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samtec.com/PrecisionRF or samtec.com/RF
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 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.

INTEGRATION LEADS TO INNOVATION

ACTIVE OPTICS
MATERIALS SCIENCE
mmWAVE DESIGN
MICRO-ELECTRONICS
GLASS CORE TECHNOLOGY
PRECISION INSERT MOLDING
THERMAL OPTIMIZATION
ADVANCED AUTOMATION
HIGH-SPEED CABLE TECHNOLOGIES
SYSTEM SIGNAL INTEGRITY
HIGH-SPEED CABLES
OPTICS
PRECISION RF
MICRO RUGGED / POWER
HIGH-SPEED / HIGH-DENSITY BOARD-TO-BOARD

samtec.com/s2s/technology-centers
COMPLETE RF INTERCONNECT SOLUTIONS

50 Ω & 75 Ω • PRECISION • 12G-SDI • NON-MAGNETIC • ORIGINAL SOLUTIONS

FULL LINE RF CABLE ASSEMBLIES & CONNECTORS

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.
• 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
• RF68T Series (with Belden 1855A cable)

**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

**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

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-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>
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</thead>
<tbody>
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<td><img src="image2.png" alt="Image" /></td>
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<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
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### ELECTRICAL

<table>
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<tr>
<th>Max. Frequency (GHz)</th>
<th>40</th>
<th>35</th>
<th>50</th>
<th>45</th>
<th>20</th>
<th>20</th>
<th>65</th>
<th>50</th>
<th>65</th>
<th>27</th>
<th>18</th>
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<tr>
<td>1 GHz</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>26 GHz @ 20 GHz</td>
<td>3.80</td>
<td>3.71</td>
<td>4.27</td>
<td>2.78</td>
<td>4.26</td>
<td>2.30</td>
<td>7.43</td>
<td>4.28</td>
<td>3.90</td>
<td>1.23</td>
<td>0.79</td>
</tr>
<tr>
<td>40 GHz</td>
<td>–</td>
<td>–</td>
<td>5.59</td>
<td>3.66</td>
<td>–</td>
<td>–</td>
<td>9.68</td>
<td>5.59</td>
<td>5.06</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>50 GHz</td>
<td>–</td>
<td>–</td>
<td>6.46</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>11.14</td>
<td>6.47</td>
<td>5.81</td>
<td>–</td>
<td>–</td>
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</table>

#### Propagation Delay (ns/m)

<table>
<thead>
<tr>
<th>Velocity of Propagation</th>
<th>70%</th>
<th>81%</th>
<th>70%</th>
<th>70%</th>
<th>80%</th>
<th>83%</th>
</tr>
</thead>
</table>

#### Capacitance (pF/m)

| Capacitance (pF/m) | 96.80 | 95.45 | 97.80 | 82.39 | 104.97 | 98.07 | 95.00 | 88.2 | 83.37 | 82.00 |

### CONSTRUCTION

#### Center Conductor

- Solid Silver Plated Copper

#### Dielectric

- FEP
- Foam Fluoropolymer
- PTFE
- PFA
- Solid PTFE

#### Shield

1) Ag Plated Cu  
2) Cu Tape  
3) Ag Plated Cu
- Tinned Cu  
- Spiral Strip Ag Plated Cu  
- 1) Ag Plated Cu  
2) Al Polyester  
3) Round Ag Plated Cu

#### Jacket

- FEP
- —
- FEP

### MECHANICAL

#### Operating Temp

- -40˚ C to 200˚ C
- -65˚ C to 125˚ C
- -65˚ C to 150˚ C
- -40˚ C to 125˚ C
- -40˚ C to 125˚ C
- -55˚ C to 105˚ C
- -55˚ C to 200˚ C
- -65˚ C to 150˚ C
- -55˚ C to 200˚ C

#### Min. Bend Radius

<table>
<thead>
<tr>
<th>Min. Bend Radius</th>
<th>9.00 mm</th>
<th>12.00 mm</th>
<th>6.00 mm</th>
<th>12.50 mm</th>
<th>6.00 mm</th>
<th>10.90 mm</th>
<th>5.00 mm</th>
<th>13.20 mm</th>
<th>8.90 mm</th>
<th>24.80 mm</th>
<th>38.10 mm</th>
</tr>
</thead>
</table>

#### Connector Options

- SMA, SMP
- 2.92 mm, 2.40 mm, SMPM
- 2.92 mm, 2.40 mm
- SMA, SMP
- 1.35 mm, 1.65 mm, 2.40 mm, 2.92 mm, SMPM
- 2.92 mm, 2.40 mm
- 1.85 mm, 2.40 mm, 2.92 mm, SMPM
- SMA, TNCA, N Type
- SMA, TNCA, N Type

### PART NUMBER

#### Series

- RF25S  
- RF23S  
- RF23C  
- RF120  
- RF405  
- RF402  
- RF047-A  
- RF085  
- RF086  
- RF180  
- RF280

---

*Shown at ~1/2 scale. ** Shown at 1/3 scale.*
### 1.00 mm to 110 GHz

**Cable Connectors**

**PRF10**

- **1.00 mm**
  - 
  - **RF047-A**
    - (1.2 mm) .047” overshield DIA
    - 29 AWG millimeter wave cable

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

- **PRF10-J-C-VP-047D-SS**
  - 0.47, semi-rigid
- **PRