<td>-064 (x4)</td>
<td>(34.30)</td>
</tr>
<tr>
<td>-098 (x8)</td>
<td>(51.30)</td>
</tr>
<tr>
<td>-164 (x16)</td>
<td>(84.30)</td>
</tr>
</tbody>
</table>

---

**Wire Length = ±(1.27) .050

---

**Notes:**
- Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)
- PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG
- This Series is non-standard, non-returnable.
**HIGH-SPEED COST EFFECTIVE COAX CABLE**

(0.80 mm) 0.0315" PITCH • FCF8/FCS8 SERIES

### FCF8

**Mates:**
- FCS8

#### SPECIFICATIONS

- **Cable:** 38 AWG coax
- **Overmold:** Nylon
- **Terminal Material:** Phosphor Bronze
- **Contact Plating:** Au or Sn over 50 µ” (1.27 µm) Ni
- **Operating Temp Range:** -25 °C to +105 °C
- **Current Rating:** 1.8 A per pin (1 pin powered)

#### Notes:
- Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder
- Cable lengths longer than 40.00” (1 meter) are not supported with S.I. test data.
- Some lengths, styles and options are non-standard, non-returnable.

### FCS8

**Mates:**
- FCF8

#### SPECIFICATIONS

- **Insulator Material:** Black LCP
- **Contact Material:** BeCu
- **Contact Plating:** Au or Sn over 50 µ” (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +125 °C
- **Current Rating:** 1.8 A per pin (1 pin powered)

#### PROCESSING

- **Lead–Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.15 mm) .006” max*
- **Contact Plating:** Au or Sn over 50 µ” (1.27 µm) Ni
- **Operating Temp Range:** -25 °C to +105 °C
- **Current Rating:** 1.8 A per pin (1 pin powered)

#### Notes:
- Some sizes, styles and options are non-standard, non-returnable.
HIGH-DENSITY HIGH-SPEED I/O SYSTEM

(0.635 mm) .025" PITCH • HDLSP/HDI6/HDC SERIES

HDLSP
Mates:
HDI6

SERIES
NO. OF
POSITIONS
LENGTH

HDLSP
– High-density Low Skew Pair Cable
–035
(Per Row)
–“XXXX”
= Length in millimeters
= 12 Pairs per side
= 1000, –2000
(Standard lengths)

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

HD16
Mates:
HDLSP

SERIES
NO. OF
POSITIONS
RA
“X”R

HD16
–035
(Per Row)
–TR
= Tape & Reel
–FR
= Full Reel Tape & Reel
(must order max. quantity
per reel; contact
Samtec for quantity
breaks)

HD16 = Cage
–035
= Number of positions

SPECIFICATIONS

Cable:
32 AWG low skew pair cable
Insulator Material:
LCP
Terminal Material:
Phosphor Bronze
Jacket Material:
PVC
Insulator:
Dielectric
Conductors:
Copper
Braid:
Tinned Copper
Covers:
Diecast Zinc Alloy
Current Rating:
1.5 A per pin
(4 adjacent pins powered)

Note:
For HT3.1 see
www.samtec.com/ht3 and
specify part number
ASP-149117-01

Some lengths, styles and
options are non-standard,
non-returnable.

Notes:

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**

- **EPLSP**
  - Mates: ERI8

**SPECIFICATIONS**

- **Cable:** Eye Speed® I/O Cable
- **No. of Positions:**
  - 019 = 9 Pairs, 5 Power, 19 positions
  - 031 = 17 Pairs, 5 Power, 31 positions
- **Length:**
  - “XXXX” = Length in millimeters

**ERI8**

- Mates: EPLSP

**SPECIFICATIONS**

- **Insulator Material:** Black LCP
- **Terminal Material:** BeCu
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Current Rating:** 1.7 A per pin (2 pins powered)
- **Voltage Rating:** 225 VAC/320 VDC
- **Operating Temp Range:** -55 °C to +125 °C

**PROCESSING**

- **Lead–Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max

**Notes:**

- Active equalization reference design for Eye Speed® I/O system
- See www.samtec.com?EPLSP
- Some lengths, styles and options are non-standard, non-returnable.

---

**EPLSP**

- **Mates:** ERI8

**SERIES**

- **EPLSP**
  - **Cable:** Eye Speed® I/O Cable
  - **No. of Positions:**
    - 019 = 9 Pairs, 5 Power, 19 positions
    - 031 = 17 Pairs, 5 Power, 31 positions
  - **Length:**
    - “XXXX” = Length in millimeters

---

**ERI8**

- **Mates:** EPLSP

**SERIES**

- **ERI8**
  - **No. of Positions:**
    - 019 = 9 Pairs, 5 Power, 19 positions
    - 031 = 17 Pairs, 5 Power, 31 positions
  - **Plating Option:**
    - S = 30 µ" (0.76 µm) Gold on contact, Matte Tin on tail
    - TR = Tape & Reel
    - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
  - **Other Option:**
    - D = Without Gasket
    - RA = With Gasket
  - **Series:**
    - ERC = Cage
  - **No. of Positions:**
    - 019
    - 031 = Number of Positions
  - **01 Option:**
    - 01

---

**Processing**

- **Notes:**
  - Active equalization reference design for Eye Speed® I/O system
  - See www.samtec.com?EPLSP
  - Some lengths, styles and options are non-standard, non-returnable.

---

**Notes:**

- This Series is non-standard, non-returnable.

---

**Notes:**

- Active equalization reference design for Eye Speed® I/O system
- See www.samtec.com?EPLSP
- Some lengths, styles and options are non-standard, non-returnable.

---

**Notes:**

- Active equalization reference design for Eye Speed® I/O system
- See www.samtec.com?EPLSP
- Some lengths, styles and options are non-standard, non-returnable.
SFPE Mates: MECT, SFPC

SPECIFICATIONS

Impedance: 100 Ω
Signal Routing: Differential

CABLE LENGTH

-010 = 2 Pairs
-XXXX = Length in millimeters
-1000, -2000, -3000 (Standard lengths)

EQUALIZATION

-NE = Non Equalized

MECT Mates: SF, SFP+, XFP or XENPAK transceivers

SPECIFICATIONS

Insulator Material: Black LCP
Contact Material: Phosphor Bronze
Plating: Sn or Au over 100 µ" (2.54 µm) Ni
Operating Temp Range: -25 °C to +125 °C
Current Rating: 2 A per pin (6 pins powered)
Voltage Rating: 265 VAC

Note:
Some sizes, styles and options are non-standard, non-returnable.

APPLICATION

Cages and connector kits available. See details at www.samtec.com/SFPC or www.samtec.com/SFPE


-010 = 2 Pairs
-XXXX = Length in millimeters
-1000, -2000, -3000 (Standard lengths)
-NE = Non Equalized
-32 = 32 AWG

OVERALL LENGTH = CABLE LENGTH + (66.6) 2.62

MECT – 1 – POSITIONS PER ROW – CARD THICKNESS – PLATING OPTION – D – RA1 – OTHER OPTION

10, 15, 35

-01 = (1 mm) .039" thick board
-M = 15 µ" (0.38 µm) Gold on contact, Matte Tin on tail

-TR = Tape & Reel
-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

PROCESSING

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.10 mm) .004" max

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.10 mm) .004" max

Note:
Some sizes, styles and options are non-standard, non-returnable.

samtec.com?SFPE or samtec.com?MECT
**STANDARD & RUGGED USB 2.0**

**USB-A/USBR-A/USB-AM SERIES**

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Insulator Material:</th>
<th>High Temperature Thermoplastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Material:</td>
<td>Phosphor Bronze</td>
</tr>
<tr>
<td>Plating:</td>
<td>Gold on Contacts, Nickel on Shell, Tin on Tails</td>
</tr>
<tr>
<td>Operating Temp Range:</td>
<td>-55 °C to +85 °C</td>
</tr>
<tr>
<td>Voltage Rating:</td>
<td>30 VAC</td>
</tr>
<tr>
<td>Cycles:</td>
<td>1500 (max tested)</td>
</tr>
</tbody>
</table>

**Packaging:**
Packaged and shipped in Bulk
Packaging Trays; Trays suitable for automation available

**Lead-Free Solderable:**
–TH & –VU = Yes (Wave Solder only)

**TID Numbers (USB-A):**
USB-A-D-X-X-TH (61001199)
USB-A-S-X-X-TH (61001180)
USB-A-S-X-X-SM2 (61001152)

**TID Number (USB-AM):**
USB-AM-S-X-X-SM (61001154)

**SERIES**

<table>
<thead>
<tr>
<th>USB</th>
<th>A</th>
<th>SHELL TYPE</th>
<th>PLATING</th>
<th>COLOR</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB = Standard Connector</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>USBR = Increased Retention Connector</td>
<td>–S</td>
<td>–D</td>
<td>–F</td>
<td>–B</td>
<td>–TH</td>
</tr>
<tr>
<td>(Complies with Class 1, DIV II minimum withdrawal requirement of 15N.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TID Numbers (USB-A):**
USB-A-D-X-X-TH (61001199)
USB-A-S-X-X-TH (61001180)
USB-A-S-X-X-SM2 (61001152)

**TID Number (USB-AM):**
USB-AM-S-X-X-SM (61001154)

**STANDARD & RUGGED USB 2.0**

![USB-A Diagram]

![USBR-A Diagram]

![USB-AM Diagram]

**THREADS & TERMINATIONS**

**USB**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SHELL TYPE</th>
<th>PLATING</th>
<th>COLOR</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–AM</td>
<td>–S</td>
<td>–F</td>
<td>–B</td>
<td>–TH</td>
</tr>
<tr>
<td>= A Type (Plug)</td>
<td>= Single</td>
<td>= Gold Flash on Mating Area, Tin on Tails</td>
<td>= Black</td>
<td>= Through-hole</td>
</tr>
</tbody>
</table>

**USBR**

<table>
<thead>
<tr>
<th>–S</th>
<th>–D</th>
<th>–F</th>
<th>–B</th>
<th>–TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>= Gold Flash on Mating Area, Tin on Tails</td>
<td>= Double</td>
<td>= Black</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**USBR-S**

<table>
<thead>
<tr>
<th>–S</th>
<th>–D</th>
<th>–F</th>
<th>–B</th>
<th>–TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 30 µ” (0.76 µm) Gold on Mating Area, Tin on Tails</td>
<td>= Double</td>
<td>= Black</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**USBR-SM2**

<table>
<thead>
<tr>
<th>–S</th>
<th>–D</th>
<th>–F</th>
<th>–B</th>
<th>–TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 30 µ” (0.76 µm) Gold on Mating Area, Tin on Tails</td>
<td>= Double</td>
<td>= Black</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**USBR-SM2**

<table>
<thead>
<tr>
<th>–S</th>
<th>–D</th>
<th>–F</th>
<th>–B</th>
<th>–TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 30 µ” (0.76 µm) Gold on Mating Area, Tin on Tails</td>
<td>= Double</td>
<td>= Black</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**USBR-SM2**

<table>
<thead>
<tr>
<th>–S</th>
<th>–D</th>
<th>–F</th>
<th>–B</th>
<th>–TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>= 30 µ” (0.76 µm) Gold on Mating Area, Tin on Tails</td>
<td>= Double</td>
<td>= Black</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**TID Numbers (USB-A):**
USB-A-D-X-X-TH (61001199)
USB-A-S-X-X-TH (61001180)
USB-A-S-X-X-SM2 (61001152)

**TID Number (USB-AM):**
USB-AM-S-X-X-SM (61001154)


F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
STANDARD & RUGGED USB 2.0
USB-B/USBR-B SERIES

SERIES | B | S | PLATING | COLOR | TERMINATION | OTHER OPTION
--- | --- | --- | --- | --- | --- | ---
USB | = Standard Connector |  |  |  |  |  
USBR | = Increased Retention Connector (Complies with Class 1, DIV II minimum withdrawal requirement of 15N) |  |  |  |  |  
–F | = Gold Flash on Mating Area, Tin on Tails |  |  |  |  |  
–S | = 30 µ" (0.76 µm) Gold on Mating Area, Tin on Tails |  |  |  |  |  
–B | = Black (USB only) |  |  |  |  |  
–W | = White (USBR only) |  |  |  |  |  
–O | = Orange (USBR only) |  |  |  |  |  
–TH | = Through-hole |  |  |  |  |  
–SM | = Surface Mount (USBR only) |  |  |  |  |  
–VT | = Vertical Top Entry |  |  |  |  |  
–TR | = Tape and Reel (–SM only) |  |  |  |  |  
–FR | = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (–SM only) |  |  |  |  |  

SPECIFICATIONS
Insulator Material: High Temperature Thermoplastic
Contact Material: Phosphor Bronze
Plating: Gold on Contacts, Nickel on Shell, Tin on Tails
Operating Temp Range: -55 °C to +85 °C
Voltage Rating: 30 VAC
Cycles: 1500 (maximum number of cycles tested)
Package: Packaged and shipped in Bulk Packaging Trays; Trays suitable for automation are available upon request.

Lead-Free Solderable: USB-SM=Yes
USB-TH= Yes (Wave Solder only)
USBR=Yes (Wave Solder only)

TID Number: USB-B-S-X-X-TH (61001155)

MATING / UNMATING FORCE (100 CYCLES)

<table>
<thead>
<tr>
<th>SERIES</th>
<th>MATING</th>
<th>UNMATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB</td>
<td>5.3 (23.59 N)</td>
<td>6.1 (27.15 N)</td>
</tr>
<tr>
<td>USBR</td>
<td>11.8 (52.51 N)</td>
<td>11.5 (51.18 N)</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
OPTICS

FUTURE PROOF • HIGH PERFORMANCE • PCI EXPRESS® • END OPTION FLEXIBILITY

129  FIREFLY™ MICRO FLYOVER SYSTEM™ (ECUO)

130  FIREFLY™ EXTENDED TEMPERATURE MICRO FLYOVER SYSTEM™ (ETUO)

131  PCI EXPRESS®-OVER-FIBER FIREFLY™ SYSTEM (PCUO)

132  PCI EXPRESS®-OVER-FIBER FIREFLY™ ADAPTOR CARD (PCOA)

133  OPTICAL PATCH CABLE & ADAPTOR (FOPC, OPA)

134  FIREFLY™ EVALUATION & DEVELOPMENT KITS
FEATURES & BENEFITS

• Data connection taken “off board” simplifies board layout
• Industry leading miniature footprint allows for higher density close to data source
• Performance up to 28 Gbps per lane with a path to 56 Gbps PAM4 via optical cable for greater reach
• Simple assembly process with easy insertion/removal and trace routing, no through-holes
• Interchangeability of copper and optical using the same two-piece surface mount connector
• PCI Express®-Over–Fiber (PCUO) supports PCIe® protocol for low latency, power savings and guaranteed transmission; 3.0 and 4.0 solutions
• -40 ºC to +85 ºC extended temperature system for military, aerospace and industrial applications
• Flexible end options include MTP®, MT, MXC®, U-SDI interface, MT38999, VITA 66.X and other common interfaces
• Variety of integral heat sinks for conduction and convection cooling

PRODUCT ROADMAP

Advanced Optics
Samtec is focused on bringing to market 112 Gbps PAM4 solutions that are scalable, manufacturable and cost-efficient.

Immersion Cooling
Capable of immersion for liquid cooled systems.

Extreme Environments
Sealed for salt fog, blowing sand and dust, jet fuel exposure, etc. for exposed Military applications

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.
## OPTICAL MICRO FLYOVER SYSTEM™

### Features
- Supports data center and HPC protocols, including: Ethernet, InfiniBand™, Fibre Channel
- Customizable optical connectors
- Integrated coupling capacitors
- Standard temperature range 0 °C to +70 °C
- Evaluation & Development boards available

### Tooling
- Insertion Tool: CAT-IN-ECUO-02

### ECUO Specifications

<table>
<thead>
<tr>
<th>Width</th>
<th>Data Rate</th>
<th>Cable Length</th>
<th>Heat Sink</th>
<th>Fiber Type</th>
<th>End 2 Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>-B04</td>
<td>-14 Gbps per lane</td>
<td>-14 &quot;XXX&quot; = Overall Length in Centimeters</td>
<td>-1 = Flat</td>
<td>-4 = Aqua loose tube with Boot</td>
<td>(Leave blank for -U12)</td>
</tr>
<tr>
<td>-T12</td>
<td>-16 Gbps per lane (-B04 only)</td>
<td>-16 = 16.1 Gbps per lane (-B04 only)</td>
<td>-2 = Pin-fin (-14 &amp; -16 only)</td>
<td>-5 = Jacketed ribbon with boot</td>
<td>12 Fibers</td>
</tr>
<tr>
<td>-R12</td>
<td>-25 Gbps per lane (-B04 only)</td>
<td>-25 = 25.7 Gbps per lane (-B04 only)</td>
<td>-3 = Flat with groove</td>
<td>-6 = Jacketed ribbon</td>
<td>-01 = MTP® Male</td>
</tr>
<tr>
<td>-Y12</td>
<td>-28 Gbps per lane (-B04 only)</td>
<td>-28 = 28.1 Gbps per lane (-B04 only)</td>
<td>-4 = PCIe® Pin-fin (-14 &amp; -16 only)</td>
<td>-7 = Black loose tube with boot</td>
<td>-02 = MTP® Female</td>
</tr>
<tr>
<td>-U12</td>
<td>12 Channel AOC (Unidirectional)</td>
<td>-5 = 1.75 cm tall Pin-fin (-B04 only)</td>
<td>-8 = Black loose tube</td>
<td>-2 = PCIe® Pin-fin</td>
<td>-07 = MXC® Internal Plug</td>
</tr>
</tbody>
</table>

### Notes:
- MTP® is a registered trademark of US Conec Ltd.
- All FireFly™ designs, specifications and components are preliminary and subject to change without notice.
- Some lengths, styles and options are non-standard, non-returnable.

Class 1 LASER PRODUCT per IEC 60825-1 Ed. 3 (2014)

View complete specifications at: samtec.com?ECUO
**FEATURES**

- Optimized for SWaP
- Extended temperature range from -40 °C to +85 °C
- Demonstrated error free transmission during applied external vibrations and shock test, to methods specified in MIL-STD-810G
- Micro rugged board level connector system with positive latching, weld tabs and loading guides for secure connection
- Pigtailed cable for maximum link budget
- Customizable optical connectors
- Integrated coupling capacitors
- Integral heat sink provides optimal cooling for thermal operating conditions
- Evaluation and Development boards available

---

**ETUO**

Mates with: UEC5, UCC8, OPA

---

**ETUO**

<table>
<thead>
<tr>
<th>WIDHT</th>
<th>DATA RATE</th>
<th>CABLE LENGTH</th>
<th>HEAT SINK</th>
<th>FIBER TYPE</th>
<th>END 2 OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>B04</td>
<td>10 Gbps</td>
<td>“XXX”</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>T12</td>
<td>12 Tx</td>
<td>25 Gbps (B04 only)</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>R12</td>
<td>12 Rx</td>
<td></td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Y12</td>
<td>12 Tx + 12 Rx</td>
<td></td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>U12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-Y12 requires -2X end option</td>
</tr>
</tbody>
</table>

- 12 Fibers
  - 01 = MTP® Male
  - 02 = MTP® Female
  - 07 = MXC® Internal Plug
  - 0A = VITA 66.X Ready
  - 0C = MT38999 Male
  - 0E = MPO Plus®, Male, bayonet

- 24 Fibers
  - 21 = MTP® Male
  - 22 = MTP® Female
  - 27 = MXC® Internal Plug
  - 2A = VITA 66.X Ready
  - 2C = MT38999 Male
  - 2E = MPO Plus®, Male, bayonet

---

**Class 1 LASER PRODUCT**

per IEC 60825-1 Ed. 3 (2014)

---

View complete specifications at: samtec.com?ETUO

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
PCUO - WIDTH - SPEED - CABLE LENGTH - 0 - HEAT SINK - 1 - FIBER TYPE - END 2 OPTIONS

-04 = x4 Lanes
-08 = x8 Lanes
-G3 = Gen 3
-G4 = Gen 4
-“XXX” = Overall Length in Centimeters
-1 = Flat
-4 = PCIe® Pin-fin
-7 = Black loose tube with boot
-8 = Black loose tube

(-08 width requires –2X end option)
-01/-21 = MTP® Male
-02/-22 = MTP® Female
-0A/-2A = VITA 66.X Ready
-0C/-2C = MT38999 Male

PCUO
Mates with:
UEC5, UCC8, OPA

FEATURES
• PCIe® 4.0 x4, scalable to x8 and x16 widths
• Duplex auxiliary signals allow both transparent and non-transparent bridging
• High-performance signal quality with BER better than 1E-12
• Enables links up to 100 m
• Allows nontraditional FPGA/ASIC end points
• Standard temperature range 0 °C to +70 °C

PCUO-04-G3-XXX-0-4-1-8 SHOWN

Class 1 LASER PRODUCT per IEC 60825-1 Ed. 3 (2014)

View complete specifications at: samtec.com?PCUO

samtec.com/FireFly
### Features
- Uses PCUO FireFly™ optical cable for clear signal transmissions with increased reach and cost optimization
- PCIe® x16 edge card connector
- Scalable configurations for cost optimized performance
- Transparent or non-transparent bridging for system flexibility and multi-processor support
- Reconfigurable host or target operation
- Ideal for high-performance and applications requiring robust data transmission

### Notes:
- Some lengths, styles and options are non-standard, non-returnable.
- PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

View complete specifications at: [samtec.com?PCOA](http://samtec.com?PCOA)
## Optical Patch Cable and Adaptor

### FOPC

<table>
<thead>
<tr>
<th>FOPC</th>
<th>END 1</th>
<th>END 2</th>
<th>CABLE LENGTH</th>
<th>FIBERS</th>
<th>CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–01</td>
<td>–01</td>
<td>–003</td>
<td>–12, –24</td>
<td>–01</td>
</tr>
<tr>
<td></td>
<td>MTP Male</td>
<td>MTP Male</td>
<td>3 Meters</td>
<td>= 3 mm Round Jacket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–02</td>
<td>–02</td>
<td>–010</td>
<td>–10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MTP Female</td>
<td>MTP Female</td>
<td>10 Meters</td>
<td>= 100 Meters (Other lengths available as custom parts)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–003</td>
<td>–010</td>
<td>–100</td>
<td>–01</td>
<td></td>
</tr>
</tbody>
</table>

### Specifications

**Compliant Specifications:**
- TIA-604-5-D (FOCIS 5)
- TIA-568-C.3
- IEC-61754-7-1

**Recommended Panel Thickness:**
- (1.75 mm) .069"

(The OPA can be installed with any panel thickness but mounting hardware is needed for any thickness that is not (1.75 mm) .069". Contact the Optics Group at FireFly@samtec.com for questions about panel thickness and mounting hardware.)

View complete specifications at: [samtec.com?FOPC](http://samtec.com?FOPC)

### OPA

<table>
<thead>
<tr>
<th>OPA</th>
<th>PORTS</th>
<th>KEY</th>
<th>FLANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–S</td>
<td>–1</td>
<td>–F</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>Opposed</td>
<td>Full</td>
</tr>
<tr>
<td></td>
<td>–D</td>
<td>–2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>Aligned</td>
<td></td>
</tr>
</tbody>
</table>

**Specifications**

**Compliant Specifications:**
- TIA-604-5-D (FOCIS 5)
- IEC-61754-7

**Recommended Panel Thickness:**
- (1.75 mm) .069"

View complete specifications at: [samtec.com?OPA](http://samtec.com?OPA)

Note: Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
From concept and prototype to development and production, Samtec-designed and Partner-designed kits and boards featuring FireFly™ Micro Flyover System™ simplify design and reduce time to market. For more information, please visit samtec.com/kits or contact KitsAndBoards@samtec.com.

28 Gbps FireFly™ Evaluation Kit
Samtec's 28 Gbps FireFly™ Evaluation Kit offers an easy-to-use platform for testing and real-time evaluation of the FireFly™ Micro Flyover System™. The kit supports copper or optical FireFly™ in x4 or x12 configurations.
(Samtec P/N: REF-209623-01)

14 Gbps FireFly™ FMC Development Kit
Samtec's 14 Gbps FireFly™ FMC Development Kit is VITA 57.1 electrically compliant and provides up to 140 Gbps full-duplex bandwidth over 10 channels from an FPGA to an industry-standard multi-mode fiber optic cable.
(Samtec P/N: REF-193429-01)

25/28 Gbps FireFly™ FMC+ Development Kit
Samtec's 25/28 Gbps FireFly™ FMC+ Module is VITA 57.4 electrically compliant and provides up to 400/448 Gbps full-duplex bandwidth over 16 channels from an FPGA to an industry-standard multi-mode fiber optic cable.
(Samtec P/N: REF-200772-XXX-XX-01)

25 Gbps FireFly™ FMC+ Development Kit (In development)
Samtec's 25 Gbps FireFly™ FMC+ Module is VITA 57.4 electrically compliant and provides up to 300 Gbps full-duplex bandwidth over 12 channels from an FPGA to an industry-standard multi-mode fiber optic cable.

ECUE Flyover® SI Evaluation Kit
Samtec's ECUE Evaluation Kit routes eight high-speed differential pairs via UEC5-2/UCC8 series mating connectors, user-selected twinax cable lengths and 2.4 mm RF connectors.
(Samtec P/N: REF-201830-XX)
50 Ω & 75 Ω • PRECISION • 12G-SDI • NON-MAGNETIC • ORIGINAL SOLUTIONS

136-170

RF SOLUTIONS

50 Ω High-Frequency Precision RF (18 GHz to 110 GHz) ................................................................. 138-151
Bulls Eye® Test Assemblies (70 GHz) ........................................................................................................... 152-154
Ultra-Small Form Factor Waveguide Technology .......................................................................................... 155
50 Ω & 75 Ω Solutions (3 GHz to 12 GHz) .................................................................................................. 156-168
Original RF Solutions ..................................................................................................................................... 169
Custom RF Solutions ....................................................................................................................................... 170
As a manufacturer of a broad line of electronic interconnects, Samtec offers full RF solution capabilities. In addition to high-frequency precision RF and high-performance test systems, Samtec’s full line includes:

- Micro High-Frequency U.FL and W.FL
- 50 Ω and 75 Ω cable assemblies, cable connectors and board level interconnects
- Ganged and high isolation cable systems
- 100 Ω shielded twisted pair cable assemblies
- Micro-mini interconnects
- Non-magnetic RF solutions
- High-frequency, precision (18 GHz to 110 GHz)

Samtec is the service leader in the industry with the resources and willingness to provide technical support for launch optimization, simulation and test & measurement. Visit samtec.com/RF for additional information.
50 Ω RF CABLES & CONNECTORS

- High-frequency cables: semi-flexible, solid, foamed or air enhanced dielectric
- Variety of straight and right-angle jacks, plugs and bulkhead jacks
- Double-shielded RG 316 cable
- Micro high-frequency U.FL/W.FL assemblies
- Wide variety of industry standard cables with mix & match cable connectors
- Precision interconnects supporting frequencies from 18 to 110 GHz

NON-MAGNETIC RF SOLUTIONS

- Truly non-magnetic RF solutions; 100% inspected for magnetic permeability
- Nearly all Samtec interconnects can be ordered as non-magnetic
- Supported by Samtec’s quick-turn lead times and unmatched service
- Ideal for medical imaging, advanced driver assistance systems, hand held devices, etc.
- Contact RFGroup@samtec.com

75 Ω RF CABLES & CONNECTORS

- Wide variety of industry standard cables with mix & match cable connectors
- Low-Profile BNC with Pick & Place capability, optimized for high volume manufacturing
- RFB8T Series (with Belden 1855A cable)

HD-BNC™ is a trademark of Amphenol.

12G-SDI BROADCAST VIDEO SOLUTIONS

- Samtec has the largest variety of 12G-SDI optimized products
- Analysis and launch optimization: RFGroup@samtec.com
- 75 Ω BNC, HD-BNC™ and DIN 1.0/2.3
- Right-angle, vertical, edge mount, low-profile and standard or tall through-hole
- For additional details, please visit: samtec.com/12gsdi

SAMTEC ORIGINAL SOLUTIONS

- High vibration and 75 Ω MMCX
- Ganged micro-miniature high-performance RF cable assemblies with rugged contacts
- Circular RF shielded twisted pair system
- IsoRate® cost-efficient high-performance isolated signal systems
- Machined U.FL to 500 cycles

samtec.com/RF

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
The Samtec RF product line includes 18 to 110 GHz High-Frequency, Precision RF solutions for microwave and mmWave applications, including full cable assemblies, cable connectors and board level interconnects. Our focus is on delivering high-quality RF products that meet precision and performance expectations, blended with industry-leading system-level signal integrity expertise.

**Vertical Integration = Full System Support**

**CABLES**
- Design & Fabrication of Raw Cable
- Cable Assemblies

**CONNECTORS**
- Design & Fabrication
- Cable Connectors
- Board Connectors

**TECH SUPPORT**
- Launch Optimization
- Simulation & Testing
- Full System Optimization
## 50 Ω μWAVE/mmWAVE CABLES

### STANDARD OFF-THE-SHELF ASSEMBLIES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>MWC-2550-01</th>
<th>MWC-2350-01</th>
<th>MWC-2350CU-01</th>
<th>MWC-19550-FCU-01</th>
<th>RG 405 (.086&quot;)</th>
<th>RG 402 (.141&quot;)</th>
<th>.047 Low-Loss Flexible</th>
<th>.085 Low-Loss Flexible</th>
<th>.086 Low-Loss Flexible</th>
<th>.178 Low-Loss Flexible</th>
<th>.277 Low-Loss Flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>RF25S</td>
<td>RF23S</td>
<td>RF23C</td>
<td>RF120</td>
<td>RF405</td>
<td>RF402</td>
<td>RF047-A</td>
<td>RF085</td>
<td>RF086</td>
<td>RF180</td>
<td>RF280</td>
</tr>
</tbody>
</table>

### ELECTRICAL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MWC-2550-01</th>
<th>MWC-2350-01</th>
<th>MWC-2350CU-01</th>
<th>MWC-19550-FCU-01</th>
<th>RG 405 (.086&quot;)</th>
<th>RG 402 (.141&quot;)</th>
<th>.047 Low-Loss Flexible</th>
<th>.085 Low-Loss Flexible</th>
<th>.086 Low-Loss Flexible</th>
<th>.178 Low-Loss Flexible</th>
<th>.277 Low-Loss Flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Frequency (GHz)</td>
<td>40</td>
<td>35</td>
<td>50</td>
<td>45</td>
<td>50</td>
<td>65</td>
<td>50</td>
<td>65</td>
<td>27</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Max. Insertion Loss (dB/m)</td>
<td>0.79</td>
<td>0.72</td>
<td>0.68</td>
<td>0.43</td>
<td>0.72</td>
<td>0.40</td>
<td>1.21</td>
<td>0.69</td>
<td>0.65</td>
<td>0.27</td>
<td>0.17</td>
</tr>
<tr>
<td>Propagation Delay (ns/m)</td>
<td>4.76</td>
<td>4.72</td>
<td>4.76</td>
<td>4.12</td>
<td>4.79</td>
<td>4.79</td>
<td>4.76</td>
<td>4.75</td>
<td>4.20</td>
<td>4.17</td>
<td>4.02</td>
</tr>
<tr>
<td>Velocity of Propagation</td>
<td>70%</td>
<td>81%</td>
<td>70%</td>
<td>70%</td>
<td>80%</td>
<td>83%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacitance (pF/m)</td>
<td>96.80</td>
<td>95.45</td>
<td>97.80</td>
<td>82.39</td>
<td>104.97</td>
<td>98.07</td>
<td>95.00</td>
<td>88.2</td>
<td>83.37</td>
<td>82.00</td>
<td></td>
</tr>
</tbody>
</table>

### CONSTRUCTION

- **Center Conductor**: Solid Silver Plated Copper
- **Dielectric**: FEP, Foam Fluoropolymer, PTFE, PFA, Solid PTFE, Foam Fluoropolymer, PTFE Tape
- **Shield**:
  - 1) Ag Plated Cu
  - 2) Ag Plated Cu
  - 3) Ag Plated Cu
  - 1) Tinned Cu
  - 2) Spiral Strip Ag Plated Cu
  - 3) Round Ag Plated Cu
  - 1) Flat Ag Plated Cu
  - 2) Al Polyester
- **Jacket**: FEP, —, —, FEP

### MECHANICAL

- **Operating Temp**: -40˚ C to 200˚ C
- **Min. Bend Radius**: 9.00 mm, 12.00 mm, 6.00 mm, 12.50 mm, 6.00 mm, 10.90 mm, 5.00 mm, 13.20 mm, 8.90 mm, 24.80 mm, 38.10 mm
- **Connector Options**: SMA, SMP, 3.50 mm, 2.92 mm, 2.40 mm, SMA, SMP, 1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm, SMA, SMP, 1.85 mm, 2.40 mm, 2.92 mm, SMA, TNCA, N Type, SMA, TNCA, N Type

### PART NUMBER

*Shown at ~1/2 scale. ** Shown at 1/3 scale.*
1.00 mm TO 110 GHz

1.00 mm Cable Connectors
PRF10

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>Series</th>
<th>End 1 Connector</th>
<th>End 2 Connector</th>
<th>Overall Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF10-J-C-VP-047D-SS</td>
<td>0.47, semi-rigid</td>
<td>0.47, semi-rigid</td>
<td></td>
</tr>
</tbody>
</table>

J-C = Cable Jack
P-C = Cable Plug
VP = Plating (75 µ" Gold center contact, passivated outer contact)
SS = Straight, Solder Clamp

1.35 mm TO 90 GHz

1.35 mm Cable Assemblies
RF047-A

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>Series</th>
<th>End 1 Connector</th>
<th>End 2 Connector</th>
<th>Overall Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF13-P-C-VP-047A-SS</td>
<td>0.047 Temp-Flex, low loss flexible, 29 AWG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRF13-J-C-VP-047A-BS</td>
<td>0.047 Temp-Flex, low loss flexible, 29 AWG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P-C = Cable Plug
J-C = Cable Jack
VP = Plating (75 µ" Gold center contact, passivated outer contact)
SS = Straight, Solder Clamp
BS = Bulkhead, Solder Clamp

1.35 mm Board Connectors
135

Cable Mates:
RF047-A

1.85 mm, 2.40 mm, 2.92 mm, SMPM = RF047-A

VSWR

Contact Samtec

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
1.85 mm TO 65 GHz

1.85 mm Cable Assemblies
RF047-A, RF086

VSWR
RF047-A: 1.40 max.
RF086: 1.40 max.

1.85 mm Cable Connectors
PRF18

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>Connector Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF18-J-C-EP-086-SS</td>
<td>.086 Temp-Flex, low loss flexible</td>
</tr>
<tr>
<td>PRF18-J-C-EP-086-SS</td>
<td>.086 Temp-Flex, low loss flexible</td>
</tr>
<tr>
<td>PRF18-J-C-EP-047A-SS</td>
<td>.047 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
<tr>
<td>PRF18-J-C-EP-085-SS</td>
<td>.085 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
</tbody>
</table>

P-C = Cable Plug
J-C = Cable Jack
EE = Plating (50 µ" gold center contact, & outer contact)
EP = Plating (50 µ" gold center contact, passivated outer contact)
SS = Straight, Solder Clamp
SD = Straight, Direct Solder
BS = Bulkhead, Solder Clamp

INTERFACE STANDARD

1.85 mm Board Connectors

Cable Mates:
RF047-A, RF086

185 - GENDER - TYPE - PLATING - ORIENTATION - TERMINATION - OPTION

185 - J = Jack

-K = PCB Mount

-E = 50 µ" (1.27 µm) Gold center contact, Passivated outer contact

-S = Straight

-CM = Compression Mount Stripline

-1 = Without Srews

-CMM = Compression Mount Microstrip

-2 = With Srews
2.40 mm TO 50 GHz

2.40 mm Cable Assemblies
RF047-A, RF085, RF086, RF23C, RF120

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF047-A</td>
<td>(1.2 mm) .047&quot; overshield DIA 29 AWG millimeter wave cable</td>
<td>-24SJ = 2.40 mm Straight Jack</td>
<td>-&quot;XXXX&quot; = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF086</td>
<td>(2.18 mm) .086&quot; overshield DIA 23 AWG millimeter wave cable</td>
<td>-24SP = 2.40 mm Straight Plug</td>
<td></td>
</tr>
<tr>
<td>RF085</td>
<td>(2.16 mm) .085&quot; overshield DIA 24 AWG millimeter wave cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF23C</td>
<td>MWC-2350CU-01 millimeter wave cable with copper foil shield</td>
<td>ALSO AVAILABLE</td>
<td></td>
</tr>
<tr>
<td>RF120</td>
<td>MWC-19550-FCU-01 19 AWG millimeter wave cable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALSO AVAILABLE
1.35 mm, 1.85 mm, 2.92 mm, SMPM = RF047-A
1.85 mm, 2.92 mm, SMPM = RF086
2.92 mm = RF085
2.92 mm, SMPM = RF23C
2.92 mm = RF120

2.40 mm Cable Connectors
PRF24

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF24-J-C-EP-085-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-405-BS</td>
</tr>
<tr>
<td>PRF24-P-C-EP-085-DD</td>
</tr>
<tr>
<td>PRF24-P-C-EP-120A-SS</td>
</tr>
<tr>
<td>PRF24-P-C-EP-160-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-140B-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-140B-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-150B-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-150-SS</td>
</tr>
<tr>
<td>PRF24-J-C-EP-086-SS</td>
</tr>
<tr>
<td>PRF24-P-C-EP-086-SS</td>
</tr>
</tbody>
</table>

P-C = Cable Plug
J-C = Cable Jack
EE = Plating (50 µ"
<table>
<thead>
<tr>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>−EP</td>
<td>−ST</td>
<td>−CM</td>
<td>−1</td>
</tr>
</tbody>
</table>
| = 50 µ" (1.27 µ"
| −ST     | Straight    | Compression Mount Stripline | without Screws |
| −CM     | = Compression Mount Microstrip | = With Screws |

2.40 mm Board Connectors
240

Cable Mates:
RF047-A, RF086, RF085, RF23C, RF120

Unles otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 2.92 mm Cable Assemblies

**RF047-A, RF086, RF085, RF23C, RF120**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF047-A</td>
<td>(1.2 mm) .047&quot; overshield DIA 29 AWG millimeter wave cable</td>
<td>–925J = 2.92 mm Straight Jack</td>
<td>–“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF086</td>
<td>(2.18 mm) .086&quot; overshield DIA 23 AWG millimeter wave cable</td>
<td>–925P = 2.92 mm Straight Plug</td>
<td>–0100 (100 mm) 3.94&quot; minimum (RF047-A, RF085, RF086, RF120)</td>
</tr>
<tr>
<td>RF085</td>
<td>(2.16 mm) .085&quot; overshield DIA 24 AWG millimeter wave cable</td>
<td>ALSO AVAILABLE</td>
<td>–0152 (1015 mm) 5.984&quot; minimum (RF23C)</td>
</tr>
<tr>
<td>RF23C</td>
<td>MWC-2350CU-01 millimeter wave cable with copper foil shield</td>
<td>1.35 mm, 1.85 mm, 2.40 mm, SMPM = RF047-A</td>
<td>ALSO AVAILABLE</td>
</tr>
<tr>
<td>RF120</td>
<td>MWC-19550-FCU-01 19 AWG millimeter wave cable</td>
<td>1.85 mm, 2.40 mm, SMPM = RF086</td>
<td>1.35 mm, 1.85 mm, 2.40 mm, SMPM = RF085</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.40 mm = RF085</td>
<td>2.40 mm, SMPM = RF23C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.40 mm = RF120</td>
<td></td>
</tr>
</tbody>
</table>

**2.92 mm Cable Connectors**

**PRF92**

**Connectors for Industry Standard Cables**

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
<th>INTERFACE STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF92-P-C-EE-405-SD RG 405, .085, semi-rigid</td>
<td>(4.5720) .180 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EE-085A-SD .085, semi-rigid, 23AWG</td>
<td>(5.3848) .212 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-150-SS IW 1501, low loss flexible</td>
<td>(5.5372) .218 Min.</td>
</tr>
<tr>
<td>PRF92-P-C-EP-142-SS Harbour LL142, low loss flexible</td>
<td>(4.6279) .1822 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-085-SS Harbour SS405, flexible alternative to RG 405</td>
<td>(4.5974) .1810 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-085-BS Harbour SS405, flexible alternative to RG 405</td>
<td>(2.9286) .1153 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-085-SS Harbour SS405, flexible alternative to RG 405</td>
<td>(2.9134) .1147 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-080-SS RG 402, .141, semi-rigid</td>
<td>(1.2776) .0503 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-080-SS RG 405, .085, semi-rigid</td>
<td>(1.2624) .0497 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-080-SS RG 402, .141, semi-rigid</td>
<td>(2.9286) .1153 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-080-SS RG 405, .085, semi-rigid</td>
<td>(2.9134) .1147 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-086-SS .086 Temp-Flex, low loss flexible</td>
<td>(1.2776) .0503 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-087D-SS .047, semi-rigid</td>
<td>(4.6279) .1822 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-087D-SS .047, semi-rigid</td>
<td>(4.5974) .1810 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EE-118-SD Havertim HC35004, .118, semi-rigid</td>
<td>(2.9286) .1153 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-118-SS Havertim HC35004, .118, semi-rigid</td>
<td>(2.9134) .1147 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(1.2776) .0503 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(1.2624) .0497 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-118-SD RG 402, .141, semi-rigid</td>
<td>(2.9286) .1153 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-118-SD RG 405, .085, semi-rigid</td>
<td>(2.9134) .1147 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-120A-SS Semflex HP120, low loss flexible</td>
<td>(1.2776) .0503 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-120A-SS Semflex HP120, low loss flexible</td>
<td>(1.2624) .0497 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(2.9286) .1153 DIA</td>
</tr>
<tr>
<td>PRF92-P-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(2.9134) .1147 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(1.2776) .0503 DIA</td>
</tr>
<tr>
<td>PRF92-J-C-EP-140-SS Dynawave DF140, low loss flexible</td>
<td>(1.2624) .0497 DIA</td>
</tr>
</tbody>
</table>

**2.92 mm Board Connectors**

**PRF92**

**292**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–J = Jack</td>
<td>–P = PCB Mount</td>
<td>–HP = 30 µ&quot; (0.76 µm) Gold center contact, Passivated outer contact</td>
<td>–ST = Straight</td>
<td>–CM2 = Compression Mount</td>
</tr>
</tbody>
</table>

**VSWR**

- RF047-A: 1.35 max.
- RF086: 1.40 max.
- RF085: 1.40 max.
- RF23C: 1.40 max.
- RF120: 1.40 max.

**2.92 mm TO 40 GHz**

**Cable Mates:**
- RF047-A, RF085, RF086, RF23C, RF120

**PRF92**

- RF047-A, RF085, RF086, RF23C, RF120

**INTERFACE STANDARD**

- (4.5720) .180 DIA
- (5.3848) .212 DIA
- (4.6279) .186 Min.
- (5.5372) .218 Min.
- (4.5974) .1810 DIA
- (2.9286) .1153 DIA
- (2.9134) .1147 DIA
- (1.2776) .0503 DIA
- (1.2624) .0497 DIA

**4S = 4-hole flange, Solder Clamp**

**Samtec**

Unlesson otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 3.50 mm TO 34 GHz

#### Cable Assemblies
**RF23S**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RF23S</strong></td>
<td><strong>-355JP</strong></td>
<td><strong>-355PP</strong></td>
<td><strong>&quot;XXXX&quot;</strong></td>
</tr>
</tbody>
</table>

- **-355JP** = 3.50 mm Straight Jack
- **-355PP** = 3.50 mm Straight Plug

- **"XXXX"** = Overall Length in millimeters
  - \(0100\) (100 mm) 3.94" min.

#### RF23S: MWC-2350-01 microwave cable with 23 AWG solid FEP Dielectric

**VSWR**

- **RF23S**: 1.30 max

#### Cable Connectors

#### CONNECTORS FOR INDUSTRY STANDARD CABLES

- **PRF35-P-C-EP-405-SS**: RG 405, .085, semi-rigid
- **PRF35-J-C-EP-402-SS**: RG 402, .141, semi-rigid
- **PRF35-J-C-EP-402-BS**: RG 402, .141, semi-rigid
- **PRF35-P-C-EP-402-SS**: RG 402, .141, semi-rigid
- **PRF35-P-C-EP-120A-SS**: Semflex HP120, low loss flexible
- **PRF35-J-C-EP-160-SS**: Semflex HP160, low loss flexible
- **PRF35-P-C-EP-160-SS**: Semflex HP160, low loss flexible

#### CONNECTORS FOR INDUSTRY STANDARD CABLES

- **PRFS1-J-C-EE-405-BD**: RG 405, .085, semi-rigid
- **PRFS1-P-C-EE-405-SD**: RG 405, .085, semi-rigid
- **PRFS1-P-C-EP-141A-SS**: Harbour SS402, flexible alternative to RG 402
- **PRFS1-J-C-EP-160-SS**: Semflex HP160, low loss flexible
- **PRFS1-P-C-EP-160-SS**: Semflex HP160, low loss flexible

#### INTERFACE STANDARD

**SSMA TO 34 GHz**

#### SSMA Cable Connectors
**PRFS1**

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRFS1-J-C-EE-405-BS</strong></td>
</tr>
<tr>
<td><strong>PRFS1-P-C-EE-405-SD</strong></td>
</tr>
<tr>
<td><strong>PRFS1-P-C-EP-141A-SS</strong></td>
</tr>
</tbody>
</table>

**INTERFACE STANDARD**

**samtec.com/350 • samtec.com/SSMA**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.

**SMA TO 18 GHz**

**SMA Cable Assemblies**
RF25S, RF402, RF405, RF180, RF280

**SERIES**
- RF25S = MWC-2550-01 microwave cable with 25 AWG solid FEP dielectric
- RF402 = RG 402 (141") 19 AWG semi-flexible microwave cable
- RF405 = RG 405 (086") 24 AWG semi-flexible microwave cable
- RF180 = (4.52 mm) .178" overshield DIA, 16 AWG microwave cable
- RF280 = (7 mm) .277" overshield DIA, 11 AWG microwave cable

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

<table>
<thead>
<tr>
<th>CONNECTOR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF01-P-C-EP-1208-SS</td>
<td>IW 1201, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-120-SS</td>
<td>Harbour LL120, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-142-SS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-142A-SS</td>
<td>Harbour SB142, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-142-4D</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-142SS</td>
<td>Harbour SS402, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-141A-SS</td>
<td>Harbour SS402, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160-SS</td>
<td>Harbour LL160, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160RS</td>
<td>Harbour LL160, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160-4D</td>
<td>Harbour LL160, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160SS</td>
<td>Harbour SS402, low loss flexible</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160-4D</td>
<td>Harbour SS402, low loss flexible</td>
</tr>
<tr>
<td>PRF01-J-C-EE-047D-4D</td>
<td>.047, semi-rigid</td>
</tr>
<tr>
<td>PRF01-J-C-EE-047-4D</td>
<td>.047, semi-rigid</td>
</tr>
<tr>
<td>PRF01-P-C-EP-160SS</td>
<td>Times Max Gain 200, low loss flexible</td>
</tr>
</tbody>
</table>

**END 1 CONNECTOR**
- **-01SP1** = SMA Straight Plug
- **-01RP1** = SMA Right-angle Plug
- **-01BJ1** = SMA Bulkhead Jack

**END 2 CONNECTOR**
- **-GF** = 10 µ" (0.25 mm) Gold center contact, 3 µ" (0.08 mm) Gold outer contact (-SM1 only)
- **-TH1** = Through-hole
- **-SM1** = Surface Mount (-GF-RA only)

**OVERALL LENGTH**
- **-"XXXX"** = Overall Length in millimeters
  - 0100 (100 mm) 3.94" minimum

**ALSO AVAILABLE**
- SMP = RF25S, RF405
- TNCA, N Type = RF280

**VSWR**
- RF25S: 1.60 max.
- RF402: 1.50 max.
- RF405: 1.35 max.
- RF180: 1.35 max.
- RF280: 1.35 max.

**SMA Cable Connectors**
PRF01

**INTERFACE STANDARD**

**SMA Board Connectors**
SMA-TH, SMA-SM, SMA-MT, SMA-EM

**Cable Mates:**
RF25S, RF402, RF405, RF180, RF280

**GENDER**
- **-J** = Jack
- **-P** = PCB Mount

**TYPE**
- **-H** = 30 µ" (0.76 µm) Gold center contact, 3 µ" (0.08 µm) Gold outer contact

**PLATING**
- **-GF** = 10 µ" (0.25 mm) Gold center contact, 3 µ" (0.08 mm) Gold outer contact (-SM1 only)

**ORIENTATION**
- **-ST** = Straight
- **-RA** = Right-angle

**TERMINATION**
- **-TH1** = Through-hole
- **-SM1** = Surface Mount (-GF-RA only)
- **-EM1** = Edge Mount (-ST only)
- **-EM3** = Drop-in Edge Mount (-ST only)
- **-MT1** = Mixed Technology (-ST only)

*Remove last “1” from end connector when specifying RF180 & RF280.*
SMPM TO 65 GHz

**SMPM Cable Assemblies**
RF047-A, RF086, RF23C

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF047-A</td>
<td>0.047&quot; overshield DIA 29 AWG millimeter cable</td>
<td>M0SP = SMPM Straight Plug, Full Detent</td>
<td>“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF086</td>
<td>0.086&quot; overshield DIA 23 AWG millimeter cable</td>
<td>M0SJ = SMPM Straight Jack</td>
<td>0100 (0100 mm) 3.94&quot; minimum (RF047-A, RF086)</td>
</tr>
<tr>
<td>RF23C</td>
<td>MWC-2350CU-01 millimeter wave cable with copper foil shield</td>
<td>ALSO AVAILABLE</td>
<td>0152 (0152 mm) 5.984&quot; minimum (RF23C)</td>
</tr>
</tbody>
</table>

**SMPM Cable Connectors**
PRFM0

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
<th>INTERFACE STANDARD (CATCHERS MITT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRFM0-J-C-EE-047A-BD .047 Temp-Flex, low loss flexible, 29 AWG</td>
<td>P.C = Cable Plug</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-085 BD Harbour SS405, flexible alternative to RG 405</td>
<td>J.C = Cable Jack</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-047A-RD .047 Temp-Flex, low loss flexible, 29 AWG</td>
<td>EE = Plating (50 μ&quot; Gold center contact, &amp; outer contact)</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-086.BD .086 Temp-Flex, low loss flexible</td>
<td>HG = Plating (30 μ&quot; Gold center contact, 10 μ&quot; Gold outer contact)</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-047B-SD .047 Temp-Flex, low loss flexible, 28 AWG</td>
<td>SD = Straight, Direct Solder</td>
</tr>
<tr>
<td>PRFM0-P-C-HG-047A-SD .047 Temp-Flex, low loss flexible, 29 AWG</td>
<td>BD = Bulkhead, Direct Solder</td>
</tr>
<tr>
<td>PRFM0-J-C-HG-047A-SD .047 Temp-Flex, low loss flexible, 29 AWG</td>
<td>RD = Right-angle, Direct Solder</td>
</tr>
</tbody>
</table>

**SMPM Board Connectors**
SMPM-SM, SMPM-TH, SMPM-RA

| SMPM GENDER TYPE PLATING ORIENTATION TERMINATION 1 |
|----------------------------------------|----------------|----------------|----------------|----------------|----------------|
| –PF = Full Detent | –P = PCB Mount | –HG = 30 μ" (0.76 μm) Gold center contact, 10 μ" (0.25 μm) Gold outer contact | –ST = Straight | –EM = Drop-in Edge Mount | 1 |
| –PS = Smooth Bore | –PC = Catchers Mitt | –HF = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact | –RA = Right-angle | –TH = Through-hole | ST-Th only |
| –PS = Smooth Bore | –PC = Catchers Mitt | –EE = 50 μ" (1.27 μm) Gold center contact and outer body | –SM = Surface Mount | –SM = Surface Mount | ST only |

**VSWR**
RF047-A: 1.40 max.
RF086: 1.40 max.
RF23C: 1.40 max.

**SMPM Cable Mates:**
RF047-A, RF086, RF23C

**samtec.com/SMPM**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### GANGED SMPM SOLUTIONS

#### BOARD-TO-BOARD GANGED, MULTI-POSITION SMPM BLOCKS

**Series:** GPPB  
**Mates with:** PRFIA  

**FEATURES**  
- High-density, space-saving design  
- 8.33 mm (.328") pitch (3.56 mm (.140") pitch in development)  
- Push-on interface with varying retention forces  
- Bullet adaptors enable blind mate applications accommodating axial and radial misalignment  
- Board height options: 5.33 mm (.210"), 8.31 mm (.327"), 12.70 mm (.500")

---

#### CABLE-TO-BOARD GANGED, MULTI-POSITION SMPM CABLE ASSEMBLY

**Cable Assembly:** GC47  
**Board Mate:** GPPC  

**FEATURES**  
- High-density, space-saving design  
- Pitch: 3.56 mm (.140")  
- Push-on interface for quick installation  
- .047 low-loss flexible microwave/millimeter wave cable  

---

Applications include: 5G wireless, mmWave, military/defense, telecom, radar, test & measurement, applications that are space limited and require high operating frequency

---

**SMPM TO 65 GHz**

**SMPM Bullet Adaptor**  
**PRFIA**  
**Mates With:** SMPM, GPPB  

<table>
<thead>
<tr>
<th>Option</th>
<th>Feature</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>-J = Jack</td>
<td>(5.33) .210</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>-J = Jack</td>
<td>(8.3) .327</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>-ST = Straight</td>
<td>(12.7) .500</td>
</tr>
</tbody>
</table>

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.


**SMP TO 40 GHz**

**SMP Cable Assemblies**

RF25S, RF405

- **SERIES**
  - **RF25S** = MWC-2550-01 microwave cable with 25 AWG solid FEP dielectric
  - **RF405** = RG 405 (.086”) 24 AWG semi-flexible microwave cable

- **END 1 CONNECTOR**
  - “00SJ7” = SMP Straight Jack

- **END 2 CONNECTOR**
  - “00RJ7” = SMP Right-angle Jack

- **OVERALL LENGTH**
  - “XXXX” = Overall Length in millimeters
  - 0100 (100 mm) 3.94” minimum

**ALSO AVAILABLE**

- SMA = RF25S
- SMA = RF405

**VSWR**

RF25S: Contact Samtec
RF405: Contact Samtec

---

**SMP Cable Connectors**

PRF00

- **CONNECTORS FOR INDUSTRY STANDARD CABLES**
  - **PRF00-J-C-EE-047A-RD** = .047 Temp-Flex, low loss flexible, 29 AWG
  - **PRF00-J-C-EE-085A-SD** = .085, semi-rigid, 23 AWG
  - **PRF00-PF-C-KK-047D-BD** = .047, semi-rigid

- **INTERFACE STANDARD (FULL DETENT)**

  - J-C = Cable Jack
  - EE = Plating (50 µ” Gold center contact & outer contact)
  - KK = Plating (100 µ” Gold over Nickel center contact, passivated outer contact)
  - BD = Bulkhead, Direct Solder
  - SD = Straight, Direct Solder
  - RD = Right-angle, Direct Solder

---

**samtec.com/SMP**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

### SMP Board Connectors
**SMP-TH, SMP-EM**

**Cable Mates:**
RF405, RF25S

<table>
<thead>
<tr>
<th>SMP</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-PF</td>
<td>Plug, Full Detent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-PL</td>
<td>Plug, Limited Detent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-PS</td>
<td>Plug, Smooth Bore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-PC</td>
<td>Plug, Catcher’s Mitt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-P</td>
<td>PCB Mount</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-GF</td>
<td>10 µ&quot; (0.25 µm) Gold center contact, Gold Flash outer contact</td>
<td>-TH2 only</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-HH</td>
<td>30 µ&quot; (0.76 µm) Gold center and outer contact</td>
<td>-EM3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ST</td>
<td>Straight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-TH2</td>
<td>Through-hole</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-EM3</td>
<td>Drop-in Edge Mount (Not available with -PC)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SMP Bullet Adaptor
**SMP-B**

**APPLICATION**
Compensates for axial & radial misalignment

<table>
<thead>
<tr>
<th>SMP</th>
<th>J</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>BULLET LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-B</td>
<td>Bullet Adaptor</td>
<td></td>
<td>-0645 6.45 mm (.254&quot;)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-GF</td>
<td>10 µ&quot; (0.25 µm) Gold center contact, Gold Flash outer contact</td>
<td>-ST Straight</td>
<td>-1450 14.50 mm (.571&quot;)</td>
</tr>
</tbody>
</table>

[Images of SMP Board Connectors and SMP Bullet Adaptor]
**N Type TO 18 GHz**

### N Type Cable Assemblies
RF180, RF280

- **RF180**
  - (4.52 mm) 178° overshield DIA, 16 AWG microwave cable
  - VSWR: 1.35 max.

- **RF280**
  - (7 mm) 277° overshield DIA, 11 AWG microwave cable
  - VSWR: 1.35 max.

### Connectors for Industry Standard Cables
PRF06

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF180</td>
<td>-06SP = N Type Straight Plug</td>
<td>-06RP = N Type Right-angle Plug</td>
<td>“XXXX” = Overall length in millimeters</td>
</tr>
<tr>
<td>RF280</td>
<td>-06BJ = N Type Straight Bulkhead Jack</td>
<td>-01000 (100 mm) 3.94” minimum</td>
<td></td>
</tr>
</tbody>
</table>

### ALSO AVAILABLE
SMA, TNCA = RF180
SMA, TNCA = RF280

### N Type Cable Connectors
PRF06

- **PRF06-P-C-EP-142-SS**
  - Harbour LL142, low loss flexible

- **PRF06-P-C-EP-190-SS**
  - Semflex HP190, low loss flexible

- **PRF06-P-C-EP-335-SS**
  - Harbour LL335, low loss flexible

- **PRF06-P-C-EP-290-SS**
  - Semflex LA290, low loss flexible

- **PRF06-P-C-EP-142A-SS**
  - Harbour SB142, low loss flexible

- **PRF06-P-C-EP-305-SS**
  - Semflex HP305, low loss flexible

- **PRF06-P-C-EP-335-SS**
  - Harbour LL335, low loss flexible

- **PRF06-P-C-EP-142A-RS**
  - Harbour LL142, low loss flexible

- **PRF06-P-C-EP-190-RS**
  - Semflex HP190, low loss flexible

- **PRF06-P-C-EP-120A-SS**
  - Times Max Gain 120, low loss flexible

- **PRF06-P-C-EP-142-BS**
  - Harbour LL142, low loss flexible

- **PRF06-P-C-EP-190-BS**
  - Semflex HP190, low loss flexible

- **PRF06-P-C-EP-120A-BS**
  - Times Max Gain 120, low loss flexible

- **PRF06-P-C-EP-305-SS**
  - Semflex HP305, low loss flexible

- **PRF06-P-C-EP-335-RS**
  - Harbour LL335, low loss flexible

- **PRF06-J-C-EP-142-BS**
  - Harbour LL142, low loss flexible

- **PRF06-J-C-EP-190-BS**
  - Semflex HP190, low loss flexible

- **PRF06-J-C-EP-120A-BS**
  - Times Max Gain 120, low loss flexible

- **PRF06-J-C-EP-335-BS**
  - Harbour LL335, low loss flexible

- **PRF06-J-C-EP-142A-BS**
  - Harbour SB142, low loss flexible

- **PRF06-J-C-EP-190A-BS**
  - Vault LA290, low loss flexible

- **PRF06-J-C-EP-335A-SS**
  - Harbour LL335i, low loss flexible

- **PRF06-J-C-EP-300A-SS**
  - Times Max Gain 300, low loss flexible

- **PRF06-J-C-EP-335A-RS**
  - Harbour LL335i, low loss flexible

- **PRF06-P-C-EP-141A-SS**
  - Harbour SS402, flexible alternative to RG 402

- **PRF06-P-C-EP-1335-BS**
  - Harbour LL335, low loss flexible

- **PRF06-P-C-EP-1335A-SS**
  - Harbour LL335i, low loss flexible

- **PRF06-P-C-EP-290A-RS**
  - Semflex LA290, low loss flexible

- **PRF06-P-C-EP-290A-SS**
  - Times Max Gain 290, low loss flexible

### Interface Standard

**P-C** = Cable Plug
**J-C** = Cable Jack
**EP** = Plating (50 µ” Gold center contact, passivated outer contact)
**SS** = Straight, Solder Clamp
**RS** = Right-angle, Solder Clamp
**BS** = Bulkhead, Solder Clamp
**4S** = 4-hole Flange, Solder Clamp

![Diagram of connectors and dimensions](image-url)
**TNCA TO 18 GHz**

**TNCA Cable Assemblies**
- RF180, RF280

**VSWR**
- RF180: 1.35 max.
- RF280: 1.35 max.

---

**Series**
- **RF180**
  - (4.52 mm) .178” overshield DIA, 16 AWG microwave cable
- **RF280**
  - (7 mm) .277” overshield DIA, 11 AWG microwave cable

**End 1 Connector**
- **-04SP**
  - TNCA Straight Plug
- **-04RP**
  - TNCA Right-angle Plug
- **-04BJ**
  - TNCA Straight Bulkhead Jack

**End 2 Connector**

**Overall Length**
- “XXXX”
  - Overall length in millimeters
  - -0100 (100 mm) 3.94” minimum

**Also Available**
- SMA, N Type = RF180
- SMA, N Type = RF280

---

**TNCA Cable Connectors**
- PRF04

**Connectors for Industry Standard Cables**
- **PRF04-P-C-EP-142-SS**
  - Harbour LL142, low loss flexible
- **PRF04-J-C-EP-142-BS**
  - Harbour LL142, low loss flexible
- **PRF04-P-C-EP-142-SS**
  - Harbour LL142, low loss flexible
- **PRF04-P-C-EP-335-SS**
  - Harbour LL335, low loss flexible
- **PRF04-P-C-EP-290-SS**
  - Semflex LA290, low loss flexible
- **PRF04-J-C-EP-190-BS**
  - Semflex HP190, low loss flexible
- **PRF04-P-C-EP-190-SS**
  - Semflex HP190, low loss flexible
- **PRF04-P-C-EP-190-BS**
  - Semflex HP190, low loss flexible
- **PRF04-P-C-EP-335A-SS**
  - Harbour LL335i, low loss flexible
- **PRF04-J-C-EP-335A-BS**
  - Harbour LL335i, low loss flexible
- **PRF04-P-C-EP-300A-SS**
  - Times Max Gain 300, low loss flexible
- **PRF04-P-C-EP-200-SS**
  - Times Max Gain 200, low loss flexible

**Interface Standard**

---

**P-C** = Cable Plug
**J-C** = Cable Jack
**EP** = Plating (50 µ“ Gold center contact, passivated outer contact)
**SS** = Straight, Solder Clamp
**RS** = Right-angle, Solder Clamp
**BS** = Bulkhead, Solder Clamp

samtec.com/TNCA

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
The high-density array designs and advanced cabling solutions within Samtec’s Bulls Eye® product family support test and measurement applications to 70 GHz.

- Compression interface to the board provides easy on/off and eliminates soldering costs
- High-density, space-saving design
- Enables smaller evaluation boards and shorter trace lengths
- Installation: while the attach process for each series is similar, each have unique specifications that need to be observed

**PRODUCT FAMILY CROSS REFERENCE GUIDE**

<table>
<thead>
<tr>
<th>ASSEMBLY</th>
<th>70 GHz</th>
<th>50 GHz</th>
<th>40 GHz</th>
<th>20 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>End 2 Connectors</td>
<td>1.85 mm</td>
<td>2.40 mm (50 GHz)</td>
<td>2.92 mm (40 GHz)</td>
<td>2.92 mm (2 Row)</td>
</tr>
<tr>
<td>Samtec Series</td>
<td>BE70A</td>
<td>BE40A</td>
<td>BDRA</td>
<td>BQRA</td>
</tr>
<tr>
<td>Cable Type</td>
<td>.086</td>
<td>MWC-2350CU-01</td>
<td>MWC-2350-01</td>
<td></td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB Transmission</td>
<td>Microstrip or Stripline</td>
<td>Stripline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>Spring-Loaded Contact; 360° Grounding</td>
<td>Pogo-Pin for Signal &amp; Ground</td>
<td>Fixed-Pin for Signal; Elastomer &amp; Block for Ground</td>
<td></td>
</tr>
<tr>
<td>No. of Positions</td>
<td>2x 3, 4, 6, 8, 10, 12, 14, 16</td>
<td>2x 12</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ω</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPGA Development Kit</td>
<td>Xilinx® Zynq® UltraScale™ RFSoC ZCU1275</td>
<td>Xilinx® Virtex® UltraScale™ FPGA VCU110</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 70 GHz ASSEMBLIES

<table>
<thead>
<tr>
<th>BE70A</th>
<th>TRANSMISSION TYPE</th>
<th>END 2</th>
<th>PHASE MATCHING</th>
<th>POSITIONS PER ROW</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>–S</td>
<td>= Stripline</td>
<td>-18SJ</td>
<td>= 1.85 mm Straight Jack</td>
<td>-2</td>
<td>–“XXXX”</td>
</tr>
<tr>
<td>–M</td>
<td>= Microstrip</td>
<td>-18SP</td>
<td>= 1.85 mm Straight Plug</td>
<td>-5</td>
<td>= Overall length in millimeters</td>
</tr>
<tr>
<td>–N</td>
<td>= No Phase Matching</td>
<td></td>
<td></td>
<td>03, –04, -06, –08, -10, –12, –14, –16</td>
<td>–0152 (0152 mm) 5.984” to –9999 (9999 mm) 393.7”</td>
</tr>
</tbody>
</table>

**BE70A**

End 2 Connectors: 1.85 mm (70 GHz)

---

### BE70A, 2 X 4 FOOTPRINT, 12-INCH CABLE

- **~3 dB LOSS: BREAKOUT REGION + BE70A**
  - [Insertion Loss Performance](#)
  - [Return Loss Performance](#)

- **MEASURED: 1.975 mm STRIPLINE + BREAKOUT REGION + BE70A**

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
# 50 GHz & 40 GHz Assemblies

**BE40A**

<table>
<thead>
<tr>
<th>TRANSMISSION TYPE</th>
<th>END 2</th>
<th>PHASE MATCHING</th>
<th>POSITIONS PER ROW</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>–S (Stripline)</td>
<td>92SJ</td>
<td>–2 (2.0 Pico-second)</td>
<td>–03, –04, –06, –08, –10, –12, –14, –16</td>
<td>–“XXXX” (Overall length in millimeters)</td>
</tr>
<tr>
<td>–M (Microstrip)</td>
<td>92SP</td>
<td>–5 (5.0 Pico-second)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24SJ</td>
<td>–10 (10.0 Pico-second)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24SP</td>
<td>–“XXXX”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**End 2 Connectors:**
- 2.92 mm (40 GHz)
- 2.40 mm (50 GHz)

---

**20 GHz Assemblies**

**BDRA**

<table>
<thead>
<tr>
<th>END 2</th>
<th>PHASE MATCHING</th>
<th>12</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>92SJP (2.92 mm Straight Jack)</td>
<td>–2 (2.0 Pico-second)</td>
<td>–12</td>
<td>–“XXXX” (Overall length in millimeters)</td>
</tr>
<tr>
<td>92SPP (2.92 mm Straight Plug)</td>
<td>–5 (5.0 Pico-second)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24SJP</td>
<td>–10 (10.0 Pico-second)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**End 2 Connectors:**
- 2.92 mm

---

**BQRA**

<table>
<thead>
<tr>
<th>END 2</th>
<th>PHASE MATCHING</th>
<th>10</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>92SJP (2.92 mm Straight Jack)</td>
<td>–2 (2.0 Pico-second)</td>
<td>–10</td>
<td>–“XXXX” (Overall length in millimeters)</td>
</tr>
<tr>
<td>92SPP (2.92 mm Straight Plug)</td>
<td>–5 (5.0 Pico-second)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24SJP</td>
<td>–10 (10.0 Pico-second)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**End 2 Connectors:**
- 2.92 mm

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
To support the demands of next generation systems, Samtec is developing innovative interconnect solutions such as our new mmWave technology, which enables a high-frequency, ultra-small form factor, and highly flexible waveguide design. Samtec High-Frequency Micro Waveguides offer high-performance at a lower overall cost than traditional metallic waveguides. Products currently in testing:

- Threaded Termination Cable and mating PCB Launch Right-Angle Connector
- In Development: Push-Pull Style Mini Termination Cable and mating PCB Launch Right-Angle Connector
- Roadmap: Low Loss Dielectric Push-Pull Mini Termination Cable and Vertical PCB Launch Connector
- Adaptors to traditional waveguide interfaces also available

Contact RFGroup@samtec.com for additional details.

**Low Loss Dielectric**
(Target: 8 dB/meter)

**Ultra-Small Form Factor**

29 mm

5 mm

8 mm

12 mm

Samtec Push-Pull Mini Termination Dielectric Waveguide (In Development)

Standard UG-385 Waveguide Flange Adaptor

Samtec Threaded Termination Dielectric Waveguide

Samtec Threaded Termination Dielectric Waveguide

Stripline Routing

Flexible Cable Construction

Push-Pull Mini Termination Cable & PCB Launch Right-Angle Connector (In Development)
## LOW-FREQUENCY CABLES

**STANDARD OFF-THE-SHELF ASSEMBLIES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>50 Ω CABLES</th>
<th>75 Ω CABLES</th>
<th>100 Ω CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RG 178</td>
<td>CTB-2650F-01</td>
<td>RG 174</td>
</tr>
<tr>
<td><strong>ELECTRICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>Ω</td>
<td>50 ± 2</td>
<td>50 ± 5</td>
</tr>
<tr>
<td>Insertion Loss (dB/m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 MHz</td>
<td></td>
<td>0.50</td>
<td>0.68</td>
</tr>
<tr>
<td>1 GHz</td>
<td></td>
<td>1.70</td>
<td>2.37</td>
</tr>
<tr>
<td>6 GHz</td>
<td></td>
<td>5.90</td>
<td>6.53</td>
</tr>
<tr>
<td>Propagation Delay</td>
<td>nS/m</td>
<td>4.83</td>
<td>4.17</td>
</tr>
<tr>
<td>Current Rating</td>
<td>Amps</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Capacitance</td>
<td>pF/m</td>
<td>96</td>
<td>85.6</td>
</tr>
<tr>
<td><strong>CONSTRUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center Conductor Material</td>
<td>Silver Plated Copper Clad Steel</td>
<td>Silver Plated Copper</td>
<td>Bare Copper</td>
</tr>
<tr>
<td>AWG</td>
<td>30</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Dielectric Material</td>
<td>PTFE</td>
<td>Foamed FEP</td>
<td>KLPE</td>
</tr>
<tr>
<td>Shield Material</td>
<td>Silver Plated Copper</td>
<td>Tinned Copper</td>
<td>Silver Plated Copper</td>
</tr>
<tr>
<td>Jacket Material</td>
<td>FEP</td>
<td>PVC</td>
<td>FEP</td>
</tr>
<tr>
<td>Temp Rating</td>
<td>-50 °C to +165 °C</td>
<td>-40 °C to +200 °C</td>
<td>-20 °C to +80 °C</td>
</tr>
<tr>
<td><strong>MECHANICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bend Radius Min</td>
<td>10.2 mm</td>
<td>3.175 mm</td>
<td>25.4 mm</td>
</tr>
<tr>
<td>Connector Options</td>
<td>MMX, MCMX, SMA, SMB, BNC, TNC, N Type</td>
<td>IsoRate®</td>
<td>MMX, MCMXV, MCMX, SMA, SMB, BNC, TNC, N Type, Ganged</td>
</tr>
<tr>
<td><strong>PART NUMBER</strong></td>
<td>Series</td>
<td>RF178</td>
<td>IJ5C</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**

- **MH081** = 0.81 mm Cable
- **MH113** = 1.13 mm Cable

**APPLICATION**

Specify END OPTIONS from chart

---

**OVERALL LENGTH**

- **-0030** = 1.18" (30 mm)
- **-0050** = 1.97" (50 mm)
- **-0100** = 3.94" (100 mm)
- **-0150** = 5.91" (150 mm)
- **-0300** = 11.81" (300 mm)

---

**SPECIFICATIONS**

**Outer Contact Material:**
- Au plated Phosphor Bronze (MHX)
- Au plated BeCu (SMA)

**Center Contact Material:**
- Au plated Phosphor Bronze
- Au plated BeCu (SMA)

**Insulator Material:**
- PBT (MHX)
- PTFE (SMA)

**Operating Temperature:**
- -40 °C to +90 °C

**Voltage Rating:**
- 170 V max

**Dielectric Withstanding Voltage:**
- 200 Vrms

---

**MH081 (0.81 mm Cable):**

- **Capacitance:** 100 pF/meter
- **Max Attenuation (cable only):** 3.1 dB @ 1 GHz
- **Conductor Size:** 36 AWG, (0.81 mm) .032” dia.
- **Conductor Material:** Silver Plated Copper
- **Conductor Resistance:** 1.40 Ω/meter max
- **Insulator Diameter:** (0.4 mm) .016”
- **Insulator Material:** FEP
- **Shield Material:** Silver Plated Copper
- **Insulator Diameter:** (0.66 mm) .026”
- **Insulator Material:** FEP
- **Shield Material:** Tinned Copper
- **Jacket Diameter:** (1.13 mm) .045” dia
- **Jacket Material:** FEP
- **Bend Radius:** 6.8 mm
- **Bend Radius:** 5.0 mm
- **Jacket Temp Rating:** -40 °C to +90 °C

**MH113 (1.13 mm Cable):**

- **Capacitance:** 95 pF/meter
- **Max Attenuation (cable only):** 2 dB @ 1 GHz
- **Conductor Size:** 32 AWG, (1.13 mm) .045” dia.
- **Conductor Material:** Silver Plated Copper
- **Conductor Resistance:** 0.60 Ω/meter max
- **Insulator Diameter:** (0.66 mm) .026”
- **Insulator Material:** FEP
- **Shield Material:** Tinned Copper
- **Jacket Diameter:** (1.13 mm) .045” dia
- **Bend Radius:** 6.8 mm
- **Bend Radius:** 5.0 mm
- **Jacket Temp Rating:** -40 °C to +90 °C

---

**EXTRACTION TOOLS**

- **MH1RP = RSP-122893-01**
- **MH3RP = RSP-122893-02**
- **MH4RP = RSP-122893-03**

---

**MATING SOLUTIONS**

- **MH1RP end mates with RSP-122811-01** (Cycles: 30 max.)
- **MH3RP end mates with RSP-122811-02**
- **MH4RP end mates with RSP-122811-03**

---

**END OPTIONS**

- **-MH1RP = MHF1 Type Plug**
  - (3.9 μ” (0.1 µm) Gold on Center Contact, 1.9 μ” (0.05 µm) Gold on Shell)

- **-MH3RP = MHF3 Type Plug**
  - (3.9 μ” (0.1 µm) Gold on Center Contact, 1.9 μ” (0.05 µm) Gold on Shell)
  - (MH081 only)

- **-MH4RP = MHF4 Type Plug**
  - (10 μ” (0.25 µm) Gold on Center Contact, 1.9 μ” (0.05 µm) Gold on Shell)
  - (MH081 only)
  - (MH4RP is not available with MH1RP & MH3RP)

- **-01BJ1 = SMA Straight Bulkhead Jack**
  - (MH081 only)

- **-01B2 = SMA Straight Bulkhead Jack, Reversed Polarity**

- **-01S1 = SMA Straight Jack, Sealed Bulkhead**
  - (MH081 only)

- **-01SR1 = SMA Straight Jack, Sealed Bulkhead, Reversed Polarity**
  - (MH081 only)

- **-SING = Single Ended**
  - (End 2 callout)

- **XXXXXX = Stripped & Tinned**
  - (End 2 callout)

---

**MATERIALS**

- **Jacket Material:**
  - PFA

---

**JACKET TEMP RATING:**

- **-40 °C to +90 °C**

---

**50 Ω MICRO HIGH FREQUENCY RF CABLES TO 6 GHz**

---

**samtec.com/MHF**
### SMA Cable Assemblies

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>-01SP1 = SMA Straight Plug</td>
<td>-01BP1 = SMA Right-angle Plug</td>
<td><strong>“XXXX”</strong> = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td>-01BJ1 = SMA Straight Bulkhead Jack</td>
<td>-01SB1 = Straight Bulkhead Jack, Sealed</td>
<td><strong>0100 (100 mm)</strong> 3.94“ minimum</td>
</tr>
<tr>
<td>RF316</td>
<td>-01SR1 = Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
<td>-01BR1 = Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
<td></td>
</tr>
<tr>
<td>RS316</td>
<td>-01PN1 = 4-Hole Panel Mount Jack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF058</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SMA Cable Connectors (SMA-CA)

<table>
<thead>
<tr>
<th>SMA</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>-J = Jack</td>
<td>-C = Cable</td>
<td>-H = 30 μ&quot; (0.76 μm) Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact (N/A with -BH1S)</td>
<td>-ST = Straight</td>
<td>-BH1 = Bulkhead RG 174 / 316 Cable</td>
</tr>
<tr>
<td>RF178</td>
<td>-C6 = Cable</td>
<td>-C4 = 4-Mounting Screws (PN1 only)</td>
<td>-HF = 30 μ&quot; (0.76 μm) Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact</td>
<td>-ST = Straight</td>
<td>-BH1S = Bulkhead RG 316 Cable, Double Shield</td>
</tr>
<tr>
<td>RF316</td>
<td>-01SP1 = SMA Straight Plug</td>
<td>-01BP1 = SMA Right-angle Plug</td>
<td>-01BH1 = ASA Straight Bulkhead Jack `</td>
<td>-01SB1 = Straight Bulkhead Jack, Sealed</td>
<td>-01SR1 = Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
</tr>
<tr>
<td>RS316</td>
<td>-01SR1 = Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
<td>-01BR1 = Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
<td>-01PN1 = 4-Hole Panel Mount Jack</td>
<td>-01BR2 = Bulkhead RG 174 Cable, Reversed Polarity</td>
<td>-01PN2 = Sealed Bulkhead RG 58 Cable</td>
</tr>
</tbody>
</table>

#### SMA Board Connectors

<table>
<thead>
<tr>
<th>SMA</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>-P = Plug</td>
<td>-C = Cable</td>
<td>-H = 20 μ&quot; (0.08 μm) Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact</td>
<td>-ST = Straight</td>
<td>-CA1 = RG 174 / 316 Cable</td>
</tr>
<tr>
<td>RF178</td>
<td>-10 = 10K Ohm</td>
<td>-C10 = Cable</td>
<td>-HF = 20 μ&quot; (0.08 μm) Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact</td>
<td>-ST = Straight</td>
<td>-C10 = RG 58 Cable</td>
</tr>
</tbody>
</table>

Supplied with pins, washers, nuts and ferrules. See website for dimensions.

50 Ω: MCX, MMCX, SMB, BNC, TNC, N Type = RF174, RF178, RS316
50 Ω: TNC = RS316
50 Ω: SMA = RF058

Supplied with pins, washers, nuts and ferrules. See website for dimensions.
MCX Cable Assemblies
RF174, RF178, RF316, RS316

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>-02SJ1  = MCX Straight Jack</td>
<td>-02RP1  = MCX Right-angle Plug (RS316 not available)</td>
<td>-“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td>-02SJ1  = MCX Straight Jack</td>
<td>-02RP1  = MCX Right-angle Plug (RS316 not available)</td>
<td>-0100 (100 mm) 3.94” minimum</td>
</tr>
<tr>
<td>RF316</td>
<td>-02SP1  = MCX Straight Plug</td>
<td>-02SP1  = MCX Straight Plug</td>
<td>-02SP1  = MCX Straight Plug</td>
</tr>
<tr>
<td>RS316</td>
<td>-02SP1  = MCX Straight Plug</td>
<td>-02SP1  = MCX Straight Plug</td>
<td>-02SP1  = MCX Straight Plug</td>
</tr>
</tbody>
</table>

ALSO AVAILABLE
50 Ω: MCX, SMA, SMB, BNC, TNC,
N Type = RF174, RF178, RF316
50 Ω: MMCX, SMA, BNC, TNC = RS316

MCX Connectors
MCX-CA

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCX-J-C-H-ST-CA1  = RG 174/316 Cable</td>
</tr>
<tr>
<td>MCX-J-C-H-ST-CA2  = RG 178 Cable</td>
</tr>
<tr>
<td>MCX-J-C-H-ST-CA15 = RG 316 Double Shielded Cable</td>
</tr>
<tr>
<td>MCX-P-C-H-ST-CA1  = RG 174/316 Cable</td>
</tr>
<tr>
<td>MCX-P-C-H-ST-CA2  = RG 178 Cable</td>
</tr>
<tr>
<td>MCX-P-C-H-ST-CA15 = RG 316 Double Shielded Cable</td>
</tr>
</tbody>
</table>

P-C = Cable Plug
J-C = Cable Jack
H or HF = Plating (30 µ” Gold center contact, 3 µ” Gold outer contact)
ST = Straight
RA = Right-angle

MCX Board Connectors
MCX-TH, MCX-SM, MCX-EM, MCX-MT

<table>
<thead>
<tr>
<th>MCX</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-J</td>
<td>-P</td>
<td>-H</td>
<td>-ST</td>
<td>-TH1</td>
</tr>
<tr>
<td></td>
<td>= Jack</td>
<td>= Plug</td>
<td>= 30 µ” (0.76 µm) Gold center contact, 3 µ” (0.08 µm) Gold outer contact</td>
<td>= Straight</td>
<td>= Through-hole (-ST plug not available)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-RA</td>
<td>-TH2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Right-angle</td>
<td>= Elevated Through-hole (-ST plug only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-SM1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Surface Mount (Jack only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-EM1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Edge Mount (-ST Jack only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-MT1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Mixed Technology (-ST Jack only)</td>
</tr>
</tbody>
</table>

Cable Mates:
RF174, RF178, RF316, RS316, GRF1H-C, IJ5H
Supplied with pins and ferrules. See website for dimensions.
50 Ω MMCX TO 6 GHz

**MMCX Cable Assemblies**
RF174, RF178, RF316, RS316

**SERIES**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>= RG 174 Cable</td>
<td>–03SP1 = MMCX Straight Jack</td>
<td></td>
</tr>
<tr>
<td>RF178</td>
<td>= RG 178 Cable</td>
<td>–03RP1 = MMCX Right-angle Plug</td>
<td></td>
</tr>
<tr>
<td>RF316</td>
<td>= RG 316 Cable, Single Braid Shield</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS316</td>
<td>= RG 316 Cable, Double Shielded (–03SP1 only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ALSO AVAILABLE**
50 Ω: MCX, SMA, SMB, BNC, TNC, N Type = RF174, RF178, RF316
50 Ω: MCX, SMA, BNC, TNC = RS316

---

**MMCX Cable Connectors**
MMCX-CA

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

<table>
<thead>
<tr>
<th>CONNECTOR</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMCX-P-C-H-ST-CA1</td>
<td>RG 174/316 Cable</td>
</tr>
<tr>
<td>MMCX-P-C-H-ST-CA2</td>
<td>RG 178 Cable</td>
</tr>
<tr>
<td>MMCX-P-C-H-HF-ST-CA1S</td>
<td>RG 316 Double Shielded Cable</td>
</tr>
<tr>
<td>MMCX-P-C-H-RA-CA1</td>
<td>RG 174/316 Cable</td>
</tr>
<tr>
<td>MMCX-P-C-H-RA-CA2</td>
<td>RG 178 Cable</td>
</tr>
</tbody>
</table>

P.C = Cable Plug
H or HF = Plating (30 μ" Gold center contact,
3 μ" Gold outer contact)
ST = Straight
RA = Right-angle

Supplied with pins and ferrules.
See website for dimensions.

---

**MMCX Board Connectors**
MMCX-SM, MMCX-TH, MMCX-MT, MMCX-EM

**Cable Mates:**
RF174, RF178, RF316, RS316, GRF1H-C, IJ5H

**SIZES**

<table>
<thead>
<tr>
<th>MMCX</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–J = Jack</td>
<td>–P = Plug</td>
<td>–H = 30 μ&quot; (0.76 μm) Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–ST = Straight</td>
<td>–RA = Right-angle</td>
<td>–TH1 = Through-hole</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–MT1 = Mixed Technology (–ST only)</td>
<td>–SM1 = Surface Mount (–RA plug not available)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–EM1 = Edge Mount (–ST only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**TNC Cable Assemblies**

**Series**
- RF174 = RG 174 Cable
- RF178 = RG 178 Cable
- RF316 = RG 316 Cable, Single Braid Shield
- RS316 = RG 316 Cable, Double Shielded
- RF058 = RG 58 Cable

**End 1 Connector**
- 05SP3 = TNC Straight Plug (RF058 not available)
- 05BJ3 = TNC Straight Bulkhead Jack (RS316 & RF058 not available)
- 05SR3 = TNC Straight Plug, Reversed Polarity (RF058 only)

**End 2 Connector**

**Overall Length**
- “XXXX” = Overall Length in millimeters
- −0100 (100 mm) 3.94” minimum

---

**Also Available**
- 50 Ω: MCX, MMCX, SMA, SMB, BNC, N Type = RF174, RF178, RF316
- 50 Ω: MCX, MMCX, SMA, BNC = RS316
- 50 Ω: SMA, N Type = RF058

---

**TNC Cable Connectors**

**TNC-CA**

**Connectors for Industry Standard Cables**

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNC-P-C-GN-ST-CA1</td>
<td>RG 174/316 Cable</td>
</tr>
<tr>
<td>TNC-P-C-GN-ST-CA2</td>
<td>RG 178 Cable</td>
</tr>
<tr>
<td>TNC-P-C-GN-SR-C10</td>
<td>RG 58 Cable</td>
</tr>
<tr>
<td>TNC-J-C-GN-ST-BH1</td>
<td>RG 174/316 Cable, Bulkhead</td>
</tr>
<tr>
<td>TNC-J-C-GN-ST-BH2</td>
<td>RG 178 Cable, Bulkhead</td>
</tr>
</tbody>
</table>

P-C = Cable Plug  
J-C = Cable Jack  
GN = Plating (10 µ" Gold on contact, Nickel on body)  
ST = Straight  
SR = Straight Reverse Polarity

---

**TNC Board Connectors**

**TNC-TH**

**Cable Mates:**
RF174, RF178, RF316, RS316, RF058, GRF1H-C

<table>
<thead>
<tr>
<th>Gender</th>
<th>Type</th>
<th>Plating</th>
<th>Orientation</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>−J</td>
<td>−P</td>
<td>−H</td>
<td>−RA</td>
<td>−TH1</td>
</tr>
<tr>
<td>Jack</td>
<td>PCB Mount</td>
<td>30 µ&quot; (0.76 µm) Gold center contact, Nickel on shell</td>
<td>Right-angle</td>
<td>Through-hole</td>
</tr>
</tbody>
</table>

---

Supplied with pins, washers, nuts and ferrules. See website for dimensions.

---

Unless otherwise approved by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
50 Ω BNC TO 4 GHz

BNC Cable Assemblies
RF174, RF178, RF316, RS316

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174  = RG 174 Cable</td>
<td>-04SP3 = BNC Straight Plug (RS316 not available)</td>
<td>-04BJ2 = BNC Bulkhead Jack</td>
<td>–“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178  = RG 178 Cable</td>
<td></td>
<td></td>
<td>–0100 (100 mm) 3.94&quot; minimum</td>
</tr>
<tr>
<td>RF316  = RG 316 Cable, Single Braid Shield</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS316  = RG 316 Cable, Double Shielded</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALSO AVAILABLE
50 Ω: MCX, MMCX, SMA, SMB, TNC,
N Type = RF174, RF178, RF316
50 Ω: MCX, MMCX, SMA, TNC = RS316

BNC Cable Connectors
BNC5-CA

-04SP3 = BNC Straight Plug (RS316 not available)
-04BJ2 = BNC Bulkhead Jack

50 Ω: MCX, MMCX, SMA, SMB, TNC,
N Type = RF174, RF178, RF316
50 Ω: MCX, MMCX, SMA, TNC = RS316

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNCS-P-C-GN-ST-CA1</td>
</tr>
<tr>
<td>BNCS-P-C-GN-ST-CA2</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH1</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH2</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH1S</td>
</tr>
</tbody>
</table>

P-C = Cable Plug
J-C = Cable Jack
GN = Plating (10 µ" Gold on contact, Nickel on body)
ST = Straight

Supplied with pins, washers, nuts, gaskets and ferrules. See website for dimensions.
## SMB Cable Assemblies

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF174</td>
<td>SMB Straight Plug</td>
<td>SMB Straight Plug</td>
<td>“XXXX”</td>
</tr>
<tr>
<td>RF178</td>
<td>SMB Right-angle Plug</td>
<td>SMB Bulkhead Jack</td>
<td>Overall Length in millimeters</td>
</tr>
<tr>
<td>RF316</td>
<td>SMB Bulkhead Jack (RF178 only)</td>
<td></td>
<td>≥100 (100 mm) 3.94” minimum</td>
</tr>
</tbody>
</table>

**RF174, RF178, RF316**

- **RF174** = RG 174 Cable
- **RF178** = RG 178 Cable
- **RF316** = RG 316 Cable, Single Braid Shield

### ALSO AVAILABLE

50 Ω: MCX, MMCX, SMA, BNC, TNC, N Type = RF174, RF178, RF316

## SMB Cable Connectors

**SMB5-CA**

- **SMB5-CA** = Cable Assembly
- **SMB5-P-C-H-ST-CA1** = RG 174/316 Cable
- **SMB5-P-C-H-RA-CA1** = RG 174/316 Cable
- **SMB5-J-C-H-ST-CA2** = RG 178 Cable
- **SMB5-J-C-H-ST-BH1** = RG 316 Cable, Bulkhead

**SMB5-CA** are supplied with pins, washers, nuts and ferrules. See website for dimensions.

### CONNECTORS FOR INDUSTRY STANDARD CABLES

- **P-C** = Cable Plug
- **J-C** = Cable Jack
- **H** = Plating (30 µ” Gold center contact, 3 µ” Gold on outer contact)
- **ST** = Straight
- **RA** = Right-angle

## SMB Board Connectors

**SMB5-TH**

**Cable Mates:** RF174, RF178, RF316, GRF1H-C, IJ5H

- **SMB5**
- **GENDER** = Jack
- **TYPE** = PCB Mount
- **PLATING** = 30 µ” (0.76 µm) Gold center contact, 3 µ” (0.08 µm) Gold outer contact
- **ORIENTATION** = Right-angle
- **TERMINATION** = Through-hole

---

**samtec.com/SMB**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
75 Ω BNC TO 12 GHz

BNC Cable Assemblies
RFC6T, RFA6T, RFB6T, RF179

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC6T*</td>
<td>-74SP3</td>
<td>-74SP3</td>
<td>-“XXXX””</td>
</tr>
<tr>
<td>= 12G-SDI, Belden 4694R Cable</td>
<td>= 75 Ω BNC Straight Plug</td>
<td>= 75 Ω BNC Straight Plug</td>
<td>= Overall Length in millimeters</td>
</tr>
<tr>
<td>RFA6T</td>
<td>-D4SP3</td>
<td>-74BJ3</td>
<td>-0300 (300 mm)</td>
</tr>
<tr>
<td>= RG 6 Cable</td>
<td>= 75 Ω BNC Die Cast Straight Plug</td>
<td>= 75 Ω BNC Bulkhead Jack (RF179 only)</td>
<td>11.81” minimum (RFA6T, RFB6T, RFC6T)</td>
</tr>
<tr>
<td>RFB6T</td>
<td>-74BP3</td>
<td>-74RP3</td>
<td>-0100 (100 mm)</td>
</tr>
<tr>
<td>= Belden 1694A Cable</td>
<td>= 75 Ω BNC Right-angle Plug (RFA6T, RFB6T, RFC6T only)</td>
<td></td>
<td>3.94” minimum (RF179)</td>
</tr>
<tr>
<td>RF179</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= RG 179 Cable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ALSO AVAILABLE**
75 Ω: DIN 1.0/2.3, HD-BNC™ = RFA6T, RFB6T, RFC6T
75 Ω: DIN 1.0/2.3, SMB, MCX, MMCX = RF179

*Designed to meet SMPTE 2082 12G-SDI specifications.

BNC Cable Connectors
BNC7T-CA

Supplied with pins, washers, nuts, gaskets and ferrules. See website for dimensions.

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNC7T-P-C-GN-ST-CA3</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-RA-CA3</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-ST-CA6</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-RA-CA6</td>
</tr>
<tr>
<td>BNC7T-J-C-GN-ST-BH3</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-ST-CA3D</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-ST-CA6D</td>
</tr>
</tbody>
</table>

P.C. = Cable Plug
J.C. = Cable Jack
GN = Plating (10 µ” Gold on contact, Nickel on outer contact and shell)
ST = Straight
RA = Right-angle

*Designed to meet SMPTE 2082 12G-SDI specifications.

---

Note:
Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

samtecs/BNC

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 75 Ω Die Cast BNC to 12 GHz

**BNC Board Connectors**

- BNC7T-TH, BNC7T-BH, BNC7T-BM, BNC7T-EM

**Cable Mates:**
- RF179, RFA6T, RF68T, RFC6T, GRF7H-C

**BNC7T**
- Gender: **J** = Jack
- Type: **P** = PCB Mount
- Plating: **GN** = 10 μ" (0.25 μm) Gold contact, 100 μ" (2.54 μm) Nickel Shell
- Orientation: **ST** = Straight
- Termination: **TH2D** = Tall Through-hole Die Cast (~ST only)
  - **BH2D** = Low-Profile Die Cast Bulkhead Through-hole (~RA only)
  - **BM1D** = Low-Profile Die Cast Bulkhead Mixed Technology for (1.60 mm) .062" PCB (~RA only)
  - **BM2D** = Low-Profile Die Cast Bulkhead Mixed Technology for (3.18 mm) .125" PCB (~RA only)
  - **EM1D** = Edge Mount Die Cast Bulkhead/Panel Mount for (1.60 mm) .062" PCB (~ST only)
  - **EM2D** = Edge Mount Die Cast Bulkhead/Panel Mount for (2.40 mm) .093" PCB (~ST only)

**Notes:**
- Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.
- Designed to meet SMPTE 2082 12G-SDI specifications.
- Additional plating options available on Board Connectors. Contact RFGroup@samtec.com

### 75 Ω Machined BNC to 12 GHz

**BNC Board Connectors**

- BNC7T-TH, BNC7T-BH, BNC7T-EM

**Cable Mates:**
- RF179, RFA6T, RF68T, RFC6T, GRF7H-C

**BNC7T**
- Gender: **J** = Jack
- Type: **P** = PCB Mount
- Plating: **GN** = 10 μ" (0.25 μm) Gold contact, 100 μ" (2.54 μm) Nickel Shell
- Orientation: **ST** = Straight
- Termination: **TH1** = Standard Through-hole (~ST only)
  - **BH1** = Standard Bulkhead Through-hole (~RA only)
  - **EM1** = Edge Mount Bulkhead/Panel Mount for (1.60 mm) .062" PCB (~ST only)
  - **EM2** = Edge Mount Bulkhead/Panel Mount for (2.40 mm) .093" PCB (~ST only)

**Notes:**
- Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.
- Designed to meet SMPTE 2082 12G-SDI specifications.
- Additional plating options available on Board Connectors. Contact RFGroup@samtec.com

*Lock washers & knurled nuts supplied with bulkhead/panel mount options.
75 Ω HD-BNC™ TO 12 GHz

HD-BNC™
Cable Assemblies
RFA6T, RFB6T, RFBB8T, RFC6T, RFC8T

-H4SP3
= 75 Ω High-Density BNC Straight Plug

“XXXX”
= Overall Length in millimeters

-0300 (300 mm)
11.81” minimum

-“XXXX”
= Overall Length in millimeters

500 (500 mm)
19.69” minimum

75 Ω: DIN 1.0/2.3, BNC = RFB6T, RFA6T, RFC6T
75 Ω: DIN 1.0/2.3 = RFB8T, RFC8T

*Designed to meet SMPTE 2082 12G-SDI specifications.

HD-BNC™
Cable Connectors
HDBNC-CA

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC6T*</td>
<td>= 12G-SDI, Belden 4694R Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFC8T*</td>
<td>= 12G-SDI, Belden 4855R Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFA6T</td>
<td>= RG 6 Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFB6T</td>
<td>= Belden 1694A Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFBB8T</td>
<td>= Belden 1855A Cable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALSO AVAILABLE
75 Ω: DIN 1.0/2.3, BNC = RFB6T, RFA6T, RFC6T
75 Ω: DIN 1.0/2.3 = RFB8T, RFC8T

Supplied with pins and ferrules. See website with dimensions.

Designed to meet SMPTE 2082 12G-SDI specifications.

HD-BNC™
Board Connectors
HDBNC-TH, HDBNC-EM, HDBNC-BH, HDBNC-BM

Cable Mates:
RFA6T, RFB6T, RFBB8T, RFC6T, RFC8T

Notes:
Designed to meet SMPTE 2082 12G-SDI specifications.

Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

samtec.com/HDBNC

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**DIN Cable Assemblies**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC6T*</td>
<td>= 12G-SDI, Belden 4694R Cable</td>
<td>= 75 Ω DIN Straight Plug</td>
<td>= Overall length in millimeters</td>
</tr>
<tr>
<td>RFC8T*</td>
<td>= 12G-SDI, Belden 4855R Cable</td>
<td></td>
<td>= 0100 (100 mm) 3.94&quot; minimum (RF179)</td>
</tr>
<tr>
<td>RFA6T</td>
<td>= RG 6 Cable</td>
<td></td>
<td>= 0300 (300 mm) 11.81&quot; minimum (RFA6T, RFB6T, RFB8T, RFC6T, RFC8T)</td>
</tr>
<tr>
<td>RFB6T</td>
<td>= Belden 1694A Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF179</td>
<td>= RG 179 Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFB8T</td>
<td>= Belden 1855A Cable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Designed to meet SMPTE 2082 12G-SDI specifications.

**DIN Cable Connectors**

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN7A-PP-C-GF-ST-CA3</td>
</tr>
<tr>
<td>DIN7A-PP-C-GF-ST-CA6</td>
</tr>
<tr>
<td>DIN7A-PP-C-GF-ST-CA8</td>
</tr>
</tbody>
</table>

*Designed to meet SMPTE 2082 12G-SDI specifications.

**Notes:**

- Push Pull Plug Cable
- GF = Plating (10 µ" Gold on center contact, Flash Gold on outer contact, Nickel on Shell)
- ST = Straight

**Supplied with pins and ferrules. See website for dimensions.**

**DIN Board Connectors**

<table>
<thead>
<tr>
<th>DIN7A</th>
<th>GENDER</th>
<th>TYPE</th>
<th>PLATING</th>
<th>ORIENTATION</th>
<th>TERMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-J</td>
<td>= Jack</td>
<td>-P</td>
<td>= PCB Mount</td>
<td>= Straight (-TH1 only)</td>
<td>= Through-hole (-ST only)</td>
</tr>
<tr>
<td>-G</td>
<td>= 10 µ&quot; (0.25 µm) Gold center contact, 3 µ&quot; (0.08 µm) Gold outer contact, (100 µ&quot; (2.54 µm) Nickel body –RA only)</td>
<td>-ST-TH1</td>
<td>= Right-angle (-BH1 only)</td>
<td>= Bulkhead Through-hole (-RA only)</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

- Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.
- Designed to meet SMPTE 2082 12G-SDI specifications.
- Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

---

*samte.com/DIN*
**SMB Cable Assemblies**

**RF179**

- **SERIES**
  - RF179 = RG 179 Cable

- **END 1 CONNECTOR**
  - 77SP1 = 75 Ω SMB Straight Plug

- **END 2 CONNECTOR**
  - 77RP1 = 75 Ω SMB Right-angle Plug

- **OVERALL LENGTH**
  - “XXXX” = Overall Length in millimeters

- **0100 (100 mm) 3.94” minimum**

**ALSO AVAILABLE**

- 75 Ω: DIN 1.0/2.3, BNC, MCX, MMCX = RF179

---

**SMB Cable Connectors**

**SMB7H-CA**

**CONNECTIONS FOR INDUSTRY STANDARD CABLES**

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMB7H-P.C-H-ST-CA3</td>
<td>RG 179 Cable</td>
</tr>
<tr>
<td>SMB7H-P.C-HF-RA-CA3</td>
<td>RG 179 Cable</td>
</tr>
</tbody>
</table>

- **P.C = Cable Plug**
- **H or HF = Plating (30 µ" Gold center contact, 3 µ" Gold outer contact)**
- **ST = Straight**
- **RA = Right-angle**

Supplied with pins and ferrules. See website for dimensions.

---

**SMB Board Connectors**

**SMB7H-TH, SMB7H-EM**

**Cable Mates:**

- RF179, GRF7H-C

**SMB7H**

- **GENDER**
  - J = Jack
  - P = PCB Mount

- **TYPE**
  - H = 30 µ" (0.76 µm) Gold center contact, 3 µ" (0.08 µm) Gold outer contact
  - ST = Straight
  - RA = Right-angle

- **PLATING**
  - TH1 = Through-hole (0.90 mm), 0.35° DIA Signal Pin
  - TH2 = Through-hole (0.51 mm), 0.20° DIA Signal Pin (~ST only)
  - EM1 = Edge Mount (~ST only)

- **ORIENTATION**

- **TERMINATION**
  - TH1
  - TH2

Note: Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

---

samtec.com/SMB
ORIGINAL RF SOLUTIONS

SHIELDED TWISTED PAIR SYSTEM
• 100 Ω differential pair
• 28 AWG shielded twisted pair cable assembly
• High reliability BeCu contacts
• 1/4-turn bayonet lock

GANGED MICRO-MINI SYSTEMS
• 50 Ω & 75 Ω board stacking and cable assemblies
• High performance rugged contacts
• Variety of End 2 connectors (GRF1H-C, GRF7H-C Series)

ISORATE® SYSTEMS
• 50 Ω board stacking and cable assemblies
• Isolated signal systems for 90 percent performance of traditional RF at 50 percent of the cost

MINI & MICRO-MINI INTERCONNECTS
• 75 Ω impedance (MMCX7, MCX7 Series)
• Higher extraction forces (MMCXV Series)
• Not intermateable with standard MMCX, MCX

HIGH-CYCLE U.FL CABLE PLUG
• 500 cycle U.FL compatible plug (HMHF1)
• .047” DIA flexible cable (RF047 Series)

CABLE SOLUTIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>C28S/CJT</th>
<th>GRF1-C/GRF7-C</th>
<th>GRF1H-C/GRF7H-C</th>
<th>RF047</th>
<th>IJSC/IJSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Shielded Twisted Pair</td>
<td>50 Ω &amp; 75 Ω Micro-Mini Ganged</td>
<td>50 &amp; 75 Ω Micro-Mini Hybrid Ganged</td>
<td>50 Ω .047 DIA flexible cable</td>
<td>50 Ω IsoRate®</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERIES</th>
<th>GRF1-P/GRF1-J</th>
<th>GRF7-P/GRF7-J</th>
<th>MMCX7</th>
<th>MCX7</th>
<th>MMCXV</th>
<th>IJ5/IP5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>50 Ω Micro-Mini Ganged</td>
<td>75 Ω Micro-Mini Ganged</td>
<td>75 Ω Mini and Micro-Mini Interconnects</td>
<td>High-Vibration Micro-Mini</td>
<td>50 Ω IsoRate®</td>
<td></td>
</tr>
</tbody>
</table>

BOARD-TO-BOARD SOLUTIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>GRF1-P/GRF1-J</th>
<th>GRF7-P/GRF7-J</th>
<th>MMCX7</th>
<th>MCX7</th>
<th>MMCXV</th>
<th>IJ5/IP5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>50 Ω Micro-Mini Ganged</td>
<td>75 Ω Micro-Mini Ganged</td>
<td>75 Ω Mini and Micro-Mini Interconnects</td>
<td>High-Vibration Micro-Mini</td>
<td>50 Ω IsoRate®</td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
CUSTOM RF APPLICATION SPECIFIC SOLUTIONS

EXTREME FLEXIBILITY • QUICK-TURN MODIFICATIONS • CUSTOM DESIGNS

Samtec's fully vertically integrated business model enables the flexibility to quickly and efficiently identify and/or develop innovative, application-specific interconnect solutions to meet a variety of demands in digital/analog systems. Contact RFGroup@samtec.com to discuss your application.

CUSTOMIZED CABLE ASSEMBLIES • EXTREME FLEXIBILITY

- Mix & Match solutions for any application
- Choose any cable connector
- Choose any standard cable

QUICK-TURN MODIFICATIONS & CUSTOMS • STANDARDS & NEW DESIGNS

- Termination types
- Custom tail lengths / designs
- Right-angle height adjustment
- Heat-shrink tubing
- High-frequency applications
- Pick & Place machine designs
- Alternate platings
- Custom labels
- Test & Measurement solutions

TECHNICAL SUPPORT • FULL SYSTEM DESIGN & DEVELOPMENT

- Launch design
- Prototyping
- Fabrication
- Simulations
- Launch optimization support
- Full system test & measurement

samtec.com/RF

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
RUGGED TIGER EYE™ & MICRO MATE™ SYSTEMS

HIGH-RELIABILITY • MULTI-FINGER BeCu CONTACT • HIGH MATING CYCLES

1.00 mm PITCH MICRO MATE™ SYSTEMS

Socket Cable Assemblies/Components (S1SS(T), S1SD(T), T1M, ISS1, ISD1, CC09) ........................................ 172-175
Single Row Terminal Cable Assemblies/Components (T1SS(T), T1PS(T), IST1, ISP1, TC37) ............................. 176
Double Row Terminal Cable Assemblies/Components (T1SD(T), T1PD(T), IDT1, IDP1, TC37) ...................... 177

0.80 mm PITCH TIGER EYE™ SYSTEMS

Micro Pitch Sockets & Terminals (SEM, SEMS, TEM, TEMS) ................................................................. 178-180
Socket Cable Assemblies/Components (SESDT, ISDE, CC396) ................................................................. 181

.050” (1.27 mm) PITCH TIGER EYE™ SYSTEMS

Standard Pitch Sockets & Terminals (SFM, TFM) .................................................................................... 182-184
Cost-Effective Tiger Eye™ Lite Sockets & Terminals (SFC, TFC) ............................................................... 185
Socket Cable Assemblies/Components (SFSS(T), SFSD(T), ISDF, CC03) ............................................. 186-187
Quad Row Strips (MOLC, FOLC) ............................................................................................................. 188
Flexible Pin Count Tiger Eye™ Sockets (SFMC) ......................................................................................... 189

2.00 mm PITCH TIGER EYE™ SYSTEMS

2.00 mm Pitch Sockets & Terminals (S2M, T2M) ............................................................................................. 190-191
2.00 mm Pitch Cable Assemblies/Components (S2SD(T), T2SD(T), ISD2, CC81) .................................. 192-193
2.00 mm Pitch Flex Stack & IDC Cable Socket (SMM) ............................................................................. 194
**MICRO MATE™**

**RUGGED MICRO CABLE SYSTEMS**
(1.00 mm) .0394" PITCH

---

**FEATURES & BENEFITS**

- Cable-to-cable, panel-to-board and cable-to-board applications
- Extremely small form factors
- 28 and 30 AWG wire options in PVC or Teflon®
- Rugged positive latching for increased retention
- Socket or terminal, single or double row assemblies
- Vertical and right-angle mating headers

---

**KEY SPECIFICATIONS (S1SX(T), T1SX(T) & T1PX(T))**

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 mm</td>
<td>Black LCP (S1SS(T) without latch)</td>
<td>Phosphor Bronze</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-10 °C to +85 °C (PVC) -30 °C to +125 °C (Teflon®)</td>
<td>3.3 A per pin (Max.)</td>
<td>250 VAC/353 VDC</td>
</tr>
<tr>
<td></td>
<td>Natural Nylon (S1SS(T) with Latch, S1SD(T), T1XD(T))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nylon, Light Green (T1XS(T))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Dupont® Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

---

Components and tooling available: samtec.com/tooling

Custom solutions available contact: asp@samtec.com

---

Dual leaf contact system for a reliable connection
### Series

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>LATCH</th>
<th>OPTIONS</th>
<th>“X”R</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1M</td>
<td>-02, -03, -05, -07, -10, -15, -20</td>
<td>-F = 3 µ&quot; (0.07 µm) Gold on contact, Matte Tin on tail</td>
<td>-SH = Single Row Horizontal</td>
<td>-L = Positive Latch</td>
<td>-K = (4.00 mm) .157&quot; DIA Polyimide Film Pick &amp; Place Pad (-SH only)</td>
<td>(Leave blank for Tape &amp; Reel)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-SV = Single Row Vertical</td>
<td></td>
<td>-P = Pick &amp; Place Pad (-SV only)</td>
<td>(must order max. quantity per reel; contact Samtec for quantity breaks)</td>
</tr>
</tbody>
</table>

**T1M-SH/SV**

Cable Mates: S1SS(T), S1SD(T)

### T1M-DH/DV

Cable Mates: S1SS(T), S1SD(T)

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/T1M

---

**View complete specifications at:** samtec.com?T1M

---

**View complete specifications at:** samtec.com?T1M

---

**View complete specifications at:** samtec.com?T1M

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**

- **S1SS** = Single Row PVC Cable
  -02, -03, -05, -07, -10, -15, -20 (Standard sizes)
- **S1SST** = Single Row Blue *Teflon® Cable (28 AWG only)
  -28 = 28 AWG Color Coded Cable (S1SST only)
  -30 = 30 AWG
- **S1SS(T)**
  -02, -03, -05, -07, -10, -15, -20 (Standard sizes)
- **CC09R** = Contact, Full Reel (30,000 Parts per Reel)
- **CC09M** = Contact, Mini Reel (5,000 Parts per Reel)

**PINs PER ROW**

- **S1SS**
  -28 = 28 AWG
  -GC = 3 µ" (0.07 µm) Gold on contact and tail
- **S1SST**
  -28C = 28 AWG Color Coded Cable (S1SST only)
  -30 = 30 AWG
  -30C = 30 AWG Color Coded Cable (S1SST only)

**ASSEMBLED LENGTH**

- **S1SS**
  -“XX.XX” = Assembled Length in Inches (45.72 mm) 01.80” min.
  -L = Single Ended With Latch
  -L1 = Double Ended Latch down, straight (Pin 1 to Pin N)
  -L3 = Double Ended Latch up, straight (Pin 1 to Pin N)
  -S = Single Ended No Latch
  -D–NUS = Double Ended No Latch, “N” up, straight
  -D–NDS = Double Ended No Latch, “N” down, straight

**SPECIFICATIONS**

- **Insulator Material:** Nylon, White (with latch)
  Black, LCP (without latch)
- **Contact Material:** Phosphor Bronze
- **Plating:** Au over 50 µ" (1.27 µm) Ni
  -GF = 3 µ" (0.07 µm) Gold on contact and tail
- **Operating Temp Range**
  -S1SS(T)/T1M:
  -10 °C to +85 °C (PVC)
  -40 °C to +125 °C (Teflon®)
- **Current Rating (28 AWG):** 2.7 A per pin (1 pin powered)
- **Voltage Rating:** 250 VAC/353 VDC
- **Wire:** 28 or 30 AWG

**COLOR CODING**

- **PIN COLOR**
  1. BROWN
  2. RED
  3. ORANGE
  4. YELLOW
  5. GREEN
  6. BLUE
  7. VIOLET
  8. GRAY
  9. WHITE
  10. BLACK

**TOOLING**

- **Hand Tool:** CAT-HT-309-2830-12
- **Mini Applicator:** CAT-MC-309-2830-XX-01

---

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

Note: Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.
### Specifications

<table>
<thead>
<tr>
<th>Insulator Material:</th>
<th>Natural Nylon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Material:</td>
<td>Phosphor Bronze</td>
</tr>
<tr>
<td>Plating:</td>
<td>Au over 50 µ&quot; (1.27 µm) Ni</td>
</tr>
<tr>
<td>Operating Temp Range (S1SD(T)/T1M):</td>
<td>-10 °C to +85 °C (PVC)</td>
</tr>
<tr>
<td></td>
<td>-40 °C to +125 °C (Teflon®)</td>
</tr>
<tr>
<td>Current Rating (28 AWG):</td>
<td>2.3 A per pin</td>
</tr>
<tr>
<td></td>
<td>(2 pins powered)</td>
</tr>
<tr>
<td>Voltage Rating:</td>
<td>250 VAC/353 VDC</td>
</tr>
<tr>
<td>Wire:</td>
<td>28 or 30 AWG</td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com?S1SD & samtec.com?S1SDT

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

**Note:** Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.
## Specifications

- **Insulator Material:** Nylon, Light Green
- **Contact Material:** Phosphor Bronze
- **Plating:** Au over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -10 °C to +80 °C (PVC)  
  -40 °C to +125 °C (Teflon®)
- **Wire:** 28 or 30 AWG

## Cable Mates

- **T1SS(T), T1PS(T) Cable Mates:** S1SS, S1SST

---

**Note:**

- Some lengths, styles, and options are non-standard, non-returnable.

---

**TOOLING**

- **Hand Tool:** CAT-HT-1137-2830-12
- **Mini Applicator:** CAT-MC-309-2830-XX-01

---

**View complete specifications at:** [samtec.com/T1SS](http://samtec.com/T1SS), [samtec.com/T1SST](http://samtec.com/T1SST), [samtec.com/T1PS](http://samtec.com/T1PS) & [samtec.com/T1PST](http://samtec.com/T1PST)
### MICRO MATE™

(1.00 mm) .0394” PITCH • DOUBLE ROW DISCRETE WIRE TERMINAL

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>WIRE GAUGE</th>
<th>PLATING OPTION</th>
<th>ASSEMBLED LENGTH</th>
<th>PANEL OPTION</th>
<th>PINOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1SD</td>
<td>-02 thru –10</td>
<td>28</td>
<td>GF = 3 µ” (0.07 µm) Gold on contact and tail</td>
<td>“XX.X” = Assembled Length in Inches (45.7 mm) 01.8” min.</td>
<td>(Leave blank for non-panel mount)</td>
<td>(Leave blank for single ended assembly)</td>
</tr>
<tr>
<td>T1PD</td>
<td></td>
<td>28C</td>
<td></td>
<td></td>
<td>(A = Fits .033” (0.84 mm), .062” (1.57 mm) and .090” (2.29 mm) Thick Panels)</td>
<td>(D1 = Double Ended down (Not available with T1PD or T1PDT)</td>
</tr>
<tr>
<td>T1SDT</td>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td>(T1 = Transfer to socket down)</td>
<td>(D3 = Double Ended up (Not available with T1PD or T1PDT)</td>
</tr>
<tr>
<td>T1PDT</td>
<td></td>
<td>30C</td>
<td></td>
<td></td>
<td>(T3 = Transfer to socket up)</td>
<td></td>
</tr>
</tbody>
</table>

**T1SD(T), T1PD(T)**

- Cable Mates: S1SD, S1SDT

---

**SPECIFICATIONS**

- **Insulator Material:** Nylon, White
- **Contact Material:** Phosphor Bronze
- **Plating:** Au over 50 µ” (1.27 µm) Ni
- **Operating Temp Range:**
  - -10 °C to +80 °C (PVC)
  - -40 °C to +125 °C (Teflon®)
- **Wire:** 28 or 30 AWG

**TC37R**

- **Series:** Contact, Full Reel (25,000 Parts per Reel)

**TC37M**

- **Series:** Contact, Mini Reel (1,000 - 5,000 Parts per Reel)

---

**TOOLING**

- **Hand Tool:** CAT-HT-1137-2830-12
- **Mini Applicator:** CAT-MC-309-2830-XX-01

---

**T1SD(T), T1PD(T)**

- **Cable Mates:** S1SD, S1SDT

---

**NOTES**

- **Plating Options:**
  - 3 µ” (0.07 µm) Gold on contact and tail
  - 3 µ” (0.07 µm) Gold contact and tail

- **Cable Colors:**
  - 1: Brown
  - 2: Red
  - 3: Orange
  - 4: Yellow
  - 5: Green
  - 6: Blue
  - 7: Violet
  - 8: Gray
  - 9: White
  - 10: Black
  - ETC: Repeat

- **Gold Plating:** Au over 50 µ” (1.27 µm) Ni

---

**Contact Information:**

**RUGGED TIGER EYE™ SYSTEMS**
(0.80 mm) .0315" PITCH

**FEATURES & BENEFITS**
- High-reliability, multi-finger BeCu contact
- Micro pitch and slim body for space-savings
- 6 mm, 7 mm and 10 mm stack heights
- Locking clip, alignment pins and weld tab ruggedizing features
- Rugged latching system for increased withdrawal force
- Vertical and right-angle mating headers
- Discrete wire assembly available with 32 AWG Teflon® wire; contact asp@samtec.com for custom solutions
- Extended Life Product™ testing available

**KEY SPECIFICATIONS (SEM/TEM)**

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.80 mm</td>
<td>6 - 10 mm</td>
<td>Black LCP</td>
<td>BeCu (SEM)</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>2.9 A per pin (2 pins powered)</td>
<td>235 VAC/330 VDC</td>
</tr>
</tbody>
</table>

Dupont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(0.80 mm) .0315" PITCH • MICRO TIGER EYE™ SOCKET AND HEADER

**SERIES** - **NO. PINS PER ROW** - **STACK HEIGHT** - **PLATING OPTION** - **OPTIONS** - **OTHER OPTIONS**

| SEM | 05, 10, 15, 20, 25 (SEM, SEMS, TEM, TEMS only) | -03.0 - 6 mm Stack Height (-03.0 required for SEM/SEMS Series) | –FG = Gold Flash | Leave blank for SEMS/TEMS | –K = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad (Required for SEMS) |
| SEEMS | 30, 35, 40, 45, 50 (SEM/TEM only) (Standard sizes) | -04.0 = 7 mm Stack Height (TEM/TEMS only) | –G = 10 µ" (0.25 µm) Gold on contact, Gold Flash on tail | –A = Alignment Pin (Not available with –LC or –WT) | = (5.50 mm) .217" DIA Polyimide film Pick & Place Pad (Required for TEMS) |
| TEM | | -07.0 = 10 mm Stack Height (TEM/TEMS only) | –H = 30 µ" (0.76 µm) Gold on contact, Gold Flash on tail | –LC = Locking Clip (Not available with –A or –WT) (Manual placement required) | –TR = Tape & Reel (Required for SEMS/TEMS) |
| TEMS | | | –WT = Weld Tab (Not available with –A or –LC) | | FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) |

**Board Mates:**
- SEM
- SEEMS
- TEM
- TEMS

View complete specifications at: samtec.com?SEM & samtec.com?SEMS

**SEM**

Board Mates: TEM

**SEEMS**

Board Mates: TEMS

**TEM**

Board Mates: SEM, SEML

**TEMS**

Board Mates: SEEMS

**MATED HEIGHTS**

<table>
<thead>
<tr>
<th>STACK HEIGHT</th>
<th>A</th>
<th>MATED HEIGHT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>-03.0</td>
<td>(5.610) .2209</td>
<td>6 mm</td>
</tr>
<tr>
<td>-04.0</td>
<td>(6.610) .2602</td>
<td>7 mm</td>
</tr>
<tr>
<td>-07.0</td>
<td>(9.610) .3783</td>
<td>10 mm</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

Note:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?TEM & samtec.com?TEMS

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
(0.80 mm) .0315" PITCH • MICRO TIGER EYE™ HEADER

TEM

- 1

NO. OF POSITIONS

02

DH1

PLATING OPTION

D

OPTION

10, 15, 20, 25, 30, 35, 40, 45, 50
(Per Row)
(Standard sizes)

- F
= Gold Flash on contact,
Matte Tin on tail

- L
= 10 µ" (0.25 µm) Gold on
contact, Matte Tin on tail

- S
= 30 µ" (0.76 µm) Gold on
contact, Matte Tin on tail

-L

A

= Alignment Pin

TEM-DH
Board Mates:
SEM, SEML

TEM-L1
Cable Mates:
SESDT

View complete specifications at: samtec.com?TEM

View complete specifications at: samtec.com/080mm-TigerEye

Note:
Some lengths, styles and options are non-standard, non-returnable

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SPECIFICATIONS**

Insulator Material:
Natural Nylon

Contact Material:
BeCu

Plating:
Au over 50 µ" (1.27 µm) Ni

Wire:
Tinned Copper

Wire Insulation:
FEP

Operating Temp Range:
-55 °C to +125 °C

Current Rating:
1.9 A per pin
(2 pins powered)

Voltage Rating:
200 VAC/280 VDC

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

Note:
Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.

**TOOLING**

Hand Tool: CAT-HT-396-3232-12

Mini Applicator: CAT-MC-396-3232-XX-03

View complete specifications at: samtec.com/080mm-TigerEye
FEATURES & BENEFITS

- Screw down, locking clip, friction latching and weld tab ruggedizing options
- Shrouded, polarized and keyed
- Surface mount or through-hole tails
- High-density, four row design (FOLC/MOLC Series)
- Discrete wire assemblies available in single or double row, 28 and 30 AWG PVC or Teflon® wire; contact asp@samtec.com for custom solutions
- Cable components (ISDF/CC03) and tooling available

KEY SPECIFICATIONS (TFM/SFM)

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
<th>MAX CYCLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.27 mm</td>
<td>6 to 12 mm</td>
<td>Black LCP</td>
<td>BeCu (SFM) Phosphor Bronze (TFM)</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>3.2 A per pin (2 pins powered)</td>
<td>250 VAC</td>
<td>10,000</td>
</tr>
</tbody>
</table>

Dupont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

samtec.com/127mm-TigerEye

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## Tiger Eye System

**1.27 mm .050” Pitch • SMT/Through-Hole Socket**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM</td>
<td>03, 04, 06, 08</td>
<td>(Surface Mount)</td>
<td>–L = Single Row (SFM only)</td>
<td>–S = Single Row (SFM only)</td>
<td>Specify only –A, –LC or –DS (Not available with –DH, –SH)</td>
</tr>
<tr>
<td></td>
<td>(SFM only)</td>
<td>(Through-hole)</td>
<td>(SFM only)</td>
<td>–D = Double Row</td>
<td>–K = Polymide film Pick &amp; Place Pad (Not available with –DH, –SH)</td>
</tr>
<tr>
<td></td>
<td>05, 07, 10, 15,</td>
<td>–02 = Tiger Eye™ Contact (BeCu)</td>
<td>–L1, –L3 = Low</td>
<td>–SH = Single Horizontal (05 thru 30 positions only) (SFM only)</td>
<td>Specify –TR or –FR last; Required for –DH &amp; –SH.</td>
</tr>
<tr>
<td></td>
<td>20, 25, 30, 35,</td>
<td>Contact (BeCu)</td>
<td>–T1 = Tiger Eye™</td>
<td>(Lead style –02 only)</td>
<td>–SH = Single Horizontal (05 thru 30 positions only) (SFM only)</td>
</tr>
<tr>
<td></td>
<td>40, 45, 50</td>
<td>LITE Contact</td>
<td>LITE Contact</td>
<td>(Lead style –02 only)</td>
<td>(Lead styles –01, –02 &amp; –03 only) (Requires –D row option)</td>
</tr>
<tr>
<td></td>
<td>(Standard sizes)</td>
<td>(Phosphor Bronze)</td>
<td>(SFM only)</td>
<td>(Not available with SFML) (Mates with TFM-DS option)</td>
<td>(Not available with SFML) (Mates with TFM-DS option)</td>
</tr>
<tr>
<td>SFML</td>
<td>03, 04, 06, 08</td>
<td>(Surface Mount)</td>
<td>–L = Single Row (SFM only)</td>
<td>–S = Single Row (SFM only)</td>
<td>Specify only –A, –LC or –DS (Not available with –DH, –SH)</td>
</tr>
<tr>
<td></td>
<td>(SFM only)</td>
<td>(Through-hole)</td>
<td>(SFM only)</td>
<td>–D = Double Row</td>
<td>–K = Polymide film Pick &amp; Place Pad (Not available with –DH, –SH)</td>
</tr>
<tr>
<td></td>
<td>05, 07, 10, 15,</td>
<td>–02 = Tiger Eye™ Contact (BeCu)</td>
<td>–L1, –L3 = Low</td>
<td>–SH = Single Horizontal (05 thru 30 positions only) (SFM only)</td>
<td>Specify –TR or –FR last; Required for –DH &amp; –SH.</td>
</tr>
<tr>
<td></td>
<td>20, 25, 30, 35,</td>
<td>Contact (BeCu)</td>
<td>–T1 = Tiger Eye™</td>
<td>(Lead style –02 only)</td>
<td>–SH = Single Horizontal (05 thru 30 positions only) (SFM only)</td>
</tr>
<tr>
<td></td>
<td>40, 45, 50</td>
<td>LITE Contact</td>
<td>LITE Contact</td>
<td>(Lead style –02 only)</td>
<td>(Lead styles –01, –02 &amp; –03 only) (Requires –D row option)</td>
</tr>
<tr>
<td></td>
<td>(Standard sizes)</td>
<td>(Phosphor Bronze)</td>
<td>(SFM only)</td>
<td>(Not available with SFML) (Mates with TFM-DS option)</td>
<td>(Not available with SFML) (Mates with TFM-DS option)</td>
</tr>
</tbody>
</table>

**SFM**

- **Board Mates:** TFM
- **Cable Mates:** TFSD, TFSS

**SFML**

- **Board Mates:** TFM

Note: Some lengths, styles and options are non-standard, non-returnable.


---

**View complete specifications at:** samtec.com/127mm-TigerEye

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### TFM

**Board Mates:** SFM, SFMC  
**Cable Mates:** SFSD

#### TFML

**Board Mates:** SFML

---

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFM = Standard</td>
<td>03, 04, 06, 08 (TFM –01 &amp; –02 only)</td>
<td>Specify LEAD STYLE from chart</td>
<td>–L = 15 µ&quot; (0.38 µm) Gold on post, Matte Tin on tail (Call Samtec for E.L.P.® plating option)</td>
<td>–S = Single Row (TFM only)</td>
<td>Specify only –RA, –RE1 or –RE2</td>
</tr>
<tr>
<td>TFML = Locking (–01 &amp; –02 lead style only)</td>
<td>05, 07, 10, 15, 20, 25, 30, 35, 40, 45, 50 (Standard sizes)</td>
<td>–D = Double Row</td>
<td>–RA = Right-angle (Lead style –01 only)</td>
<td>Specify only –A, –LC, –DS or –WT unless otherwise noted.</td>
<td></td>
</tr>
</tbody>
</table>

#### LEAD STYLE (SMT)

**TFM**

- **–02**: (6.35) .250  
- **–12**: (8.13) .320  
- **–22**: (9.91) .390  
- **–32**: (11.81) .465  

**SFM**

- **–02**: (6.35) .250  
- **–12**: (8.13) .320  
- **–22**: (9.91) .390  
- **–32**: (11.81) .465

#### LEAD STYLE (T/H)

**TFM**

- **–01**: (5.97) .235  
- **–03**: (5.97) .235  
- **–11**: (7.75) .305  
- **–13**: (7.75) .305  
- **–21**: (9.53) .375  
- **–23**: (9.53) .375  
- **–31**: (11.43) .450

**SFM**

- **–01**: (5.97) .235  
- **–03**: (5.97) .235  
- **–11**: (7.75) .305  
- **–13**: (7.75) .305  
- **–21**: (9.53) .375  
- **–23**: (9.53) .375  
- **–31**: (11.43) .450

---

**SMT lead styles only**

**Specify only –K or –P**

**–K**: Polyimide Film Pick & Place Pad  
**–P**: Plastic Pick & Place Pad (5 positions min.) (Not available with 5 position with –WT)

**Specify –TR or –FR last** (Not available with –DS)

**–TR**: Tape & Reel  
**–FR**: Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

---

<table>
<thead>
<tr>
<th>LEAD STYLE (SMT)</th>
<th>MATED HEIGHT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFM</td>
<td>SFM</td>
</tr>
<tr>
<td><strong>–02</strong></td>
<td><strong>–02</strong></td>
</tr>
<tr>
<td>(6.35)</td>
<td>(6.35)</td>
</tr>
<tr>
<td>(8.13)</td>
<td>(8.13)</td>
</tr>
<tr>
<td>(9.91)</td>
<td>(9.91)</td>
</tr>
<tr>
<td>(11.81)</td>
<td>(11.81)</td>
</tr>
</tbody>
</table>

**MATED HEIGHTS**

- **TFM**
  - **–01**: (5.97) .235  
  - **–03**: (5.97) .235  
  - **–11**: (7.75) .305  
  - **–13**: (7.75) .305  
  - **–21**: (9.53) .375  
  - **–23**: (9.53) .375  
  - **–31**: (11.43) .450

- **SFM**
  - **–01**: (5.97) .235  
  - **–03**: (5.97) .235  
  - **–11**: (7.75) .305  
  - **–13**: (7.75) .305  
  - **–21**: (9.53) .375  
  - **–23**: (9.53) .375  
  - **–31**: (11.43) .450

*Processing conditions will affect mated height.

---

**LEAD STYLE (T/H)**

**TFM**

- **–01**: (5.97) .235  
- **–03**: (5.97) .235  
- **–11**: (7.75) .305  
- **–13**: (7.75) .305  
- **–21**: (9.53) .375  
- **–23**: (9.53) .375  
- **–31**: (11.43) .450

**SFM**

- **–01**: (5.97) .235  
- **–03**: (5.97) .235  
- **–11**: (7.75) .305  
- **–13**: (7.75) .305  
- **–21**: (9.53) .375  
- **–23**: (9.53) .375  
- **–31**: (11.43) .450

---

**Cable Mates**:

- **SFSD**

---

**Note:**

Some lengths, styles and options are non-standard, non-returnable.

---

**View complete specifications at:** samtec.com/TFM & samtec.com/TFML

---

**samtec.com/127mm-TigerEye**

---

**Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.”**
TIGER™
EYE
SYSTEM
(1.27 mm) .050” PITCH • COST-EFFECTIVE HEADER/SOCKET

SFC – 1
- NO. PINS PER ROW
- LEAD STYLE
  - T1 = Through-hole Tiger Eye™ LITE
  - T2 = Surface Mount Tiger Eye™ LITE
- PLATING OPTION
  - F = Gold flash on contact, Matte Tin on tail
  - L = 10 µ” (0.25 µm) Gold on contact, Matte Tin on tail
- D
- OPTIONS
  - A = Alignment Pin
  - K = (4.00 mm) .157” DIA Polyimide film Pick & Place Pad
  - TR = Tape & Reel (~T2 only)
  - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (~T2 only)
  - RA = Right-angle (~01 only)
  - A = Alignment Pin
  - LC = Locking Clip (Manual Placement required) (not available with ~RA)
  - P = Plastic Pick & Place Pad (5 positions min.) (not available with ~RA)
  - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (~X2 only) (not available with ~RA)

SFC Board Mates:
TFC
Cable Mates:
TFSD, TFSDT

TFC – 1
- NO. PINS PER ROW
- LEAD STYLE
  - X1 = Through-hole
  - X2 = Surface Mount
- PLATING OPTION
  - F = Gold flash on post, Matte Tin on tail
  - L = 15 µ” (0.38 µm) Gold on post, Matte Tin on tail
- D
- OPTIONS
  - RA = Right-angle (~01 only)
  - A = Alignment Pin
  - LC = Locking Clip (Manual Placement required) (not available with ~RA)
  - K = (6.75 mm) .266" DIA Polyimide film Pick & Place Pad (not available with ~RA)
  - P = Plastic Pick & Place Pad (5 positions min.) (not available with ~RA)
  - TR = Tape & Reel (~X2 only) (not available with ~RA)
  - FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (~X2 only) (not available with ~RA)

TFC Board Mates:
SFC
Cable Mates:
SFSD, SFSDT

Note:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/SFC

View complete specifications at: samtec.com/TFC

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
(1.27 mm) .050" PITCH • DISCRETE WIRE ASSEMBLY/COMPONENTS

SERIES
- POSITIONS PER ROW
- WIRE GAUGE
- PLATING OPTION
- ASSEMBLED LENGTH
- END OPTION
- END 2 OPTION

SFSS
= Single Row
PVC Cable

SFSS(T)
= Single Row
Blue Teflon® Cable

SFST
= Single Row

SERIES
- POSITIONS PER ROW
- WIRE GAUGE
- PLATING OPTION
- ASSEMBLED LENGTH
- END OPTION
- END 2 OPTION

SFSS(T)
Board Mates:
TFM, TFC
(–SR & –DR requires
–WT option)

SPECIFICATIONS
Insulator Material:
Black LCP
Contact Material:
BeCu
Plating:
Au over 50 µ" (1.27 µm) Ni
Current Rating:
2.9 A per pin (2 pins powered)
Operating Temp Range:
-10 °C to +80 °C (PVC)
-40 °C to +125 °C (*Teflon®)
Voltage Rating:
275 VAC (PVC)
235 VAC (*Teflon®)
Wire:
28 or 30 AWG

ISDF
- POSITIONS PER ROW
- ROW OPTION
- OPTION
- SERIES
- WIRE GAUGE
- PLATING

TOOLING
Hand Tool: CAT-HT-203-2830-12
Mini Applicator: CAT-MC-203-2830-XX-01
Clamp for mounting hand tool: CAT-HT-MNT-01
Extraction Tool: CAT-EX-169-01

Notes:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?SFSS & samtec.com?SFSST

View complete specifications at: samtec.com?ISDF, samtec.com?CC03R & samtec.com?CC03M

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**

SFSD = Double Row PVC Cable

SFSDT = Double Row Blue *Teflon® Cable

**SPECIFICATIONS**

Insulator Material:
Black LCP

Contact Material:
BeCu

Plating:
Au over 50 µ" (1.27 µm) Ni

Current Rating:
2.9 A per pin (2 pins powered)

Operating Temp Range:
-10 °C to +80 °C (PVC)
-40 °C to +125 °C (*Teflon®)

Voltage Rating:
275 VAC (PVC)
235 VAC (*Teflon®)

Wire:
28 or 30 AWG

**Notes:**

*Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

**TOOLING**

Hand Tool: CAT-HT-203-2830-12

Mini Applicator: CAT-MC-203-2830-XX-01

Clamp for mounting hand tool: CAT-HT-MNT-01

Extraction Tool: CAT-EX-169-01

View complete specifications at: samtec.com?SFSD & samtec.com?SFSDT

View complete specifications at: samtec.com?ISDF, samtec.com?CC03R & samtec.com?CC03M

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
QUAD ROW TERMINAL/ SOCKET

(1.27 mm) .050" PITCH • FOLC/MOLC SERIES

**FOLC**
Board Mates: MOLC

**MOLC**
Board Mates: FOLC

---

### SPECIFICATIONS

- **Insulator Material:** Black Liquid Crystal Polymer
- **Contact Material (FOLC):** BeCu
- **Terminal Material (MOLC):** Phosphor Bronze
- **Plating:** Au or Sn over 50 μ” (1.27 μm) Ni
- **Current Rating:** 2.6 A per pin
- **Operating Temp Range:** -55 °C to +125 °C
- **Voltage Rating:** 165 VAC/230 VDC
- **Insertion Depth (FOLC):** (3.30 mm) .130” to (4.06 mm) .160”
- **Normal Force (FOLC):** Standard = 70 grams (0.69 N) avg. LIF = 40 grams (0.39 N) avg.
- **Max Cycles (FOLC):** 100

---

### LEAD-FREE SOLDERABLE

- **Yes**

### SMT LEAD COPLANARITY (MOLC):

- (0.10 mm) .004” max (20-25)
- (0.15 mm) .006” max (30-50)
- (0.04” stencil solution may be available; contact IPG@samtec.com)

---

### PROCESSING

- **Through-hole**
- **Surface Mount**
- **MIXED TECHNOLOGY**

---

### APPLICATIONS

- **FOLC**
- **MOLC**

---

View complete specifications at: [samtec.com/FOLC](http://samtec.com/FOLC)

---

View complete specifications at: [samtec.com/MOLC](http://samtec.com/MOLC)

---

UNLESS OTHERWISE APPROVED IN WRITING BY SAMTEC, ALL PARTS AND COMPONENTS ARE DESIGNED AND BUILT ACCORDING TO SAMTEC’S SPECIFICATIONS WHICH ARE SUBJECT TO CHANGE WITHOUT NOTICE.
FLEXIBLE PIN COUNT
TIGER EYE™ SOCKET

SFMC
Board Mates:
TFM
Cable Mates:
FMTF, FFMD*

*Note: Standard FFMD callout will not mate with FLE; SFMC. Must use gold plated callouts. (See drawing on web.)

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Contact Material:
Tiger Eye™ = BeCu
Tiger Eye™ LITE = Phosphor Bronze
Plating:
Au or Sn over
50 µ" (1.27 µm) Ni
Current Rating:
2.9 A per pin
(2 pins powered)
Voltage Rating:
220 VAC/310 VDC
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth:
(3.05 mm) .120" to
(4.06 mm) .160"
Normal Force:
Standard= 132 g (1.29 N) avg.
LIF= 90 g (0.88 N) avg.
Max Cycles:
10,000 with 30 µ" (0.76 µm) Au

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max (02-26)
(0.15 mm) .006" max (27-50)*
*.004" stencil solution may be available; contact IPG@samtec.com

ALSO AVAILABLE
Other plating (MOQ Required)

LEAD STYLE | A | B
--- | --- | ---
-01, -03 = Through-hole
-02 = Surface Mount
02 thru 50 | (3.05).120 | (0.51).020
-03, -L3 = Low Insertion Force Through-hole
-02 = Surface Mount
-02 = Surface Mount Tiger Eye™ LITE
-01, -L1, -L3 = Low Insertion Force Through-hole
-02 = Surface Mount
-02 = Surface Mount Tiger Eye™ LITE
-01, -L1, -T1 = Through-hole
-02 = Surface Mount
-02 = Surface Mount

View complete specifications at: samtec.com/SFMC
RUGGED TIGER EYE™ SYSTEMS
(2.00 mm) .0787" PITCH

FEATURES & BENEFITS

- Rugged Tiger Eye™ contact system for high-reliability
- Wide range of stack heights (SMM/TMM Series)
- Right-angle mating headers available
- Optional metal latching, screw downs, weld tabs and locking clips
- Surface mount or through-hole
- Discrete wire assemblies available in 24-30 AWG PVC or Teflon® wire; contact asp@samtec.com for custom solutions

KEY SPECIFICATIONS (S2M/T2M)

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>TOTAL PINS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>MAX CYCLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 mm</td>
<td>6 &amp; 7 mm</td>
<td>10 - 60</td>
<td>Black LCP</td>
<td>BeCu (S2M) Phosphor Bronze (T2M)</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-55 °C to +125 °C</td>
<td>3.8 A (T2M) 2.6 A (S2M (2 pins powered))</td>
<td>100 with 10 µ&quot; (0.25 µm) Au</td>
</tr>
</tbody>
</table>

Optional strain relief and variety of wiring options

Components (ISD2/CC81) & tooling available:
samtec.com/tooling

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**  |  1  | **NO. OF POSITIONS** |  S2M  | **LEAD STYLE** |  01  | **PLATING OPTION** |  0F  | **OPTIONS** |  –K  | **PACKAGING** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>05, 07, 10, 15, 20, 25, 30 (Per Row)</td>
<td></td>
<td>–01 = Through-hole</td>
<td></td>
<td>–F = Gold flash on contact, Matte Tin on tail</td>
<td></td>
<td>–K = (5.50 mm) .217” DIA Polyimide film Pick &amp; Place Pad (~02 only)</td>
<td></td>
<td>Leave blank for tube packaging</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–02 = Surface Mount</td>
<td></td>
<td>–L = 10 µ” (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td>–LC = Locking Clip (Manual placement required) (~02 only)</td>
<td></td>
<td>–TR = Tape &amp; Reel (~02 only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–DS = Screw Down (N/A with –LC) (mates with –T2M–DS)</td>
<td></td>
<td>–FR = Full Reel Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (~02 only)</td>
<td></td>
<td>–DS</td>
</tr>
</tbody>
</table>

**S2M**
- Board Mates: T2M
- Cable Mates: T2SD

**T2M**
- Header
- Board Mates: S2M
- Cable Mates: S2SD, S2SDT

Note: Some lengths, styles and options are non-standard, non-returnable.
### Specifications

**Insulator Material:** Black LCP  
**Contact Material:** BeCu  
**Plating:** Au over 50 µ" (1.27 µm) Ni  
**Wire:** 24, 26, 28 or 30 AWG  
**Operating Temp Range:**  
-10 °C to +105 °C (PVC)  
-40 °C to +125 °C (*Teflon®)  
**Current Rating** (S2SD-24/T2M): 3.8 A per pin (2 pins powered)  
**Voltage Rating:** 250 VAC  

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.*

### TOOLING

- **Hand Tool:** CAT-HT-281-2430-13  
- **Mini Applicator:** CAT-MC-281-2426-XX-01 (24-26 AWG)  
- **Extraction Tool:** CAT-EX-169-01  
- **Mini Applicator:** CAT-MC-281-2830-XX-01 (28-30 AWG)  


---

Note: Some lengths, styles and options are non-standard, non-returnable.
**SERIES**

| T2SD | = Double Row PVC Cable |
| T2SDT | = Double Row Blue *Teflon®* Cable (24, 28, 30 Gauge only) |

**T2SD(T)**

Board Mates: T2M (Requires –T or –TR), S2M

---

**SPECIFICATIONS**

- **Insulator Material:** Black LCP
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au over 50 µ" (1.27 µm) Ni
- **Wire:** 24, 26, 28 or 30 AWG
- **Current Rating (T2SD/S2M):** 2.6 A per pin (2 pins powered)
- **Operating Temp Range:**
  - PVC: -10 °C to +105 °C
  - *Teflon®*: -40 °C to +125 °C
- **Voltage Rating:** 350 VAC

---

**Notes:**

- Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.
- For wiring option information refer to drawings on web.
- Some lengths, styles and options are non-standard, non-returnable.

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

---

**View complete specifications at:** [samtec.com?T2SD](http://samtec.com?T2SD) & [samtec.com?T2SDT](http://samtec.com?T2SDT)
(2.00 mm) .0787” PITCH • TIGER EYE™ SOCKET

SMM - 1

NO. PINS PER ROW - 02

PLATING OPTION

- F = Gold flash on contact, Matte Tin on tail

- L = 10 µ” (0.25 µm) Gold on contact, Matte Tin on tail

- S = 30 µ” (0.76 µm) Gold on contact, Matte Tin on tail

ROW OPTION

- S = Single Row

- D = Double Row

OTHER OPTIONS

- “XX” = Polarized Position

- K = (5.50 mm) .217” DIA Polymide Film Pick & Place Pad
  (2 positions minimum, ~02 thru ~05 requires ~TR)

- P = Plastic Pick & Place Pad
  (~02 thru ~05 requires ~TR)

- TR = Tape & Reel Packaging
  (27 positions maximum)

- FR = Full Reel Tape & Reel
  (must order maximum quantity per reel; contact Samtec
  for quantity breaks)

SMM Board Mates:
TMM, TMMP, MTMM, MMT,
LTMM, TW, PTT, ZLTMM

Cable Mates:
TCMD

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer

Contact Material:
BeCu

Plating: Sn or Au over
50 µ” (1.27 µm) Ni

Current Rating (TMM/SMM):
3.2 A per pin
(2 pins powered)

Voltage Rating:
350 VAC

Operating Temp Range:
-55 °C to +125 °C

Insertion Depth:
(3.05 mm) .120” to
(3.25 mm) .128”

Max Cycles:
100 with 10 µ” (0.25 µm) Au

PROCESSING

Lead–Free Solderable:
Yes

SMT Lead Coplanarity:
(0.15 mm) .006” max*
* (.004” stencil solution
may be available; contact
ipg@samtec.com)

ALSO AVAILABLE

MOQ Required

Locking Clip
(Manual placement required)

Other platings

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

View complete specifications at: samtec.com?SMM

samtec.com/2mm-TigerEye

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ULTRA MICRO POWER
mPOWER® Ultra Micro Power Connectors (UMPT, UMPS, UMPC) ................................................................. 196-199

FLEX POWER SYSTEMS
PowerStrip™/20 Headers & Sockets (UPS, UPT, UPPT) ......................................................................................... 201
PowerStrip™/30 Headers, Sockets, Cables & Components
(MPT, MPS, MPSS, MPTC, MPSC, MPCC) ........................................................................................................... 202-205
PowerStrip™/40 Headers, Sockets, Cables & Components (PET, PES, PETC, PESC, PESS) ................................. 206-207
EXTreme LPHPower™ Terminals & Sockets (LPHT, LPHS) .................................................................................... 208-209
EXTreme Ten60Power™ Terminals & Sockets (ET60T, ET60S) ............................................................................. 210-211

RUGGED POWER SYSTEMS
Mini Mate® Terminals, Sockets, Cables & Components (IPT1, IPS1, IPL1, MMSD) ...................................................... 212-215
Power Mate® Terminals, Sockets, Cables & Components (IPBT, IPBS, PMSS, PMSD) .............................................. 216-217
.156" (3.96 mm) Pitch Headers & Sockets (FWJ, HFWJ, JW, FHP) .............................................................................. 218
.200" (5.08 mm) Pitch Headers & Sockets (HPM, HPW, HPF) .................................................................................. 219

RUGGED SEALED I/O SYSTEMS
AccliMate™ Soldered IP68 Sealed Systems (ACX-12, ACX-16, ACX-22) ............................................................... 220-223
AccliMate™ IP67 Sealed Systems (MCP, MCR) ....................................................................................................... 224
AccliMate™ Circular IP68 Sealed Systems (SCRUS, SCRES) .................................................................................. 225
AccliMate™ Rectangular IP68 Sealed Systems (RPBE, RPCE, RPBU, RPCU) .......................................................... 226-227
mPOWER®

ULTRA MICRO POWER SYSTEM
(2.00 mm) .0787” PITCH

FEATURES & BENEFITS

• Up to 18 A per blade (1 blade powered)
• Design flexibility as a power-only system or a two-piece system for power/signal applications
• Use with Samtec’s high-speed connector systems for a unique power/signal system (see chart page 197)
• Choice of 2 to 10 positions
• 5 mm to 12 mm stack heights available (up to 20 mm in development)
• Tin or 10 µ” Gold plated power blades; 30 µ” Gold plating available to meet specific regulations
• Optional weld tabs
• Cable-to-board and cable-to-cable systems in development

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>VOLTAGE RATING</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 mm</td>
<td>5, 6, 7, 8 and 10 mm</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Sn or Au over 50 µ” (1.27 µm) Ni</td>
<td>-55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold</td>
<td>460 VAC/650 VDC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

UMPT/UMPS compared to another small form factor power solution

Terminals shown actual size at 4 positions

CREEPAGE & CLEARANCE

<table>
<thead>
<tr>
<th>UMPT/UMPS</th>
<th>CREEPAGE</th>
<th>CLEARANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMPT/UMPS</td>
<td>2.20 mm</td>
<td>1.65 mm</td>
</tr>
</tbody>
</table>

Selectively loading contacts achieves customer specific creepage and clearance requirements.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ULTRA MICRO POWER SOCKET

UMPS - NO. OF POSITIONS - LEAD STYLE - PLATING OPTION - VT - SM - OPTION - “X”R

-02, -03, -04, -05, -06, -07, -08, -09, -10

-03.5 = (03.5 mm) .138”

-05.5 = (05.5 mm) .217”

-06 thru -10 PRELIMINARY

UMPS Board Mates: UMPT

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-02</td>
<td>(9.05) .356</td>
<td>(7.65) .301</td>
<td>(6.00) .236</td>
</tr>
<tr>
<td>-03</td>
<td>(11.05) .435</td>
<td>(9.65) .380</td>
<td>(8.00) .315</td>
</tr>
<tr>
<td>-04</td>
<td>(13.05) .514</td>
<td>(11.65) .459</td>
<td>(10.00) .394</td>
</tr>
<tr>
<td>-05</td>
<td>(15.05) .593</td>
<td>(13.65) .537</td>
<td>(12.00) .472</td>
</tr>
<tr>
<td>-06</td>
<td>(17.05) .671</td>
<td>(15.65) .616</td>
<td>(14.00) .551</td>
</tr>
<tr>
<td>-07</td>
<td>(19.05) .750</td>
<td>(17.65) .695</td>
<td>(16.00) .630</td>
</tr>
<tr>
<td>-08</td>
<td>(21.05) .829</td>
<td>(19.65) .774</td>
<td>(18.00) .709</td>
</tr>
<tr>
<td>-09</td>
<td>(23.05) .907</td>
<td>(21.65) .852</td>
<td>(20.00) .787</td>
</tr>
<tr>
<td>-10</td>
<td>(25.05) .986</td>
<td>(23.65) .931</td>
<td>(22.00) .866</td>
</tr>
</tbody>
</table>

LEAD STYLE D

-03.5 (4.15) .163

-05.5 (6.15) .242

SIGNAL CONNECTOR

<table>
<thead>
<tr>
<th>SIGNAL CONNECTOR</th>
<th>MATED HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mm</td>
</tr>
<tr>
<td>ADM6/ADF6</td>
<td>X</td>
</tr>
<tr>
<td>BTE/BSE</td>
<td>X</td>
</tr>
<tr>
<td>BTH/BTH, BTS/BSS</td>
<td>X</td>
</tr>
<tr>
<td>ERR5/RRF5</td>
<td>X</td>
</tr>
<tr>
<td>ERR6/RRF6</td>
<td>X</td>
</tr>
<tr>
<td>LPAF/LPAF</td>
<td>X</td>
</tr>
<tr>
<td>QMS/QFS</td>
<td>X</td>
</tr>
<tr>
<td>QRMB/QRMBR</td>
<td>X</td>
</tr>
<tr>
<td>QTE/QSE, QTH/QSH, QTS/QSS</td>
<td>X</td>
</tr>
<tr>
<td>SEAM/SAF</td>
<td>X</td>
</tr>
<tr>
<td>SEAMB/SAFRB</td>
<td>X</td>
</tr>
<tr>
<td>ST4/SS4</td>
<td>X</td>
</tr>
<tr>
<td>ST5/SS5</td>
<td>X</td>
</tr>
<tr>
<td>TEM/SEMA</td>
<td>X</td>
</tr>
</tbody>
</table>

UMPT/UMPS CURRENT RATING (PER CONTACT)

<table>
<thead>
<tr>
<th>PINS</th>
<th>-T</th>
<th>-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.3 A</td>
<td>16.2 A</td>
</tr>
<tr>
<td>2</td>
<td>14.5 A</td>
<td>14.6 A</td>
</tr>
<tr>
<td>3</td>
<td>14.2 A</td>
<td>12.6 A</td>
</tr>
<tr>
<td>4</td>
<td>12.9 A</td>
<td>12.3 A</td>
</tr>
<tr>
<td>5</td>
<td>12.9 A</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>N/A</td>
<td>9.4 A</td>
</tr>
</tbody>
</table>

Ratings are derated 20% and based on 70 °C ambient temperature with maximum allowable rise.

Notes:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/UMPS

samtec.com/mPOWER
Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?UMPT

UMPT

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>VT</th>
<th>SM</th>
<th>WELD TAB</th>
<th>LATCH OPTION</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>–02, –03, –04, –05, –06, –07, –08, –09, –10</td>
<td>–01.5 = (0.025 mm) .0059“</td>
<td>–L = 10 μ&quot; (0.25 μm) Gold on contact, Matte Tin on tail</td>
<td>–T = Matte Tin</td>
<td>–</td>
<td>–</td>
<td>–K = Polymide Pick &amp; Place Pad</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–02.5 = (0.025 mm) .008“</td>
<td>–G = 10 μ&quot; (0.25 μm) Gold on contact, Gold flash on tail</td>
<td></td>
<td></td>
<td>–WT = Weld Tab Through-hole</td>
<td>(Leave blank for no latch)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–06.5 = (0.065 mm) .0256“</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Leave blank for no latch)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable.

UMPT-RA

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>WELD TAB</th>
<th>LATCH OPTION</th>
<th>“X”R</th>
</tr>
</thead>
<tbody>
<tr>
<td>–02, –03, –04, –05, –06, –07, –08, –09, –10</td>
<td>–01.5 = (0.025 mm) .0059“</td>
<td>–L = 10 μ&quot; (0.25 μm) Gold on contact, Matte Tin on tail</td>
<td>–P = Plastic top latch</td>
<td>–</td>
<td>–TR = Tape &amp; Reel</td>
<td>–FR = Full Reel Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks)</td>
</tr>
<tr>
<td></td>
<td>–02.5 = (0.025 mm) .008“</td>
<td>–G = 10 μ&quot; (0.25 μm) Gold on contact, Gold flash on tail</td>
<td>–M = Metal side latches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–06.5 = (0.065 mm) .0256“</td>
<td>–T = Matte Tin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?UMPT-RA
ULTRA MICRO POWER CABLE

UMPC

-02, -03, -04, -05, -06, -07, -08, -09, -10

-PLATING OPTION-

-L = 10 µ" (0.25 µm) Gold on contact, Tin on tail
  -S = 30 µ" (0.76 µm) Gold on contact, Tin on tail

-WIRE GAUGE-

-16 = Standard wire
-18 = Color Coded Cable (See table for coding)

-COLOR CODE-

-C = Color

-LATCH OPTION-

-P = Plastic top latch
-M = Metal side latches

-LENGTH-

-“XX.X” = Assembled Length in Inches (76.20 mm) 03.00” min.

-PINOUT-

-(Leave blank for single ended)

-1 = Pin 01 to Pin 01
-2 = Pin 01 to Pin N

Notes:

For wiring option information refer to drawings on web.

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?UMPC

ULTRA MICRO POWER CABLE

UMPC Cable Mates:

UMPT

SPECIFICATIONS

Insulator Material:
Black LCP

Contact Material:
Copper Alloy

Plating:
Sn or Au over 50 µ" (1.27 µm) Ni

Wire:
16 or 18 AWG

Operating Temp Range:
Testing Now!

Current Rating:
Testing Now!

Voltage Rating:
300V PVC

UMPC/UMPT (TIN PLATING)

UMPC-03-X-XX-P-XX.X SHOWN

UMPC-04-X-XX-M-XX.X SHOWN

CABLE COLOR CODING

PIN | COLOR
---|-----
1 | BROWN
2 | RED
3 | ORANGE
4 | YELLOW
5 | GREEN
6 | BLUE
7 | VIOLET
8 | GRAY
9 | WHITE
10 | BLACK

Notes:
For wiring option information refer to drawings on web.

Some lengths, styles and options are non-standard, non-returnable.

samtec.com/mPOWER
**HIGH-POWER SYSTEMS**

**FEATURES & BENEFITS**
- Current Rating: 23 A - 58.7 A per power blade
- 3.81 mm, 5.00 mm and 6.35 mm pitch
- Dual blade contact system
- Power only or power/signal combinations available
- Right-angle and vertical orientations
- Rugged screw down and locking clip options
- Discrete wire cable assembly with 10-16 AWG wire
- "Hinged" for unique mating in any orientation from 0° to 90° and space confined applications

**KEY SPECIFICATIONS**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>PET/PES</th>
<th>PETC/PESC</th>
<th>MPT/MPS</th>
<th>MPTC/MPSC</th>
<th>UPT/UPS</th>
<th>FMPT/FMPS</th>
<th>UPPT</th>
<th>MPPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITCH</td>
<td>(6.35 mm) .250&quot;</td>
<td>(6.35 mm) .250&quot; (pwr)</td>
<td>(5.00 mm) .1969&quot;</td>
<td>(5.00 mm) .197&quot; (pwr)</td>
<td>(3.81 mm) .150&quot;</td>
<td>(5.00 mm) .1969&quot;</td>
<td>(5.00 mm) .1969&quot;</td>
<td></td>
</tr>
<tr>
<td>CCC (1 PIN)*</td>
<td>58.7 A</td>
<td>31.4 A</td>
<td>28.8 A</td>
<td>28.8 A</td>
<td>23 A</td>
<td>26.7 A</td>
<td>21.4 A</td>
<td>23.3 A</td>
</tr>
<tr>
<td>CCC (2 PINS)*</td>
<td>48.5 A</td>
<td>28.0 A</td>
<td>24.7 A</td>
<td>24.7 A</td>
<td>18.6 A</td>
<td>22.9 A</td>
<td>19.8 A</td>
<td>20.5 A</td>
</tr>
<tr>
<td>CCC (3 PINS)*</td>
<td>41.1 A</td>
<td>24.4 A</td>
<td>24.1 A</td>
<td>24.1 A</td>
<td>17.5 A</td>
<td>19.1 A</td>
<td>17.1 A</td>
<td>19.4 A</td>
</tr>
<tr>
<td>CREEPAGE (3.66 mm) .144&quot;</td>
<td>(3.66 mm) .144&quot;</td>
<td>(2.86 mm) .113&quot;</td>
<td>(2.86 mm) .113&quot;</td>
<td>(5.5 mm) .217&quot;</td>
<td>(6.53 mm) .257&quot;</td>
<td>(1.91 mm) .075&quot;</td>
<td>(2.95 mm) .116&quot;</td>
<td></td>
</tr>
<tr>
<td>CLEARANCE (3.31 mm) .130&quot;</td>
<td>(3.31 mm) .130&quot;</td>
<td>(2.71 mm) .106&quot;</td>
<td>(2.71 mm) .106&quot;</td>
<td>(1.51 mm) .059&quot;</td>
<td>(2.71 mm) .106&quot;</td>
<td>(1.51 mm) .059&quot;</td>
<td>(2.71 mm) .106&quot;</td>
<td></td>
</tr>
<tr>
<td>VAC</td>
<td>725 VAC</td>
<td>Signal: 450 VAC Power: 650 VAC</td>
<td>575 VAC</td>
<td>250 VAC</td>
<td>438 VAC</td>
<td>525 VAC</td>
<td>425 VAC</td>
<td>600 VAC</td>
</tr>
<tr>
<td>VDC</td>
<td>1025 VDC</td>
<td>Signal: 636 VDC Power: 919 VDC</td>
<td>812 VDC</td>
<td>354 VDC</td>
<td>620 VDC</td>
<td>742 VDC</td>
<td>600 VDC</td>
<td>848 VDC</td>
</tr>
<tr>
<td>CYCLES</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>25</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Selectively loading contacts achieves customer specific creepage and clearance requirements.

Hermaphroditic options available (samtec.com?MPPT)

Hinging options available (samtec.com?FMPT samtec.com?FMPS)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

samtec.com/PowerStrip
<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>TAIL</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPT</td>
<td>–02</td>
<td>–01</td>
<td>–01</td>
<td>–L</td>
<td>–V</td>
<td>–LC</td>
</tr>
<tr>
<td></td>
<td>–04</td>
<td>–03.0</td>
<td>–03</td>
<td>–T</td>
<td>–RA</td>
<td>= Locking Clip</td>
</tr>
<tr>
<td></td>
<td>–06</td>
<td>–07.0</td>
<td></td>
<td>= Vertical (Not available with –T plating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–08</td>
<td></td>
<td></td>
<td>= Right-angle</td>
<td>–PV</td>
<td>= Tape &amp; Reel</td>
</tr>
<tr>
<td>UPS</td>
<td>–02</td>
<td>–03.0</td>
<td>–07.0</td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–04</td>
<td></td>
<td></td>
<td>= Matte Tin (–RA &amp; –PV options only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–06</td>
<td></td>
<td></td>
<td>= Matte Tin (–RA only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–08</td>
<td></td>
<td></td>
<td>= Vertical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**UPT Board Mates:**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>SD</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPT</td>
<td>–02, –04, –06, –08</td>
<td>–01</td>
<td>–01</td>
<td>–L</td>
<td>–V</td>
<td>= Vertical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Matte Tin (–RA only)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**UPS Board Mates:**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>SD</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPS</td>
<td>–02, –04, –06, –08</td>
<td>–01</td>
<td>–01</td>
<td>–L</td>
<td>–V</td>
<td>= Vertical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Matte Tin (–RA only)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

**LEAD STYLE**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>–04.0</td>
<td>(3.75)</td>
<td>145</td>
</tr>
<tr>
<td>–07.0</td>
<td>(6.75)</td>
<td>266</td>
</tr>
<tr>
<td>–07.0</td>
<td>(9.75)</td>
<td>384</td>
</tr>
</tbody>
</table>

**SERIES**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>SD</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPT</td>
<td>–02, –04, –06, –08</td>
<td>–01</td>
<td>–01</td>
<td>–L</td>
<td>–V</td>
<td>= Vertical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Matte Tin (–RA only)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**UPPT Board Mates:**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>SD</th>
<th>&quot;X&quot;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPPT</td>
<td>–02, –04, –06, –08</td>
<td>–01</td>
<td>–01</td>
<td>–L</td>
<td>–V</td>
<td>= Vertical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Matte Tin (–RA only)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?UPT & samtec.com?UPS

View complete specifications at: samtec.com?UPPT
<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>TAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPT</td>
<td>–02, –03, –04, –06, –08</td>
<td>–6.30 = (6.30 mm) 0.248&quot; (MPT only)</td>
<td>–01 = Use with (1.60 mm) .062&quot; Thick PCB</td>
<td>–L = 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td>−V = Vertical</td>
</tr>
<tr>
<td>MPS</td>
<td>–06, –08</td>
<td>–7.70 = (7.70 mm) 0.303&quot; (MPS only)</td>
<td>–03 = Use with (2.36 mm) .093&quot; Thick PCB</td>
<td>–T = Matte Tin</td>
<td></td>
</tr>
</tbody>
</table>

**MPT**
- Board Mates: MPS
- Cable Mates: MPSS

**MPS**
- Board Mates: MPT

View complete specifications at: [samtec.com?MPT & samtec.com?MPS](samtec.com/PowerStrip)

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>RA</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPT</td>
<td>–02, –04, –06, –08</td>
<td>–01 = Use with (1.60 mm) .062&quot; Thick PCB</td>
<td>–L = 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td>–T = Matte Tin</td>
<td></td>
</tr>
<tr>
<td>MPS</td>
<td>–01</td>
<td>–03 = Use with (2.36 mm) .093&quot; Thick PCB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MPT-RA**
- Board Mates: MPS
- Cable Mates: MPSS

**MPS-RA**
- Board Mates: MPT

View complete specifications at: [samtec.com?MPT & samtec.com?MPS](samtec.com/PowerStrip)

Note: Some lengths, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
MPSS

NO. OF POSITIONS
-02, -03, -04, -06, -08

WIRE GAUGE
-14
-16

PLATING OPTION
-L = 10 µ" (0.25 µm) Gold on contact
-T = Matte Tin

ASSEMBLED LENGTH
"XX.XX" = Wire length in inches (83.00 mm) 03.25" min.

END 1 OPTION
-SR = Single End
-DR = Double End

END 2 OPTION
(Available with –DR only)
-NUS = Notch up, straight
-NDS = Notch down, straight

SPECIFICATIONS

Insulator Material:
Nylon 6/6

Contact Material:
Copper Alloy

Plating:
Au or Sn over 50 µ" (1.27µm) Ni

Latch:
Nylon 6/6

Operating Temp Range:
-30 °C to +105 °C

Voltage Rating:
600 VAC/848 VDC

Wire:
14 or 16 AWG

TOOLING

Hand Tool: CAT-HT-246-1416-14 (14-16 AWG)
Mini Applicator: CAT-MC-246-1416-XX-02 (14-16 AWG)
Extraction Tool: CAT-EX-MPSS-01
## Series - Power Pins - Signal Pins - Power Pins - Lead Style - Tail Length - Plating Option - V - Other Option

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS</th>
<th>SIGNAL PINS</th>
<th>POWER PINS</th>
<th>LEAD STYLE</th>
<th>TAIL LENGTH</th>
<th>PLATING OPTION</th>
<th>V</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPTC</td>
<td>Per end</td>
<td>-16</td>
<td>Per end</td>
<td>-6.30</td>
<td>-01</td>
<td>-L</td>
<td></td>
<td>-LC</td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>-24</td>
<td>-01</td>
<td>(6.30 mm)</td>
<td>.048&quot; (MPTC only)</td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail (Power &amp; Signal)</td>
<td></td>
<td>Locking Clip</td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>-40</td>
<td>-02</td>
<td>-7.70</td>
<td>-03</td>
<td>-T</td>
<td></td>
<td>Manual placement required</td>
</tr>
<tr>
<td></td>
<td>-80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-L</td>
<td></td>
<td>-SD or -LC is a required callout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-SD</td>
<td></td>
<td>Screw Down</td>
</tr>
<tr>
<td>MPSC</td>
<td>Per end</td>
<td>-16</td>
<td>Per end</td>
<td>-6.30</td>
<td>-01</td>
<td>-L</td>
<td></td>
<td>-LC</td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>-24</td>
<td>-01</td>
<td>(6.30 mm)</td>
<td>.048&quot; (MPTC only)</td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail (Power &amp; Signal)</td>
<td></td>
<td>Locking Clip</td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>-40</td>
<td>-02</td>
<td>-7.70</td>
<td>-03</td>
<td>-T</td>
<td></td>
<td>Manual placement required</td>
</tr>
<tr>
<td></td>
<td>-80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-L</td>
<td></td>
<td>-SD or -LC is a required callout</td>
</tr>
</tbody>
</table>

### MPTC
- **Board Mates:** MPSC
- **Cable Mates:** MPCC

### MPSC
- **Board Mates:** MPTC

View complete specifications at: samtec.com?MPTC & samtec.com?MPSC

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS/ENDS</th>
<th>16 SIGNAL PINS</th>
<th>24 SIGNAL PINS</th>
<th>40 SIGNAL PINS</th>
<th>80 SIGNAL PINS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPTC</td>
<td>Per end</td>
<td>16 SIGNAL PINS</td>
<td>24 SIGNAL PINS</td>
<td>40 SIGNAL PINS</td>
<td>80 SIGNAL PINS</td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>27.45</td>
<td>31.45</td>
<td>39.44</td>
<td>69.44</td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>37.45</td>
<td>41.45</td>
<td>49.44</td>
<td>69.44</td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com?MPTC & samtec.com?MPSC

<table>
<thead>
<tr>
<th>SERIES</th>
<th>POWER PINS/ENDS</th>
<th>24 SIGNAL PINS</th>
<th>80 SIGNAL PINS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPTC</td>
<td>Per end</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>35.25</td>
<td>63.25</td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>45.25</td>
<td>73.25</td>
</tr>
</tbody>
</table>

View complete specifications at: samtec.com?MPTC & samtec.com?MPSC

### Note:
- Some lengths, styles and options are non-standard, non-returnable

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 30 SIGNAL/POWER COMBO CABLE ASSEMBLY/COMPONENTS

**MPCC**

<table>
<thead>
<tr>
<th>SIGNAL PINS</th>
<th>PLATING OPTION</th>
<th>LEAD STYLE</th>
<th>LENGTH</th>
<th>END 1 OPTION</th>
<th>END 2 OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–16</td>
<td>–L</td>
<td>–S</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>–24</td>
<td>–T</td>
<td>–D</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

= Total Signal Pins

**MPCC**

<table>
<thead>
<tr>
<th>SIGNAL PINS</th>
<th>PLATING OPTION</th>
<th>LEAD STYLE</th>
<th>LENGTH</th>
<th>END 1 OPTION</th>
<th>END 2 OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–16</td>
<td>–L</td>
<td>–S</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>–24</td>
<td>–T</td>
<td>–D</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

= Total Signal Pins

**Board Mates:**

**MPTC**

**SPECIFICATIONS**

- **Insulator Material:** Black LCP
- **Contact Material:** Signal: BeCu, Power: Copper Alloy
- **Plating:** Sn or Au over 50 µ" (1.27 µm) Ni
- **Current Rating:** Signal Pin (24 AWG): 3.4 A per pin (4 adjacent pins powered), Power Pin (14 AWG): 23.2 A per pin (1 pin powered)
- **Operating Temp Range:** -10 °C to +105 °C
- **Voltage Rating:** 300 VAC

**TOOLING**

- **Hand Tool:** CAT-HT-281-2430-11 (Signal: 24-30 AWG)
- **Extraction Tool:** CAT-EX-169-01 (Signal)
- **Mini Applicator:** CAT-MC-246-1416-XX-01 (Power 14-16 AWG)

**Note:** Some lengths, styles and options are non-standard, non-returnable.


---

**IMSC5**

<table>
<thead>
<tr>
<th>POWER PINS</th>
<th>SIGNAL PINS</th>
<th>POWER PINS</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>–02</td>
<td>–16</td>
<td>–02</td>
<td>–L</td>
</tr>
<tr>
<td>–24</td>
<td>–16</td>
<td>–24</td>
<td>–L</td>
</tr>
</tbody>
</table>

= Power Pins Per End

**SERIES**

- **CC81L** = Contact, Loose (17,000 Parts per Reel)
- **CC81R** = Contact, Full Reel

<table>
<thead>
<tr>
<th>SERIES</th>
<th>WIRE GAUGE</th>
<th>PLATING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC81L</td>
<td>–2426</td>
<td>–L</td>
</tr>
<tr>
<td></td>
<td>–2830</td>
<td>–L</td>
</tr>
</tbody>
</table>

= 24 to 26 AWG

= 28 to 30 AWG

= Gold on contact

**Note:** Power contact (CC46 Series) information on page 203.

---


---

**View complete specifications at:** [samtec.com?MPCC](http://samtec.com?MPCC)
**SERIES**  -  **NO. PINS PER ROW**  -  **LEAD STYLE**  -  **PLATING OPTION**  -  **TAIL OPTION**  -  **OTHER OPTION**

**PET**
- Terminal  -  -02, -04, -06, -08  -  -01  -  = Use with (1.60 mm) .062" Thick PCB  -  -L  -  = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail  -  -SD  -  = Screw Down (Right-angle only)
- Socket  -  -01  -  = Use with (3.18 mm) .125" Thick PCB  -  -T  -  = Matte Tin on tail  -  -VT  -  = Vertical  -  -RA  -  = Right-angle (Screw Down option required)

**PES**
- Board Mates: PET  -  -01  -  = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail  -  -RA-SD  -  -LC  -  = Locking Clip (Manual placement required)
- Cable Mates: PESS  -  -02  -  = Matte Tin  -  -VT  -  = Vertical  -  -SD  -  = Screw Down (Right-angle only)
- -04  -  = Vertical  -  -VT  -  = Vertical  -  -RA-SD  -  -LC  -  = Locking Clip (Manual placement required)

**PETC**
- Terminal  -  -01  -  = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail  -  -L  -  = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail  -  -SD  -  = Screw Down (Right-angle only)
- PESC  -  -02  -  = Matte Tin on tail  -  -T  -  = Matte Tin  -  -LC  -  = Locking Clip (Manual placement required)
- -04  -  = Matte Tin  -  -VT  -  = Vertical  -  -RA  -  = Right-angle

**PESC**
- Board Mates: PESC  -  -01  -  = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail  -  -SD  -  = Screw Down (Right-angle only)
- Board Mates: PETC  -  -02  -  = Matte Tin  -  -LC  -  = Locking Clip (Manual placement required)
- -04  -  = Matte Tin  -  -VT  -  = Vertical  -  -RA  -  = Right-angle

View complete specifications at: samtec.com?PET & samtec.com?PES

Note: Some lengths, styles and options are non-standard, non-returnable.
Power Strip™ 40

(6.35 mm) .250” PITCH • 40 A CABLE ASSEMBLY/COMPONENTS

PESS BOARD MATES:

PET

SPECIFICATIONS

Insulator Material:
Nylon Black

Contact Material:
Copper Alloy

Plating:
Sn or Au over
50 µ” (1.27 µm) Ni

Operating Temp Range:
-30 °C to +105 °C

Voltage Rating:
600 VAC

846 VDC

Wire:
10 or 12 AWG

BOARD MATES:

PET

WIRE GAUGE

PLATING OPTION

ASSEMBLED LENGTH

END 1 OPTION

END 2 OPTION

PESS

-02,-04,
-06,-08

-10

-L

= 10 µ” (0.25 µm)
Gold on contact, Matte Tin on tail

-12

-T

= Matte Tin on tail

-XX.XX”

= Wire length in inches
(152.4 mm) 06.00” min.

-SR

= Single End

-DR

= Double End

(Available with -DR only)

-NUS

= Notch up, straight

(Available with -DR only)

-NDS

= Notch down, straight

NO. OF

POSITIONS

WIRE GAUGE

PLATING OPTION

ASSEMBLED LENGTH

END 1 OPTION

END 2 OPTION

PESS/PET

WIRE GAUGE

CURRENT RATING

(PER PIN)

1 PIN POWERED

NO. OF

POSITIONS

A

-02

(43.9) 1.73

-04

(56.6) 2.23

-06

(69.3) 2.73

-08

(82.0) 3.23

View complete specifications at: samtec.com/PESS

TOOLING

Hand Tool: CAT-HT-310-1012-14

Mini Applicator: CAT-MC-310-1012-XX-02

Note:
Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: samtec.com/IPS6, samtec.com/CC10L & samtec.com/CC10R

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
LOW-PROFILE, EXTREME HIGH-POWER/SIGNAL COMBO

FEATURES & BENEFITS

- 30 A per power blade and 1 A per signal pin
- Low 7.5 mm profile design (right-angle) for improved system airflow and space savings
- Double-stacked power blades per bank for increased density and power
- Ideal for coplanar and perpendicular applications
- Rugged guide posts are standard for blind mating assistance
- Socket available as vertical with press-fit tails and right-angle through-hole; mates with terminal or standard .062” (1.60 mm) PCB card

<table>
<thead>
<tr>
<th>Standard Creepage*</th>
<th>5.63 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Clearance*</td>
<td>2.69 mm</td>
</tr>
</tbody>
</table>

*Selectively loading contacts achieves customer specific creepage and clearance requirements. Contact asc@samtec.com

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>TERMINAL MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>VOLTAGE RATING</th>
<th>MATING CYCLES</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(12.00 mm) .472” (pwr) 1.27 mm</td>
<td>Black LCP</td>
<td>Signal: Brass</td>
<td>Au or Sn over 50 µ” Ni</td>
<td>40 °C to +105 °C</td>
<td>250 VAC / 500 VDC</td>
<td>250 (MFG Tested)</td>
<td>Yes (RT1 &amp; RT2 option)</td>
</tr>
<tr>
<td>.050” (sig)</td>
<td>Power: Copper Alloy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
Series is rated up to 60 A per power bank.
Some lengths, styles and options are non-standard, non-returnable.
The Molex EXTreme LPHPower™ line is a second source to the Samtec LPHT/LPHS Series.
*EXTreme LPHPower™ is a trademark of Molex Incorporated.

samtec.com/extreme-lphpower

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
30 A SIGNAL/POWER COMBO SYSTEM

### SERIES
- LPHT Terminal
- LPHS Socket

### POWER POSITIONS
- Total, 2 per power bank
  -02, -04, -06, -08, -10

### SIGNAL POSITIONS
- Total
  -16
  -20
  -24
  -32

### PLATING OPTION
- L = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

### TAIL
- VP1 = Vertical Press-fit (LPHS only)
- RT1 = Right-angle Through-hole (Use with [1.60 mm] .062" thick board)
- RT2 = Right-angle Through-hole (Use with [2.36 mm] .093" thick board)

### LPHT Board Mates: LPHS

View complete specifications at: samtec.com/LPHT

### LPHS Board Mates: LPHT

View complete specifications at: samtec.com/LPHS

<table>
<thead>
<tr>
<th>SIGNAL POSITIONS</th>
<th>POWER POSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A (–02)</td>
</tr>
<tr>
<td>–16</td>
<td>(33.97)</td>
</tr>
<tr>
<td>–20</td>
<td>(36.51)</td>
</tr>
<tr>
<td>–24</td>
<td>(39.05)</td>
</tr>
<tr>
<td>–32</td>
<td>(44.13)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNAL POSITIONS</th>
<th>POWER POSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A (–02)</td>
</tr>
<tr>
<td>–16</td>
<td>(31.64)</td>
</tr>
<tr>
<td>–20</td>
<td>(34.16)</td>
</tr>
<tr>
<td>–24</td>
<td>(36.72)</td>
</tr>
<tr>
<td>–32</td>
<td>(41.80)</td>
</tr>
</tbody>
</table>
EXTREME HIGH-POWER 60 A SYSTEMS

FEATURES & BENEFITS

- Up to 60 A per power blade (2 blades powered)
- Low 10 mm profile (right-angle) for enhanced system airflow
- Power only, or power/signal combinations
- 3 or 5 signal rows in the same form factor
- AC power, DC power, power/signal combinations and split power options available
- Coplanar and perpendicular applications
- Modules can be configured to accommodate most any design
- Rugged guide posts are standard; top design for board space savings
- Press-fit (ET60S only) and hot swap (ET60T only) options available

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>TERMINAL MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>VOLTAGE RATING</th>
<th>MATING CYCLES</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>(5.50 mm) .217&quot; (7.50 mm) .295&quot;</td>
<td>Black LCP</td>
<td>Signal: Phosphor Bronze Power: Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-40 °C to +105 °C</td>
<td>280 VAC</td>
<td>500</td>
</tr>
<tr>
<td>Signal</td>
<td>(2.00 mm) .097&quot; (5 row) (2.54 mm) .100&quot; (3 row)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- Some lengths, styles and options are non-standard, non-returnable.
- *EXTreme Ten60Power™ is a trademark of Molex Incorporated and is dual sourced by Molex®

Contact asp@samtec.com

samtec.com/extreme-ten60power

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
60 A SIGNAL/POWER COMBO SYSTEM

**Series** - **Power Option (R)** - **Rows** - **Signal Pos. Per Row** - **Power Option (L)** - **Plating** - **Tail** - **Guide Post** - **Option**

**ET60T** Terminal
- **AXX** = AC Power Positions (02 - 06)
- **-0** = No Signal
- **-00** = No Power

**ET60S** Socket
- **-DXX** = DC Power Positions (02 - 10)
- **-3** = 3 Row only
- **-5** = 5 Row only
- **-SXX* = Split Power
- **-000** = No Power

**ET60T** Board Mates: **ET60S**

**ET60S** Board Mates: **ET60T**

View complete specifications at: samtec.com/ET60T

View complete specifications at: samtec.com/ET60S

*PRELIMINARY
## FEATURES & BENEFITS

- Board-to-board and discrete wire cable systems
- Power Mate® system with polarized guide posts
- Mini Mate® system with reliable Tiger Buy™ contacts
- Individually shrouded contacts
- Elevated stack heights
- Optional polarization
- Vertical and right-angle for parallel, perpendicular and coplanar applications
- Rugged metal or plastic latching systems
- Cable components and tooling available

## KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>IPT1/IPS1</th>
<th>IPBT/IPBS</th>
<th>HPM/HPW/HPF</th>
<th>FWJ/HFWJ/FHP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITCH</td>
<td>(2.54 mm) .100&quot;</td>
<td>(4.19 mm) .165&quot;</td>
<td>(5.08 mm) .200&quot;</td>
<td>(3.96 mm) .156&quot;</td>
</tr>
<tr>
<td>CCC (1 PIN)*</td>
<td>5.9 A</td>
<td>10.3 A/pin (2 pins powered)</td>
<td>16.6 A</td>
<td>13.1 A</td>
</tr>
<tr>
<td>CCC (2 PINS)*</td>
<td>4.8 A</td>
<td>8.4 A/pin (4 pins powered)</td>
<td>14.4 A</td>
<td>11.2 A</td>
</tr>
<tr>
<td>CCC (3 PINS)*</td>
<td>4.1 A</td>
<td>7.6 A/pin (6 pins powered)</td>
<td>13.2 A</td>
<td>10.3 A</td>
</tr>
<tr>
<td>CREEPAGE</td>
<td>(2.54 mm) .100&quot;</td>
<td>(4.27 mm) .168&quot;</td>
<td>(3.94 mm) .155&quot;</td>
<td>(3.92 mm) .154&quot;</td>
</tr>
<tr>
<td>CLEARANCE</td>
<td>(1.91 mm) .075&quot;</td>
<td>(3.05 mm) .120&quot;</td>
<td>(3.94 mm) .155&quot;</td>
<td>(2.82 mm) .111&quot;</td>
</tr>
<tr>
<td>VAC</td>
<td>775</td>
<td>400</td>
<td>850</td>
<td>600</td>
</tr>
<tr>
<td>VDC</td>
<td>1095</td>
<td>565</td>
<td>1200</td>
<td>845</td>
</tr>
<tr>
<td>CYCLES</td>
<td>1000 (MFG Tested)</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.*
IPT1

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>TAIL OPTION</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25 (Standard Sizes)</td>
<td>Specify LEAD STYLE from chart</td>
</tr>
</tbody>
</table>

- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail

- **-A** = Alignment Pin
- **-RA** = Right-angle
- **-VS** = Surface Mount

- **-LC** = Locking Clip (Manual placement required) (−VS only) (N/A with −A)

- **-K** = (6.00 mm), 236° DIA Polyimide film Pick & Place Pad (−VS only)

- **-TR** = Tape & Reel (−VS only)

- **-FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (−VS only)

**IPS1**

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>TAIL OPTION</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 (Standard Sizes)</td>
<td>25</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IPS1** Board Mates: **IPT1**

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/IPT1 & samtec.com/IP51
miniMATE®

(2.54 mm) .100" PITCH • DISCRETE WIRE TERMINAL

IPL1

- 1 PINS PER ROW
- LEAD STYLE
- PLATING OPTION
- ROW OPTION
- TAIL OPTION
- K
- OPTION

-02, 03,
04, 05,
06, 08,
10, 12,
15, 16,
20, 25

(Standard sizes)

-02 – Through-hole
-02 – Surface Mount
-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail
-S = Single Row
-SH = Single Row Horizontal (~02 lead style only)
-D = Double Row
-RA = Right-angle (~01 lead style only)
-RE1 = Right-angle Elevated (~01 lead style only (~K is a required callout)

IPL1

Cable Mates:
MMSD, MMSS, MMSDT, MMSST

SPECIFICATIONS

Insulator Material:
Natural LCP
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 μ" (1.27 μm) Ni
Operating Temp Range:
-55 °C to +125 °C
Voltage Rating:
675 VAC/954 VDC

PROCESSING

Lead-Free Solderable:
Yes
-S & -D (~02 Lead Style)
SMT Lead Coplanarity:
(0.10 mm) .004" max (02-05)
(0.13 mm) .005" max (06-10)*
(0.15 mm) .006" max (11-25)*
*1,004” stencil solution may be available; contact IPG@samtec.com
-SH SMT Lead Coplanarity:
(0.15 mm) .006" max (02-25)*
*1,004” stencil solution may be available; contact IPG@samtec.com

ALSO AVAILABLE

MOQ Required

Other sizes
With or without plug polarization
Guide post holes
Other platings
Weld tab

WIRE GAUGE
CURRENT RATING (PER PIN)

-01, -02 & -RA = No. of positions x (2.54).100 + (1.52).060
-SH & -RE1 = No. of positions x (2.54).100 + (4.06).160

Note:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/IPL1

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SERIES - PINS PER ROW - WIRE GAUGE - PLATING OPTION - ASSEMBLY LENGTH - END OPTION - K - LATCH OPTION

MMSD = Double Row PVC Cable
-02, -03, -04, -05, -06, -08, -10, -12, -15, -16, -20, -25 (Standard sizes)
-20 = Color Coded Cable (MMSD & MMSS only)
-20C = Color Coded Cable (MMSD only)
-22, -24 = Gold on contact, Tin on tail
-24C = Gold on contact, Tin on tail
-“XX.XX” = Assembly Length in Inches (02.55 mm) 03.25” min.
-02, -05 & -10 positions only
-10, -12
-15, -16
-20, -25

MMSS = Single Row PVC Cable
-26, -28 = Color Coded Cable (MMSD & MMSS only)
-28C = Color Coded Cable (MMSS only)
-30

MMSDT = Double Row Blue Teflon® Cable
(20, 24, 28, 30 AWG only)
MMSS = Single Row Blue Teflon® Cable
-26, -28 = Color Coded Cable (MMSS only)
-28C = Color Coded Cable (MMSS only)
-30

MMSD, MMSDT, MMSS, MMSST
Board Mates:
IPD1 (Does not mate with IPT1)

Cable Mates:
MMTD(T), MMTS(T)

* Dupont™ Teflon® is a registered trademark of E.I. du Pont de Nemours and Company or its affiliates.

Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: samtec.com/MMSD, samtec.com/MMSDT, samtec.com/MMSS & samtec.com/MMSSST

IPD1 - POSITIONS PER ROW - ROW OPTION - K - LATCH OPTION - SERIES - WIRE GAUGE - 01 - PLATING OPTION

-02, -03, -04, -05, -06, -08, -10, -12, -15, -16, -20, -25 (Standard sizes)
-01 = Contact, Loose
-03 = Contact, Full Reel (12,000 Parts per Reel)
-2024 = 20 to 24 AWG
-2630 = 26 to 30 AWG
-26 = 26 to 30 AWG
-20 = 20 to 24 AWG
-10 = 10 µ" (0.25 µm) Gold on contact, Tin on tail
-10 = 10 µ" Gold on contact, Tin on tail

TOOLING

Hand Tool: CAT-HT-179-2030-13 (20-30 AWG)
Mini Applicator: CAT-MC-179-2630 XX-01 (26-30 AWG)
Extraction Tool: CAT-EX-179-01

Not:
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/IPD1, samtec.com/CC79L & samtec.com/CC79R

F-221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
POWERMATE®

(4.19 mm) .165" PITCH • ISOLATED POWER CONNECTOR SET

**IPBT**
- **NO. OF POSITIONS PER ROW**: 02, 03, 04, 05, 08, 10
  - **15** (–D Only)
  - (Standard Sizes)
- **LEAD STYLE**: –H1 = Through-hole, –H2 = Surface Mount
- **PLATING OPTION**: –T = Matte Tin
- **ROW OPTION**: –S = Single Row, –D = Double Row
- **OPTIONS**: –RA = Right-angle (Lead Style –H1 only), –GP = Guide Post Holes (Not available with –K)
  - **–K** = Keyed Polarization (not available with –GP option, is required callout if –GP not called out)

**IPBS**
- **NO. OF POSITIONS PER ROW**: 02, 03, 04, 05, 08, 10
  - **15** (–D Only)
  - (Standard Sizes)
- **LEAD STYLE**: –01 = Standard Power, –02 = Standard Power Surface Mount
- **PLATING OPTION**: –T = Matte Tin
- **ROW OPTION**: –S = Single Row, –D = Double Row
- **OPTION**: –GP = Guide Post

**Board Mates:**
- **IPBT**
- **IPBS**

**Cable Mates:**
- **PMSD, PMSS**

**View complete specifications at:** samtec.com?IPBT & samtec.com?IPBS

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

**MATED HEIGHT**

View complete specifications at: samtec.com?IPBT & samtec.com?IPBS

Unchanged.
# POWERMATE®

(4.19 mm) .165" PITCH • DISCRETE WIRE CABLE & COMPONENTS

### SERIES
- **PMSD**
  - Double Row PVC Cable
- **PMSDT**
  - Double Row Blue *Teflon® Cable (24 AWG only)
- **PMSS**
  - Single Row PVC Cable
- **PMSST**
  - Single Row Blue *Teflon® Cable (24 AWG only)

### Pins Per Row
- **PMSD**
  - -02, -03
  - -04, -05
- **PMSDT**
  - -08, -10
- **PMSS**
  - -15* (Standard sizes) *Only available for double row
- **PMSST**
  - -22
  - -24

### Wire Gauge
- **PMSD**
  - -16
- **PMSDT**
  - -18
- **PMSS**
  - -206 (20 AWG/ 600 volts)
- **PMSST**
  - -22
  - -24

### K
- **PMSD**
  - -K = Keyed Polarization
- **PMSDT**
  - -L = Latch Required

### Assembled Length
- **PMSD**
  - -"XX.XX" = Wire length in inches (88.90 mm) 03.50" min.
- **PMSDT**
  - -S = Single End
  - -D = Double End

### End Option
- **PMSD**
  - -LUS = Plastic Latch up, straight
- **PMS ST**
  - -LUS* = Plastic Latch up, crossed

### Latch Option
- **PMSS**
  - -LDS = Plastic Latch down, straight
  - -LDX* = Plastic Latch down, crossed
  - *(PMSD/PMSDT only)

### Board Mates:
**IPBT**

*DuPont™ Teflon® is a registered trademark of the E.I. du Pont de Nemours and Company or its affiliates.

**Notes:**
- Teflon® cable is intended for crimp only. Contact Samtec for solderable cable applications.
- For wiring option information refer to drawing on web.

### IPBD
- **Positions Per Row**
  - -02, -03, -04, -05, -08, -10, -15 (Standard sizes)
- **Row Option**
  - -S = Single Row
  - -D = Double Row
- **K**
  - -K = Keyed Polarization

### Series
- **CC69L**
  - Contact, Loose
  - -2024 = 20 to 24 AWG
- **CC69R**
  - Contact, Full Reel (4,000 Parts per Reel)
  - -1620 = 16 to 20 AWG

### Wire Gauge
- **IPBD**
  - 16 AWG = 10.3 A
  - 18 AWG = 8.8 A
  - 22 AWG = 5.7 A
  - 24 AWG = 5.2 A

### Tooling
- **Hand Tool:**
  - CAT-EX-169-01 (12.14)
- **Mini Applicator:**
  - CAT-EX-169-01 (16-20 AWG)

**Note:**
- Some lengths, styles and options are non-standard, non-returnable.


---

**Table:**

<table>
<thead>
<tr>
<th>Series</th>
<th>Wire Gauge</th>
<th>Current Rating (Per Pin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 AWG</td>
<td>10.3 A</td>
<td></td>
</tr>
<tr>
<td>18 AWG</td>
<td>8.8 A</td>
<td></td>
</tr>
<tr>
<td>22 AWG</td>
<td>5.7 A</td>
<td></td>
</tr>
<tr>
<td>24 AWG</td>
<td>5.2 A</td>
<td></td>
</tr>
</tbody>
</table>

**TOOLING:**

- **Hand Tool:** CAT-HT-169-1620-13 (16-20 AWG)
- **Hand Tool:** CAT-HT-169-2024-13 (20-24 AWG)
- **Mini Applicator:** CAT-MC-169-1620-XX-01 (16-20 AWG)
- **Mini Applicator:** CAT-MC-169-2024 XX-01 (20-24 AWG)

**Extraction Tool:** CAT-EX-169-01

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
POWER HEADERS,
STACKERS & SOCKETS

(3.96 mm) .156” PITCH • FWJ, HFWJ, JW, FHP SERIES

FWJ, HFWJ, JW
Board Mates:
FHP

FHP
Board Mates:
FWJ, HFWJ, JW

SERIES

FJP
FWJ
01 thru 24
Specify LEAD
STYLE from chart below

HFWJ
High Temp
Header

01 thru 24 –T
= Matte Tin

LEAD STYLE

PLATING OPTION

S

OTHER OPTIONS

Leave blank for Through-hole

–RA
= Right-angle (Style –02 & –04 only)

–VS
= Surface Mount Requires HFWJ
(2 pins/row minimum)
Style –05 not available.

–P
= Pick & Place Pad (3 Pos. min.)
(6.98 mm) .275” min. post height
(–VS only)

SPECIFICATIONS

Insulator Material:
FWJ = Black Glass
Filled Polyester
HFWJ, JW = Natural Liquid
Crystal Polymer
FHP = Black LCP

Terminal Material
(FWJ, HFWJ, JW):
Phosphor Bronze
Contact Material (FHP):
BeCu

Plating:
Sn over 50 µ” (1.27 µm) Ni

Operating Temp Range:
-55 °C  to +105 °C

Voltage Rating:
600 VAC/845 VDC

Insertion Depth (FHP):
(3.57 mm) .140” to
(8.76 mm) .345” or
pass-through from top

Wiping Distance (FHP):
(0.38 mm) .015”

PROCESSING

Lead–Free Solderable:
FWJ = No, Lead Wave only
HFWJ, JW, FHP = Yes

SMT Lead Coplanarity:
HFWJ, FWJ, JW = (0.20 mm)
.008” max (02-16)*
(0.25 mm) .010” max (17-24)*
FHP = (0.15 mm) .006” max*

*FWJ Only

(0.004” stencil solution
may be available; contact
ipg@samtec.com)

JW

02 thru 24

PLATING OPTION

S

STACK HEIGHT

POST HEIGHT

OTHER OPTIONS

Leave blank for Through-hole

–VS
= Surface Mount
(2 pins/row minimum)

–P
= Pick & Place Pad (3 Pos. min.)
(6.98 mm) .275” min. post height
(–VS only)

FHP

02 thru 24

LEAD STYLE

PLATING OPTION

S

OTHER OPTIONS

–LC
= Locking Clip
(Manual placement required)
(–02 lead style only)

–TR
= Tape & Reel Packaging
(Available on positions 2-18)
(–02 lead style only)

–K
= (6.50 mm)
.256” DIA
Polyimide film
Pick & Place Pad
(2-4 positions require “X”R)
(–02 lead style only)

–FR
= Full Reel Tape & Reel
(must order max.
quantity per reel;
contact Samtec for
quantity breaks)
(Available on positions 2-18)
(–02 lead style only)

Note:
Some lengths, styles and
options are non-standard,
non-returnable.


F-221 (Rev 11FEB21)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
POWER HEADERS, STACKERS & SOCKETS

(5.08 mm) .200” PITCH • HPM, HPW, HPF SERIES

HPM, HPW
Board Mates:
HPF

HPF
Board Mates:
HPM, HPW

SPECIFICATIONS

Insulator Material:
HPW/HPM = Glass Filled Polyester (Through-hole), Natural Liquid Crystal Polymer (Surface Mount)
HPF = Black LCP

Terminal Material
(HPM/HPW):
Copper Alloy

Contact Material (HPF):
BeCu

Plating:
Sn over 50 µ” (1.27 µm) Ni

Operating Temp Range:
-55 °C to +105 °C

Voltage Rating:
HPM/HPF = 850 VAC/1200 VDC

Insertion Depth (HPF):
(3.68 mm) .145” to (8.26 mm) .325” (.368” (9.35 mm) plus board thickness minimum for bottom entry)

Wiping Distance (HPF):
(0.38 mm) .015"

PROCESSING

Lead–Free Solderable:
HPW/VS, HPM/VS, HPF = Yes
HPM -TH, HPM -RA & HPW -TH = No, Lead Wave only

SMT Lead Coplanarity:
HPM = (0.20 mm) .008” max (02-15)*
HPF = (0.15 mm) .008” max (02-10)*
(0.20 mm) .008” max (11-20)*
*(0.04” stencil solution may be available; contact ipg@samtec.com)

Lead Temp High Power Header

No. of Positions x (5.08) .200

01 thru 20

Specify LEAD STYLE from chart below

LEAD STYLE

PLATING OPTION

S

TAIL OPTION

OTHER OPTIONS

T = Matte Tin

Leave blank for Through-hole

RA = Right-angle (-02 & -04 lead style only)

VS = Surface Mount (-01 & -02 lead style only)

P = Pick & Place Pad (3 Pos. min.)

(-VS only)

(-Not Available with -05 lead style)

Note:
Some lengths, styles and options are non-standard, non-returnable.

samtec.com/HPM, samtec.com/HPW or samtec.com/HPF

F-221 (Rev 11FEB21)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ACCLI Mate™

FLEXIBLE SEALED CIRCULAR SYSTEMS

FEATURES & BENEFITS

- Metal or plastic, 12 mm, 16 mm and 22 mm shells
- Choice of pin configuration and gender
- Bayonet-style latching systems meet IP68 requirements
- Cost-effective crimp version available (samtec.com/crimp)
- Variety of end 2 options for panel-to-board applications
- Mini push-pull latching system meets IP67 requirements for dust and waterproof sealing

Kitted components for efficient field assembly
Dust caps available

ACX-12
MAX
5.0
Amps
No. of Pins 2, 4, 5

ACX-16
MAX
11.6
Amps
No. of Pins 2, 10, 14

ACX-22
MAX
8.3
Amps
No. of Pins 8, 20, 30

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>INSULATOR MATERIAL</th>
<th>TERMINAL MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>OPERATING TEMP RANGE</th>
<th>HOUSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermoplastic</td>
<td>Brass</td>
<td>Brass/BeCu</td>
<td>-10 °C to +80 °C (ACX-12)</td>
<td>Thermoplastic (-P)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-10 °C to +105 °C (ACX-16)</td>
<td>Zinc Alloy (-M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-10 °C to +105 °C (ACX-22)</td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
12 mm • IP68 SEALED CABLE ASSEMBLY

SERIES - 12 - LEAD STYLE - PLATING OPTION - LENGTH - END 1 - END 2 - HOUSING MATERIAL - KEYING OPTIONS

ACP
Terminal

ACR
Socket

-01 = 1.0 mm DIA (4) terminals or sockets (24 AWG)

-02 = 1.0 mm DIA (5) terminals or sockets (24 AWG)

-05 = 1.0 mm DIA (2) terminals or sockets (24 AWG) + 0.5 mm DIA (4) terminals or sockets (28 AWG)

-01 = 1.0 mm DIA (4) terminals or sockets (24 AWG)

-02 = 1.0 mm DIA (5) terminals or sockets (24 AWG)

-05 = 1.0 mm DIA (2) terminals or sockets (24 AWG) + 0.5 mm DIA (4) terminals or sockets (28 AWG)

G = 10 µ" (0.25 µm) Gold over 50 µ" (1.27 µm) Ni on contact

-“XX.XX” = Length in meters (00.25 m min. to 50.00 m max.) Standard lengths

-T = Terminal

-S = Socket (N/A with End 2 -T)

-P = Plastic

-M = Metal

-BC = Blunt Cut

-S1 = Connector determine by lead style. See chart for end 2 connector used. (ACP only)

-P HOUSING

-M HOUSING

ACP-12
End 1/2 Mates:
ACP-12
ACRK-12

ACR-12
End 1 Mates:
ACP-12
ACPK-12

End 2 Mates:
IPL1

Overall Length (XX.XX) ± 2%

PANEL OPENING

LEAD STYLE -S1 END 2 MATES WITH -S1

-01 MMSS (24 AWG)

-02 MMSS (24 AWG)

-05 MMSS (24 AWG (2x), 28 AWG (4x))

IPL1

CURRENT RATING

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PINS POWERED</th>
<th>CCC per PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>4</td>
<td>3.8 A</td>
</tr>
<tr>
<td>-02</td>
<td>5</td>
<td>3.6 A</td>
</tr>
<tr>
<td>-05</td>
<td>2</td>
<td>5.0 A</td>
</tr>
</tbody>
</table>

For general reference only. Contact AccliMate@samtec.com for applications requiring higher current carrying capacity.

Note:
Some lengths, styles and options are non-standard, non-returnable.

www.samtec.com?ACP-12
www.samtec.com?ACR-12

KITS AVAILABLE

www.samtec.com?ACPK-12
www.samtec.com?ACRK-12

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SERIES**  
ACP  
ACR

**LEAD STYLE**  
-01 = 0.5 mm DIA (14) terminals or sockets (28 AWG)  
-02 = 1.0 mm DIA (10) terminals or sockets (24 AWG)  
-06 = 1.5 mm DIA (2) terminals or sockets (16 AWG) + 0.5 mm DIA (8) terminals or sockets (28 AWG)

**PLATING OPTION**  
-G = 10 µ" (0.25 µm) Gold over 50 µ" (1.27 µm) Ni on contact

**LENGTH**  
-“XX.XX” = Length in meters (00.25 m min. to 50.00 m max.) Standard lengths

**END 1**  
-T = Terminal  
-S = Socket (N/A with End 2-T)

**END 2**  
-T = Terminal (ACP only)  
-S = Socket (ACP only)

**HOUSING MATERIAL**  
-P = Plastic  
-M = Metal

**KEYING OPTIONS**  
-BC = Blunt Cut  
-S1 = Connector determine by lead style. See chart for end 2 connector used (ACP only)

**Panel Opening**

**End 1 Mates:**  
ACP-16  
ACPK-16

**End 2 Mates:**  
TFM, IPL1, MPT

**Current Rating**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PINS POWERED</th>
<th>CCC per PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>14</td>
<td>1.3 A</td>
</tr>
<tr>
<td>-02</td>
<td>10</td>
<td>2.6 A</td>
</tr>
<tr>
<td>-06</td>
<td>2 (plus 8 signal pins powered @ 1 A)</td>
<td>11.6 A</td>
</tr>
</tbody>
</table>

For general reference only. Contact Acclimawe@samtec.com for applications requiring higher current carrying capacity.

View complete specifications at: samtec.com?ACP-16

View complete specifications at: samtec.com?ACR-16

KITS AVAILABLE

www.samtec.com?ACPK-16  
www.samtec.com?ACRK-16

Note: Some lengths, styles and options are non-standard, non-returnable.
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.

**22 mm • IP68 SEALED CABLE ASSEMBLY**

**SERIES** - **LEAD STYLE** - **PLATING OPTION** - **LENGTH** - **END 1** - **END 2** - **HOUSING MATERIAL** - **KEYING OPTIONS**

| ACX | Terminal | –01 | 1.0 mm DIA (30) terminals or sockets (24 AWG) |
| ACR | Socket   | –02 | 1.0 mm DIA (20) terminals or sockets (24 AWG) |
|     |          | –03 | 1.5 mm DIA (8) terminals or sockets (16 AWG) |

<table>
<thead>
<tr>
<th>PLATING OPTION</th>
<th>LENGTH</th>
<th>END 1</th>
<th>END 2</th>
<th>HOUSING MATERIAL</th>
<th>KEYING OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>–G = 10 µ'' (0.25 µm) Gold over 50 µ'' (1.27 µm) Ni on contact</td>
<td>–&quot;XX.XX&quot; = Length in meters (00.25 m min. to 50.00 m max.) Standard lengths</td>
<td>–T = Terminal (ACP only)</td>
<td>–T = Terminal (ACP only)</td>
<td>–P = Plastic</td>
<td>–1 = Orange, 45°</td>
</tr>
<tr>
<td>–S = Socket (ACP only)</td>
<td>–BC = Blunt Cut</td>
<td>–S = Socket (ACP only)</td>
<td>–S1 = Connector determine by lead style. See chart for end 2 connector used. (ACR only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>–S1 = Blunt Cut</td>
<td>–P HOUSING</td>
<td>–M HOUSING</td>
<td>–P HOUSING</td>
<td>–M HOUSING</td>
<td></td>
</tr>
</tbody>
</table>

**ACP-22**
End 1/2 Mates: ACR-22 ACRK-22

**ACR-22**
End 1 Mates: ACP-22 ACPK-22
End 2 Mates: IPL1, MPT

**CURRENT RATING**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PINS POWERED</th>
<th>CCC per PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01</td>
<td>30</td>
<td>2.0 A</td>
</tr>
<tr>
<td>–02</td>
<td>20</td>
<td>2.3 A</td>
</tr>
<tr>
<td>–03</td>
<td>8</td>
<td>8.3 A</td>
</tr>
</tbody>
</table>

For general reference only. Contact AccliMate@samtec.com for applications requiring higher current carrying capacity.

View complete specifications at: samtec.com?ACP-22

View complete specifications at: samtec.com?ACR-22

**PANEL OPENING**

**LEAD STYLE** - **–S1 END 2** - **MATES WITH –S1**

<table>
<thead>
<tr>
<th>–01 END</th>
<th>–01 END 2 (MMSD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01 END</td>
<td>–01 END 2 (MMSD)</td>
</tr>
</tbody>
</table>

**KITS AVAILABLE**

www.samtec.com?ACP-22
www.samtec.com?ACRK-22

**Note:** Some lengths, styles and options are non-standard, non-returnable.
ACCLIMATE™

IP67 SEALED 8 SERIES CABLE ASSEMBLY

MCP/MCR SERIES

MCP
Mates with: MCP(K), MCR(K)
MCP Kit: MCPK

MCR
Mates with: MCP(K)
MCR Kit: MCRK

SPECIFICATIONS

Insulator Material: PPS
Terminal Material: Phosphor Bronze (MCP)
Contact Material: Phosphor Bronze (MCP)
Operating Temp Range: -20 °C to +80 °C
Gasket Material: Silicone (MCP)
Neoprene Rubber (MCR)
Spring Material: Stainless Steel (MCP)
Coupling Ring Spacer: PBT (MCP)
Cable Clamp: POM (MCP)
Lock Washer: Phosphor Bronze, Ni plated (MCR)
Hex Nut: Brass, Ni plated (MCR)

PANEL OPENING

Notes:
Samtec’s MCR, MCP Series is dual sourced by Hirose Electric Co. Ltd
Some lengths, styles and options are non-standard, non-returnable

MCP - 8 - LEAD STYLE - PLATING OPTION - LENGTH - END 1 OPTION - END 2 OPTION
-02 = 12 positions, 28 AWG -L = 10 μ" (0.25 μm) Gold on contact area -01.00 = 1 meter -T = Terminal -T = Terminal
-02.00 = 2 meters Standard lengths -S = Socket (Not available with End 2 -T) -S = Socket
-BC = Blunt Cut

MCR - 8 - LEAD STYLE - PLATING OPTION - LENGTH - END 1 OPTION - END 2 OPTION
-02 = 12 positions, 28 AWG -L = 10 μ" (0.25 μm) Gold on contact area -00.25 = 0.25 meter -S = Socket -S = Socket
-00.50 = 0.50 meter Standard lengths -BC = Blunt Cut (Color wire only, see chart)
-01 = 2x6 SFSD (Pin 1 to Pin 3) (Black wire only)

-BC CABLE COLOR CODING

<table>
<thead>
<tr>
<th>PIN</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BROWN</td>
</tr>
<tr>
<td>2</td>
<td>RED</td>
</tr>
<tr>
<td>3</td>
<td>ORANGE</td>
</tr>
<tr>
<td>4</td>
<td>YELLOW</td>
</tr>
<tr>
<td>5</td>
<td>GREEN</td>
</tr>
<tr>
<td>6</td>
<td>DARK BLUE</td>
</tr>
<tr>
<td>7</td>
<td>VIOLET</td>
</tr>
<tr>
<td>8</td>
<td>GRAY</td>
</tr>
<tr>
<td>9</td>
<td>WHITE</td>
</tr>
<tr>
<td>10</td>
<td>BLACK</td>
</tr>
<tr>
<td>11</td>
<td>GREEN/BLACK</td>
</tr>
<tr>
<td>12</td>
<td>TAN</td>
</tr>
</tbody>
</table>

DUST CAPS

-S (socket) = DCA-MCR-8
-T (terminal) = DCA-MCP-8

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**ACCLIMATE™**

**IP68 SEALED USB & ETHERNET**

**SCRUS/SCRES SERIES**

<table>
<thead>
<tr>
<th>SCRUS</th>
<th>SHELL SIZE</th>
<th>PLATING</th>
<th>WIRE LENGTH</th>
<th>END 1 OPTION</th>
<th>END 2 OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-17</td>
<td>-G</td>
<td>-00.25</td>
<td>-AMS</td>
<td>-AM</td>
<td>-BC</td>
</tr>
<tr>
<td>(Standard USB only)</td>
<td>(0.76 µm Gold on Contact, Nickel on Shell)</td>
<td>(0.25 m) 9.84&quot; Cable</td>
<td>USB A Type, Sealed</td>
<td>USB A Type, Not Sealed</td>
<td></td>
</tr>
<tr>
<td>-10</td>
<td>-G</td>
<td>-00.50</td>
<td>-BMS</td>
<td>-BM</td>
<td>-BC</td>
</tr>
<tr>
<td>(Mini USB only)</td>
<td>(0.50 m) 19.68&quot; Cable</td>
<td>Standard lengths</td>
<td>USB B Type, Sealed</td>
<td>USB B Type, Not Sealed</td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **Insulator Material:** PBT
- **Contact Material:** Phosphor Bronze
- **Wire:**
  - 20 AWG (Power)
  - 25 AWG (Signal)
  - 28 AWG (Drain)
- **O-Ring:** Silicone
- **Operating Temp Range:** -20 °C to +75 °C

**SCRES**

<table>
<thead>
<tr>
<th>SCRES</th>
<th>PLATING</th>
<th>WIRE LENGTH</th>
<th>END OPTION</th>
<th>C5E</th>
</tr>
</thead>
<tbody>
<tr>
<td>-G</td>
<td>-00.25</td>
<td>-AMS</td>
<td>-D</td>
<td>-C5E</td>
</tr>
<tr>
<td>= 50 µ&quot; (1.27 µm) Gold on Contact, Nickel on Shell</td>
<td>(0.25 m) 9.84&quot; Cable</td>
<td>USB A Type, Sealed</td>
<td>Double Ended</td>
<td>Cat 5e rating</td>
</tr>
<tr>
<td>-00.50</td>
<td>(0.50 m) 19.68&quot; Cable</td>
<td>USB B Type, Sealed</td>
<td>BC</td>
<td>Blunt Cut</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **Insulator Material:** PBT
- **Contact Material:** Phosphor Bronze
- **Shield Material:** Phosphor Bronze
- **Wire:** 24 AWG
- **O-Ring:** Silicone
- **Overmold:** PA66
- **Current Rating:** 3.8 A per pin (1 pin powered)
- **Operating Temp Range:** -40 °C to +70 °C

**Note:**

Some lengths, styles and options are non-standard, non-returnable.

---

**DUST CAP & PANEL PLUG**

- Dust cap: DCA-17-03 (USB Flash Drive Cover)
- Panel Plug: SCPPA-17-01

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
IP68 SEALED ETHERNET SOCKET

RPBE, RPCE SERIES

RPBE
Mates with:
RCE

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer
Contact:
Phosphor Bronze
Operating Temp Range:
-40 °C to +75 °C
Screw:
Stainless Steel
Nut:
Stainless Steel
Sealing Washer:
Rubber

RPBE
NO. OF PORTS
-01, -02
LEAD STYLE
-01
= Right-angle
= 50 µ" (1.27 µm) Gold on contact, Flash Gold on tail
PLATING
—E

RPCE
Mates with:
RCE

SPECIFICATIONS

Insulator Material:
Glass Filled Thermoplastic
Contact:
Phosphor Bronze
Shield:
Phosphor Bronze
Operating Temp Range:
-40 °C to +75 °C
Overmold:
Rite Flex 640F
Screw:
Stainless Steel
Nut:
Stainless Steel
Sealing Washer:
Rubber
Wire:
24 AWG

DUST CAPS

-01 = DCA-RPBE-01-01-P (Push-On/No Latch)
-01 = DCA-RPBE-01-01-L (Latching)
-02 = DCA-RPBE-02-01-L (Latching)

Note:
Some lengths, styles and options are non-standard, non-returnable

samtec.com?RPBE or samtec.com?RPCE

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
ACCLIMATE™

IP68 SEALED USB PANEL MOUNT

RPBU, RPCU SERIES

RPBU
Mates with:
RCU (Single Port only)

SPECIFICATIONS

- Insulator Material: Black Liquid Crystal Polymer
- Contact: Phosphor Bronze
- Current Rating: 4.2 A per pin (1 pin powered)
- Operating Temp Range: -20 °C to +80 °C
- Seal: Silicone
- Lead-Free Solderable: Yes

<table>
<thead>
<tr>
<th>NO. OF PORTS</th>
<th>PLATING</th>
<th>TYPE</th>
<th>LEAD STYLE</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>-S</td>
<td>-A</td>
<td>-VT</td>
<td>–LC</td>
</tr>
<tr>
<td>= Single Port</td>
<td>= 30 µ&quot; (0.76 µm) Gold on contact, Matte tin on tail</td>
<td>= USB A Type</td>
<td>= Vertical Through-hole</td>
<td>= Locking Clip (=VT only)</td>
</tr>
<tr>
<td>-02</td>
<td>-B</td>
<td>-B</td>
<td>-RA</td>
<td>–A–VT –A–RA</td>
</tr>
<tr>
<td>= Dual Port</td>
<td>= USB B Type</td>
<td>= Right-angle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RPCU
Mates with:
RCU

SPECIFICATIONS

- Insulator Material: Black Liquid Crystal Polymer
- Contact Material: Phosphor Bronze
- Operating Temp Range: -20 °C to +80 °C
- Shield Material: Phosphor Bronze
- Wire: 20 AWG (Power), 23 AWG (Signal), 28 AWG (Drain)

<table>
<thead>
<tr>
<th>NO. OF PORTS</th>
<th>PLATING</th>
<th>CABLE LENGTH</th>
<th>END 1 OPTION</th>
<th>END 2 OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>-G</td>
<td>-00.25</td>
<td>-AMS</td>
<td>AM</td>
</tr>
<tr>
<td>= Single Port</td>
<td>= 30 µ&quot; (0.76 µm) Gold on contact, Nickel on shell</td>
<td>= (0.25 m) 9.84&quot; Cable</td>
<td>= USB A Type, Sealed</td>
<td>= USB A Type, Not Sealed</td>
</tr>
<tr>
<td>-02</td>
<td>-G</td>
<td>-00.50</td>
<td>-BMS</td>
<td>-BM</td>
</tr>
<tr>
<td>= Dual Port</td>
<td>= (0.50 m) 19.68&quot; Cable</td>
<td></td>
<td>= USB B Type, Sealed</td>
<td>= USB B Type, Not Sealed</td>
</tr>
</tbody>
</table>

Note: Some lengths, styles and options are non-standard, non-returnable

DUST CAPS

- DCA-RPBU-01-01-A
- DCA-RPBU-02-01-A
- DCA-RPBU-01-01-B

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
RUGGED FEATURES
OPTIONS FOR HIGH-RELIABILITY, HIGH-RETENTION AND HIGH-CYCLE LIFE

RUGGEDIZING OPTIONS

**JACK SCREWS**
Ideal for high normal force, zipper and other rugged applications

**POSITIVE LATCHING**
Manually activated latches increase unmating force by up to 200%

**FRICION LOCKS**
Metal or plastic friction locks increase retention/withdrawal force

**RETENTION PINS**
Increase unmating force by up to 50%

**BOARD LOCKS**
Boards are mechanically locked together

**WELD TABS**
Significantly increase sheer resistance of connector to PCB

**GUIDE POSTS**
Easy and secure mating

**SHIELDING**
360° shielding reduces EMI

**SCREW DOWNS**
Secure mechanical attachment to the board

**BOARD STANDOFFS**
Precision machined standoffs for 5 mm to 25 mm board spacing

CONTACT SYSTEMS

**TIGER EYE™**
High-reliability High Mating Cycles Multi-finger Contact

**TIGER CLAW™**
Dual Wipe Contact Pass-through Applications Ultra-low Profile

**BLADE & BEAM**
Mating/Alignment “Friendly” Cost-effective

**TIGER BEAM™**
Best Cost Reliable Performance Post & Beam Contact

**EDGE RATE®**
Designed for Signal Integrity Superior Impedance Control Reduced Broadside Coupling

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLEXIBLE STACKING

VARIETY OF PITCHES, CONTACT SYSTEMS & ORIENTATIONS • HIGHLY CUSTOMIZABLE

ONE-PIECE INTERFACES

1.00 mm (0.0394") Pitch (FSI) ................................................................. 234
1.00" (2.54 mm) (SIB, SIR1) .......................................................... 235

MICRO BLADE & BEAM

0.50 mm (0.0197") Pitch Low-Profile Systems (LTH, LSH) .................................................. 236
Floating Contact Systems (FTS, FS5) ................................................. 237
Basic Blade & Beam Systems (BXH, BXS, BXE) .................................. 238-241

MICRO PIN & SOCKET

0.80 mm (0.0315") Pitch Headers & Sockets (FTE, CLE, AW) .................. 242-243
1.00 mm (0.0394") Pitch Headers, Stackers & Sockets (FTMH, FTM, MW, CLM, MLE) .................. 244-246
Quad Row Headers & Sockets (SOLC, TOLC) ........................................... 247
.050" (1.27 mm) Pitch Headers, Stackers & Sockets (FTSH, FTS, FW, CLP, FLE) .................. 248-253
.050" (1.27 mm) x 100" (2.54 mm) Pitch Headers, Stackers & Sockets (TMS, HTMS, TML, ZML, DWM, FTR, RSM, SLM, SMS) .................. 254-258

BOARD-TO-BOARD

2.00 mm (0.0787") Pitch Headers & Stackers
(TMM, MMT, MTMM, TMMH, LTMM, ZLTMM, TMMS, TSH, TW) .................. 259-266
2.00 mm (0.0787") Pitch Press-Fit Headers & Sockets (PTT, PTF, PTHF, ESQT-368) .................. 267-268
2.00 mm (0.0787") Pitch Sockets (SQW, SQT, MMS, TLE, CLT) .................. 269-271
2.00 mm (0.0787") Pitch Self Mating Hermaphroditic Strips (LS2) .................. 272
.100" (2.54) Pitch Square Post Headers & Stackers
(PHT, PHF, TSW, HTSW, TSM, MTSW, HMTSW, TLW, MTLW, HW, DW, EW, ZW, TSS, HTSS, ZSS) .... 273-283
.100" (2.54 mm) Pitch Square Post Sockets
(SSW, SSQ, SSM, ESW, ESQ, HLE, BCS, BSW, SLW, CES) .................. 284-291
Shunts & Jumpers (SNT, MNT, 2SN, SNM, JL) ............................. 292
FLEXIBLE STACKING

With the largest variety of board-to-board interconnects, Samtec makes it easy to find board stackers for any application. Header and socket systems are available in a variety of pitch, density, stack height, orientation and many more standard or custom options.

INCREDBILE FLEXIBILITY

- Post height: Adjustable in .005" (0.13 mm) increments
- Body positions: Adjustable in .005" (0.13 mm) increments
- Board stacking distance: 1.65 mm (.065") – 48.51 mm (1.910")
- Number of pins: 2-300
- Number of rows: 1-6

CUSTOMIZABLE

- Mix-and-match headers and sockets to find the right solution
- Quick and easy custom parts are available. Contact asp@samtec.com

VARIETY OF PITCHES

- 0.80 mm (.0315")
- 1.00 mm (.0394")
- .050" (1.27 mm)
- .050" x .050" (1.27 x 1.27 mm)
- .050" x .100" (1.27 x 2.54 mm)
- 2.00 mm (.0787")
- .100" (2.54 mm)
- .156" (3.96 mm)
- .200" (5.08 mm)

BUILD IT YOURSELF

Check out Solutionator® to quickly build a mated set for your specific application. Visit samtec.com/solutionator

samtec.com/flexiblestacking

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
VARIETY OF CONTACTS

- **TIGER EYE™ CONTACT**
  - High-reliability
  - High mating cycles
  - Multi-finger contact

- **TIGER CLAW™ CONTACT**
  - Pass-through
  - Ultra-low profile
  - Dual wipe contact

- **TIGER BUY™ CONTACT**
  - High-retention
  - Cost-effective
  - Tuning fork contact

- **TIGER BEAM™ CONTACT**
  - Best cost
  - Reliable performance
  - Post & beam contact

VARIETY OF ORIENATIONS/APPLICATIONS

- **Standard**
  - Choice of contact system
  - Single, double and triple row designs
  - Largest variety

- **Low Profile**
  - Down to 1.65 mm (.065") stack height
  - Tiger Claw™ contacts
  - Space saving

- **Elevated**
  - Up to 48.51 mm (1.910") stack height
  - Design flexibility
  - Clearance, air flow

- **Pass-Through**
  - Connect three or more boards
  - Tiger Claw™ & Tiger Beam™ contact systems
  - Surface mount or offset through-hole

- **Right-Angle**
  - Design flexibility
  - Tiger Claw™ & Tiger Buy™ contacts
  - Through-hole, surface mount

- **Coplanar**
  - 1-4 row designs
  - Surface mount, through-hole or mixed technology
  - Tiger Claw™ & Tiger Beam™ contacts

- **Bottom Entry**
  - Tiger Claw™ contacts
  - Access to components when mated
  - Space savings

- **Self-Nesting**
  - Tiger Buy™ contacts
  - Press-fit or through-hole tails
  - PC/104-Plus™ embedded applications

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## BOARD STACKING REFERENCE

Focused/most popular series in charts. For all flexible stacking solutions, visit [samtec.com/connectors](http://samtec.com/connectors).

### ONE-PIECE, 0.80 mm (.0315") & 1.00 mm (.0394") PITCH

<table>
<thead>
<tr>
<th>SERIES</th>
<th>FSI</th>
<th>SEI</th>
<th>SIB</th>
<th>CLE</th>
<th>FTE</th>
<th>CLM</th>
<th>FTMH/FTM</th>
<th>MLE</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITCH</td>
<td>1.00 mm (.0394&quot;)</td>
<td>.100&quot; (.254 mm)</td>
<td>0.80 mm (.0315&quot;)</td>
<td>1.00 mm (.0394&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORIENTATION</td>
<td>V &amp; RA</td>
<td>V &amp; RA</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOARD STACKING (MM)</td>
<td>MIN 3</td>
<td>1.65</td>
<td>3.8</td>
<td>5</td>
<td>10</td>
<td>8.43</td>
<td>5.11</td>
<td>9.27</td>
<td></td>
</tr>
<tr>
<td>MAX</td>
<td></td>
<td>10</td>
<td>1.65</td>
<td>3.8</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTACT SYSTEM</td>
<td>Tiger Beam™</td>
<td>Tiger Claw™</td>
<td>Tiger Buy™</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATES</td>
<td>One-Piece</td>
<td>FTE, AW</td>
<td>CLE</td>
<td>FTM, FTMH, MW</td>
<td>CLM, MLE</td>
<td>FTM, FTMH, MW</td>
<td>CLM, MLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>234</td>
<td>See Website</td>
<td>235</td>
<td>242</td>
<td>242</td>
<td>246</td>
<td>244</td>
<td>246</td>
<td>245</td>
</tr>
</tbody>
</table>

### .050" (1.27 mm) PITCH HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>CLP</th>
<th>FLE</th>
<th>FTS</th>
<th>FTSH</th>
<th>FW</th>
<th>SOLC</th>
<th>TOLC</th>
<th>DWM/HDWM</th>
<th>FTR</th>
<th>RSM</th>
<th>SLM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITCH</td>
<td>.050&quot; x .050&quot; (.127 mm x .127 mm)</td>
<td>.050&quot; x .100&quot; (.127 mm x .254 mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORIENTATION</td>
<td>V &amp; RA</td>
<td>V &amp; RA</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOARD STACKING (MM)</td>
<td>MIN 3.53</td>
<td>5.82</td>
<td>3.53</td>
<td>5.18</td>
<td>7.72</td>
<td>6.35</td>
<td>9.65</td>
<td>9.78</td>
<td>7.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX 17.75</td>
<td>19.15</td>
<td>5.82</td>
<td>7.49</td>
<td>19.15</td>
<td>12.00</td>
<td>22.99</td>
<td>14.73</td>
<td>19.69</td>
<td>19.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTACT SYSTEM</td>
<td>Tiger Claw™</td>
<td>Tiger Beam™</td>
<td>Tiger Buy™</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATES</td>
<td>FTSH, FTS, FW</td>
<td>CLP, FLE</td>
<td>TOLC</td>
<td>SOLC</td>
<td>SMS, SLM, RSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>252</td>
<td>253</td>
<td>250</td>
<td>248-249</td>
<td>251</td>
<td>247</td>
<td>247</td>
<td>256</td>
<td>257</td>
<td>257</td>
<td>258</td>
</tr>
</tbody>
</table>

[Samtec.com/flexiblestacking](http://samtec.com/flexiblestacking)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### 2.00 mm (.0787”) PITCH HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>MMT</th>
<th>TMM/MTMM</th>
<th>TMMH</th>
<th>TW</th>
<th>ZLTMM</th>
<th>CLT</th>
<th>ESQT/368</th>
<th>MMS</th>
<th>SMM</th>
<th>SQT</th>
<th>SQW</th>
<th>TLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIENTATION</td>
<td>RA</td>
<td>V &amp; RA</td>
<td>V</td>
<td>V &amp; RA</td>
<td>V</td>
<td>V &amp; RA</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERMINATION</td>
<td>SMT &amp; MT</td>
<td>T/H &amp; SMT</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>SMT</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>SMT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX</td>
<td>4</td>
<td>18.87</td>
<td>22.07</td>
<td>43.31</td>
<td>13.34</td>
<td>4.98</td>
<td>43.31</td>
<td>19.81</td>
<td>17.78</td>
<td>29.59</td>
<td>17.53</td>
<td></td>
</tr>
<tr>
<td>CONTACT SYSTEM</td>
<td>CLT, SQT, SQW, ESQT, TLE, SMM, MMS</td>
<td>SQT, SQW, ESQT, SMM</td>
<td>TMM, TMMH, MTM, MTMM, TM, TW, TSH</td>
<td>TMM, TMMH, MTM, MM, LTMM, ZLTMM, TLE, SMM, MM, TLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATES</td>
<td>SQT, SQW, ESQT, SMM</td>
<td>TMM, TMMH, MTM, MTMM, TM, TW, TSH, SMM, MMS, TM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### .100” (2.54 mm) PITCH HEADERS & SOCKETS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>DW, EW, ZW</th>
<th>HW</th>
<th>MTSW/HMTSW</th>
<th>TLW/MTLW</th>
<th>TSM</th>
<th>TSW/HTSW</th>
<th>BCS</th>
<th>ESW/ESQ</th>
<th>HLE</th>
<th>SSM</th>
<th>SSQ</th>
<th>SSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIENTATION</td>
<td>V</td>
<td>V &amp; RA</td>
<td>V &amp; RA</td>
<td>V</td>
<td>V &amp; RA</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERMINATION</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>T/H</td>
<td>SMT &amp; MT</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>SMT</td>
<td>T/H</td>
<td>T/H &amp; SMT</td>
<td>SMT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOARD STACKING (MM)</td>
<td>MIN</td>
<td>13.59</td>
<td>10.03</td>
<td>7.24</td>
<td>6.1</td>
<td>7.47</td>
<td>7.87</td>
<td>9.02</td>
<td>13.59</td>
<td>7.47</td>
<td>11.18</td>
<td>10.03</td>
</tr>
<tr>
<td>MAX</td>
<td>48.51</td>
<td>30.73</td>
<td>46.36</td>
<td>20.96</td>
<td>14.48</td>
<td>35.69</td>
<td>18.92</td>
<td>48.51</td>
<td>26.16</td>
<td>30.1</td>
<td>38.35</td>
<td></td>
</tr>
<tr>
<td>CONTACT SYSTEM</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATES</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td>SSW, SSQ, ESW, ESOQ, CES, SLW, BSW, BCS, SSM, HLE, PHP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pages

- **2.00 mm (.0787”) PITCH HEADERS & SOCKETS**: Pages 261, 259-261, 262-263, 266, 264, 271, 268, 270, 194, 269, 269, 271
- **.100” (2.54 mm) PITCH HEADERS & SOCKETS**: Pages 282, 281, 278-279, 280, 276-277, 274-275, 289, 287, 288, 286, 284-285

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
LOW-PROFILE AND ELEVATED ONE-PIECE

(1.00 mm) .0394" PITCH • FSI SERIES

SPECIFICATIONS

Insulator Material:
Liquid Crystal Polymer

Contact Material:
BeCu

Current Rating:
2.8 A per pin
(2 pins powered)

Operating Temp Range:
-55 °C to +125 °C

Plating:
Au over 50 µ" (1.27 µm) Ni

Notes:
Applications requiring 40-50 positions without threaded inserts, please contact Samtec Interconnect Processing Group.

Some lengths, styles and options are non-standard, non-returnable.

PROCESSING

Lead-Free Solderable:
Yes

SMT Lead Coplanarity:
(0.10 mm) .004” max (05-30)
(0.15 mm) .006” max (50)*

*(.004” stencil solution may be available; contact IPG@samtec.com)

Compression Board:
Gold Pads required

OTHER SOLUTIONS

Low Profile
See www.samtec.com?SEI

.050” (1.27 mm)
Pitch
See www.samtec.com?SIBF

ALSO AVAILABLE

MOQ Required
No alignment pin
Top side alignment pin
Bottom side alignment pin
Other platings

Notes:
Applications requiring 40-50 positions without threaded inserts, please contact Samtec Interconnect Processing Group.

Some lengths, styles and options are non-standard, non-returnable.

samtec.com?FSI

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### ONE-PIECE INTERFACES

**SPECIFICATIONS**

**SIB**

| Insulator Material: | Black Liquid Crystal Polymer |
| Contact Material: | Phosphor Bronze |
| Plating: | Au or Sn over 50 µ" (1.27 µm) Ni |
| Current Rating: | 2.6 A per pin (1 pin powered) |
| Operating Temp Range: | -55 °C to +125 °C |

**PLATING OPTION**

- **–F** = Gold flash on contact, Matte Tin on tail
- **–LC** = Locking Clip (Manual placement required)

**PROCESSING**

**Notes:**

- The SIB Series is intended for vertical mating only.
- Some lengths, styles and options are non-standard, non-returnable.

---

### SIR1

**SPECIFICATIONS**

- **Insulator Material:** Black LCP
- **Contact Material:** Phosphor Bronze
- **Weld Tab:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Current Rating:** 2.8 A per pin (1 pin powered)

**PLATING**

- **–L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **–S** = 30 µ" (0.76 µm) Gold on contact, Matte Tin on tail
- **–A** = Alignment Pin
- **–K** = (4.00 mm) .157" DIA Polyimide Film Pick & Place Pad
- **–TR** = Tape & Reel
- **–FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**PROCESSING**

**Notes:**

- Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
# LOW-PROFILE BLADE AND BEAM

(0.50 mm) .0197" PITCH • LTH/LSH SERIES

## LTH

<table>
<thead>
<tr>
<th>NO. OF POSITIONS PER ROW</th>
<th>01</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>A</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–010, –020, –030, –040, –050</td>
<td>–G</td>
<td>= 10 µ&quot; (0.25 µm)</td>
<td>Gold</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**
- Insulator Material: Liquid Crystal Polymer
- Terminal Material: Phosphor Bronze
- Contact Material: BeCu
- Plating: Au over 50 µ" (1.27 µm) Ni
- Current Rating: 2.6 A per pin (2 pins powered)
- Operating Temp Range: -55 °C to +125 °C

## LSH

<table>
<thead>
<tr>
<th>NO. OF POSITIONS PER ROW</th>
<th>01</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>A</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>–010, –020, –030, –040, –050</td>
<td>–G</td>
<td>= 10 µ&quot; (0.25 µm)</td>
<td>Gold</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**
- Insulator Material: Liquid Crystal Polymer
- Terminal Material: Phosphor Bronze
- Contact Material: BeCu
- Plating: Au over 50 µ" (1.27 µm) Ni
- Current Rating: 2.6 A per pin (2 pins powered)
- Operating Temp Range: -55 °C to +125 °C

## PROCESSING
- Lead-Free Solderable: Yes
- SMT Lead Coplanarity: (0.10 mm) .004" max
- Board Stacking: For applications requiring more than two connectors per board, contact ipg@samtec.com

## MATED HEIGHT

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>MATED HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01</td>
<td>(2.31 mm) .091&quot;</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.

Note: Some lengths, styles and options are non-standard, non-returnable.

samtec.com/LTH or samtec.com/LSH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
HIGH-SPEED FLOATING CONTACT SYSTEM

(0.50 mm) .0197" PITCH • FT5/FS5 SERIES

FT5
Mates: FT5
FS5
Mates: FS5

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer
Contact Material:
Phosphor Bronze (FT5)
BeCu (FS5)
Weld Tab:
Phosphor Bronze
Plating:
Au or Sn over
50 µ" (1.27 µm) Ni
Current Rating:
1.8 A per pin
(2 pins powered)
Operating Temp Range:
-55 °C to +125 °C
Lead-Free Solderable:
Yes

MATED HEIGHT *

FS5 LEAD STYLE
-01.0  (5.00 mm) .197"
-03.0  (7.00 mm) .276"

FT5 LEAD STYLE
-01.0  (3.72) .146
-03.0  (5.72) .225

Notes:
Floating contact system provides 0.50 mm float in X and Y directions.
Some lengths, styles and options are non-standard, non-returnable.

FT5
NO. OF POSITIONS
-15, -30
(Per Row)
LEAD STYLE
-01.0
-03.0
PLATING OPTION
-01
RA
ROW OPTION
-1
DV
-RA
TH
-TH
OPTION
-0
K
XR

FS5
NO. OF POSITIONS
-15, -30
(Per Row)
LEAD STYLE
-04.0
PLATING OPTION
-01
-TH
DV
-TH
OPTION
-0
K
XR

ALSO AVAILABLE
MOQ Required

Other lead counts
Surface mount weld tab

samtec.com?FT5 or samtec.com?FS5

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**BTH**

**BTH Mates:**
- **BSH**

**SPECIFICATIONS**

**Insulator Material:**
- Black LCP

**Contact Material:**
- Phosphor Bronze

**Plating:**
- Au or Sn over 50 μ" (1.27 μm) Ni

**Current Rating:**
- 2.0 A per pin
- (2 pins powered)

**Operating Temp Range:**
- -55 °C to +125 °C

**Voltage Rating:**
- 175 VAC

**Max Cycles:**
- 100

**PROCESSING**

**Lead-Free Solderable:**
- Yes

**SMT Lead Coplanarity:**
- Vertical:
  - (0.10 mm) .004" max (030-090), (0.15 mm) .006" max (120-150)*
  - Right-angle:
    - (0.15 mm) .006" max (030-090)*
    - *(.004" stencil solution may be available; contact IPG@samtec.com)

**Board Stacking:**
- For applications requiring more than two connectors per board or 90 positions or higher, contact ipg@samtec.com

**ALSO AVAILABLE**

**MOQ Required**
- 30 μ" (0.76 μm) Gold
- Edge Mount Capability
- 8 mm, 11 mm, 16 mm, 19 mm and 22 mm Stack Height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)
- 11 mm, 16 mm, 19 mm and 22 mm not available with 50 positions

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

**MATED HEIGHT**

**LEAD STYLE**

**MATED HEIGHT**

- **-01**
  - (5.00 mm) .197"*  
  - *(Processing conditions will affect mated height.

**OTHER OPTION**

- **-K**
  - (7.00 mm) .276" DIA Polyimide Film Pick & Place Pad
  - *(7.00 mm) .276" DIA Polyimide Film Pick & Place Pad

- **-TR**
  - Tape & Reel (120 positions maximum)

- **-FR**
  - Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (120 positions maximum)

**samtec.com/BTH**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
BASIC BLADE & BEAM SOCKET

(0.50 mm) .0197” PITCH • BSH SERIES

BSH Mates:
BTH

SPECIFICATIONS

Insulator Material:
Black LCP

Contact Material:
Phosphor Bronze

Plating:
Au or Sn over
0.50 µ” (1.27 µm) Ni

Current Rating:
2 A per pin
(2 pins powered)

Operating Temp Range:
-25 °C to +125 °C

Voltage Rating:
175 VAC

Max Cycles:
100

PROCESSING

Lead-Free Solderable:
Yes

SMT Lead Coplanarity:
(0.10 mm) .004” max (030-090)
(0.15 mm) .006” max (120-150)*

*(0.004” stencil solution may be available; contact IPG@samtec.com)

Board Stacking:
For applications requiring more than two connectors per board or 90 positions or higher, contact IPG@samtec.com

ALSO AVAILABLE

MOQ Required
30 µ” (0.76 µm) Gold Edge Mount Capability
8 mm, 11 mm, 16 mm, 19 mm and 22 mm Stack Height
(Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.) (11 mm, 16 mm, 19 mm and 22 mm not available with 50 positions)

Note:
Some lengths, styles and options are non-standard, non-returnable.

EXTENDED LIFE PRODUCT

10 YEAR MFG WITH 50 µ” GOLD

HIGH MATING CYCLES

MATED HEIGHT

LEAD STYLE MATED HEIGHT*

–01 (5.00 mm) .1971”

*Processing conditions will affect mated height.

samtec.com?BSH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## BASIC BLADE & BEAM HEADER & SOCKET

### BTS
- **Mates:** BSS
- **No. of Positions per Row:** 01
- **Plating Option:**
  - D = Gold Flash on contact, Matte Tin on tail
  - A

<table>
<thead>
<tr>
<th>No. of Positions</th>
<th>Plating Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>-025, -050, -075, -100</td>
<td>D = Gold Flash on contact, Matte Tin on tail</td>
</tr>
</tbody>
</table>

### BSS
- **Mates:** BTS
- **No. of Positions per Row:** 01
- **Plating Option:**
  - D = Gold Flash on contact, Matte Tin on tail
  - A

<table>
<thead>
<tr>
<th>No. of Positions</th>
<th>Plating Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>-025, -050, -075, -100</td>
<td>D = Gold Flash on contact, Matte Tin on tail</td>
</tr>
</tbody>
</table>

### Specifications
- **Insulator Material:** Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Contact Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Current Rating:** 1.8 A per pin (2 pins powered)
- **Operating Temp Range:** -55 °C to +125 °C

### Processing
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** 0.004" max
- **Board Stacking:** For applications requiring more than two connectors per board or 100 positions or higher, contact ipg@samtec.com

### Also Available
- **MOQ Required:** 30 µ" (0.76 µm) Gold Other platings Other positions

### Mated Height
- **LEAD STYLE** | **MATED HEIGHT**
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(5.00 mm) .197&quot;</td>
</tr>
</tbody>
</table>

*Processing conditions will affect mated height.*

Note: Some lengths, styles and options are non-standard, non-returnable.

samtec.com/BTS or samtec.com/BSS

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**SPECIFICATIONS**

Insulator Material: Liquid Crystal Polymer  
Contact Material: Phosphor Bronze  
Plating: Au or Sn over 50 µ" (1.27 µm) Ni  
Current Rating: 2 A per pin (2 pins powered)  
Operating Temp Range: -25 °C to +125 °C  
Voltage Rating: 225 VAC with 5 mm Stack Height  
Max Cycles: 100

**PROCESSING**

Lead-Free Solderable: Yes  
SMT Lead Coplanarity: (0.10 mm), 0.004" max (020-080) (0.15 mm), 0.006" max (100-120)*  
*0.004" stencil solution may be available; contact IPG@samtec.com  
Board Stacking: For applications requiring more than two connectors per board or 80 positions or higher; contact ipg@samtec.com

**ALSO AVAILABLE**

MOQ Required  
30 µ" (0.76 µm) Gold  
Edge Mount Capability  
Friction Lock option  
11 mm, 14 mm, 16.10 mm, 19.10 mm, 22 mm, 25 mm and 30 mm Stack  
Height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)

**Note:** Some lengths, styles and options are non-standard, non-returnable.

---

### BTE

**Mates:** BSE

**NO. OF POSITIONS PER ROW**

-020, -040, -060, -080, -100, -120

**LEAD STYLE**

Specify LEAD STYLE from chart

**PLATING OPTION**

- **F** = Gold Flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **C** = Electro-Polished Selective 50 µ" (1.27 µm) min
  Au over 150 µ" (3.81 µm) min
  Ni on Signal Pins in contact area, Matte Tin over 50 µ" (1.27 µm) min
  Ni on all solder tails (*-C Plating passes 10 year MFG testing)

**OTHER OPTION**

- **K** = (7.00 mm) .275" DIA Polyimide Film Pick & Place Pad
- **TR** = Tape & Reel (80 positions maximum)
- **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (80 positions maximum)

---

### BSE

**Mates:** BTE

**NO. OF POSITIONS PER ROW**

-020, -040, -060, -080, -100, -120

**LEAD STYLE**

Specify LEAD STYLE from chart

**PLATING OPTION**

- **F** = Gold Flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **C** = Electro-Polished Selective 50 µ" (1.27 µm) min
  Au over 150 µ" (3.81 µm) min
  Ni on Signal Pins in contact area, Matte Tin over 50 µ" (1.27 µm) min
  Ni on all solder tails (*-C Plating passes 10 year MFG testing)

**OTHER OPTION**

- **TR** = Tape & Reel (80 positions maximum)
- **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (80 positions maximum)

---

**EXAMPLES**

- **BTE**
  - **NO. OF POSITIONS PER ROW**
    -020, -040, -060, -080, -100, -120
  - **LEAD STYLE**
    Specify LEAD STYLE from chart
  - **PLATING OPTION**
    - **F** = Gold Flash on contact, Matte Tin on tail
  - **OTHER OPTION**
    - **K** = (7.00 mm) .275" DIA Polyimide Film Pick & Place Pad
    - **TR** = Tape & Reel (80 positions maximum)
    - **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (80 positions maximum)

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.
### SPECIFICATIONS

**Insulator Material:** Black Liquid Crystal Polymer  
**Terminal Material:** Phosphor Bronze  
**Contact Material:** BeCu  
**Plating:** Au over 50 µ" (1.27 µm) Ni  
**Current Rating (FTE/CLE):** 2.7 A per pin  
**Operating Temp Range:** -55 °C to +125 °C  
**Insertion Depth (CLE):**  
  - Top Entry = (1.73 mm) .068" to (3.18 mm) .125" wipe, or pass-through  
  - Bottom Entry = (3.23 mm) .127" minimum plus board thickness  
**Normal Force (CLE):** 73 grams (0.73 N)  
**Max Cycles (CLE):** 100 with 10 µ" (0.25 µm) Au  

### PROCESSING

**Lead-Free Solderable:** Yes  
**SMT Lead Coplanarity (FTE):**  
  - DV: (0.10 mm) .004" max  
  - DH: (0.10 mm) .004" max (05-25) (0.15 mm) .006" max (26-50)*  
  *:0.004" stencil solution may be available; contact IPG@samtec.com  
**SMT Lead Coplanarity (CLE):**  
  - DV: (0.10 mm) .004" max (04-65) (0.15 mm) .006" max (66-90)*  
  *:0.004" stencil solution may be available; contact IPG@samtec.com  

---

### FTE

<table>
<thead>
<tr>
<th>Mates:</th>
<th>CLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. PINS</td>
<td>05</td>
</tr>
<tr>
<td>PER ROW</td>
<td>thru</td>
</tr>
<tr>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PLATING</th>
<th>TAIL</th>
<th>FLEX SHROID</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-G</td>
<td>-DV</td>
<td>-ES</td>
<td>-A</td>
</tr>
<tr>
<td></td>
<td>= 10 µ&quot; (0.25 µm) Gold</td>
<td>Dual Vertical</td>
<td>End Shroud</td>
<td>Alignment Pin (5 positions minimum)</td>
</tr>
<tr>
<td></td>
<td>on post, Gold flash on balance</td>
<td></td>
<td></td>
<td>Metal or plastic at Samtec discretion (DV only)</td>
</tr>
</tbody>
</table>

### CLE

<table>
<thead>
<tr>
<th>Mates:</th>
<th>CLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. PINS</td>
<td>04</td>
</tr>
<tr>
<td>PER ROW</td>
<td>thru</td>
</tr>
<tr>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PLATING</th>
<th>DV</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-G</td>
<td></td>
<td>-A</td>
</tr>
<tr>
<td></td>
<td>= 10 µ&quot; (0.25 µm)</td>
<td></td>
<td>Alignment Pin (4 positions minimum)</td>
</tr>
</tbody>
</table>

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**AW Mates:**
CLE

**SPECIFICATIONS**

- **Insulator Material:**
  - Top: Black LCP
  - Bottom: Natural LCP
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au over 50 μ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +125 °C

**PROCESSING**

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:**
  - (0.10 mm): .004" max (05-40)
  - (0.15 mm): .006" max (41-90)*
  - *(.004" stencil solution may be available; contact IPG@samtec.com)*

**OPTIONS**

- **-EP OPTION**
- **-P OPTION**
- **-ES OPTION**

**Notes:**
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

Some lengths, styles and options are non-standard, non-returnable.

---

**AW - NO. PINS PER ROW - 03 - PLATING OPTION - D - STACKER HEIGHT - POST HEIGHT - OTHER OPTION**

- **G** = 10 μ" (0.25 µm) Gold
- "XXX" = Stacker Height (in inches)
  - Example: -1.75 = (4.45 mm)
  - 0.175"
- "XXX" = Post Height (in inches)
  - Example: -0.75 = (1.91 mm)
  - 0.075"
- **ES** = End Shroud
  - 11 pins/row min.
  - 0.075 Post Height only
- **EP** = End Shroud with Guide Post
  - -0.075 Post Height only
  - 11 pins/row min.
- **A** = Alignment Pin
  - 4 positions min.
  - (Available for board stacks between (4.06 mm), .160" to (5.84 mm), .230")
  - (Metal or plastic at Samtec discretion.)
- **P** = Pick & Place Pad
  - 8 positions min.
- **TR** = Tape & Reel
  - 84 positions max.
- **FR** = Full Reel Tape & Reel
  - (must order max. quantity per reel; contact Samtec for quantity breaks)
  - 84 positions max.
# SMT MICRO TERMINAL STRIPS

## (1.00 mm) .0394" PITCH • FTMH/FTM SERIES

### FTMH

**Mates:**
- CLM, MLE

<table>
<thead>
<tr>
<th>NO. PINS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>FLEX SHROUD OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 thru 50</td>
<td>-02 = (1.91 mm) .075&quot; Post (Mates with MLE)</td>
<td>-F = Dual Vertical</td>
<td>-DV = Dual Vertical</td>
<td>-ES</td>
<td>-A = Alignment Pin (3 positions min.) Metal or plastic at Samtec discretion (-DV only)</td>
</tr>
<tr>
<td>02 thru 50</td>
<td>-02 = (1.91 mm) .075&quot; Post (Mates with MLE)</td>
<td>-F = Gold flash on post, Matte Tin on tail</td>
<td>-DV = Dual Vertical</td>
<td>-ES</td>
<td>-A = Alignment Pin (3 positions min.) Metal or plastic at Samtec discretion (-DV only)</td>
</tr>
<tr>
<td>05 thru 46</td>
<td>-03 = (1.65 mm) .065&quot; Post (Mates with CLM)</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>-DH = End Shroud</td>
<td>-EC</td>
<td>-K = (2.50 mm) .098&quot; DIA Polyimide Film Pick &amp; Place Pad (-DH only)</td>
</tr>
</tbody>
</table>

### FTM

**Mates:**
- CLM, MLE

<table>
<thead>
<tr>
<th>NO. PINS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>FLEX SHROUD OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 50</td>
<td>-02 = (1.91 mm) .075&quot; Post (Mates with MLE)</td>
<td>-F = Gold flash on post, Matte Tin on tail</td>
<td>-DV = Dual Vertical</td>
<td>-ES</td>
<td>-A = Alignment Pin (3 positions min.) Metal or plastic at Samtec discretion (-DV only)</td>
</tr>
<tr>
<td>05 thru 46</td>
<td>-03 = (1.65 mm) .065&quot; Post (Mates with CLM)</td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>-DH = End Shroud</td>
<td>-EC</td>
<td>-K = (2.50 mm) .098&quot; DIA Polyimide Film Pick &amp; Place Pad (-DH only)</td>
</tr>
</tbody>
</table>

### PROCESSING

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:**
  - DV: (0.10 mm) .004" max
  - DH: (0.10 mm) .004" max (05-25) (0.15 mm) .006" max (26-50)*
  *Stencil solution may be available; contact IPG@samtec.com

### END SHROUDED OPTIONS

- **S** = End Shroud with Alignment Pins (05 through 46 positions)
- **E** = End Shroud with Guide Post (Use only when mating with CLM)
- **K** = (2.50 mm) .098" DIA Polyimide Film Pick & Place Pad (-DH only)
- **TR** = Tape & Reel
- **FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
- **A** = Alignment Pin (3 positions min.) Metal or plastic at Samtec discretion (-DV only)
- **EC** = End Shroud with Locking Clip (Manual placement required)
- **EP** = End Shroud with Guide Post (Use only when mating with CLM)
- **L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- **F** = Gold flash on post, Matte Tin on tail

### SPECIAL OPTIONS

- **-DV** = Dual Vertical
- **-EC** = End Shroud with Locking Clip (Manual placement required)
- **-EP** = End Shroud with Guide Post (Use only when mating with CLM)
- **-ES** = End Shroud (05 positions minimum). Molded or press-fit shroud at Samtec’s discretion
- **-SA** = End Shroud with Alignment Pins (05 through 46 positions)
- **-DH** = End Shroud
- **-P** = Plastic Pick & Place Pad (7 positions min.)
- **-TR** = Tape & Reel
- **-FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

### LEAD FORMS

- **-DV**
  - 05 thru 50: Shrouded option removed for clarity
  - 02 thru 50: Unshrouded
  - 05 thru 46: Shrouded

### SAMTEC.COM

- FTMH: samtec.com/FTMH
- FTM: samtec.com/FTM

### QUALITY ASSURANCE

- Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Insulator Material</th>
<th>Black Liquid Crystal Polymer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Material</td>
<td>Phosphor Bronze</td>
</tr>
<tr>
<td>Current Rating</td>
<td>2.8 A per pin</td>
</tr>
<tr>
<td>Operating Temp</td>
<td>-55 °C to +125 °C</td>
</tr>
</tbody>
</table>

### MOQ Required

- End shrouds with board locks
- Molded end shrouds for 05 through 08 positions
- Other platings

### EXTERNAL LIFESPAN

- 10 Year MFG
- 30 µ" Gold

### IPG CONTACT

- Contact IPG@samtec.com for availability and any special requirements.

---

Note: Some lengths, styles and options are non-standard, non-returnable.
MW Mates:
CLM, MLE

SPECIFICATIONS
Insulator Material:
Top: Black LCP
Bottom: Natural LCP
Terminal Material:
Phosphor Bronze
Plating:
Au over 50 µ" (1.27 µm) Ni
Operating Temp Range:
-55 °C to +125 °C

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max (02-30)
(0.15 mm) .006" max (31-50)*
*.004" stencil solution may be available; contact IPG@samtec.com

STACKER HEIGHT
(2.41)
.095 to
(6.22)
.245
MAX
OVERALL LENGTH
(7.87)
.310
MAX
(1.60)
.063
MIN

APPLICATION

EXAMPLES
LEAD STYLE | MATED HEIGHT* | MW | CLM
---------- | -------------- | ---- | ----
-163-065  | 6.35 mm | 250° | .02
-233-065  | 8.13 mm | 320° |

*Processing conditions will affect mated height.

NOTES:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.
**RUGGED RELIABLE MICRO SOCKETS**

(1.00 mm) .0394" PITCH • CLM/MLE SERIES

---

**CLM**
- **Mates:** FTM, FTMH, MW

<table>
<thead>
<tr>
<th>CLM</th>
<th>1</th>
<th>NO. PINS PER ROW</th>
<th>02</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MLE**
- **Mates:** FTM, FTMH, MW

<table>
<thead>
<tr>
<th>MLE</th>
<th>1</th>
<th>NO. PINS PER ROW</th>
<th>02</th>
<th>PLATING OPTION</th>
<th>DV</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SPECIFICATIONS**

**Insulator Material:** Black LCP
- **Contact Material:** CLM: Phosphor Bronze
  MLE: BeCu
- **Plating:**
  CLM: Au or Sn over 50 µ" (1.27 µm) Ni
  MLE: Au over 10 µ" (0.25 µm) Ni
- **Current Rating (CLM/FTM):**
  2.8 A per pin (2 pins powered)
- **Current Rating (MLE/FTM):**
  2.9 A per pin (2 pins powered)
- **Operating Temp Range:**
  -55 °C to +125 °C
- **Max Cycles:**
  CLM: 100 with 10 µ" (0.25 µm) Au
  MLE: 510 VAC
- **Voltage Rating:**
  MLE: 310 VAC
- **Normal Force:**
  CLM: 40 grams (0.39 N) average
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:**
  004" max (02-25)
  005" max (26-50)
*004" stencil solution may be available; contact IPG@samtec.com

---

**PROCESSING**

- **Alignment pin**
- **Other Gold plating options**

---

**ALSO AVAILABLE**
- MOQ Required
  - **Alignment pin**
  - **Other Gold plating options**

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.

---

**SUPPORT FOR SPECIAL LENGTHS & OPTIONS**

---

**samtec.com?CLM or samtec.com?MLE**

---

*Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.*
QUAD ROW SMT TERMINAL & SOCKET

(1.27 mm) .050" PITCH • TOLC/SOLC SERIES

TOLC
Mates: SOLC

SOLC
Mates: TOLC

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Contact Material:
Phosphor Bronze
Plating:
Au over 50 µ" (1.27 µm) Ni
Current Rating:
2.4 A per pin
(6 adjacent pins powered)
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth (SOLC):
(1.68 mm) .066" to
(3.61 mm) .142" with
(0.38 mm) .015" wipe
Normal Force (SOLC):
75 grams (0.74 N) average
Max Cycles (SOLC):
100+

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max (05-35)
(0.15 mm) .006" max (40-50)*
*0.004" stencil solution
may be available; contact
IPG@samtec.com

ALSO AVAILABLE
MOQ Required
Other sizes
Other platings

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

TOLC
- 1
NO. PINS
PER ROW
05, 10, 15, 20, 25,
30, 35, 40, 45, 50
Specify LEAD
STYLE from
chart
Specify LEAD
STYLE from
chart
- F
= Gold flash on contact,
Gold flash on tail
- L
= 10 µ" (0.25 µm)
Gold on contact,
Gold flash on tail

SOLC
- 1
NO. PINS
PER ROW
05, 10, 15, 20, 25,
30, 35, 40, 45, 50
- F
= Gold flash on contact,
Gold flash on tail
- L
= 10 µ" (0.25 µm)
Gold on contact,
Gold flash on tail

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

samtec.com/TOLC or samtec.com/SOLC

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SURFACE MOUNT MICRO HEADER

(1.27 mm) .050" PITCH • FTSH SERIES

FTSH
Board Mates: CLP, FLE
Cable Mates: FFSD, FFTP

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ" (1.27 µm) Ni
Current Rating (FTSH/CLP):
3.4 A per pin (2 pins powered)
Operating Temp Range:
-55 °C to +125 °C

PROCESSING

Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
–MT & –DV Tail Option: (0.10 mm) .004" max (02-25)
–MT & –DH Tail Option: (0.15 mm) .006" max (26-50)*
*(.004" stencil solution may be available; contact IPG@samtec.com)

EXTENDED LIFE PRODUCT

10 Year MFG WITH 30 µ" GOLD
HIGH MATING CYCLES

FTSH - 1 NO. PINS PER ROW LEAD STYLE PLATING OPTION TAIL OPTION OPTION FLEX SHROUD OPTIONS OTHER OPTIONS

LEAD STYLE

02 thru 50

01 = (3.05 mm) .120" Post (Mates with FFSD)
02 = (1.91 mm) .075" Post (Mates with FLE)
03 = (1.65 mm) .065" Post (Mates with CLP-D)
04 = (3.81 mm) .150" Post (Mates with CLP-DH)
05 = (4.32 mm) .170" Post (Mates with CLP–BE)

PLATING OPTION

–F = Gold flash on post, Matte Tin on tail
–L = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
–MT = Mixed Technology (Styles –01, –02 & –04 only)
–LV = Double Vertical
–DH = Double Horizontal (Styles –01, –02 & –04 only)

TAIL OPTION

–ES = End Shroud
–EC = End Shroud with Locking Clip (Manual placement required)
–EP = End Shroud with Guide Post
–EL = End Shroud with Board Lock (Boards are positively locked and cannot be uninstalled)
–EJ = Ejector Shroud (Style –01 only)

OPTION

–K = Keying Shroud (For mating with FFSD Style –01 only and 05, 06, 10, 13, 17, 20 & 25 pins/row only)
–A = Alignment Pin
–C = K = Keying Shroud (For mating with FFSD Style –01 only and 05, 08, 10, 13, 17, 20 & 25 pins/row only)

OTHER OPTIONS

–TR = Tape & Reel (Flex Shroud options not available except –ES & –EJ)
–FR = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

No. of positions x (1.27 mm) .050 + Z

Notes:
Some sizes, styles and options are non-standard, non-returnable.
See SFM/TFM for positive alignment feature.
**THROUGH-HOLE MICRO HEADER**

(1.27 mm) .050" PITCH • FTSH SERIES

**FTSH**
Board Mates: CLP, FLE
Cable Mates: FFSD, FFTP

### SPECIFICATIONS
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Sn or Au over 50 µ" (1.27 µm) Ni
- **Current Rating (FTSH/CLP):** 3.4 A per pin
- **Operating Temp Range:** -55 °C to +125 °C

### PROCESSING
- **Lead-Free Solderable:** Yes

### LOCKING CLIP
For single mating cycle with the FFSD. Specify -LC after tail option. Lead Style -01 and 10 pins/row minimum. 5-9 pins/row not available in combination with keying shroud (-K).

### ALSO AVAILABLE
- Molded Pick & Place pads
- Other platings

### EXTENDED LIFE PRODUCT
10 YEAR MFG WITH 30 µ" GOLD
HIGH MATING CYCLES

### LEADS & OPTIONS

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>MATES WITH</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(1.05)</td>
<td>FFSD</td>
</tr>
<tr>
<td>-02</td>
<td>(1.91)</td>
<td>FLE</td>
</tr>
<tr>
<td>-03</td>
<td>(1.65)</td>
<td>CLP-D</td>
</tr>
<tr>
<td>-04</td>
<td>(3.81)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### OPTIONS

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ES</td>
<td>(1.55)</td>
</tr>
<tr>
<td>-EJ</td>
<td>(15.77)</td>
</tr>
<tr>
<td>-EP</td>
<td>(5.87)</td>
</tr>
<tr>
<td>-EL</td>
<td>(6.53)</td>
</tr>
</tbody>
</table>

### NOTES
- Some sizes, styles and options are non-standard, non-returnable.
- See SFM/TFM for positive alignment feature.

---

samtec.com?FTSH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
MICRO LOW-PROFILE TERMINAL STRIPS

(1.27 mm) .050” PITCH • FTS SERIES

FTS
Board Mates:
CLP, FLE

Cable Mates:
FFSD

NO. PINS PER ROW

LEAD STYE

-01 = (3.05 mm) 120° Post (Mates with FFSD)

-02 = (1.91 mm) 90° Post (Mates with FLE)

-03 = (1.65 mm) 065° Post (Mates with CLP)

-04 = (3.81 mm) 150° Post

PLATING OPTION

-F = Gold flash on post, Matte Tin on tail

-L = 10 µ” (0.25 µm) Gold on post, Matte Tin on tail

ROW OPTION

-D = Double Through-hole

-DV = Double Vertical SMT

-S = Single Through-hole

-SV = Single Vertical SMT

OTHER OPTION

(-D & -DV only)

-SA = End Shroud with Alignment Pin (05 thru 46 positions. Style -02 & -03 only)

-S = End Shroud (05 thru 46 positions. Style -02 & -03 only)

-P = Pick & Place Pad (04 positions min.)

-TR = Tape & Reel (-DV only) (Required callout for positions 02 thru 04)

-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-DV only)

OPTIONS

-TR OPTION

-SA OPTION

-P OPTION

-S OPTION

Note:
Some lengths, styles and options are non-standard, non-returnable.

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer

Terminal Material:
Phosphor Bronze

Operating Temp Range:
-55 °C to +125 °C

Current Rating:
3.4 A per pin (2 pins powered)

PROCESSING

Lead-Free Solderable:
Yes

SMT Lead Coplanarity:
.004” (0.10 mm) max

ALSO AVAILABLE

Alignment pin (MOQ Required)

ALSO AVAILABLE

Alignment pin (MOQ Required)

SAMTEC.COM?FTS

F.221

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FW - NO. OF PINS PER ROW - LEAD STYLE - PLATING OPTION - D - STACKER HEIGHT - POST HEIGHT - OPTION

02 thru 50 Specify LEAD STYLE from chart

-EF = Gold flash on post, Matte Tin on tail
-L = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
-G = 10 µ" (0.25 µm) Gold on post, Gold flash on tail

-“XXX” = Stacker Height (in inches) Example: 0.250" .250"
-“XXX” = Post Height (in inches) Example: 0.065" .065"

-ES = End Shroud (≤075 post height only, Mate only with CLP) (5.46 mm) .215" to (15.49 mm) .610" stacker height only 9 pins/row min.
-EP = End Shroud with Guide Post (≤075 post height only. Mate only with CLP) (5.46 mm) .215" to (15.49 mm) .610" stacker height only 9 pins/row min.
-A = Alignment Pin (3 positions min.) (5.46 mm) .215" to (15.75 mm) .620" stacker height only (SMT only)
-P = Pick & Place Pad (5 positions min.) (SMT only)
-TR = Tape & Reel (Max overall height = Post + Stacker Height + Pad + Alignment Pin = (17.78) .700" (SMT only)
-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (SMT only)

SURFACE MOUNT

THROUGH-HOLE

ALSO AVAILABLE

Smaller stack heights (MOQ Required)

Notes:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer

Terminal Material:
Phosphor Bronze

Plating:
Sn or Au over 50 µ" (1.27 µm) Ni

Operating Temp Range:
-55 °C to +125 °C

PROCESSING

Lead-Free Solderable:
Yes

SMT Lead Coplanarity:
(0.10 mm) .004" max (02-30) (0.15 mm) .006" max (31-50)*
(0.004" stencil solution may be available; contact IPG@samtec.com)

*Processing conditions will affect mated height.

Notes:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

samtec.com?FW-SM or samtec.com?FW-TH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
LOW-PROFILE DUAL WIPE SOCKET

(1.27 mm) .050" PITCH • CLP SERIES

CLP
Mates:
FTSH, FTS, FW

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer
Contact Material:
Phosphor Bronze
Plating:
Sn or Au over
50 μ" (1.27 μm) Ni
Current Rating (CLP/FTSH):
3.4 A per pin
(2 pins powered)
Voltage Rating:
280 VAC/395 VDC
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth:
Top Entry = (1.40 mm) .055" minimum
Bottom Entry = (2.41 mm) .095" minimum
plus board thickness
DH Entry = (2.31 mm) .091" to (2.67 mm) .105"
Normal Force:
60 grams (0.59 N) average
Max Cycles:
100 with 10 μ" (0.25 μm) Au

PROCESSING

Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max (02-35)
(0.15 mm) .006" max (36-50)*
*.004" stencil solution
may be available; contact
IPG@samtec.com

ALSO AVAILABLE
MOQ Required
Single row
Other platings

EXTENDED LIFE PRODUCT
10 YEAR MFG WITH 30 µ" GOLD
HIGH MATING CYCLES

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

CLP
- 1
NO. PINS PER ROW
- 02
02 thru 50
- PLATING OPTION
- ROW OPTION
- OTHER OPTIONS

- F
- D
- L
- DH
- G
- A
- BE
- K
- P
- PA
- TR
- FR

- = Gold flash on contact, Matte Tin on tail
- L = 10 μ"
(0.25 μm) Gold on contact, Matte Tin on tail
- G = 10 μ"
(0.25 μm) Gold (–D only)
- D = Double Row
- DH = Double Horizontal (Requires FTSH–04 lead style)
- BE = Bottom Entry
(Required for bottom entry applications)
- A = Alignment Pin
(Not available with –PA option)
(05, 06, 07, 08, 10, 12, 15, 20, 25, 30, 40 positions only)
(–DH option and other sizes. Contact Samtec.)
- K = (4.00 mm) .157" DIA Polyimide film Pick & Place Pad
(5 positions minimum)
- P = Pick & Place Pad
(5 positions min. –D only)
(Not always necessary for auto placement. See Flex Processing.)
- PA = Pick & Place Pad with Alignment Pin
(–D only)
(Not available with –A option)
- TR = Tape & Reel
- FR = Full Reel Tape & Reel
(must order maximum quantity per reel; contact Samtec for quantity breaks)

Note:
If odd pins/row, alignment pins are on middle position on centerline of the part.
If even pins/row, then alignment pins are between middle two positions.

samtec.com?CLP

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLE
Board Mates:
FTSH, FTS, FW

Cable Mates:
FFMD*, FMTP

*Note: Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Contact Material:
Phosphor Bronze
Plating:
Au over 50 µ" (1.27 µm) Ni
Current Rating:
2.9 A per pin (2 pins powered)
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth:
(1.83 mm) .072" to (4.37 mm) .172" or pass-through
Normal Force:
100 grams (0.98 N)
Max Cycles:
100+

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max

ALSO AVAILABLE
Other Plating
(MOQ Required)

Note:
Some lengths, styles and options are non-standard, non-returnable.
# THROUGH-HOLE MICRO HEADER

(1.27 mm) .050" PITCH • TMS/HTMS SERIES

## TMS/HTMS Mates:
- SMS, SLM, RSM

## SPECIFICATIONS
**Insulator Material:**
Black Liquid Crystal Polymer

**Terminal Material:**
Phosphor Bronze

**Plating:**
Au or Sn over 50 µ" (1.27 µm) Ni

**Current Rating (TMS/HTMS):**
5 A per pin

**Operating Temp Range:**
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

## PROCESSING
**Lead-Free Solderable:**
Yes

## ALSO AVAILABLE
Other Plating (MOQ Required)

## Important Note:
Style -02 does not mate with SMS Series.

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

---

### T/H LEAD STYLE

<table>
<thead>
<tr>
<th>T/H LEAD STYLE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>11.43</td>
<td>5.84</td>
<td>3.05</td>
</tr>
<tr>
<td>-02</td>
<td>8.13</td>
<td>2.54</td>
<td>100</td>
</tr>
<tr>
<td>-03</td>
<td>12.83</td>
<td>5.84</td>
<td>230</td>
</tr>
<tr>
<td>-04</td>
<td>10.41</td>
<td>4.83</td>
<td>190</td>
</tr>
<tr>
<td>-05</td>
<td>10.80</td>
<td>5.21</td>
<td>205</td>
</tr>
<tr>
<td>-06</td>
<td>12.83</td>
<td>7.24</td>
<td>285</td>
</tr>
<tr>
<td>-07</td>
<td>14.10</td>
<td>8.51</td>
<td>335</td>
</tr>
<tr>
<td>-08</td>
<td>15.49</td>
<td>9.91</td>
<td>390</td>
</tr>
<tr>
<td>-09</td>
<td>15.88</td>
<td>10.29</td>
<td>405</td>
</tr>
<tr>
<td>-10</td>
<td>16.51</td>
<td>10.92</td>
<td>430</td>
</tr>
<tr>
<td>-11</td>
<td>17.91</td>
<td>12.32</td>
<td>485</td>
</tr>
<tr>
<td>-12</td>
<td>19.18</td>
<td>13.59</td>
<td>535</td>
</tr>
<tr>
<td>-13</td>
<td>20.96</td>
<td>15.37</td>
<td>605</td>
</tr>
</tbody>
</table>

## TMS = Standard

## HTMS = High Temp

**Specify LEAD STYLE from chart**

- **L** = 10 µ" (0.25 µm)
  - Gold on post, Matte Tin on tail

- **G** = 10 µ" (0.25 µm)
  - Gold on post, Gold flash on tail

## OPTION

- **RA** = Right-angle

**“XXX”** = Polarized Position (Specify position of omitted pin)

---

### LEAD STYLE

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>5.84</td>
</tr>
<tr>
<td>-02</td>
<td>2.54</td>
</tr>
<tr>
<td>-03</td>
<td>3.18</td>
</tr>
</tbody>
</table>

### BODY DESIGN

- **HTMS - D**

---

samtec.com?TMS or samtec.com?HTMS

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**TML/ZML**

**Mates:**
- SMS
- RSM

**SPECIFICATIONS**

**TML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Insulation Resistance:** 5000 MΩ min
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**ZML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**PROCESSING**

**TML**
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max (05-20) (0.15 mm) .006" max (32) * (.004" stencil solution may be available; contact IPG@samtec.com)

**ZML**
- **Same as TML except:**
  - **SMT Lead Coplanarity:** (0.15 mm) .006" max
  - * (0.004" stencil solution may be available; contact IPG@samtec.com)

**ALSO AVAILABLE**

- **MOQ** Required
- **Other sizes**
- **Other platings**

**Notes:**
- For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.
- Some sizes, styles and options are non-standard, non-returnable.

---

**TML/ZML**

**Mates:**
- SMS
- RSM

**SPECIFICATIONS**

**TML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Insulation Resistance:** 5000 MΩ min
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**ZML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**PROCESSING**

**TML**
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max (05-20) (0.15 mm) .006" max (32) * (.004" stencil solution may be available; contact IPG@samtec.com)

**ZML**
- **Same as TML except:**
  - **SMT Lead Coplanarity:** (0.15 mm) .006" max
  - * (0.004" stencil solution may be available; contact IPG@samtec.com)

**ALSO AVAILABLE**

- **MOQ** Required
- **Other sizes**
- **Other platings**

**Notes:**
- For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.
- Some sizes, styles and options are non-standard, non-returnable.

---

**TML/ZML**

**Mates:**
- SMS
- RSM

**SPECIFICATIONS**

**TML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Insulation Resistance:** 5000 MΩ min
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**ZML**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

**PROCESSING**

**TML**
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max (05-20) (0.15 mm) .006" max (32) * (.004" stencil solution may be available; contact IPG@samtec.com)

**ZML**
- **Same as TML except:**
  - **SMT Lead Coplanarity:** (0.15 mm) .006" max
  - * (0.004" stencil solution may be available; contact IPG@samtec.com)

**ALSO AVAILABLE**

- **MOQ** Required
- **Other sizes**
- **Other platings**

**Notes:**
- For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.
- Some sizes, styles and options are non-standard, non-returnable.
MICRO BOARD STACKER

(1.27 mm) .050” PITCH • DWM/HDWM SERIES

DWM/HDWM Mates:
SMS, SLM, RSM

SPECIFICATIONS

Insulator Material:
Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Au or Sn over 50 µ” (1.27 µm) Ni
Operating Temp Range:
-55 °C to +105 °C with Tin
-55 °C to +125 °C with Gold

PROCESSING

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.15 mm).006” max*
*(.004” stencil solution may be available; contact IPG@samtec.com)

Notes:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

DWM

- NO. PINS PER ROW - LEAD STYLE - PLATING OPTION - ROW OPTION - STACKER HEIGHT - OTHER OPTION

<table>
<thead>
<tr>
<th>01 thru 50</th>
<th>Specify LEAD STYLE from chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>-L = 10 µ” (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
</tr>
<tr>
<td>-G = 10 µ” (0.25 µm) Gold on contact, Gold flash on tail</td>
<td></td>
</tr>
<tr>
<td>-“XXX” = Stacker Height Example: -200 = (5.08 mm) .200”</td>
<td></td>
</tr>
<tr>
<td>- “XXX” = Polarized Position (Specify position of omitted pin)</td>
<td></td>
</tr>
</tbody>
</table>

OAL

LEAD STYLE THROUGH-HOLE

<table>
<thead>
<tr>
<th>OAL</th>
<th>LEAD STYLE</th>
<th>THROUGH-HOLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(11.43) .450</td>
<td>8.38 .330</td>
</tr>
<tr>
<td>-51</td>
<td>(10.41) .410</td>
<td>—</td>
</tr>
<tr>
<td>-52</td>
<td>(10.80) .425</td>
<td>—</td>
</tr>
<tr>
<td>-53</td>
<td>(12.83) 505</td>
<td>(9.78) .385</td>
</tr>
<tr>
<td>-54</td>
<td>(14.10) 555</td>
<td>(11.05) .435</td>
</tr>
<tr>
<td>-55</td>
<td>(15.49) 610</td>
<td>(12.45) .490</td>
</tr>
<tr>
<td>-56</td>
<td>(15.88) 625</td>
<td>(12.83) .505</td>
</tr>
<tr>
<td>-57</td>
<td>(16.51) 650</td>
<td>(13.46) .530</td>
</tr>
<tr>
<td>-58</td>
<td>(17.91) 705</td>
<td>(14.86) .585</td>
</tr>
<tr>
<td>-59</td>
<td>(19.18) 755</td>
<td>(15.62) .615</td>
</tr>
<tr>
<td>-60</td>
<td>(20.96) 825</td>
<td>—</td>
</tr>
<tr>
<td>-61</td>
<td>(26.67) 1.050</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

samtec.com?DWM or samtec.com?HDWM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
# SMT MICRO HEADER & SOCKET

## FTR
- **Mates:** RSM, SMS, SLM

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 40</td>
<td>1</td>
<td>-L = 10 μ&quot; (0.25 μm) Gold on post, Matte Tin on tail</td>
<td>-S = Single Row</td>
<td>-“XX” = Polarized</td>
</tr>
</tbody>
</table>

### SPECIFICATIONS
- **Insulator Material:** Black Liquid Crystal Polymer
- **Contact Material:** RSM: Phosphor Bronze
- **Terminal Material:** FTR: Phosphor Bronze
- **Plating:** Au or Sn over 50 μ" (1.27 μm) Ni
- **Current Rating (FTR/RSM):** 3.1 A per pin (2 pins powered)
- **Operating Temp Range:** FTR: -55 °C to +105 °C with Tin; FTR: -55 °C to +125 °C with Gold
- **Lead Size Accepted:** RSM: (0.46 mm) .018" SQ
- **Insertion Depth:** RSM: Top Entry = (2.64 mm) .104" to (5.84 mm) .230" with (0.38 mm) .015" wipe, or pass-through.
- **RSM: Bottom Entry = (5.49 mm) .216" minimum** (Add board thickness for correct post OAL)

## RSM
- **Mates:** FTR, HTMS, HDWM, DWM, TML, ZML, TMS

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 36</td>
<td>1</td>
<td>-L = 10 μ&quot; (0.25 μm) Gold on contact, Matte Tin on tail</td>
<td>-S = Single Row</td>
</tr>
</tbody>
</table>

### SPECIFICATIONS
- **Insulator Material:** Black Liquid Crystal Polymer
- **Contact Material:** RSM: Phosphor Bronze
- **Terminal Material:** FTR: Phosphor Bronze
- **Plating:** Au or Sn over 50 μ" (1.27 μm) Ni
- **Current Rating (FTR/RSM):** 3.1 A per pin (2 pins powered)
- **Operating Temp Range:** FTR: -55 °C to +105 °C with Tin; FTR: -55 °C to +125 °C with Gold
- **Lead Size Accepted:** RSM: (0.46 mm) .018" SQ
- **Insertion Depth:** RSM: Top Entry = (2.64 mm) .104" to (5.84 mm) .230" with (0.38 mm) .015" wipe, or pass-through.
- **RSM: Bottom Entry = (5.49 mm) .216" minimum** (Add board thickness for correct post OAL)

# PROCESSING
## Lead-Free Solderable: Yes
### SMT Lead Coplanarity:
- **RSM (0.10 mm):** .004” max
- **FTR (0.50 mm):** .004” max (02-20)

## Board Thickness:
- **RSM:** Top Entry = (2.64 mm) .104" to (5.84 mm) .230" with (0.38 mm) .015" wipe, or pass-through.
- **RSM: Bottom Entry = (5.49 mm) .216" minimum** (Add board thickness for correct post OAL)

### Other Platings
- **Locking clips**

---

Note: Some lengths, styles and options are non-standard, non-returnable.

samtec.com?FTR or samtec.com?RSM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
# THROUGH-HOLE MICRO SOCKETS

## SLM
**Mates:**
- HTMS, TMS, MTMS, DWM, HDWM, FTR, HMTMS

## SMS
**Mates:**
- HTMS, TMS, MTMS, DWM, HDWM, FTR, TML, ZML, HMTM

### SPECIFICATIONS

| Insulator Material: | SLM: Black Glass Filled Polyester  
| SMS: Black LCP |
| Contact Material: | Phosphor Bronze |

### PLATING OPTION

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>ROW OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 thru 50</td>
<td></td>
</tr>
</tbody>
</table>

- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **G** = 20 µ" (0.51 µm) Gold on contact, Gold flash on balance
- **S** = Single Row
- **D** = Double Row

### INSERTION DEPTH

- **SLM:** (2.03 mm) .080" to (3.05 mm) .120"
- **SMS:** (3.43 mm) .135" to (6.35 mm) .250" with (0.38 mm) .015" wipe

### PROCESSING

**Lead-Free Solderable:**
- SLM: No, Lead Wave Only
- SMS: Yes

### ALSO AVAILABLE

Other Platings  
(MOQ Required)

### LEAD STYLE

Specify LEAD STYLE from chart

### PLATING OPTION

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>-L</td>
</tr>
<tr>
<td>-02</td>
<td>-G</td>
</tr>
</tbody>
</table>

- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **G** = 20 µ" (0.51 µm) Gold on contact, Gold flash on balance
- **S** = Single Row  
- **D** = Double Row

### LEAD STYLE A

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>MOQ Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(2.54) .100</td>
</tr>
<tr>
<td>-02</td>
<td>(4.83) .190</td>
</tr>
</tbody>
</table>

Note:
- Some lengths, styles and options are non-standard, non-returnable.

---

samtec.com?SLM or samtec.com?SMS

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
# LOW-PROFILE SMT HEADER

## Specifications

**Insulator Material:**
Black Liquid Crystal Polymer  
**Terminal Material:**
Phosphor Bronze  
**Plating:**
Sn or Au over 50 µ" (1.27 µm) Ni  
**Current Rating:**
3.2 A per pin (2 pins powered)  
**Operating Temp Range:**
-55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold  
**Voltage Rating:**
281 VAC mated with SQW; 250 VAC mated with SQT  

## Processing

**Lead-Free Solderable:**
Yes  
**SMT Lead Coplanarity:**
0.15 mm (.006") max*  
*(.004" stencil solution may be available; contact IPG@samtec.com)  

## ALSO AVAILABLE

Other plating (MOQ Required)  

---

## TMM Board Mates:
- CLT, SQT, SQW, ESQT, TLE, SMM, MMS

## Cable Mates:
- TC3D

### Lead Styles:
- **F** = Gold flash on post, Matte Tin on tail  
- **L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail  
- **S** = 30 µ" (0.76 µm) Gold on post, Matte Tin on tail  
- **T** = Matte Tin

### Leads per Row:
- 02 thru 40

### Other Options:
- **A** = Alignment Pin (Metal or plastic at Samtec’s discretion) (5 positions minimum)  
- **P** = Pick & Place Pad (3 positions minimum)  
- **TR** = Tape & Reel (3 thru 36 positions only)  
- **FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (3 thru 36 positions only)

---

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

---

Until otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**THROUGH-HOLE LOW-PROFILE HEADER**

(2.00 mm) .0787" PITCH • TMM SERIES

**TMM**
- **Board Mates:** CLT, SQT, SQW, ESQT, TLE, SMM, MMS
- **Cable Mates:** TCSD

**SPECIFICATIONS**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Sn or Au, over 50 µ" (1.27 µm) Ni
- **Current Rating (SMM/TMM):** 3.2 A per row (2 pins powered)
- **Operating Temp Range:** -55 °C to +105 °C with Tin; 55 °C to +125 °C with Gold
- **Voltage Rating:** 281 VAC mated with SQW; 250 VAC mated with SQT

**PROCESSING**
- **Lead–Free Solderable:** Yes

**APPLICATION**
- **Retention Clip Option (–RC)**

**ALSO AVAILABLE**
- **Other plating** (MOQ Required)

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**LEAD STYLE**
- **–01**
  - **–02**
  - **–03**
  - **–04**
  - **–05**
  - **–06**

**PLATING OPTION**
- **–F** = Gold flash on post, Matte Tin on tail
- **–L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- **–S** = 30 µ" (0.76 µm) Gold on post, Matte Tin on tail
- **–T** = Matte Tin

**ROW OPTION**
- **–S** = Single Row
- **–D** = Double Row
- **–Q** = Four Row

**OTHER OPTION**
- **–RA & –RE**
- **–RC**
- **–”XXX”**

samtec.com?TMM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
## Horizontal & Modified Headers

### Specifications

**Board Mates:**
CLT, SQT, SQW, ESQT, TLE, SMM, MMS

**Cable Mates:**
TCSD

**Insulator Material:**
Black Liquid Crystal Polymer

**Terminal Material:**
Phosphor Bronze

**Plating:**
Au or Sn over 50 μ" (1.27 μm) Ni

**Operating Temp Range:**
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

**Processing**

- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity (MMT):**
  - (0.10 mm) 0.040" max (52-25)
  - (0.15 mm) 0.064" max (26-36)*
  
  *0.004" stencil solution may be available; contact IPG@samtec.com

**Other Platings**

- **Also Available (MOQ Required):**
  - Alignment pins
  - Locking clips
  - Molded pick & place pads
  - Other platings

### MMT/MTMM Options

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 36</td>
<td>–01 (3.20 mm) .126&quot; post</td>
<td>–F = Gold flash on post, Matte Tin on tail</td>
<td>–SH = Single Row</td>
<td>–K = (4.00 mm) .157&quot; DIA Polyimide Film Pick &amp; Place Pad (3 positions min.)</td>
</tr>
<tr>
<td></td>
<td>–02 (4.45 mm) .175&quot; post</td>
<td>–L = 10 μ&quot; (0.25 μm) Gold post, Matte Tin on tail</td>
<td>–DH = Double Row</td>
<td>–P = Pick &amp; Place Pad (2 positions min.)</td>
</tr>
<tr>
<td></td>
<td>–T = Matte Tin</td>
<td>–MT = Double Row Mixed Technology</td>
<td>–“XXX” = Polarized Position Specify position of omitted pin</td>
<td>–TR = Tape &amp; Reel</td>
</tr>
</tbody>
</table>

### MTMM Options

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>POST HEIGHT</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 thru 50</td>
<td>–F = Gold flash on post, Matte Tin on tail</td>
<td>–L = 10 μ&quot; (0.25 μm) Gold post, Matte Tin on tail</td>
<td>–S = Single Row</td>
<td>–“XXX” = Polarized Position Specify position of omitted pin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>–D = Double Row</td>
<td>–Q = Quad Row</td>
<td>–“XXX” = Polarized Position Specify position of omitted pin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note:
Some lengths, styles and options are non-standard, non-returnable.
FLEXIBLE
SMT HEADER

(2.00 mm) .0787” PITCH • TMMH SERIES

TMMH
Board Mates:
CLT, SQT, SQW, ESQT, TLE, SMM, MMS
Cable Mates:
TCSD

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ” (1.27 µm) Ni
Current Rating (TMMH/ESQT):
4.5 A per pin
(2 pins powered)
Current Rating (TMMH/SQT):
5.1 A per pin
(2 pins powered)
Operating Temp Range:
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold
Voltage Rating:
281 VAC mated with SQW;
250 VAC mated with SQT

PROCESSING
Lead–Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004” max

OTHER OPTIONS
–“XXX” = Polarized Position. Specify position of omitted pin
–A = Alignment Pin
(3 positions minimum)
(Not available with –LC)
–LC = Locking Clip
(5 positions minimum)
(Not available with –A)
(Manual placement required)
–M = Pick & Place Pad
(5 positions minimum)
–TR = Tape & Reel Packaging
(36 positions maximum)
(Flex Shroud options not available except –ES, –EP & –EL)
–FR = Full Reel Tape & Reel
(must order max. quantity per reel; contact Samtec for quantity breaks)
(36 positions maximum)
(Flex Shroud options not available except –ES, –EP & –EL)

OPTION Z
–ES (2.92) .115
–EC (4.70) .185
–EP & –EPC (6.10) .240
–EL & –EBC (4.45) .175

No. of positions x (2.00) .0787 + Z
(6.35) .250

LEAD STYLE A MATES WITH
–01 (3.20) .126 SQT, SQW, ESQT, TLE, SMM, MMS, TCSD
–04 (1.91) .075 CLT
–05 (1.65) .065

Note: Some lengths, styles and options are non-standard, non-returnable.

samtec.com?TMMH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLEXIBLE THROUGH-HOLE HEADER
(2.00 mm) .0787" PITCH • TMMH SERIES

TMMH
Board Mates:
CLT, SQ, SQW, ESQT, TLE, SMM, MMS

Cable Mates:
TCSD

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer

Terminal Material:
Phosphor Bronze

Plating:
Sn or Au over 50 µ" (1.27 µm) Ni

Current Rating (TMMH/ESQT):
4.5 A per pin (2 pins powered)

Current Rating (TMMH/SQT):
5.1 A per pin (2 pins powered)

Operating Temp Range:
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

Voltage Rating:
281 VAC mated with SQW;
250 VAC mated with SQT

PROCESSING

Lead–Free Solderable:
Yes

APPLICATION

Retention Clip Option (–RC)

ALSO AVAILABLE

Other Platings
(MOQ Required)

Note:
Some lengths, styles and options are non-standard, non-returnable.

specify lead style from chart

-03 thru 50

LEAD STYLE

| OPTION | Z
|--------|-----------------
| -ES    | 0.115
| -EC    | 0.185
| -EP & -EPC | 0.240
| -EL & -EBC | 0.175

(Shrouded option requires –D)

(Shrouded options removed for clarity)

Flex Shroud requires -D row & 9 pins/row minimum
(For board-to-board interfaces. Will not mate with TCSD)

-ES = End Shroud
-EC = End Shroud with Guide Post
-EPC = End Shroud with Guide Post and Locking Clip

-RA = Right-angle (Double & Triple Row only)
-RA = End Shroud with Board Lock
-RA = End Shroud with Board Lock and Locking Clip

-RC = Retention Clip (Mates to TCSD)

-"XXX" = Polarized Position
(Specify position of omitted pin)

samtec.com?TMMH

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
FLEX STACK
SHROUDED HEADER & STACKER
(2.00 mm) .0787" PITCH • LTMM/ZLTMM SERIES

LTMM/ZLTMM
Mates:
SQT, SQW, ESQT, SMM

Specifications
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ" (1.27 µm) Ni
Operating Temp Range:
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

PLATING OPTION

D

- F
= Gold flash on post, Matte Tin on tail
- L
= 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- T
= Matte Tin

Tail Option
Leave blank for Through-hole

- RA
= Right-angle
- SM
= Surface Mount

Other Option

- "XX"
= Polarized Position
- "LC"
= Locking Clip (-SM only) (Manual placement required)
- "K"
= (7.50 mm) .295" DIA Film Pick & Place Pad (-SM only)
- "TR"
= Tape & Reel (-SM only)
- "FR"
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

Processing
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max

ZLTMM
Mates:
SQT, SQW, ESQT, SMM

Specifications
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ" (1.27 µm) Ni
Operating Temp Range:
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

PLATING OPTION

D

- F
= Gold flash on post, Matte Tin on tail
- L
= 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- T
= Matte Tin

Other Option

- "XXX"
= Body Height
- "XX"
= Polarized Position

Processing
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max

Additionally Available
MOQ Required
Other sizes
Other plating

Note:
This Series is non-standard, non-returnable.

samtec.com?LTMM or samtec.com?ZLTMM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
TSH
Mates: CLT, SQT, SQW, ESQT, TLE, SMM, MMS, PTF

TMMS
Mates: SQT, SQW, ESQT

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ" (1.27 µm) Ni
Operating Temp Range:
-65 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity (TSH):
(0.15 mm) .006" max*
*(.004" stencil solution may be available; contact IPG@samtec.com)

ALSO AVAILABLE
MOQ Required
Other sizes
Other plating

Note:
Some lengths, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
TW Board Mates: CLT, SQT, SOW, ESQT, TLE, SMM, MMS

Cable Mates: TCSD

SMT & THROUGH-HOLE BOARD STACKERS

(2.00 mm) .0787" PITCH • TW SERIES

TW

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>STACKER HEIGHT</th>
<th>SM</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 36</td>
<td>Specify LEAD STYLE from chart</td>
<td>–F = Gold flash on post, Matte Tin on tail</td>
<td>–S = Single Row</td>
<td>–“XXX” = Stacker Height in inches (0.13 mm) .005” increments</td>
<td>–P</td>
<td>–“XXX” = Polarized Position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–L = 10 μ&quot; (0.25 μm) Gold on post, Matte Tin on tail</td>
<td>–D = Double Row</td>
<td>Example: –250 = (6.35 mm) .250”</td>
<td>–D</td>
<td>= Alignment Pin (Metal or plastic at Samtec discretion) (4.83 mm) .190” min. board space (~D only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–T = Matte Tin</td>
<td>–Q = Four Row</td>
<td></td>
<td>–T</td>
<td>= Polarized Position</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>–A Option</td>
<td></td>
<td>–A</td>
<td>= (3.81 mm) .150”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>–P Option</td>
<td></td>
<td>–P</td>
<td>= (3.81 mm) .150”</td>
</tr>
</tbody>
</table>

Notes: For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

specifications

Insulator Material: Black Liquid Crystal Polymer
Terminal Material: Phosphor Bronze
Plating: Sn or Au over 50 μ" (1.27 μm) Ni
Current Rating: TW-SM = 4.9 A per pin (2 pins powered) TW-TH = 5.2 A per pin (2 pins powered)
Operating Temp Range: 
- 55 °C to +105 °C with Tin; 
- 55 °C to +125 °C with Gold

PROCESSING

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.15 mm) .006” max* .004” stencil solution may be available; contact IPG@samtec.com

OTHER OPTION

- “XXX” = Stacked Height
- “XXX” = Tail Length in inches (0.13 mm) .005” increments
- “XXX” = Polarized Position (Specify position to be removed)

ROW SPEC

LEAD STYLE | OAL
--- | ---
–01 | 8.20 .323
–02 | 9.60 .377
–03 | 13.60 .535
–04 | 14.10 .555
–05 | 15.10 .594
–06 | 17.10 .673
–07 | 19.10 .751
–08* | 21.10 .830
–09 | 11.60 .456
–10 | 15.60 .414
–11 | 10.08 .397
–12* | 28.191.110

*Style –08 & –12 = S & D only

–F = Gold flash on post, Matte Tin on tail
–L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail
–T = Matte Tin

–S = Single Row
–D = Double Row
–Q = Four Row
–A = Alignment Pin (Metal or plastic at Samtec discretion) (4.83 mm) .190” min. board space (~D only)
–P = Polarized Position

–“XXX” = Stacker Height

Row Option

STACKER HEIGHT | OAL
--- | ---
–L | (1.27) .050

–F = Gold flash on post, Matte Tin on tail

–L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

–T = Matte Tin

–S = Single Row
–D = Double Row

–“XXX” = Stacker Height in inches (0.13 mm) .005” increments

Example: –250 = (6.35 mm) .250”

–S = Single Row
–D = Double Row

Example: –250 = (6.35 mm) .250”

– “XXX” = Stacked Height

Notes: For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

specifications

Insulator Material: Black Liquid Crystal Polymer
Terminal Material: Phosphor Bronze
Plating: Sn or Au over 50 μ" (1.27 μm) Ni
Current Rating: TW-SM = 4.9 A per pin (2 pins powered) TW-TH = 5.2 A per pin (2 pins powered)
Operating Temp Range: 
- 55 °C to +105 °C with Tin; 
- 55 °C to +125 °C with Gold

PROCESSING

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.15 mm) .006” max* .004” stencil solution may be available; contact IPG@samtec.com

OTHER OPTION

- “XXX” = Stacked Height
- “XXX” = Tail Length in inches (0.13 mm) .005” increments
- “XXX” = Polarized Position (Specify position to be removed)

ROW SPEC

LEAD STYLE | OAL
--- | ---
–01 | 8.20 .323
–02 | 9.60 .377
–03 | 13.60 .535
–04 | 14.10 .555
–05 | 15.10 .594
–06 | 17.10 .673
–07 | 19.10 .751
–08* | 21.10 .830
–09 | 11.60 .456
–10 | 15.60 .414
–11 | 10.08 .397
–12* | 28.191.110

*Style –08 & –12 = S & D only

–F = Gold flash on post, Matte Tin on tail
–L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

–S = Single Row
–D = Double Row

Example: –250 = (6.35 mm) .250”

– “XXX” = Stacked Height

Notes: For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

specifications

Insulator Material: Black Liquid Crystal Polymer
Terminal Material: Phosphor Bronze
Plating: Sn or Au over 50 μ" (1.27 μm) Ni
Current Rating: TW-SM = 4.9 A per pin (2 pins powered) TW-TH = 5.2 A per pin (2 pins powered)
Operating Temp Range: 
- 55 °C to +105 °C with Tin; 
- 55 °C to +125 °C with Gold

PROCESSING

Lead-Free Solderable: Yes
SMT Lead Coplanarity: (0.15 mm) .006” max* .004” stencil solution may be available; contact IPG@samtec.com

OTHER OPTION

- “XXX” = Stacked Height
- “XXX” = Tail Length in inches (0.13 mm) .005” increments
- “XXX” = Polarized Position (Specify position to be removed)

ROW SPEC

LEAD STYLE | OAL
--- | ---
–01 | 8.20 .323
–02 | 9.60 .377
–03 | 13.60 .535
–04 | 14.10 .555
–05 | 15.10 .594
–06 | 17.10 .673
–07 | 19.10 .751
–08* | 21.10 .830
–09 | 11.60 .456
–10 | 15.60 .414
–11 | 10.08 .397
–12* | 28.191.110

*Style –08 & –12 = S & D only

–F = Gold flash on post, Matte Tin on tail
–L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

–S = Single Row
–D = Double Row

Example: –250 = (6.35 mm) .250”

– “XXX” = Stacked Height

Notes: For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.
## PRESS-FIT HEADERS & SOCKETS

### PTT
**Mates:**
- PTF, ESQT, PTHF, SQW, SQT, SMM

### PTF
**Mates:**
- PTT, TMMH, TMM, MTMM, MMT, TW, LTMM, ZLTMM

### SPECIFICATIONS
- **Insulator Material:** Black Liquid Crystal Polymer
- **Contact Material:** Phosphor Bronze
- **Plating:** Au or Sn over 50 µ" (1.27 µm) Ni
- **Current Rating:** 2.9 A per pin (2 pins powered)
- **Operating Temp Range:** -55 °C to +125 °C
- **Insertion Depth:**
  - (2.67 mm) .105" to (3.56 mm) .140"
- **Normal Force:** 60 grams (0.59 N) average
- **Max Cycles:** 100 with 30 µ" (0.76 µm) Au

### ALSO AVAILABLE
**Other Platings (MOQ Required)**

### TOOLING
**Press-Fit**
- PH: CAT-PT-PH-1XX-X-X
- PHF: CAT-PT-PH-1XX-X-B

For more information, visit [www.samtec.com/tooling](http://www.samtec.com/tooling)

---

### PRESS-FIT HEADERS & SOCKETS

(2.00 mm) .0787” PITCH • PTT/PTF SERIES

**PTT**

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 50</td>
<td>Specify LEAD STYLE from chart</td>
<td>= 10 µ&quot; (0.25 µm) Gold contact, Matte Tin on tail</td>
<td>-“XXX” = Polarized Position</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
FLEXIBLE ELEVATED & SELF-NESTING SOCKETS

(2.00 mm) .0787" PITCH • ESQT/ESQT (-368)/PTHF SERIES

ESQT
Board Mates: TMMH, TMM, MTMM, MMT, TW, LTMM, ZMTMM, ESQT, PTT, TSH, TMMS
Cable Mates: TCMD

ESQT (-368)/PTHF
Mates: ESQT, PTHF

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer
Black Liquid Crystal Polyetherimide (ESQT-368)
Contact Material:
Phosphor Bronze
Plating:
Au or Sn over 50 µ" (1.27 µm) Ni
Current Rating (ESQT/TMMH):
4.5 A per pin
(2 pins powered)
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth:
(2.62 mm) .103" to
(5.03 mm) .198" with
(0.38 mm) .015" wipe
Max Cycles:
100 with 10 µ" (0.25 µm) Au
Lead-Free Solderable:
Yes, for -S, -D & -Q
(Wave only for -T, -5 & -6)

TOOLING
Press-Fit
CAT-PT-PT-130-A-4
For more information, visit
www.samtec.com/tooling

Note:
This Series is non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
COST-EFFECTIVE
RUGGED SOCKETS

SQW/SQT
Board Mates:
TMHM, TMMS, TMM,
MTMM, MMT, TW, TSH,
LTMM, ZLTMM, PTT

Cable Mates:
TCMD

SPECIFICATIONS

Insulator Material:
Black Liquid Crystal Polymer

Contact Material:
Phosphor Bronze

Plating:
Sn or Au over
50 µ" (1.27 µm) Ni

SQW Current Rating
(SQW/TMHM):
3.8 A per pin (2 pins powered)

SQT Current Rating
(TMHM/SQT):
5.1 A per pin (2 pins powered)

Voltage Rating:
281 VAC mated with TMHM;
250 VAC mated with TMHM

Operating Temp Range:
-55 °C to +125 °C

SQW Insertion Depth:
(2.62 mm) .103" to
(5.03 mm) .198" with
(0.38 mm) .015" wipe

SQT Insertion Depth:
(2.62 mm) .103" to
(5.03 mm) .198"

SQW Normal Force:
60 grams (0.59 N) average

Max Cycles:
100 with 10 µ" (0.25 µm) Au

PROCESSING

SQW Lead–Free Solderable:
Yes, for -D & -D-VS
(Wave only for -T, -Q, -5 & -6)

SQT Lead–Free Solderable:
Yes

SMT Lead Coplanarity:
(0.10 mm) .004" max (02-10)
(0.15 mm) .006" max (11-50)*
*.004" stencil solution
may be available; contact
IPG@samtec.com

Note:
Some lengths, styles and
options are non-standard,
non-returnable.

samtec.com/SQW or samtec.com/SQT

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### Specifications

**Insulator Material:** Black LCP  
**Contact Material:** Phosphor Bronze  
**Plating:** Sn or Au over 50 µ" (1.27 µm) Ni  
**Current Rating (MMS/TMM):** 3.9 A per pin (2 pins powered)

**Operating Temp Range:**  
-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

**Insertion Depth:**  
DH = (2.13 mm) .084" to (2.79 mm) .110", SH = (2.13 mm) .084" minimum or pass-through  
Top Entry DV/SV = (2.13 mm) .084" to (4.32 mm) .170"  
Bottom Entry DV/SV = (4.27 mm) .168" minimum (Plus board)

**Processing**

- **Lead-Free Solderable:** Yes  
- **SMT Lead Coplanarity:** (0.15 mm) .006" max* + (0.04" stencil solution may be available; contact IPG@samtec.com)

**Also Available**

- MOQ Required  
- Alignment Pin (–DV only)  
- Locking clips and Through-hole pass-through options  
- Other platings

**Note:** Some lengths, styles and options are non-standard, non-returnable.

---

**Diagram**

[Diagram of Tiger Claw Socket Strip]

---

**Samtec.com?MMS**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
## COST-EFFECTIVE & DUAL WIPE SOCKETS

### TLE

<table>
<thead>
<tr>
<th>Mates:</th>
<th>TMMH, TMM, MTMM, MMT, TW, LTMM, ZLTMM, TCMD, TSH</th>
</tr>
</thead>
</table>

### CLT

<table>
<thead>
<tr>
<th>Mates:</th>
<th>TMM, TMMH, MTMM, MMT, TW, TSH</th>
</tr>
</thead>
</table>

### SPECIFICATIONS

**TLE**
- **Insulator Material:** Black Liquid Crystal Polymer
- **Contact Material:** Phosphor Bronze
- **Plating:**
  - Au over 50 µ" (1.27 µm) Ni
  - Current Rating (TLE/TMMH): 3.2 A per pin
  - Operating Temp Range: -55 °C to +125 °C
  - Insertion Depth: (2.08 mm), (4.37 mm), (3.35 mm) for bottom entry
- **Max Cycles:** 100 with 10 µ" (0.25 µm) Au

**CLT**
- **Plating:** Sn or Au over 50 µ" (1.27 µm) Ni
- **Current Rating (TMMH/CLT):**
  - (2.00) 0.0787
  - (4.00) 0.157

### PROCESSING

**TLE**
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm), (0.15 mm), (0.20 mm), (0.25 mm)
- **Current Rating (2 pins powered):** 4.1 A
- **Operating Temp Range:** -55 °C to +125 °C
- **Insertion Depth:** Top Entry = (1.40 mm), 0.055 minimum
  - Bottom Entry = (2.57 mm), 0.101 minimum
  - (add board thickness for correct post OAL)
- **Max Cycles:** 100 with 10 µ" (0.25 µm) Au

**CLT**
- **SMT Lead Coplanarity:** (0.10 mm), (0.15 mm), (0.20 mm)
- **Current Rating:**
  - (2.00) 0.0787
  - (4.00) 0.157

### ALSO AVAILABLE

**LEAD STYLE A**
- **Options:**
  - 01 or 03

### LEAD STYLE - 01

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>DV</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>-P</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

### LEAD STYLE - 02

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 50</td>
<td>-01 or 03</td>
<td>-F</td>
<td>-P</td>
<td>All options require Style –02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-L</td>
<td>-P</td>
<td>-BE (Bottom Entry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-G</td>
<td>-P</td>
<td>-A (Alignment Pin)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-K</td>
<td>-P</td>
<td>-TR (Tape &amp; Reel Packaging)</td>
</tr>
</tbody>
</table>

### LEAD STYLE - 03

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>OTHER OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 50</td>
<td>-01</td>
<td>-G</td>
<td>-P</td>
<td>-FR (Full Reel Tape &amp; Reel)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-A</td>
<td>-P</td>
<td>-FR (Full Reel Tape &amp; Reel)</td>
</tr>
</tbody>
</table>

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

samtec.com/TLE or samtec.com/CLT
**SPECIFICATIONS**

**Insulator Material:**
Black Liquid Crystal Polymer

**Contact Material:**
Phosphor Bronze

**Plating:**
- Au or Sn over 50 µ" (1.27 µm) Ni
- Current Rating: 3.2 A per pin (6 adjacent pins powered)
- Voltage Rating: 475 VAC mated with LS2
- Operating Temp Range: -55 °C to +125 °C

**PROCESSING**

**Lead–Free Solderable:**
Yes

**SMT Lead Coplanarity:**
(0.15 mm) .006" max* *(.004" stencil solution may be available; contact IPG@samtec.com)

**APPLICATION**

**ALSO AVAILABLE**

- MOQ Required
- Alignment pin
- Other platings
- Other stack heights

**Note:** Some lengths, styles and options are non-standard, non-returnable.

---

<table>
<thead>
<tr>
<th>LS2</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>TAIL OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS2</td>
<td>1</td>
<td>-01</td>
<td>-F</td>
<td>01 only</td>
<td>-RA1</td>
<td>-RA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-02</td>
<td>-L</td>
<td></td>
<td>-RA2</td>
<td>-RA2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-01 only</td>
<td></td>
<td>-K</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>Through-hole</td>
<td>Gold flash on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>Surface Mount</td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>LS2</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>TAIL OPTION</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS2</td>
<td>1</td>
<td>-01</td>
<td>-F</td>
<td>01 only</td>
<td>-RA1</td>
<td>-RA1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-02</td>
<td>-L</td>
<td></td>
<td>-RA2</td>
<td>-RA2</td>
</tr>
<tr>
<td></td>
<td>-01</td>
<td>Through-hole</td>
<td>Gold flash on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-02</td>
<td>Surface Mount</td>
<td>10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
PRESS-FIT HEADERS & SOCKETS

(2.54 mm) .100” PITCH • PHT/PHF SERIES

<table>
<thead>
<tr>
<th>PHT</th>
<th>1</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>01 = (single row only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>02 thru 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify LEAD STYLE from chart

- L = 10 µ” (0.25 µm) Gold on post, Matte Tin on tail
- S = Single Row
- D = Double Row

“XXX” = Polarized Position

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>-01</td>
<td>(2.54) .100</td>
</tr>
<tr>
<td>-02</td>
<td>(5.08) .200</td>
</tr>
<tr>
<td>-03</td>
<td>(7.62) .300</td>
</tr>
<tr>
<td>-04</td>
<td>(10.16) .400</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

Insulator Material: Liquid Crystal Polymer
Contact Material: Phosphor Bronze
Plating: Au or Sn over 50 µ” (1.27 µm) Ni
Current Rating (PHT/PHF): 4.8 A per pin (2 pins powered)
Operating Temp Range: -55 °C to +125 °C with Gold (PHF) Insertion Depth: (3.65 mm) .145” to (6.35 mm) .250”

**PROCESSING**

Contact ipg@samtec.com

**ALSO AVAILABLE**

Other Platings (MOQ Required)

**TOOLING**

Press-Fit
PHT: CAT-PT-PH-1XX-X-X
PHF: CAT-PT-PH-1XX-X-B
For more information, visit www.samtec.com/tooling

Note:
Some lengths, styles and options are non-standard, non-returnable.
**SERIES**  -  **PIN CENTERS**  -  **NO. PINS PER ROW**  -  **LEAD STYLE**

**TSW/HTSW**
- Board Mates: SSW, SSQ, SSM, ESW, ESQ, BCS, BSW, CES, SLW
- Cable Mates: IDSD, IDSS

**SPECIFICATIONS**
- **TSW**: PBT
- **HTSW**: Natural LCP
- Terminal Material: Phosphor Bronze
- **Operating Temp Range**: -55 °C to +125 °C with Gold
- **Voltage Rating**: 550 VAC mated with SSW; 500 VAC mated with BCS or ESQ; 450 VAC –RA/-RE mated with BCS or SSM; 400 VAC mated with CES
- **Insulator Material**: TSW: PBT; HTSW: Natural LCP
- **Terminal Material**: Phosphor Bronze
- **Plating**: Au or Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range**: -55 °C to +105 °C with Tin
- **Current Rating (PER PIN)**
  - TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 5.2 A
  - TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 5.7 A
  - ESW SSW SLW SSQ SSM BCS SNT: 5.2 A
  - ESW SSW SLW SSQ SSM BCS SNT: 4.6 A
  - ESW SSW SLW SSQ SSM BCS SNT: 4.3 A

**ALSO AVAILABLE**
- Other Platings (MOQ Required)

**CURRENT RATING (PER PIN)**
- TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 5.2 A
- TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 5.7 A
- TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 5.2 A
- TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 4.6 A
- TSW mated with ESW SSW SLW SSQ SSM BCS SNT: 4.3 A

**OTHER SOLUTIONS**
- Elevated Right-angle option
- Shunts

**STRAIGHT PIN VERSIONS**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>–05</td>
<td>(8.51) .335</td>
<td>(3.30) .130</td>
<td>(2.67) .105</td>
</tr>
<tr>
<td>–06</td>
<td>(7.62) .300</td>
<td>(2.41) .095</td>
<td>(2.67) .105</td>
</tr>
<tr>
<td>–07</td>
<td>(10.92) .430</td>
<td>(2.54) .100</td>
<td></td>
</tr>
<tr>
<td>–08</td>
<td>(13.46) .530</td>
<td>(5.08) .200</td>
<td></td>
</tr>
<tr>
<td>–09</td>
<td>(18.54) .730</td>
<td>(10.16) .400</td>
<td></td>
</tr>
<tr>
<td>–10</td>
<td>(21.08) .830</td>
<td>(12.70) .500</td>
<td></td>
</tr>
<tr>
<td>–11</td>
<td>(23.62) .930</td>
<td>(15.24) .600</td>
<td></td>
</tr>
<tr>
<td>–12</td>
<td>(26.16) 1.030</td>
<td>(17.78) .700</td>
<td></td>
</tr>
<tr>
<td>–13</td>
<td>(31.24) 1.230</td>
<td>(22.86) .900</td>
<td></td>
</tr>
<tr>
<td>–14</td>
<td>(13.46) .530</td>
<td>(2.79) .110</td>
<td>(8.13) .320</td>
</tr>
<tr>
<td>–15</td>
<td>(18.54) .730</td>
<td>(7.87) .310</td>
<td>(8.13) .320</td>
</tr>
<tr>
<td>–16</td>
<td>(21.08) .830</td>
<td>(2.79) .110</td>
<td>(15.74) .620</td>
</tr>
<tr>
<td>–17</td>
<td>(23.62) .930</td>
<td>(2.79) .110</td>
<td>(18.29) .720</td>
</tr>
</tbody>
</table>

* Available with –LL (Locking Lead) Option

- Specify -07 for best mate with IDXX Series IDC Cable

**STRAIGHT PIN VERSIONS**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01</td>
<td>(26.16) .1030</td>
<td>(2.79) .110</td>
<td>(20.83) .820</td>
</tr>
<tr>
<td>–02</td>
<td>(31.24) .1230</td>
<td>(2.79) .110</td>
<td>(25.91) .1020</td>
</tr>
<tr>
<td>–03</td>
<td>(36.32) .1430</td>
<td>(2.79) .110</td>
<td>(30.99) .1220</td>
</tr>
<tr>
<td>–04</td>
<td>(16.00) .430</td>
<td>(7.65) .600</td>
<td>(5.84) .130</td>
</tr>
<tr>
<td>–05</td>
<td>(11.30) .445</td>
<td>(2.91) .115</td>
<td>(6.78) .125</td>
</tr>
<tr>
<td>–06</td>
<td>(12.15) .480</td>
<td></td>
<td>(6.76) .130</td>
</tr>
<tr>
<td>–07</td>
<td>(16.09) .430</td>
<td>(5.33) .210</td>
<td>(5.84) .130</td>
</tr>
<tr>
<td>–08</td>
<td>(24.29) .645</td>
<td>(3.20) .126</td>
<td>(5.84) .130</td>
</tr>
<tr>
<td>–09</td>
<td>(25.49) .670</td>
<td>(5.40) .100</td>
<td>(5.84) .130</td>
</tr>
<tr>
<td>–10</td>
<td>(28.70) 1.130</td>
<td>(20.32) .800</td>
<td></td>
</tr>
<tr>
<td>–11</td>
<td>(33.78) 1.330</td>
<td>(23.11) .910</td>
<td>(8.13) .320</td>
</tr>
<tr>
<td>–12</td>
<td>(28.70) 1.130</td>
<td>(18.03) .710</td>
<td>(8.13) .320</td>
</tr>
<tr>
<td>–13</td>
<td>(33.78) 1.330</td>
<td>(8.09) .035</td>
<td>(5.84) .130</td>
</tr>
<tr>
<td>–14</td>
<td>(11.94) .470</td>
<td>(1.27) .050</td>
<td>(5.84) .130</td>
</tr>
</tbody>
</table>

* Style –41 & –42 available with HTSW only.

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**Through-Hole .025" SQ Post Header**

(2.54 mm) .100" Pitch • TSW/HTSW Series

samtec.com/TSW or samtec.com/HTSW

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
PLATING OPTION

- **F** = Gold flash on post, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- **G** = 10 µ" (0.25 µm) Gold on post, Gold flash on balance
- **T** = Matte Tin

ROW OPTION

- **S** = Single Row
- **D** = Double Row
- **T** = Triple Row
- **Q** = Double Row (5.08 mm) .200" row space

OTHER OPTION

- **RA or RE** = Right-angle
- **NA** = Right-angle (Using straight body for coplanar mating with SSW-RA series)
- **LL** = Locking Lead
  - See charts for available styles. Not available with single row 1 or 2 positions.
  - Recommended hole size (1.02 mm ± 0.03 mm) .040" ± 0.001
- **LC** = Locking Clip
  - (Styles –08 thru –13 & –22 only)
  - Requires 4 pin minimum
  - (Not available with T, –Q, –RA or –RE)
- **LA** = –RA Option with –LL Option
- **"XXX"** = Polarized Position

**Right-Angle Versions**

```
<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>– RA</td>
<td>(1.52) .060</td>
</tr>
<tr>
<td>– RE</td>
<td>(4.06) .160</td>
</tr>
</tbody>
</table>
```

```
<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>C</th>
<th>SINGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 08</td>
<td>(2.29) .090</td>
<td></td>
</tr>
<tr>
<td>– 09</td>
<td>(7.37) .290</td>
<td></td>
</tr>
<tr>
<td>– 10</td>
<td>(9.91) .390</td>
<td></td>
</tr>
<tr>
<td>– 11</td>
<td>(12.45) .490</td>
<td></td>
</tr>
<tr>
<td>– 12</td>
<td>(14.99) .590</td>
<td></td>
</tr>
<tr>
<td>– 13</td>
<td>(20.07) .790</td>
<td></td>
</tr>
<tr>
<td>– 16</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 21</td>
<td>(25.15) .990</td>
<td></td>
</tr>
<tr>
<td>– 22</td>
<td>(4.83) .190</td>
<td></td>
</tr>
<tr>
<td>– 25</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 27</td>
<td>(22.61) .890</td>
<td></td>
</tr>
<tr>
<td>– 28</td>
<td>(14.99) .590</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>C</th>
<th>SINGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 08</td>
<td>(2.29) .090</td>
<td></td>
</tr>
<tr>
<td>– 09</td>
<td>(7.37) .290</td>
<td></td>
</tr>
<tr>
<td>– 10</td>
<td>(9.91) .390</td>
<td></td>
</tr>
<tr>
<td>– 11</td>
<td>(12.45) .490</td>
<td></td>
</tr>
<tr>
<td>– 12</td>
<td>(14.99) .590</td>
<td></td>
</tr>
<tr>
<td>– 13</td>
<td>(20.07) .790</td>
<td></td>
</tr>
<tr>
<td>– 16</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 21</td>
<td>(25.15) .990</td>
<td></td>
</tr>
<tr>
<td>– 22</td>
<td>(4.83) .190</td>
<td></td>
</tr>
<tr>
<td>– 25</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 27</td>
<td>(22.61) .890</td>
<td></td>
</tr>
<tr>
<td>– 28</td>
<td>(14.99) .590</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>C</th>
<th>SINGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 08</td>
<td>(2.29) .090</td>
<td></td>
</tr>
<tr>
<td>– 09</td>
<td>(7.37) .290</td>
<td></td>
</tr>
<tr>
<td>– 10</td>
<td>(9.91) .390</td>
<td></td>
</tr>
<tr>
<td>– 11</td>
<td>(12.45) .490</td>
<td></td>
</tr>
<tr>
<td>– 12</td>
<td>(14.99) .590</td>
<td></td>
</tr>
<tr>
<td>– 13</td>
<td>(20.07) .790</td>
<td></td>
</tr>
<tr>
<td>– 16</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 21</td>
<td>(25.15) .990</td>
<td></td>
</tr>
<tr>
<td>– 22</td>
<td>(4.83) .190</td>
<td></td>
</tr>
<tr>
<td>– 25</td>
<td>(8.13) .320</td>
<td></td>
</tr>
<tr>
<td>– 27</td>
<td>(22.61) .890</td>
<td></td>
</tr>
<tr>
<td>– 28</td>
<td>(14.99) .590</td>
<td></td>
</tr>
</tbody>
</table>

**RIGHT-ANGLE VERSIONS**

```
<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>SINGLE (–S)</th>
<th>DOUBLE (–D)</th>
<th>TRIPLE (–T &amp; –Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>– RA</td>
<td>(5.84) .230</td>
<td>(5.84) .230</td>
<td>(5.84) .230</td>
</tr>
<tr>
<td>– RE</td>
<td>(5.84) .230</td>
<td>(5.84) .230</td>
<td>(5.84) .230</td>
</tr>
</tbody>
</table>

*Available with –LA (Locking Lead) Option

http://samtec.com/TSW or samtec.com?HTSW

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SURFACE MOUNT .025" SQ POST HEADER
(2.54 mm) .100" PITCH • TSM SERIES

TSM
Board Mates:
SSW, SSQ, SSM, BSW, ESW, ESO, BCS, SLW, CES, HLE
Cable Mates:
IDSS, IDSD

SPECIFICATIONS
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Au or Sn over 50 μ (1.27 μm) Ni
Operating Temp Range:
-55 °C to +105 °C with Tin;
-55 °C to +125 °C with Gold
Voltage Rating:
475 VAC, SV/DV mated with BCS or SSM

PROCESSING
Lead–Free Solderable:
Yes
-DH/-SH Lead Coplanarity:
(0.15 mm): .004" max (02-36)*
(0.13 mm): .005" max (06-10)*
(0.15 mm): .006" max (11-36)*
*(.004" stencil solution
may be available; contact
IPG@samtec.com)

MATES CURRENT RATING (PER PIN)

<table>
<thead>
<tr>
<th>MATES/ MATE</th>
<th>CURRENT RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSM/SSW</td>
<td>4.7 A</td>
</tr>
<tr>
<td>TSM/SSM</td>
<td>5.4 A</td>
</tr>
<tr>
<td>TSM/HLE</td>
<td>4.1 A</td>
</tr>
</tbody>
</table>

2 POSITIONS POWERED

Note: Some lengths, styles and options are non-standard, non-returnable.

samtec.com?TSM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### PLATING OPTION
- **F** = Gold flash on post, Matte Tin on tail
- **T** = Matte Tin
- **S** = 30 µ" (0.76 µm) Gold on post, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail

### ROW OPTION
- **SV** = Single Row Vertical Pin
- **DV** = Double Row Vertical Pin
- **SH** = Single Row Horizontal Pin
- **DH** = Double Row Horizontal Pin (Style –01, –02 or –03 only)
- **TM** = Triple Row Vertical Mixed Technology (Style –01 only) (02 thru 30 positions only)
- **MT** = Mixed Technology Pin (Style –01, –02 or –03 only)

### OTHER OPTIONS
- **“XXX”** = Polarized Position
- **A** = Alignment Pin metal or plastic at Samtec discretion (Not available with –TM or –MT) (02 positions minimum) (Not available with –LC)
- **LC** = Locking Clip (Not available with –TM) (3 positions minimum) (Not available with –A) (Manual placement required)
- **K** = (6.50 mm) .256” DIA Polymide Film Pick & Place Pad (–SH: 4 positions minimum without –TR; 2 & 3 positions available with –TR) (–DH: 4 positions minimum without –TR)
- **TR** = Tape & Reel
  - **SV**: 02-22 positions, **DV**: 02-28 positions, **SH**: 02-30 positions, **DH**: 02-29 positions (Not available with –MT or –TM)
- **FR** = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (–SV: 02-22 positions, –DV: 02-28 positions, –SH: 02-30 positions, –DH: 02-29 positions (Not available with –MT or –TM)

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
MODIFIED .025" SQ POST HEADERS
(2.54 mm) .100" PITCH • MTSW/HMTSW SERIES

MTSW/HMTSW
Board Mates:
SSW, SSQ, ESW, ESQ, BCS, BSW
CES, SLW, HLE, SSM
Cable Mates:
IDSD, IDSS

SERIES
MTSW = Modified Strip
HMTSW = Hi-Temp Modified Strip

PIN CENTERS
-1 = (2.54 mm) .100" Pitch
(All positions filled)

-2 = (5.08 mm) .200" Pitch
(Every other position filled)

NO. PINS PER ROW
01 thru 50
= .100" (2.54 mm)
Center Version

02 thru 25
= .200" (5.08 mm)
Center Version

LEAD STYLE
Specify LEAD STYLE
from chart

SPECIFICATIONS
Insulator Material:
MTSW: Black Glass
Filled Polyester
HMTSW: Natural Liquid
Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Au or Sn over
50 µ" (1.27 µm) Ni
Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin

PROCESSING
Lead–Free Solderable:
MTSW: No, Lead Wave Only
HMTSW: Yes

LEAD
STYLE
A
– 06
(7.62, 3.00)
– 07
(10.92, 4.00)
– 08
(13.46, 5.00)
– 09
(18.54, 7.30)
– 10
(21.08, 8.30)
– 11
(23.62, 9.30)
– 12
(26.16, 10.30)
– 13
(31.24, 12.30)
– 21
(36.32, 14.30)
– 22
(46.00, 16.30)
– 23
(51.80, 18.40)
– 24
(61.99, 20.40)
– 27
(83.78, 26.20)
– 28
(106.42, 30.20)

LEAD
STYLE
A
– 06
(7.62, 3.00)
– 07
(10.92, 4.00)
– 08
(13.46, 5.00)
– 09
(18.54, 7.30)
– 10
(21.08, 8.30)
– 11
(23.62, 9.30)
– 12
(26.16, 10.30)
– 13
(31.24, 12.30)
– 21
(36.32, 14.30)
– 22
(46.00, 16.30)
– 23
(51.80, 18.40)
– 24
(61.99, 20.40)
– 27
(83.78, 26.20)
– 28
(106.42, 30.20)

Note:
These Series are
non-standard, non-returnable.

samtec.com?MTSW or samtec.com?HMTSW

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
- **PLATING OPTION**
  - **F** = Gold flash on post, Matte Tin on tail
  - **L** = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
  - **G** = 10 µ" (0.25 µm) Gold on post, Gold flash on balance
  - **T** = Matte Tin

- **ROW OPTION**
  - **S** = Single Row
  - **D** = Double Row
  - **T** = Triple Row
  - **Q** = Double Row .200" (5.08 mm) row space

- **POST HEIGHT**
  - "XXX" = "C" Dimension (Specify post height in INCHES .005" (0.13 mm) increments)

- **OTHER OPTION**
  - **RA or RE** = Right-angle
  - **LL** = Locking Lead (not available with -RE, not available in single row 1 or 2 positions) (Available on tails from .229 mm .090 to .1016 mm .400 only)
  - **LA** = -RA option with -LL Option (Maximum "C" = (13.46 mm) .530)

- **POLARIZED OPTION**
  - "XXX" = Polarized (Specify 'XXX' as position number)

---

Right-Angle Versions (-RA Options)

Right-Angle Versions (-RE Options) Single Row Only

(HMTSW -S & -D = 36 positions maximum)

---

NOTES:

- **RX**
  - **D**
    - -RA (1.52) .060
    - -RE (4.06) .160

 FOR "E" = (2.29) .090 MIN FOR -RA & -RE

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>C MAXIMUM with/RA</th>
<th>C MAXIMUM with/RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 06</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>- 07</td>
<td>(3.30) .130</td>
<td>Not Available</td>
</tr>
<tr>
<td>- 08</td>
<td>(5.84) .230</td>
<td>(3.30) .130</td>
</tr>
<tr>
<td>- 09</td>
<td>(10.92) .430</td>
<td>(8.38) .330</td>
</tr>
<tr>
<td>- 10</td>
<td>(13.46) .530</td>
<td>(10.92) .430</td>
</tr>
<tr>
<td>- 11</td>
<td>(16.00) .630</td>
<td>(13.46) .530</td>
</tr>
<tr>
<td>- 12</td>
<td>(18.54) .730</td>
<td>(16.00) .630</td>
</tr>
<tr>
<td>* - 13</td>
<td>(23.62) .930</td>
<td>(21.08) .830</td>
</tr>
<tr>
<td>* - 21</td>
<td>(28.70) 1.130</td>
<td>(26.16) 1.030</td>
</tr>
<tr>
<td>* - 22</td>
<td>(3.88) 1.330</td>
<td>(5.84) .230</td>
</tr>
<tr>
<td>* - 23</td>
<td>(3.68) 1.45</td>
<td>Not Available</td>
</tr>
<tr>
<td>* - 24</td>
<td>(4.57) 1.80</td>
<td></td>
</tr>
<tr>
<td>* - 27</td>
<td>(26.16) 1.030</td>
<td>(23.62) .930</td>
</tr>
<tr>
<td>* - 28</td>
<td>(21.08) 1.030</td>
<td>(18.54) .730</td>
</tr>
</tbody>
</table>

* Styles –13, 21, 24, 27 not available with ‘Q’ Right-angle

* Styles –21, 24, 27, 28, not available with ‘T’ or ‘Q’ Right-angle

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**FEATURES**

These headers provide the ultimate low-profile (0.64 mm) .025” square post board stacking system. The high quality Phosphor Bronze terminals are available with a standard short post height (TLW Series) for mating with low-profile sockets, or the post height can be Modified (MTLW Series) to accommodate IDC assemblies and other applications.

**SPECIFICATIONS**

Insulator Material:
Black Liquid Crystal Polymer

Terminal Material:
Phosphor Bronze

Plating:
Au or Sn over 50 µ” (1.27 µm) Ni

Current Rating (TLW/SLW):
5.2 A per pin

Operating Temp Range:
-55 °C to +105 °C with Tin
-55 °C to +125 °C with Gold

**PROCESSING**

Lead–Free Solderable:
Yes

**ALSO AVAILABLE**

MOQ Required

Other platings
Notch option

---

**TLW/MTLW Board Mates:**
BSW, CES, SLW, HLE

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 thru 40</td>
<td>Single</td>
<td>Style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 thru 36</td>
<td>Double</td>
<td>Style</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify LEAD STYLE from chart

- **F** = Gold flash on post, Matte Tin on tail
- **G** = 10 µ” (0.25 µm) Gold on post, Gold flash on tail
- **T** = Matte Tin

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-01</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>-05</td>
<td>(4.32)</td>
</tr>
<tr>
<td></td>
<td>-06</td>
<td>(3.43)</td>
</tr>
</tbody>
</table>

---

**MTLW**

<table>
<thead>
<tr>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>POST HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 thru 40</td>
<td>Single</td>
<td>Style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 thru 36</td>
<td>Double</td>
<td>Style</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify LEAD STYLE from chart

- **F** = Gold flash on post, Matte Tin on tail
- **L** = 10 µ” (0.25 µm) Gold on post, Matte Tin on tail
- **G** = 10 µ” (0.25 µm) Gold on post, Gold flash on tail
- **T** = Matte Tin

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>OAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2.54) .100 x No. of Positions</td>
</tr>
<tr>
<td>-05</td>
<td>(8.51)</td>
</tr>
<tr>
<td>-06</td>
<td>(7.62)</td>
</tr>
<tr>
<td>-07</td>
<td>(10.92)</td>
</tr>
<tr>
<td>-08</td>
<td>(13.46)</td>
</tr>
<tr>
<td>-09</td>
<td>(18.54)</td>
</tr>
<tr>
<td>-10</td>
<td>(21.08)</td>
</tr>
<tr>
<td>-22</td>
<td>(16.00)</td>
</tr>
<tr>
<td>-23</td>
<td>(11.30)</td>
</tr>
<tr>
<td>-24</td>
<td>(12.19)</td>
</tr>
</tbody>
</table>

---

Note:
Some lengths, styles and options are non-standard, non-returnable. MTLW Series is non-standard, non-returnable.
FLEXIBLE .025" SQ BOARD STACKERS

(2.54 mm) .100" PITCH • HW SERIES

HW
Board Mates:
SSW, SSQ, ESW, ESQ, CES, SLW, BSW, BCS, SSM, HLE, PHF
Cable Mates:
IDSS, IODS

SPECIFICATIONS
Insulator Material:
HW-SM Top = Natural LCP
HW-SM Bottom = Black LCP
HW-TH = Natural LCP
Terminal Material:
Phosphor Bronze
Plating:
Au or Sn over 50 μ" (1.27 μm) Ni
Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin

PROCESSING
Lead-Free Solderable:
Yes
SMT Lead Coplanarity:
(0.15 mm) .006" max*
*(.004" stencil solution may be available; contact IPG@samtec.com)

Notes:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.
This Series is non-standard, non-returnable.

ALSO AVAILABLE
MOQ Required
Other plating
Locking Clip available with double row HW-SM
(Manual placement required)

Flexible .025" SQ BOARD STACKERS

01 thru 50
(Through-hole)
02 thru 36
(Surface mount)

LEAD STYLE
Specify LEAD STYLE from chart

PLATING OPTION
-F = Gold flash on contact, Matte Tin on tail
-L = 10 μ" (0.25 μm) Gold on contact area of longer tail, Matte Tin on tail
-G = 10 μ" (0.25 μm) Gold on contact area of longer tail, Gold flash on balance
-T = Matte Tin

ROW OPTION
-S = Single Row
-D = Double Row
-T = Triple Row

STACKER HEIGHT
-“XXX” = Stack Height (in inches)

SM
Leave blank for Through-hole
-“XXX” = HW-TH Tail Length (in inches)

OTHER OPTION
-“XXX” = HW-TH Tail Length (in inches)
-”LL” = Locking Lead (Through-hole only)
-”T” = Tape & Reel
-”FR” = Full Reel

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

samtec.com?HW-TH or samtec.com?HW-SM

F-221
**SERIES**

- DW
  
- EW

- ZW

**NO. PINS PER ROW**

- 01 thru 50

**LEAD STYLE**

- Specify LEAD STYLE from chart

**PLATING OPTION**

- F = Gold flash on contact, Matte Tin on tail
- L = 10 µ" (0.25 µm) Gold on contact area of longer tail, Matte Tin on tail
- G = 10 µ" (0.25 µm) Gold on contact area of longer tail, Gold flash on balance
- T = Matte Tin

**ROW OPTION**

- S = Single Row
- D = Double Row
- T = Triple Row

**STACKER HEIGHT**

- “XXX” = Stacker Height (in inches) .200" minimum

**OTHER OPTION**

- LL = Locking Lead
  (Shortest dimension between the tail and the post is the end that will be crimped. Available on tails from (2.29 mm) .090" to (7.87 mm) .310" only.)

**LEAD–FREE SOLDERABLE**

- No, Lead Wave Only

**SPECIFICATIONS**

- Insulator Material: Black Glass Filled Polyester
- Terminal Material: Phosphor Bronze
- Plating: Au or Sn over 50 µ" (1.27 µm) Ni
- Operating Temp Range: -65 °C to +125 °C with Gold
  -55 °C to +105 °C with Tin

**PROCESSING**

Lead–Free Solderable:
No, Lead Wave Only

**NOTES**

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

---

**OVERALL LENGTH (OAL)**

- LEAD STYLE
- QAL
- 07 (10.92) 430
- 08 (13.46) 530
- 09 (16.19) 630
- 10 (18.95) 730
- 11 (21.08) 830
- 12 (23.26) 930
- 13 (26.16) 1.030
- 14 (29.70) 1.130
- 15 (33.78) 1.230
- 16 (37.90) 1.330
- 17 (42.11) 1.430
- 19 (53.34) 1.530
- 20 (64.57) 1.630

---

**DIMENSIONS**

- (2.54) .100 x No. of Positions
- (2.54) .100
- (5.08) .200
- (7.62) 2.96

---

**BOARD MATES**

- SSW, SSQ, ESW, ESQ, CES, SLW, BSW, BCS, SSM, HLE, PHF
- Cable Mates:
  - IDSS, IDSD

---

**FLEXIBLE .025" SQ BOARD STACKERS**

(2.54 mm) .100" PITCH • DW/EW/ZW SERIES

---

**FLEX STACK**

**SUPPORTS**

- Flexible .025" SQ BOARD STACKERS

---

**IMAGE**

Image of Flex Stack Flexible .025" SQ Board Stackers

---

**WEBSITE**

- samtec.com?DW, samtec.com?EW or samtec.com?ZW
# SHROUDED .025" SQ POST HEADERS

**(2.54 mm) .100" PITCH • TSS/HTSS/ZSS SERIES**

## TSS/HTSS/ZSS

**Mates:**
- SSW, SSQ, ESW, ESQ, SSN, BCS

## SPECIFICATIONS

**Insulator Material:**
- TSS, ZSS=Black Glass Filled Polyester
- HTSS=Natural PCT

**Insulation Resistance:**
- 5000 MΩ min

**Terminal Material:**
- Phosphor Bronze

**Plating:**
- Au or Sn over 50 µ" (1.27 µm) Ni

**Operating Temp Range:**
- -55 °C to +125 °C with Gold
- -55 °C to +105 °C with Tin

**Withstanding Voltage:**
- 1000 VRMS

## PROCESSING

**Lead-Free Solderable:**
- HTSS=Yes
- TSS, ZSS=No, Lead Wave only

**SMT Lead Coplanarity:**
- (0.15 mm) .006” max*

* .004” stencil solution may be available; contact ipg@samtec.com

## ALSO AVAILABLE

**MOQ Required**
- Other sizes
- Other platings
- Alignment Pins
- Single Row
- Locking Leads
- Polarized

## Note:
Some lengths, styles and options are non-standard, non-returnable. ZSS is non-standard, non-returnable.

---

## TSS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>03 (TSS only)</td>
<td>-F</td>
<td>Gold flash on post, Matte Tin on tail</td>
<td>-D</td>
</tr>
<tr>
<td></td>
<td>05, 07, 08, 10, 12, 13, 15, 17, 20, 25, 32, 36 (Standard sizes)</td>
<td>-L</td>
<td>10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-T</td>
<td>Matte Tin</td>
<td>-D</td>
</tr>
</tbody>
</table>

**Specify LEAD STYLE from chart**

**LEAD STYLE**
- F = Gold flash on post, Matte Tin on tail
- L = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- T = Matte Tin

**RIGHT ANGLE**
- D = Double Row Through-hole (lead style =01, 02 & 03 only)
- DV = Double Row Surface Mount (lead style =01 only) (HTSS only)
- D-RA = Double Row Right-angle (lead style =04 & 05 only)

---

## ZSS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>D</th>
<th>BODY HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>03, 05, 07, 08, 10, 12, 13, 15, 17, 20, 25, 32, 36 (Standard sizes)</td>
<td>Specify LEAD STYLE from chart</td>
<td>-F</td>
<td>Gold flash on post, Matte Tin on tail</td>
<td>- “XXXXX”</td>
<td>= Body Height</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-L</td>
<td>10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-T</td>
<td>Matte Tin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specify LEAD STYLE from chart**

**LEAD STYLE**
- F = Gold flash on post, Matte Tin on tail
- L = 10 µ" (0.25 µm) Gold on post, Matte Tin on tail
- T = Matte Tin

**MAX BODY HEIGHT**
- A | (16.00) | (13.72) | 540 |
- B | (18.54) | (16.26) | 640 |
- C | (21.08) | (18.80) | 740 |
- D | (23.62) | (21.34) | 840 |
- E | (26.16) | (23.88) | 940 |
- F | (28.70) | (26.42) | 1040 |
- G | (31.24) | (28.96) | 1140 |
- H | (33.78) | (31.50) | 1240 |
- I | (36.32) | (34.04) | 1340 |
**THROUGH-HOLE**

*.025" SQ POST SOCKET*

(2.54 mm) .100” PITCH • SSW/SSQ SERIES

**SSW/SSQ**

Mates:
TSW, MTSLW, MTLW, DW, EW, ZW, TSS, ZSS, TSM, TSSH, HTSS

**SPECIFICATIONS**

Insulator Material:
Black Liquid Crystal Polymer (-S & -D) or Black High Temperature Thermoplastic (-T)

Contact Material:
Phosphor Bronze

Plating:
Au or Sn over 50 µ” (1.27 µm) Ni

Current Rating (SSW/TSM):
4.7 A per pin (2 pins powered)

Current Rating (SSQ/TSW):
6.3 A per pin (2 pins powered)

Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin

Insertion Depth:
(3.68 mm) .145” to (4.35 mm) .250”

Normal Force:
Standard= 125 grams (4.4 N)

Max Cycles:
100 with 10 µ” (0.25 µm) Au

Voltage Rating:
465 VAC / 655 VDC

**PROCESSING**

Lead-Free Solderable:
Yes. -S and -D row option
No, Lead Wave only: -P, -T and -Q row option

**THROUGH-HOLE**

<table>
<thead>
<tr>
<th>LEAD STYLE</th>
<th>SINGLE</th>
<th>DOUBLE</th>
<th>TRIPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Insertion Force</td>
<td>Low Insertion Force*</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>-S &amp; -P</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>-D</td>
<td>-25</td>
<td>-02</td>
<td>(2.54) .100</td>
</tr>
<tr>
<td>-T &amp; -Q</td>
<td>-26</td>
<td>-03</td>
<td>(7.62) .300</td>
</tr>
</tbody>
</table>

*LIF not available with Tin Plating

**Note:**
Some lengths, styles and options are non-standard, non-returnable.

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SURFACE MOUNT .025" SQ POST SOCKET

(2.54 mm) .100" PITCH • SSW SERIES

SSW Mates:
TSW, MTSW, HTSW, HMTSW, MTLW, EW, ZW, TSS, HTSS, ZSS, TSM, TSSH, DW, HW

<table>
<thead>
<tr>
<th>SSW</th>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>ROW OPTION</th>
<th>VS</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

02 thru 36

- **F** = Gold flash on contact, Matte Tin on tail
- **L** = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail
- **G** = 20 μ" (0.51 μm) Gold on contact, Gold flash on tail

- **-S** = Single Row
- **-D** = Double Row

**-”XX”** = Polarized Position
- **-K** = -S: (3.50 mm) .138" DIA,
- **-D:** (6.50 mm) .256" DIA
  Polymide film
  Pick & Place Pad
  (03 positions min.)
- **-P** = Pick & Place Pad
  (05 positions min.)
- **-TR** = Tape & Reel
  (–02 thru –28)
- **-FR** = Full Reel
  Tape & Reel
  (must order max.
  quantity per reel;
  contact Samtec
  for quantity
  breaks)
  (–02 thru –28)

SPECIFICATIONS

Insulator Material:
Black LCP
Contact Material:
Phosphor Bronze
Plating:
Au or Sn over
50 μ" (1.27 μm) Ni
Current Rating (SSW/TSM):
4.7 A per pin
(2 pins powered)
Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin
Insertion Depth:
(3.68 mm) .145" to
(6.35 mm) .250"
Max Cycles:
100 with 10 μ" (0.25 μm) Au
Voltage Rating:
465 VAC / 655 VDC

PROCESSING

Lead–Free Solderable:
Yes
SMT Lead Coplanarity:
.025” SQ POST SOCKET

ALSO AVAILABLE

MOQ Required
Notch option

**ALSO AVAILABLE**

MOQ Required

Other platings

Note:
Some lengths, styles and options are non-standard, non-returnable.
**SSM**

**- NO. PINS PER ROW**

<table>
<thead>
<tr>
<th>SSM</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 thru 36</td>
<td>02 thru 40</td>
</tr>
</tbody>
</table>

**- PLATING OPTION**

<table>
<thead>
<tr>
<th>02 thru 36</th>
<th>02 thru 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>= Gold flash on contact, Matte Tin on tail</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>= 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>= 30 µ&quot; (0.76 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
</tr>
</tbody>
</table>

**- ROW OPTION**

<table>
<thead>
<tr>
<th>02 thru 36</th>
<th>02 thru 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV</td>
<td>SV</td>
</tr>
<tr>
<td>= Single Row Vertical Pin</td>
<td></td>
</tr>
<tr>
<td>DV</td>
<td>DV</td>
</tr>
<tr>
<td>= Double Row Vertical Pin</td>
<td></td>
</tr>
<tr>
<td>SH</td>
<td>SH</td>
</tr>
<tr>
<td>= Single Row Horizontal Pin</td>
<td></td>
</tr>
<tr>
<td>DH</td>
<td>DH</td>
</tr>
<tr>
<td>= Double Row Horizontal Pin</td>
<td></td>
</tr>
</tbody>
</table>

**- OTHER OPTION**

<table>
<thead>
<tr>
<th>02 thru 36</th>
<th>02 thru 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;XXX&quot;</td>
<td>&quot;XXX&quot;</td>
</tr>
<tr>
<td>= Polarized Position (–BE not available)</td>
<td></td>
</tr>
<tr>
<td>BE</td>
<td>BE</td>
</tr>
<tr>
<td>= Bottom Entry (–DV &amp; –SV only)</td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>LC</td>
</tr>
<tr>
<td>= Locking Clip (–DV &amp; –SV only) Contact Samtec for –DH &amp; –SH</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>K</td>
</tr>
<tr>
<td>= (6.50 mm) .256&quot; DIA Polyimide film Pick &amp; Place Pad (2 positions min.) –DV &amp; –SV only</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>= Metal Pick &amp; Place Pad (5 positions min.) –DV only</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>= Plastic Pick &amp; Place Pad (–DV &amp; –SV only) (6 positions min. Contact Samtec for availability on smaller positions)</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>TR</td>
</tr>
<tr>
<td>= Tape &amp; Reel (29 positions max.)</td>
<td></td>
</tr>
<tr>
<td>FR</td>
<td>FR</td>
</tr>
<tr>
<td>= Full Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (29 positions max.)</td>
<td></td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

**- Insulator Material:** Black Liquid Crystal Polymer

**- Contact Material:** Phosphor Bronze

**- Plating:** Au or Sn over 50 µ" (1.27 µm) Ni

**- Voltage Rating:** 405 VAC / 572 VDC

**- Operating Temp Range:** -55 °C to +125 °C with Gold

**- Insertion Depth:** SV/DV = (4.34 mm) .171" to (7.24 mm) .285" or pass-through from top; (5.56 mm) .219" plus board thickness minimum from bottom; SH/DH = (4.34 mm) .171" to (6.35 mm) .250"

**- Normal Force:** 125 grams (1.21 N) average

**PROCESSING**

**- Lead–Free Solderable:** Yes

**-–DH Coplanarity:** Less than 28 positions (0.15 mm) .006" max*

**- More than 27 positions (0.20 mm) .008" max**

**-–SH, –SV, –DV Coplanarity:** (0.15 mm) .006" max*

**- *0.04" stencil solution may be available; contact IPG@samtec.com**

**ALSO AVAILABLE**

**Alignment pin (MOQ Required)**

**TIGER CLAW™ SURFACE MOUNT SOCKET**

(2.54 mm) .100" PITCH • SSM SERIES

**EXTENDED LIFE PRODUCT**

10 YEAR MFG WITH 30 µ" GOLD

HIGH MATING CYCLES

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**samtec.com?SSM**

F-221
**SPECIFICATIONS**

**PROCESSING**

- **Leads-Free Solderable:**
  - No, Lead Wave only

- **Leads-Free Solderable Options:**
  - **S**
  - **D**
  - **T** (ESQ only)

**APPLICATIONS**

- **Self Nesting Sockets**
  - **PC/104™ J1/P1 “Stackthrough” Connectors**
  - **PC/104™ J1 “Non-Stackthrough” Connectors**
  - **PC/104™ J2/P2 “Stackthrough” Connectors**

**ESW/ESQ**

- **Mates:**
  - TSW, MTSW, EW, MTLW, TSS, ZSS, TSM, DW, ZW, HW, TSSH, HTSS

- **Insulator Material:**
  - Black Glass Filled Polyester

- **Contact Material:**
  - Phosphor Bronze

- **Plating Options:**
  - Au or Sn over 50 µ" (1.27 µm) Ni

- **Current Rating (ESW/TSW):**
  - 5.2 A per pin (2 pins powered)

- **Current Rating (ESQ/TSW):**
  - 5.7 A per pin (2 pins powered)

- **Voltage Rating:**
  - 550 VAC mated with TSW or ESQ

- **Operating Temp Range:**
  - -55 °C to +125 °C with Gold
  - -55 °C to +105 °C with Tin

- **Insertion Depth:**
  - (3.68 mm) .145” to (6.35 mm) .250”

- **Normal Force:**
  - Standard = 125 grams (4.4 N)

- **Max Cycles:**
  - 100 with 10 µ" (0.25 µm) Au Glue

**Also Available**

- **Other Plating Options:**
  - (MOQ Required)

**Note:**

Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
COST-EFFECTIVE RELIABLE SOCKET

(2.54 mm) .100" PITCH • HLE SERIES

HLE
Board Mates:
TSW, MTSW, DW, EW, ZW, TLW, TSM, MTLW, HW

<table>
<thead>
<tr>
<th>HLE</th>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>TAIL OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>02 thru 50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **F** = Gold flash on contact, Matte Tin on tail
- **L** = 10 µ" (0.25 µm) Gold on contact, Matte Tin on tail
- **BE** = Bottom Entry (Not available with –TE)
- **A** = Alignment Pin (4 positions min.) Metal or plastic at Samtec discretion (Not available with -TE, -PE & -LC)
- **TE** = Through-hole Top Entry
- **PE** = Through-hole Pass-through Entry (Requires –BE for Bottom Entry)
- **–LC** = Locking Clip (2 positions min.) (Not available with -A) (Manual placement required)
- **–K** = (6.50 mm) .256" DIA Polyimide Film Pick & Place Pad (3 positions min.) Not available with –TE or –PE tail option
- **–P** = Metal Pick & Place Pad (3 positions min.)
- **–TR** = Tape & Reel (29 positions max.)
- **–FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SPECIFICATIONS**
- Insulator Material: Black Liquid Crystal Polymer
- Contact Material: BeCu
- Plating: Au or Sn over 50 µ" (1.27 µm) Ni
- Current Rating (HLE/TSM): 4.1 A per pin
- Voltage Rating: 400 VAC
- Operating Temp Range: -55 °C to +125 °C
- Insertion Depth:
  - (1.78 mm) .070" to (3.43 mm) .135" pass-through, or (2.59 mm) .102" min plus board thickness for bottom entry

**PROCESSING**
- Lead–Free Solderable: Yes
- SMT Lead Coplanarity:
  - (0.10 mm) .004" max (02-20)
  - (0.15 mm) .006" max (21-50)*
- * .004" stencil solution may be available; contact IPG@samtec.com

**ALSO AVAILABLE**
Other Platings (MOQ Required)

---

Note:
Some lengths, styles and options are non-standard, non-returnable.

---

samtec.com?HLE

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
# BCS Technical Specifications

## BCS Mates:
- TSW, MTSW, HTSW, HMTSW, TSS, ZSS, DW, EW, 2W, HW, TSM, MTLW, PHT

## Specifications:

<table>
<thead>
<tr>
<th>Insulator Material:</th>
<th>Black Liquid Crystal Polymer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Material:</td>
<td>Phosphor Bronze</td>
</tr>
<tr>
<td>Plating:</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
</tr>
<tr>
<td>Current Rating (BCS/TSW):</td>
<td>4.6 A per pin (2 pins powered)</td>
</tr>
<tr>
<td>Voltage Rating:</td>
<td>475 VAC (-TE/-DE/-PE mated with TSM)</td>
</tr>
<tr>
<td></td>
<td>450 VAC (-HE mated with TSW)</td>
</tr>
<tr>
<td>Operating Temp Range:</td>
<td>-55 °C to +125 °C</td>
</tr>
<tr>
<td>Insertion Depth:</td>
<td>(4.34 mm) .171” to (6.35 mm) .250”</td>
</tr>
</tbody>
</table>

## PROCESSING:

- **Lead-Free Solderable:** Yes

## ALSO AVAILABLE:

- **Other Platings:** (MOQ Required)

## Note:

Some lengths, styles and options are non-standard, non-returnable.

---

**SAMTEC.COM/BCS**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
BOTTOM MOUNT SOCKET STRIPS
(2.54 mm) .100" PITCH • BSW SERIES

BSW
Mates:
TSW, MTSW, HTSW, MTLW, TSM, EW, ZW, HW, DW, PHT

FEATURES
• Bottom mount socket strips accept .025” SQ terminals.
• Ideal for soldering and plugging from the same side of the board.
• For low-profile connections and high temperature soldering.

SPECIFICATIONS
Insulator Material:
Black Thermoplastic
Insulation Resistance:
5000 MW min
Contact Material:
Phosphor Bronze
Plating:
Au or Sn over 50 µ” (1.27 µm) Ni
Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin
Withstanding Voltage:
1000 VRMS @ 60 Hz
Insertion Depth:
(3.68 mm) .145” to (6.35 mm) .250”

PROCESSING
Lead-Free Solderable:
Wave only

ALSO AVAILABLE
Other Plating
(MOQ Required)

APPLICATIONS

Note:
Some lengths, styles and options are non-standard, non-returnable.

samtec.com?BSW

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
LOW-PROFILE SOCKET STRIPS
(2.54 mm) .100" PITCH • SLW/CES SERIES

SLW
Mates:
TLW, TSW, MTLW, MTSW, HW, EW, ZW, HTSW, HMTSW, TSM

Ces
Mates:
TLW, TSW, MTLW, MTSW, HW, EW, ZW, DW, HTSW, PHT, HMTSW

SPECIFICATIONS
Insulator Material:
Black G.F. Polyester
Contact Material:
Phosphor Bronze
Plating:
Au or Sn over
50 µ" (1.27 µm) Ni
SLW Current Rating (SLW/TSW):
5.2 A per pin
(2 pins powered)
CES Current Rating (TSW/CES):
5.5 A per pin
(2 pins powered)
Voltage Rating:
SLW: 406 VAC
CES: 400 VAC
Operating Temp Range:
-55 °C to +125 °C with Gold
-55 °C to +105 °C with Tin
Insertion Depth:
SLW: (2.16 mm) .085" to
(2.92 mm) .115"
CES: (2.62 mm) .103" to
(4.06 mm) .160"
Lead-Free Solderable:
No, Lead Wave only

PROCESSING
Lead-Free Solderable:
No, Lead Wave only

ALSO AVAILABLE
Other Plating
(MOQ Required)

Note:
Some lengths, styles and options are non-standard, non-returnable.

samtec.com?SLW or samtec.com?CES

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
SHUNTS & JUMPERS

(2.54 mm) .100” PITCH • SNT/MNT/2SN/SNM/PK/JL SERIES

SNT/MNT
Mates:
TSW, HTSW, MTSW, HMTSW, TLW, DW, EW, 2W, HW, TSM, BST, PHT

2SN
Mates:
TMMH, TMM, MTMM, MMT, TW, LTMM, ZTMM, TSH, EHT

SNM
Mates:
TMS, MTMS, DWM

SPECIFICATIONS

SNT
Insulator Material:
Glass Filled Polyester
Contact Material:
Phosphor Bronze
Current Rating (SNT/TSW):
4.3 A per pin (1 pin powered per row)
Operating Temp Range:
-55 °C to +125 °C
Insertion Depth:
(4.32 mm) .170” minimum
Lead Size accepted:
(0.64 mm) .025” SQ

MNT
Same as SNT except:
Current Rating (MNT/TSM):
3.9 A per pin (1 pin powered per row)
Working Voltage:
450 VAC

2SN
Same as SNT except:
Insertion Depth:
(2.29 mm) .090” minimum
Lead Size accepted:
(0.51 mm) .020” SQ

SNM
Same as SNT except:
Insertion Depth:
(3.43 mm) .135” minimum
Max Processing Temp:
Not recommended for IR/VP

PART NO. A B
JL–100–25–T (2.54) .100
JL–250–25–T (6.35) .250
JL–400–25–T (10.16) .400

Note:
For complete specifications see www.samtec.com?JL

PK
Insulator Material:
Natural Thermoplastic
Note:
Order per wheel.
6 pins per wheel.

PART NO. A B
PK–01–06 (0.64) .025 3.80
PK–01–07 (0.64) .025 3.80

PART NO.
2SN-BK-G
SNM-100-BK-G

Note:
Other Gold plating options available.

Note:
Some lengths, styles and options are non-standard, non-returnable.
IDC/FLAT FLEXIBLE CABLE SYSTEMS

TIGER EYE™ CONTACTS • MULTIPLE PITCHES • LOW PROFILE • SHROUDED EJECTOR TERMINALS

FLEX JUMPERS

0.50 mm (.0197") Pitch FFC Jumper & Sockets (FJH, ZF5S) ................................................................. 294
1.00 mm (.0394") Pitch FFC Jumper & Sockets (FJ, ZF1, FC1) ............................................................. 295

IDC ASSEMBLIES AND HEADERS

.100" (2.54 mm) Pitch (IDSX, IDMX, EJH, TST, HTST, ZST) .............................................................. 296-299
2.00 mm (.0787") Pitch (TCSD, TCMD, EHT, EC2, STMM, ZSTMM, ETMM) .......................................... 300-303
.050" (1.27 mm) Pitch (FFSD, FFMD, FFTP, FMTP, EHF, SHF, ESHF) .................................................... 304-307
FLAT FLEXIBLE CABLE (FFC) JUMPER & SOCKET

(0.50 mm) .0197" PITCH • FJH/ZF5S SERIES

FJH
Mates: ZF5S

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>STYLE</th>
<th>LENGTH</th>
<th>STRIP LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>–10, –15, –20, –25, –30, –40, –43, –50</td>
<td>D</td>
<td>03.00</td>
<td>–4</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>06.00</td>
<td>–4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.00</td>
<td>–4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24.00</td>
<td>–4</td>
</tr>
</tbody>
</table>

= Double End
= Reversed End
= Length in inches
= (4.00 mm) .157"

Notes:
Stiffener color will be blue or black at Samtec’s discretion. Some sizes, styles and options are non-standard, non-returnable.

ZF5S
Mates: FJH

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>WT</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-TR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-FR</td>
</tr>
</tbody>
</table>
# FLAT FLEXIBLE CABLE (FCC) JUMPER & SOCKET

## FJ
Mates:
* FC1, ZF1

## ZF1/FC1
Mates:
* FJ

### SPECIFICATIONS

#### FJ
- **Conductor:** Tin Plated Copper
- **Conductor Resistance:** 300 Ω/ft max
- **Insulation Resistance:** 10 MΩ/km min (conductor-to-conductor)
- **Dielectric Test:** 400 VAC during 1 minute (conductor-to-conductor)
- **Temperature Rating:** -30 °C to +80 °C
- **Voltage Rating:** 300 VAC

#### ZF1
- **Insulator Material:** Liquid Crystal Polymer
- **Contact Material:** Phosphor Bronze
- **Plating:** Sn over 40 µ" (1.02 µm) Ni
- **Operating Temp Range:** -35 °C to +105 °C

#### FC1
- **Insulator Material:** Liquid Crystal Polymer
- **Contact Material:** Phosphor Bronze
- **Plating:** Sn over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -35 °C to +105 °C
- **Max Cycles:** 25 with FJ

### PROCESSING

#### ZF1/FC1
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:** (0.10 mm) .004" max

### Notes:
- FJ Stiffener color will be blue or black at Samtec's discretion.
- Some sizes, styles and options are non-standard, non-returnable.

### FLAT FLEXIBLE CABLE (FCC) JUMPER & SOCKET

(1.00 mm) .0394" PITCH • FJ/ZF1/FC1 SERIES

<table>
<thead>
<tr>
<th>FJ NO. OF POSITIONS</th>
<th>STYLE</th>
<th>LENGTH</th>
<th>STRIP LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>–05, –10, –15, –20, –25, –30</td>
<td>–D = Double End</td>
<td>–03.00 = (76.2 mm) 3.00&quot;</td>
<td>–4 = (4.00 mm) .157&quot;</td>
</tr>
<tr>
<td></td>
<td>–R = Reversed End</td>
<td>–06.00 = (152.4 mm) 6.00&quot;</td>
<td>(Required for mating with FC1 &amp; ZF1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>–12.00 = (304.8 mm) 12.00&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>–24.00 = (609.6 mm) 24.00&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ZF1 NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>WT</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–02 = Contact Top (10 positions only)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FC1 NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>WT</th>
<th>OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>–02 = Horizontal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

samtec.com?FJ, samtec.com?ZF1 or samtec.com?FC1

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**SLIM BODY FLAT RIBBON IDC CABLES**

(2.54 mm) .100" PITCH • IDSS/IDSD/IDMS/IDMD SERIES

### IDSS/IDMS/IDMD

**Mates:**
- TSW, MTSW, TSM, EJH, PHT, HMTSW, HTSW, HW, DW, EW, ZW, MTLW

**IDSD**
- TST, HTST, ZST, BST, EJH

### SPECIFICATIONS

- **Insulator Material:** Black Glass Filled Polyester
- **Contact (IDSS/IDSD):** BeCu
- **Terminal (IDMS/IDMD):** Phosphor Bronze
- **Plating:**
  - Au over 50 μ" (1.27 μm) Ni or Sn over 100 μ" (2.54 μm) Cu or 50 μ" (1.27 μm) Ni
- **Wire:** 28 AWG 7/36 stranded Tinned Copper
- **Current Rating (IDSS/TST):**
  - 3.4 A per pin (2 pins powered)
- **Current Rating (IDMS):**
  - 3 A per pin (2 pins powered)
- **Temperature Range:**
  - -20 °C to +105 °C (Rainbow Cable)
  - -40 °C to +105 °C (Gray Cable)
- **Voltage Rating:** 425 VAC/600 VDC
- **Lead Size Range:** (0.56 mm) .022” SQ to (0.71 mm) .028” SQ
- **Lead Insertion Depth:** (5.59 mm) .220” to (6.22 mm) .245”

### ALSO AVAILABLE

Molded-To-Position IDC Assembles
- Low Profile
- Skinny side locks
- Dual beam contacts
- Single and double row
  - (6.35mm) .025” square and (5.84mm) .230” length tail available

**Note:**
This Series is non-standard, non-returnable.

---

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ROW OPTION</th>
<th>NO. PINS PER ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDM</td>
<td>S</td>
<td>-02 thru –32</td>
</tr>
<tr>
<td>IDS</td>
<td>D</td>
<td>= IDMS/IDMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-02 thru –36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>= IDSS/IDSD</td>
</tr>
</tbody>
</table>

IDMX shown

IDSSX shown

---


Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### END ASSEMBLY

- **S** = Single End  
  (Socket or Male Plug on one end)

- **D** = Double End  
  (Socket or Male Plug on each end)

- **T** = Transfer End  
  (Male Plug on one end with socket on other. Begin part number with IDM)

### ASSEMBLED LENGTH

- **“XX.XX”** = Assembled Length

### OPTION

- **-T** = Tin Plating  
  (Both Ends)

- **-C** = Tin IDM,  
  10 µ (0.25 µm) Gold IDS  
  (T End Assembly Required)

- **-A** = Tin IDS,  
  10 µ (0.25 µm) Gold IDM  
  (-T End Assembly Required)

- **-P “XX”** = Polarized  
  Specify “XX” as position.  
  For Double the same position  
  will be polarized on both ends.  
  (Not available on IDM unless transfer,  
  then only the socket is polarized.)

- **-G** = Gray Cable  
  Specify –G for Gray cable.  
  Gray cable has one red edge.  
  IDSS and IDMS uses  
  (2.54 mm) .100” centerline cable.  
  IDSD and IDMD uses  
  (1.27 mm) .050” centerline cable.  
  Cable is 28 AWG 7/36 copper wire.  
  Standard cable is same as  
  above except color

- **ST “X”** = Stripped & Tinned  
  (Specify Suffix from table)  
  (All dimensions are ± 1/16” (1.59 mm)  
  (Not available in 28 positions and higher)

### Breakout

- **-B “XX”** = Breakout  
  (Specify “XX” as number of  
  conductors to be broken out)  
  (Breakout starts with Number 1 lead  
  indicated by brown wire or red stripe.  
  Shown on top side)

- **-RW** = Reversed Wiring  
  (#1 wire opposite position #1)

- **-S “XX”** = Daisy Chain, Single  
  (When mating double row connector with two single row  
  connectors, the outer most single will  
  be connected to Conductor #1 and  
  the inside single to Conductor #2)

- **-D “XX”** = Daisy Chain, Double  
  (Requires –SXX, –WXX or –DXX)

- **-W “XX”** = Wiring Reverse Daisy Chain, Single  
  (Same as –S “XX” except outer strip  
  connected to Conductor #2 and inside  
  strip connected to Conductor #1)

- **-R** = Reverse  
  (Requires –SXX, –WXX or –DXX)

- **-M** = Middle Reverse  
  (Requires –SXX, –WXX or –DXX)

- **-O** = Outside Reverse  
  (Requires –SXX, –WXX or –DXX)

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### SHROUDED IDC EJECTOR HEADERS

**EJH Series**

#### Specifications

**Mates:**
- IDSD (EJH-01 Required), HCSD (EJH-02 Required)

**Insulator Material:**
- 01 = Black LCP
- 02 = Natural LCP

**Terminal Material:**
Phosphor Bronze

**Plating:**
- Sn or Au over 50 µ" (1.27 µm) Ni

**Operating Temp Range:**
- 55 °C to +125 °C

**Lead–Free Solderable:**
- Yes

**SMT Lead Coplanarity:**
- 0.10 mm, .004" max

**Process:**
- Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SHROUDED IDC EJECTOR HEADERS**

**2.54 mm .100" Pitch • EJH Series**

<table>
<thead>
<tr>
<th>EJH</th>
<th>1</th>
<th>NO. PINS PER ROW</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>TAIL OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>05, 07, 08, 10, 13, 15, 17, 20, 25 (Standard sizes)</td>
<td>01 = Standard (Mates to IDSD)</td>
<td>F = Gold flash on post, Matte Tin on tail</td>
<td>SM = Surface Mount</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02 = Extended (Mates to HCSD)</td>
<td>L = 10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>TH = Through-hole</td>
</tr>
</tbody>
</table>

#### Other Options
- LC = Locking Clip (–SM only) (Manual placement required)
- F = Gold flash on post, Matte Tin on tail
- SM = Surface Mount
- SC = Polarity

#### Process

- Lead–Free Solderable: Yes
- SMT Lead Coplanarity: 0.10 mm, .004" max

### Processing

- Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

### Also Available

Other sizes
Other platings

### Note

Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

http://www.samtec.com?EJH

---

---
**SERIES**

- **TST** = Cable Strip
- **HTST** = High Temp Cable Strip

**Specifications**

**Insulator Material:**
- TST, ZST = Black Glass Filled Polyester
- HTST = Natural LCP

**Insulation Resistance:**
- Minimum: 5000 MΩ

**Current Rating (IDSD/TST):**
- 3.4 A per pin

**Operating Temp Range:**
- -55 °C to +125 °C with Gold
- -55 °C to +105 °C with Tin

**Voltage Rating:**
- 425 VAC/600 VDC

**Other**

- **Surface Mount** (lead style –01 only)
- **Pick & Place Pad**
- **Tape & Reel**
- **Full Reel** Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**PROCESSING**

**Lead–Free Solderable:**
- HTST = Yes
- TST, ZST = No, Lead Wave only

**SMT Lead Coplanarity:**
- (0.10 mm) .004" max (05-15)
- (0.15 mm) .006" max (17-36)*

* (.004" stencil solution may be available; contact ipg@samtec.com)

**Also Available**

- MOQ Required

**Other Platings & Sizes**

- Alignment Pins
- Single Row
- Locking Leads
- Polarized

**Note:**
- Some lengths, styles and options are non-standard, non-returnable. ZST is non-standard, non-returnable.

**Note:**
- For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.
TCSD
Mates:
TMM, TMMH, STMM, MMT, TW, MTMM, EHT, ETMM (—SR), ZSTMM

SERIES
TCSD = Socket Strip

NO. PINS PER ROW
-04, -05, -07, -08, -10, -12, -13, -15, -17, -20, -22, -25 (Standard sizes)

END OPTION
- S = Single End
- D = Double End

OVERALL LENGTH
- “XX.XX” = Assembled Length

PLATING OPTION
- N = Notch Polarization
- P "XX" = Position Polarization (Specify "XX" as position number. Same position will be polarized on both ends)
- F = Gold flash on contact

OTHER OPTION
- B "XX" = Breakout (Specify "XX" as number of conductors to be broken out)
- RW = Reverse Wiring (Blue or black wire opposite position #1)
- D "XX" = Daisy Chain
- SR = Strain Relief (Not available with —O, —M, —R, —DXX or —BXX)
- R = Reverse
- M = Middle Reverse (Requires —DXX)
- O = Outside Reverse (Requires —DXX)

SPECIFICATIONS
Insulator Material:
Black Glass Filled Polyester
Contact:
BeCu
Plating:
Au or Sn over 50 µ" (1.27 µm) Ni
Wire:
28 AWG 7/36 Stranded, Tinned, Copper with Gray PVC Insulator
Current Rating (TCSD/STMM):
2.8 A per pin (2 pins powered)
Operating Temp Range:
-40 °C to +105 °C
Lead Size Accepted:
(0.48 mm) .019" to (0.53 mm) .021"
Insertion Depth:
(2.87 mm) .113" to (3.17 mm) .125"

ALSO AVAILABLE
MOQ Required
Other sizes
Other platings

POLARIZING KEY
Specify PK-01-07 for polarizing key (Available in wheels of six each). Also polarizes SMM Series socket strips.
**SERIES**

- **NO. PINS PER ROW**
  - TCMD = Terminal Strip
  - -04, -05, -07, -08, -10, -12, -13, -15, -17, -20, -22, -25
  (Standard sizes)

- **END OPTION**
  - -S = Single End
  - -D = Double End
  - -T = Transfer End

- **OVERALL LENGTH**
  - -“XX.XX” = Assembled Length

- **01**

- **TRANSFER OPTION**
  - Leave blank for -S and -D End Options. For -T End Option Specify -N
  (Socket has notch polarization)

- **OTHER OPTION**
  - -P “XX” = Position Polarization
    (Specify “XX” as position number. Requires Transfer End. Only Socket is polarized.)
  - -B “XX” = Breakout
    (Specify “XX” as number of conductors to be broken out)
  - -RW = Reverse Wiring
    (Blue or black wire opposite position #1)
  - -D “XX” = Daisy Chain
  - -SR = Strain Relief
    (Not available with -O, -M, -R, -DXX or -BXX)
  - -R = Reverse
  - -M = Middle Reverse
    (Requires -DXX)
  - -O = Outside Reverse
    (Requires -DXX)

**SPECIFICATIONS**

- **Insulator Material:** Black Glass Filled Polyester
- **Terminal:** Phosphor Bronze
- **Plating:** Au or Sn over 50 μ” (1.27 μm) Ni
- **Wire:** 28 AWG 7/36 Stranded, Tinned, Copper with Gray PVC Insulator
- **Current Rating:** 2.6 A per pin (2 pins powered)
- **Operating Temp Range:** -40 °C to +105 °C

**ALSO AVAILABLE**

- **Single End (–S)**
- **Double End (–D)**
- **Transfer End (–T)**
- **Reverse Wiring (–RW)**
- **Breakout Start (–B “XX”)**
- **Breakout (–B “XX”)**
- **Reverse (–R)**
- **Middle Reverse (–M)**
- **Outside Reverse (–O)**

**Note:**

- Standard TCMD callout will not mate with SMM, MMS. Must use gold plated callouts. (See drawing on web.) When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.
- TCMD Series assemblies are non-standard, non-returnable.

**TCMD**

- **Mates:**
  - SMM*, MMS*, ESQT, PTF, SQT, SQW, TLE

**TCMD Mates:**

- **TCMD**
  - Terminal Strip
  - -04, -05, -07, -08, -10, -12, -13, -15, -17, -20, -22, -25
  (Standard sizes)

- **NO. PINS PER ROW**
  - -S = Single End
  - -D = Double End
  - -T = Transfer End

- **01**

- **TRANSFER OPTION**
  - Leave blank for -S and -D End Options. For -T End Option Specify -N
  (Socket has notch polarization)

- **OTHER OPTION**
  - -P “XX” = Position Polarization
    (Specify “XX” as position number. Requires Transfer End. Only Socket is polarized.)
  - -B “XX” = Breakout
    (Specify “XX” as number of conductors to be broken out)
  - -RW = Reverse Wiring
    (Blue or black wire opposite position #1)
  - -D “XX” = Daisy Chain
  - -SR = Strain Relief
    (Not available with -O, -M, -R, -DXX or -BXX)
  - -R = Reverse
  - -M = Middle Reverse
    (Requires -DXX)
  - -O = Outside Reverse
    (Requires -DXX)
# Shrouded IDC Headers

## ETMM/EHT Series

<table>
<thead>
<tr>
<th>Type Strip</th>
<th>No. Pins Per Row</th>
<th>Plating Option</th>
<th>Tail Option</th>
<th>Other Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETMM</td>
<td>05, 08, 10, 12, 13, 15, 17, 20, 22, 25</td>
<td>F = Gold Flash on post, Matte Tin on tail</td>
<td>TH = Through-hole</td>
<td>“XX” = Polarized Position</td>
</tr>
<tr>
<td>EHT</td>
<td>05, 08, 10, 12, 13, 15, 17, 20, 22, 25</td>
<td>F = Gold Flash on post, Matte Tin on tail</td>
<td>RA = Right-angle</td>
<td>SR = Strain Relief</td>
</tr>
</tbody>
</table>

### Specifications
- **Insulator Material:** Black Liquid Crystal Polymer
- **Terminal Material:** Phosphor Bronze
- **Plating:** Sn or Au over 50 µ" (1.27 µm) Ni
- **Operating Temp Range:** -55 °C to +125 °C

### Processing
- **Lead-Free Solderable:** Yes
- **SMT Lead Coplanarity:**
  - EHT = (0.10 mm) .004" max
  - ETMM = (0.13 mm) .005" max * (.004" stencil solution may be available; contact IPG@samtec.com)

### Ejector Header Cap
- The EC2 locks TCSD cable to EHT header. See samtec.com/EC2 for information about the header cap.

---

**Note:** Some lengths, styles and options are non-standard, non-returnable.

---

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**FLEX STACK**

**SHROUDED IDC HEADER & STACKER**

(2.00 mm) .0787” PITCH • STMM/ZSTMM SERIES

### SPECIFICATIONS

**Insulator Material:**
Black Liquid Crystal Polymer

**Terminal Material:**
Phosphor Bronze

**Plating:**
Sn or Au over 50 µ" (1.27 µm) Ni

**Operating Temp Range:**
-55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

### PROCESSING

**Lead-Free Solderable:**
Yes

**SMT Lead Coplanarity:**
(0.10 mm) .004” max

### Mates:
TCSD (except –SR)

### ALSO AVAILABLE MOQ Required

Other sizes
Other platings

### NOTES:
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

samtec.com?STMM or samtec.com?ZSTMM

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
**SERIES**

<table>
<thead>
<tr>
<th>FFSD Mates:</th>
<th>FTSH, EHF, SHF, ESHF</th>
</tr>
</thead>
</table>

**SPECIFICATIONS**

- **Insulator Material:** PBT
- **Contact:** BeCu
- **Plating:** 10 µ" (0.25 µm) Au over 50 µ" (1.27 µm) Ni on contact area; Sn over 50 µ" (1.27 µm) Ni on balance
- **Wire:** 30 AWG
- **Current Rating (FFSD/FTSH):** 2.3 A per pin (2 pins powered)
- **Operating Temp Range:** -40 °C to +105 °C
- **Lead Size Accepted:** (0.41 mm) .016” SQ
- **Insertion Depth:** (2.64 mm) .104” to (3.17 mm) .125”

**Additional Information:**

- Reverse Wiring (—RW)
- Single End (—S)
- Double End (—D)
- Daisy Chain (—D “XX”)
- Strain Relief (—SR)
- Middle Reverse (—M)
- Reverse (—R)
- Outside Reverse (—O)

**Note:** This Series is non-standard, non-returnable.

**FFSD Mates:**

- FTSH, EHF, SHF, ESHF

**Other Sizes** (MOQ Required)

**Also Available:**

TIGER EYE™ FLAT IDC WIRE CABLES

(1.27 mm) .050” PITCH • FFSD SERIES

** samtec.com/FFSD **

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
TIGER EYE™ FLAT IDC WIRE CABLES

(1.27 mm) .050" PITCH • FFMD SERIES

**FFMD**

**Mates:**
- FLE*, SFMC*

**TRANSFER END**

**Mates:**
- FTS, FTSH, EHF, SHF, ESHF

---

**SPECIFICATIONS**

- **Insulator Material:** PBT
- **Terminal:** Phosphor Bronze
- **Contact:** BeCu (-T)
- **Plating:** Sn over 50 µ" (1.27 µm) Ni
- **Wire:** 30 AWG
- **Current Rating:** 2.5 A per pin (2 pins powered)
- **Operating Temp Range:** -40 °C to +105 °C
- **Voltage Rating:** 215 VAC / 304 VDC

---

**ALSO AVAILABLE**

Other sizes (MOQ Required)

---

*Note:
- Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.) When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.

**Note:**
- This Series is non-standard, non-returnable.

---

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>END OPTION</th>
<th>OVERALL LENGTH</th>
<th>TRANSFER OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFMD</td>
<td>Terminal Strip</td>
<td>-S</td>
<td>-“XX.XX”</td>
<td>Leave blank for -S and -D End Options.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-D</td>
<td></td>
<td>-N Notch Polarization on socket (-T end only) (Not available with -04 position)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-T</td>
<td></td>
<td>-D “XX” Daisy Chain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-SR Strain Relief (Mates only with ESHF Series) (Not available with -O, -M, -R or -DXX)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-R Reverse</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-M Middle Reverse (Requires –DXX)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-O Outside Reverse (Requires –DXX)</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:** Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.) When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.

---

**Note:**
- This Series is non-standard, non-returnable.

---

**samtec.com?FFMD**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
SHROUDED AND EJECTOR IDC HEADER

(1.27 mm) .050" PITCH • SHF/ESHF/EHF SERIES

**SHF/ESHF**
Mates:
FFSD, FFTP (SHF)

**EHF**
Mates:
FFSD*, FFTP

*Important Note:
EHF will not mate to FFSD with strain relief (-SR option), see ESHF series.

**SPECIFICATIONS**
Insulator Material:
Black Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Sn or Au over 50 µ" (1.27 µm) Ni
Operating Temp Range:
-55 °C to +125 °C

**PROCESSING**
Lead–Free Solderable:
Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max

**EJECTOR HEADER CAP**
See samtec.com?ECF for Header cap.
(Locks FFSD cable to EHF header)

Notes:
Some lengths, styles and options are non-standard, non-returnable.

---

**SERIES**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. PINS PER ROW</th>
<th>PLATING OPTION</th>
<th>TAIL OPTION</th>
<th>OTHER OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHF</td>
<td>04, 05, 06, 08, 10, 11, 12, 13, 15, 17, 20, 25</td>
<td>L = 10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>-TH = Through-hole</td>
<td>-LC = Locking Clip (Not available with –RA)</td>
</tr>
<tr>
<td>ESHF</td>
<td></td>
<td>-L = 10 µ&quot; (0.25 µm) Gold on post, Matte Tin on tail</td>
<td>-RA = Right-angle</td>
<td>-SM = Surface Mount</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-SM = Surface Mount</td>
<td>-SM = Surface Mount</td>
<td>-K = (6.50 mm) 256&quot; DIA Polyimide Film Pick &amp; Place Pad (-SM only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE STRIP</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHF</td>
<td>No. of pins x (1.27) .050 + (6.35) .250</td>
</tr>
<tr>
<td>ESHF</td>
<td>No. of pins x (1.27) .050 + (10.16) .400</td>
</tr>
</tbody>
</table>

---

**No. of positions x**

<table>
<thead>
<tr>
<th>TYPE STRIP</th>
<th>No. of positions x (1.27) .050 + (6.35) .250</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHF</td>
<td></td>
</tr>
<tr>
<td>ESHF</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**
Some lengths, styles and options are non-standard, non-returnable.
**FFTP**

**Mates:**
FTS, FTSH, EHF, SHF

**FMTP**

**Mates:**
FLE*, SFMC*

---

**SPECIFICATIONS**

- **Insulator Material:** PBT
- **Contact:** FFTP=BeCu
- **Terminal:** FMPT=Phosphor Bronze
- **Plating (FFTP):**
  - FFTP=10 µ" (0.25 µm)
  - Au over 50 µ" (1.27 µm) Ni on contact area; Sn over 50 µ" (1.27 µm) Ni
- **FMPT=Sn over 50 µ" (1.27 µm) Ni on balance**
- **Wire:** 30 AWG 7/38, Tinned, Twisted Pair with PVC insulator
- **Operating Temp Range:** -40 °C to +105 °C
- **Lead Size Accepted:** (0.41 mm) .016” SQ
- **Insertion Depth (FFTP):**
  - FFTP=(2.64 mm) .104" to (3.17 mm) .125"

---

**ALSO AVAILABLE**

Other sizes (MOQ Required)

---

**Note:**
- Standard FMTP callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)
- When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.
- **This Series is non-standard, non-returnable.**

---

*

**Note:**
- Standard FMTP callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)
- When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.
- **Note:**
- This Series is non-standard, non-returnable.
INDUSTRY STANDARDS

PRODUCT SUPPORT & EXPERTISE

Samtec provides products that interact with many types of hardware and software. This drives our need to adhere to a variety of Industry Standards. The majority of Industry Standards we engage with address the following:

- Interconnection (cables & connectors)
- Sub-systems (typically daughter or carrier cards, which include functional compliance specifications defining electro-mechanicals and mechanicals)
- Transmission protocols (primarily software and firmware defining machine language to allow communication)
- Hardware (physical electro-mechanical devices)

Visit samtec.com/standards to learn more or contact standards@samtec.com to discuss your application.

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>PRODUCT</th>
<th>SERIES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VITA 42 XMC</td>
<td>SamArray®</td>
<td>YFS/YFT, JSOM</td>
<td>Contact Samtec.</td>
</tr>
<tr>
<td>VITA 57.1 FMC</td>
<td>SEARAY™</td>
<td>SEAM/SEAF, JSOM</td>
<td>23</td>
</tr>
<tr>
<td>VITA 57.4 FMC+</td>
<td>SEARAY™</td>
<td>SEAM/SEAF, JSOM</td>
<td>23</td>
</tr>
<tr>
<td>VITA 74 VNX</td>
<td>SEARAY™</td>
<td>SEAM/SEAF, JSOM</td>
<td>23</td>
</tr>
<tr>
<td>COM-HPC®</td>
<td>AcceleRate® HP</td>
<td>APM6/APF6</td>
<td>19</td>
</tr>
<tr>
<td>MICROSAM™</td>
<td>1.00 mm Pitch Discrete Wire</td>
<td>T1M</td>
<td>173</td>
</tr>
<tr>
<td>PCI/104-EXPRESS™ &amp; PCI/104-EXPRESS™ ONEBANK</td>
<td>Q2™</td>
<td>QMS/QFS</td>
<td>42</td>
</tr>
<tr>
<td>COAXPRESS™</td>
<td>HD-BNC™/FireFly™</td>
<td>HDBNC-TH, HDBNC-BH, HDBNC-EM, ECUC-BO4</td>
<td>129, 166</td>
</tr>
<tr>
<td>QSFP</td>
<td>QSFP</td>
<td>FQSFP/QSFPPC</td>
<td>99</td>
</tr>
<tr>
<td>USB/USBR</td>
<td>USB/AccliMate™</td>
<td>USB/USBR/MUSB/MUSB5/SPM, RCU/SCRU/SCPU/RPBU/RPBU/SCRUS</td>
<td>125-126, 225, 227</td>
</tr>
<tr>
<td>GEN-Z™</td>
<td>Edge Rate®</td>
<td>HSEC6</td>
<td>65</td>
</tr>
</tbody>
</table>

For more industry standards and products that meet them, visit samtec.com/standards.
### V42 XMC
**Rugged Mezzanine System for High-Performance VPX Card Cages**
- 3.125 Gbps performance rating
- 10 mm & 12 mm stack heights
- 96 total pins (6 x 16 configuration) with multiple points of contact
- Drop-in ready JSOM ejector jackscrews and mating high-density array cable assemblies available
- SOSA™ aligned connectors

### V57.1 FMC
**Leading VPX Mezzanine System for Advanced FPGA Integration**
- FPGA Industry Standard connector for development applications
- 10 Gbps performance
- HPC & LPC versions (400 & 160 selectively loaded pins)
- 8.5 mm & 10 mm stack heights
- Many high-speed cable & loopback card options available
- Optional JSOM ejector jackscrews available
- SOSA™ aligned connectors

### V57.4 FMC+
**Advanced State-of-the-Art FPGA Mezzanine Integration**
- HSPC Main Connector has 560 pins (14 x 40 configuration), 24 multi-gigabit interfaces, up to 28 Gbps
- HSPCe Extension Connector has 80 pins (4 x 20 configuration) adding 8 multi-gigabit interfaces, 32 in total
- 8.5 mm & 10 mm stack heights; 15.5 mm stack height in development
- SOSA™ aligned connectors

### V57.5 FMC+
**Development Tools Aid with FMC+ Applications**
- Board connectors for increased stack heights to 15.5 mm
- Standoffs, loopback cards and connector extender cards
- User friendly JSOM ejector jackscrews and mating high-density array cable assemblies available

### V74 VNX
**Small Form Factor Nano VPX-Based Module Technology**
- Rugged, high-performance, scalable, low power consumption embedded controllers
- 200 & 400 pin connector choices (Right-angle SEARAY™)
- 12.5 mm & 19 mm stack heights
- Mating high-density array cable assemblies available
- VITA 74.5 VNX in development for Optical and RF solutions

### COM-HPC*
**Next-Gen Embedded System Design Scalability & Performance**
- Supports edge server & robust embedded computing design applications
- System based on Samtec’s AcceleRate® HP high-performance arrays
- 5 mm and 10 mm stack heights
- 400 pin count connectors
- Supports interfaces such as PCIe® 5.0 (32 GT/s) & up to 100 Gb Ethernet

### MicroSAM™
**Compact Computing Module Developed for Industrial IoT Sensor-Domain Control**
- Utilizes PICMG sensor domain network architecture and data model for plug-and-play interoperability
- Micro 1.00 mm pitch discrete wire terminal
- 4, 6 and 18 pin configurations

### PCI/104-Express™ & PCI/104-Express™ OneBank
**Rugged, Stackable & Scalable Embedded Computer Applications**
- Q2™ connectors with ground planes
- 3-banks have 156 signal pins, OneBank has 52 pins
- 2.5 Gbps performance
- 15.24 mm & 22 mm stack heights
- Mating high-speed, high density cable assemblies available

### COAXPRESS®
**Industrial/Professional Application High-Speed Imaging Standard**
- Coaxial cable combined with high-speed serial data technology
- Up to 12.5 Gbps data rate per cable
- HD-BNC™ 75 Ω connectors and components
- Supports 12G-SDI protocol

### QSFP
**Compact, Hot-Pluggable Transceiver I/O Connector**
- Flyover® solution for optimized signal integrity
- Cage and 38-pin connector
- 30 AWG 100 ohm twinax cable
- 4 high-speed Tx pairs, 4 high-speed Rx pairs
- 28 Gbps NRZ/56 Gbps PAM4 performance per channel
- Meets high-speed protocols including 40/200/400 Gb Ethernet, PCIe®, OIF-CEI-28G, SAS and SATA

### GEN-Z™
**Open Systems Interconnect Offering Memory-Semantic Access to Data and Devices Via Multiple Network Topologies**
- High-speed, low-latency access to memory across the data center
- 0.60 mm pitch Edge Rate® high-speed edge card connectors

### USB/USBRAbstract Connection, Communication & Power Supply**
- Type A, Type B, Mini, high retention and sealed versions
- IP68 sealed circular and rectangular cable systems
EVALUATION & DEVELOPMENT KITS

From concept and prototype to development and production, Samtec-designed Evaluation and Development Kits simplify the design process and reduce time to market. Kits are available for many of our high-performance connector sets, standard high-speed cable assembly, and optical configurations. Custom kits are also available via our “mix-and-match” design approach. Visit samtec.com/kits or contact kitsandboards@samtec.com for a current list of kit availability.

OPTICS/FPGA DEVELOPMENT KITS

VITA 57.4 FMC+ HSPC Loopback Card (Extender Card Available)
VITA 57.4 FMC+ HSPC / HSPCe Loopback Card (Extender Card Available)
ExaMAX® Loopback Card for Xilinx® Virtex® UltraScale™ VCU110 Development Kit
FMC+ HSPC Loopback Card Supporting Xilinx® Virtex® UltraScale™ + VCU118 Kit

25/28 Gbps FireFly™ FMC+ Kit
14 Gbps FireFly™ FMC Kit
28 Gbps FireFly™ Kit
PCI Express®-Over-Fiber Adaptor Card (PCUO/PCOA)

CUSTOM KITS FOR APPLICATION-SPECIFIC EVALUATION

Samtec’s Custom Kits make it easy to quickly obtain a robust, high-quality kit for evaluating Samtec interconnect systems. A vast library of high-performance connector and cable options is available for designing a custom solution to meet your specific evaluation needs. Contact kitsandboards@samtec.com.

END 1/END 2 OPTIONS

<table>
<thead>
<tr>
<th>Twinax Flyover®</th>
<th>High-Speed Backplane</th>
<th>High-Speed Mezzanine</th>
</tr>
</thead>
<tbody>
<tr>
<td>FQSFP-DD</td>
<td>EBTF/EBTM</td>
<td>NVAM/NVAF</td>
</tr>
<tr>
<td>FQSFP</td>
<td>EBCF/EBCM</td>
<td>ARF6/ARC6</td>
</tr>
<tr>
<td>DCH</td>
<td>EBDM/EBCF-RA</td>
<td>ADF6/ADM6</td>
</tr>
<tr>
<td>ECUE</td>
<td>HDTF/HDTM</td>
<td>LPAM/LPAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ZRDP/ZCI</td>
</tr>
</tbody>
</table>
**SI EVALUATION KITS: BOARD-TO-BOARD**

Visit samtec.com/kits for more information.

- ExaMAX® High-Speed Backplane
  Traditional Connectors (EBTF/EBTM)
- Edge Rate® 0.60 mm Pitch
  High-Speed Edge Card (HSEC6-DV)
- NovaRay™ Extreme Density Arrays
  (NVAM/NVAF)
- Edge Rate® Differential Pair
  Edge Card (HSEC8-DP)
- AcceleRate® HD High-Density
  Arrays (ADM6/ADF6)
- LP Array™ Low-Profile Arrays
  (LPAM/LPAF)
- FireFly™ 20+ Gbps Edge Card
  Socket (UEC5-2)

**SI EVALUATION KITS: CABLE**

Visit samtec.com/kits for more information.

- AcceleRate® Flyover® Slim
  Cable Assembly (ARC6/ARF6)
- NovaRay® Flyover® Extreme
  Performance Cable Assembly
  (NVAC/NVAM-C)
- Flyover® QSFP28 Cable
  System (FQSFP to ARC6/DCH)
- Flyover® QSFP
  Double-Density Cable System
  (FQSFP-DD to NVAC/ARC6)
- ExaMAX® Backplane
  Cable System (EBCM/EBTF-RA)
- FireFly™ Copper
  Micro Flyover System™
  (ECUE/UEC5-2/UCC8)
- Bulls Eye® 50 GHz
  High-Performance Test System
  (BE40A)
- Flyover® Direct Connect
  Horizontal Cable System
  (DCH)
Severe Environment Testing (SET) is a Samtec initiative to test products beyond typical industry standards and specifications, many set forth by common requirements for rugged / harsh environment industries. These products undergo additional testing to ensure they are more than suitable for military, space, automotive, industrial and other extreme applications.

Samtec’s SET products are approved for NASA Class D missions that require high-reliability, quick-turn and cost-effective solutions for LEO and GEO satellites, SmallSats, CubeSats and other space exploration applications. Visit samtec.com/SET or contact set@samtec.com for additional information and current available test results.

Additional Testing Includes:

**MATING/UNMATING/DURABILITY**
Measures the change in LLCR and mating/unmating after products have been cycled and exposed to various environmental conditions (100% relative humidity, 250 cycles).

**MECHANICAL SHOCK/RANDOM VIBRATION/LLCR AND NANOSECOND EVENT DETECTION:**
Measures the product’s ability to withstand a series of mechanical shocks and random vibration. LLCR is a before and after check for damage. Event detection monitors continuity during testing (40G Peak, 11 ms, Half Sine & 12gRMS, 5 – 2,000 Hz, 1 Hour/Axis).

**TEMPERATURE CYCLING**
Evaluates the product’s reliability through thermal fatigue by cycling through two temperature extremes (-65 °C to 125 °C, 30 minute dwell time at each extreme; 500 cycles).

**NON-OPERATING CLASS TEMPERATURE**
Determines the temperature range at which the product operates at peak level (-55 °C to 125 °C at 100 cycles and -65 °C to 125 °C at 100 cycles; 200 total cycles).

**DWV AT ALTITUDE**
Measures the peak voltage that a product can withstand before dielectric breakdown at high altitudes (70,000 ft).

**ELECTROSTATIC DISCHARGE (ESD)**
Measures the level of electrostatic voltage the product can withstand (exposure to 5k, 10k and 15k Volts, repeated 10 times).

**OUTGASSING**
Measures the level of gases and vapors released from non-metallic materials when exposed to extreme heat and/or a vacuum. Visit outgassing.nasa.gov for data.
E.L.P.™ products are tested to rigorous standards, which evaluate contact resistance in simulated storage and field conditions.

- 10 year Mixed Flowing Gas (MFG)
- High Mating Cycles (250 to 2,500)
- Certain plating and/or contact options will apply

For complete details about Samtec’s E.L.P.™ program, a list of qualifying products and test results, please visit samtec.com/ELP or email the Customer Engineering Support Group at ASG@samtec.com.

### DESIGN QUALIFICATION TESTING

All Samtec series undergo Design Qualification Testing (DQT), which includes:

- Gas Tight
- Normal Force
- Thermal Aging
- Mating/Unmating/Durability
- IR/DWV
- Current Carrying Capacity (CCC)
- Mechanical Shock/Random Vibration/LLCR
- Mechanical Shock/Random Vibration/Event Detection

### TESTING REFERENCE GUIDE

<table>
<thead>
<tr>
<th>TEST</th>
<th>SET</th>
<th>E.L.P.™</th>
<th>DQT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAS TIGHT</td>
<td>X*</td>
<td>X*</td>
<td>X</td>
</tr>
<tr>
<td>NORMAL FORCE</td>
<td>X*</td>
<td>X*</td>
<td>X</td>
</tr>
<tr>
<td>THERMAL AGING</td>
<td>X*</td>
<td>X*</td>
<td>X</td>
</tr>
<tr>
<td>MATING/UNMATING/DURABILITY (240 HRS)</td>
<td>X (100% RH, 250 Cycles)</td>
<td>X* (90-98% RH, 100 Cycles)</td>
<td>X (90-98% RH, 100 Cycles)</td>
</tr>
<tr>
<td>IR/DWV</td>
<td>X (At Altitude of 70,000 Feet)</td>
<td>X*</td>
<td>X</td>
</tr>
<tr>
<td>CCC</td>
<td>X*</td>
<td>X*</td>
<td>X</td>
</tr>
<tr>
<td>MECHANICAL SHOCK/RANDOM VIBRATION/LLCR &amp; NANosecond EVENT DETECTION</td>
<td>X (40 G Peak, 11 ms, Half Sine &amp; 12gRMS, 5 - 2,000 Hz, 1 Hr / Axis)</td>
<td>X* (100 G Peak, 6 ms, Half Sine &amp; 7.56gRMS Avg, 2 Hr / Axis)</td>
<td>X (100 G Peak, 6 ms, Half Sine &amp; 7.56gRMS Avg, 2 Hr / Axis)</td>
</tr>
<tr>
<td>TEMPERATURE CYCLING (500 CYCLES)</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>NON-OPERATING CLASS TEMPERATURE</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ELECTROSTATIC DISCHARGE (ESD)</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10 YEAR MFG (MIXED FLOWING GAS)</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>MATING CYCLES (250 TO 2,500)</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Completed as part of initial Design Qualification Testing (DQT). E.L.P.™ and SET testing are performed in addition to DQT.*
Samtec is committed to the continuous evolution of our award-winning website, providing customers with innovative design tools, technical resources and support needed to make finding, designing and ordering the right product as easy and streamlined as possible.

Online Tools
FIND, DESIGN & VALIDATE YOUR SOLUTION

Samtec has developed innovative search, design, and validation tools to help customers quickly and easily find the right solution. Whether you prefer to search by product name or characteristics, browse through pictures, or build an assembly by entering physical specifications, Samtec offers a tool to make your search easier than ever.

- **Picture Search**
  Visually find your solution
  Browse through a highlight reel of Samtec’s most popular products to find the ideal solution for your application, view specifications, check availability, order samples and more. To find your solution, visit [samtec.com/picturesearch](http://samtec.com/picturesearch).

- **Cable Builder**
  High-speed assemblies designed in minutes
  Input specific options to quickly build a complete high-speed cable assembly, view specs, prints, 3D models, and instantly request samples and quotes. Visit [samtec.com/cablebuilder](http://samtec.com/cablebuilder).

- **Solutionator**
  Design in minutes
  Quickly build mated connector sets using a wide variety of user-defined search parameters and filters, view specs and order samples all with one online design tool. Visit [samtec.com/solutionator](http://samtec.com/solutionator) to start building.

- **Simulator**
  Simulates in a minute
  Innovative design tool blends data to project performance in a user-defined system, providing insertion loss, crosstalk, eye diagrams, sample requests and more. Visit [samtec.com/simulator](http://samtec.com/simulator).
Samtec’s extensive library of downloadable resources is unmatched in the industry. From 3D Models and Test Reports, Interconnect Symbols and Footprints, Product Videos, Design Guides, Specifications and so much more – Samtec offers immediate and unlimited access to all the documentation you need to select the right solution for your application. Visit samtec.com to start exploring.

3D Models
Quickly configure, preview and download models in more than 150 different formats, including AutoCad, Solid Edge, Inventor and many more.

Test Reports
Samtec provides immediate access to a variety of testing and qualification reports for our products, including high-speed characterization, thermal, frequency and time domain, Extended Life Product™, Severe Environment Testing, and others.

PCB Footprint / eCAD Models
Instantly view, download and design with over 200,000 ready-to-use eCAD models. These detailed models have been formatted to work with leading schematic captures and include accurate assembly, silkscreen and 3D features.

Technical Library
Samtec’s online Technical Library contains a wealth of resources, including Prints & Specifications, White Papers, Application Notes, Test Reports, Product Videos, Design Guides, Processing Information and much more.

mySamtec™
Samtec’s user-friendly eCommerce platform allows you to quickly and easily check product availability and pricing, as well as place and manage your orders online.
Samtec uses a channel-based approach to estimate connector performance in a system. The result is a realistic one number designation for all of Samtec’s high-speed interconnects, called **Channel Performance Metric (CPM)**.

This one number designation allows for a side-by-side comparison of Samtec components. Noise contributions from, and interactions with, other parts of a predefined channel are considered. An example of a predefined channel is shown below.

Samtec’s CPM reports connector capability that is more representative of actual performance in a system, replacing the connector only data of the past. This real-world approach factors in all impairments, such as the crosstalk and reflections, inherent in a complete channel. Through Samtec’s use of a common set of channel assumptions, relative comparison can then be made across the entire Samtec offering which is practical and realizable. Because Samtec’s CPM is a function of necessary channel assumptions made, it is important to note that Samtec’s CPM can and will vary from a customer specific application.

Visit [samtec.com](http://samtec.com) or contact SIG@samtec.com for technical support prior to final connector selection in any specific application.

*Note: For speeds of 28 Gbps or less, NRZ encoding scheme is assumed.*
## SPECIFICATIONS & TESTING

### SPECIFICATIONS & STANDARD TEST PROCEDURES

Samtec products are subject to the following general specifications and standard test procedures.*

<table>
<thead>
<tr>
<th>QUALITY ASSURANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Program Certifications</td>
</tr>
<tr>
<td>UL File Number</td>
</tr>
<tr>
<td>Sampling Procedures</td>
</tr>
<tr>
<td>Calibration System Requirements</td>
</tr>
</tbody>
</table>

### INSULATOR

#### Specifications
- Molding Plastics, Thermoplastic Polyesters MIL-M-24519 Rev E
- Applied Tests**
  - Dielectric Breakdown Voltage ASTM/ISO
  - AC Loss Characteristics ASTM/ISO
  - Impact Resistance of Plastics ASTM/ISO
  - DC Resistance ASTM/ISO
  - High-Voltage, Low-Current Arc Resistance ASTM/ISO
  - Water Absorption of Plastics ASTM/ISO
  - Test for Tensile Properties of Plastics ASTM/ISO
  - Deflection Temperature of Plastics ASTM/ISO
  - Compressive Properties of Plastics ASTM/ISO
  - Coefficient of Linear Thermal Expansion ASTM/ISO
  - Shear Strength of Plastics ASTM/ISO
  - Rockwell Hardness of Plastics ASTM/ISO
  - Flexural Properties of Plastics ASTM/ISO
  - Specific Gravity and Density of Plastics ASTM/ISO

### PLATING

#### Specifications
- Gold ASTM-B488
- Tin ASTM-B545**
- Under Plating Specifications
  - Nickel QQ-N-290**
  - Copper AMS 2418
- Applied Tests
  - Coating thickness (X-Ray Fluorescence) ASTM-A-754-79

### CONTACT & TERMINAL

#### Specifications***
- Brass ASTM/ISO
- Phosphor Bronze ASTM/ISO
- Beryllium Copper ASTM/ISO

### ASSEMBLY

#### Testing Specifications
- Test Methods for Electrical Connectors EIA-364
- Test Methods for Electronic/Electrical Components EIA-364
- Connections, Electrical, Solderless, Wrapped EIA-364
- Environmental Test Methods EIA-364
- Sockets (Lead, Electronic Components), General EIA-364
- Sockets, Plug-in Electronic Components, General EIA-364

#### Packaging Specifications
- Tape and Reel Packaging of Connectors EIA-481
- Tray Packaging of Connectors ANSI/EIA-960
- Packaging Materials for ESD Sensitive Items ANSI/ESD S541
- Package Testing Procedures ISTA-3A

### OTHER SPECIFICATIONS

#### Insulation Resistance
- 5000 MΩ min

#### Flammability Rating
- UL 94V-0 (Typically)

### PRODUCT ENVIRONMENTAL COMPLIANCE

Product environmental compliance is a part specific issue for Samtec. To confirm the environmental compliance status of any Samtec product please contact the Product Environmental Compliance Group at PEC@samtec.com and/or visit samtec.com/Quality.

Samtec has offered both lead-bearing and lead-free products for many years and will continue to support customers requiring products not compliant with the EU Directives, such as those specified for military, aerospace and specialty applications.

Proposition 65 statement: These products could expose you to chemicals which are known to the State of California to cause birth defects or other reproductive harm. For more information, visit P65Warnings.ca.gov.

### LEAD FREE PROCESSING GUIDELINES

#### Lead-Free Wave Solderable
This product is compatible with wave solder pot temperatures between 260 °C and 270 °C with maximum exposure of the termination pins to the solder wave for 4 seconds.

#### Lead-Free Reflow Solderable
This product can withstand a maximum peak temperature of 260 °C, 255 °C for up to 30 seconds, and the longer dwell times required for lead-free reflow processing.

### AUTOMOTIVE CERTIFICATION (ACD SERIES)

Samtec offers design and manufacture of electronic connectors, marketed as “ACD Series” (Automotive Certified Designs) for printed circuit boards. Samtec shall only conform with ISO/IATF 16949 on products it certifies as Automotive Custom Design (“ACD”) or those designated with “A-” in the Samtec part number prefix of the Automotive Solutions Catalog.

Download the Automotive Solutions catalog at samtec.com/catalog, or contact AutoSalesGroup@Samtec.com for qualifying products and alternative automotive application solutions.

### Notes:
* Products with specifications other than those listed above are noted on the product’s website page.
** With the exception of thickness.
*** As dictated by material grade.
<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>135</td>
<td>50Ω Q Precision 1.35 mm Compression Jacks</td>
<td>140</td>
</tr>
<tr>
<td>185</td>
<td>50Ω Q Precision 1.85 mm Compression Jacks</td>
<td>141</td>
</tr>
<tr>
<td>240</td>
<td>50Ω Q Precision 2.40 mm Compression Jacks</td>
<td>142</td>
</tr>
<tr>
<td>292</td>
<td>50Ω Q Precision 2.92 mm Compression Jacks</td>
<td>143</td>
</tr>
<tr>
<td>BE70A</td>
<td>70GHz Bulls Eye® Assembly, Double Row</td>
<td>153</td>
</tr>
<tr>
<td>BE40A</td>
<td>50Ω &amp; 40GHz Bulls Eye® Assembly, Double Row</td>
<td>154</td>
</tr>
<tr>
<td>BDRF</td>
<td>20GHz Bulls Eye® Assembly, Double Row</td>
<td>154</td>
</tr>
<tr>
<td>BNC-CA</td>
<td>50Ω BNC Cable Connectors</td>
<td>162</td>
</tr>
<tr>
<td>BNC7T</td>
<td>75Ω 12G-SDI BNC Jacks</td>
<td>165</td>
</tr>
<tr>
<td>BNC7T-CA</td>
<td>75Ω 12G-SDI BNC Cable Connectors</td>
<td>164</td>
</tr>
<tr>
<td>BQRA</td>
<td>20GHz Bulls Eye® Assembly, Quad Row</td>
<td>154</td>
</tr>
<tr>
<td>CJT</td>
<td>100Ω Shielded Twisted Pair Twinax Cable Assembly</td>
<td>169</td>
</tr>
<tr>
<td>C28S</td>
<td>100Ω Twincax Jacks</td>
<td>169</td>
</tr>
<tr>
<td>DIIN7A</td>
<td>75Ω, 12G-SDI DIN 1.0/2.3 Jacks</td>
<td>167</td>
</tr>
<tr>
<td>DIIN7A-CA</td>
<td>75Ω, 12G-SDI DIN 1.0/2.3 Cable Connectors</td>
<td>167</td>
</tr>
<tr>
<td>G4C7</td>
<td>50Ω Precision Ganged SMPM Cable Assembly</td>
<td>147</td>
</tr>
<tr>
<td>GPPB</td>
<td>50Ω Precision Ganged SMPM Block, Board-to-Board</td>
<td>147</td>
</tr>
<tr>
<td>GPPC</td>
<td>50Ω Ganged SMPM Cable Board Mates</td>
<td>147</td>
</tr>
<tr>
<td>GFR1-C</td>
<td>5.00 mm 50Ω Ganged Micro-Mini RF Plugs, Cable</td>
<td>169</td>
</tr>
<tr>
<td>GFR1H-C</td>
<td>5.00 mm 50Ω Ganged Hybrid Micro-Mini RF Cable</td>
<td>169</td>
</tr>
<tr>
<td>GFR1-J</td>
<td>5.00 mm 50Ω Ganged Micro-Mini RF Jacks, PCB Mount</td>
<td>169</td>
</tr>
<tr>
<td>GFR1-P</td>
<td>5.00 mm 50Ω Ganged Micro-Mini RF Plugs, PCB Mount</td>
<td>169</td>
</tr>
<tr>
<td>GFR7-C</td>
<td>5.00 mm 75Ω Ganged Micro-Mini RF Plugs, Cable</td>
<td>169</td>
</tr>
<tr>
<td>GFR7H-C</td>
<td>5.00 mm 75Ω Ganged Hybrid Micro-Mini RF Cable</td>
<td>169</td>
</tr>
<tr>
<td>GFR7-P</td>
<td>5.00 mm 75Ω Ganged Micro-Mini RF Plugs, PCB Mount</td>
<td>169</td>
</tr>
<tr>
<td>GFR7-J</td>
<td>5.00 mm 75Ω Ganged Micro-Mini RF Jacks, PCB Mount</td>
<td>169</td>
</tr>
<tr>
<td>HDBN</td>
<td>75Ω, 12G-SDI High-Density BNC Jacks</td>
<td>166</td>
</tr>
<tr>
<td>HDBN-CA</td>
<td>75Ω, 12G-SDI High-Density Cable Connectors</td>
<td>166</td>
</tr>
<tr>
<td>LI3</td>
<td>4.00 mm IsoRate® 50Ω High Isolation RF Jack Strip</td>
<td>169</td>
</tr>
<tr>
<td>LI3C</td>
<td>4.00 mm IsoRate® 50Ω High Isolation RF Cable</td>
<td>169</td>
</tr>
<tr>
<td>LI3H</td>
<td>4.00 mm IsoRate® 50Ω High Isolation Hybrid Cable</td>
<td>169</td>
</tr>
<tr>
<td>IPS</td>
<td>4.00 mm IsoRate® 50Ω High Isolation RF Plug Strip</td>
<td>169</td>
</tr>
<tr>
<td>MCX</td>
<td>50Ω MCX Jacks &amp; Plugs</td>
<td>159</td>
</tr>
<tr>
<td>MCX7</td>
<td>75Ω MCX Jacks &amp; Plugs</td>
<td>169</td>
</tr>
<tr>
<td>MCX7-CA</td>
<td>75Ω MCX Cable Connectors</td>
<td>169</td>
</tr>
<tr>
<td>MCX-CA</td>
<td>50Ω MCX Cable Connectors</td>
<td>159</td>
</tr>
<tr>
<td>MMCK</td>
<td>50Ω MMCK Jacks &amp; Plugs</td>
<td>160</td>
</tr>
<tr>
<td>MMCK-CA</td>
<td>50Ω MMCK Cable Connectors</td>
<td>160</td>
</tr>
<tr>
<td>MMCK7</td>
<td>75Ω MMCK Jacks &amp; Plugs</td>
<td>169</td>
</tr>
<tr>
<td>MMCKX</td>
<td>50Ω MMCK High-Vibration Jacks &amp; Plugs</td>
<td>169</td>
</tr>
<tr>
<td>MMCKX-CA</td>
<td>50Ω MMCK High-Vibration Cable Connectors</td>
<td>169</td>
</tr>
<tr>
<td>MHO81</td>
<td>50Ω Micro High-Frequency RF Cable, 0.81 mm Dia</td>
<td>157</td>
</tr>
<tr>
<td>MHN13</td>
<td>50Ω Micro High-Frequency RF Cable, 1.13 mm Dia</td>
<td>157</td>
</tr>
<tr>
<td>PR00</td>
<td>Precision SMP Cable Connectors, 40 GHz</td>
<td>148</td>
</tr>
<tr>
<td>PR01</td>
<td>Precision SMA Cable Connectors, 18 GHz</td>
<td>145</td>
</tr>
<tr>
<td>PR04</td>
<td>Precision TNC Cable Connectors, 18 GHz</td>
<td>151</td>
</tr>
<tr>
<td>PR06</td>
<td>Precision N Type Cable Connectors, 10 GHz</td>
<td>150</td>
</tr>
<tr>
<td>PR10</td>
<td>Precision 1.00 mm Cable Connectors, 110 GHz</td>
<td>140</td>
</tr>
<tr>
<td>PR13</td>
<td>Precision 1.35 mm Cable Connectors, 90 GHz</td>
<td>140</td>
</tr>
<tr>
<td>PR18</td>
<td>Precision 1.85 mm Cable Connectors, 65 GHz</td>
<td>141</td>
</tr>
<tr>
<td>PR24</td>
<td>Precision 2.40 mm Cable Connectors, 50 GHz</td>
<td>142</td>
</tr>
<tr>
<td>PR292</td>
<td>Precision 2.92 mm Cable Connectors, 40 GHz</td>
<td>143</td>
</tr>
<tr>
<td>PRF35</td>
<td>Precision 3.50 mm Cable Connectors, 34 GHz</td>
<td>144</td>
</tr>
<tr>
<td>PRF1A</td>
<td>Precision SMPM Bullet Adaptors, 65 GHz</td>
<td>147</td>
</tr>
<tr>
<td>PRF01</td>
<td>Precision SMPM Cable Connectors, 65 GHz</td>
<td>146</td>
</tr>
<tr>
<td>PRF51</td>
<td>Precision SSMA Cable Connector, 34 GHz</td>
<td>144</td>
</tr>
</tbody>
</table>

RF PRODUCT INDEX

Precision RF products highlighted in bold.

www.samtec.com

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**INDEX BY SERIES**

<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPT</td>
<td>5 mm PowerStrip®/300µm Dual Blade Terminal</td>
<td>202</td>
</tr>
<tr>
<td>MPT-R</td>
<td>300µm PowerStrip®/300µm High-Speed Wire</td>
<td>204</td>
</tr>
<tr>
<td>MPT-BC</td>
<td>300µm PowerStrip®/300µm High-Speed Wire</td>
<td>204</td>
</tr>
<tr>
<td>MTTM</td>
<td>2 mm Flex™ Copyrighted Through-Hole Header</td>
<td>261</td>
</tr>
<tr>
<td>MTMS</td>
<td>1.27 mm Flex, Modified Micro Mico</td>
<td>278</td>
</tr>
<tr>
<td>MTSW</td>
<td>2.54 mm Flex, Modified Square Post Header</td>
<td>278</td>
</tr>
<tr>
<td>MXW</td>
<td>1 mm Flex, Surface Mount Micro Board Header</td>
<td>245</td>
</tr>
<tr>
<td>NVAC</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
<tr>
<td>NWF</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
<tr>
<td>NVAM</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION POLICY**

Unless otherwise agreed by Samtec in writing, all sales of Samtec products are subject to Samtec’s Terms and Conditions of Sale located at https://www.samtec.com/about/legal/samtecterms.html.

Federal Supply Code: 55322

**Notes:**

1. **Products available on website.**
2. New products highlighted in bold.
3. Most older products not shown in the catalog are still available. Visit www.samtec.com and the home page search bar for availability and specifications.

---

**RF PRODUCTS**

See page 319 for available RF Solutions.

---

**INDEX BY SERIES**

<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPT</td>
<td>5 mm PowerStrip®/300µm Dual Blade Terminal</td>
<td>202</td>
</tr>
<tr>
<td>MPT-R</td>
<td>300µm PowerStrip®/300µm High-Speed Wire</td>
<td>204</td>
</tr>
<tr>
<td>MPT-BC</td>
<td>300µm PowerStrip®/300µm High-Speed Wire</td>
<td>204</td>
</tr>
<tr>
<td>MTTM</td>
<td>2 mm Flex™ Copyrighted Through-Hole Header</td>
<td>261</td>
</tr>
<tr>
<td>MTMS</td>
<td>1.27 mm Flex, Modified Micro Mico</td>
<td>278</td>
</tr>
<tr>
<td>MTSW</td>
<td>2.54 mm Flex, Modified Square Post Header</td>
<td>278</td>
</tr>
<tr>
<td>MXW</td>
<td>1 mm Flex, Surface Mount Micro Board Header</td>
<td>245</td>
</tr>
<tr>
<td>NVAC</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
<tr>
<td>NWF</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
<tr>
<td>NVAM</td>
<td>NovaRay® Extreme Density &amp; Performance Cable</td>
<td>103</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION POLICY**

Unless otherwise agreed by Samtec in writing, all sales of Samtec products are subject to Samtec’s Terms and Conditions of Sale located at https://www.samtec.com/about/legal/samtecterms.html.

Federal Supply Code: 55322

**Notes:**

1. **Products available on website.**
2. New products highlighted in bold.
3. Most older products not shown in the catalog are still available. Visit www.samtec.com and the home page search bar for availability and specifications.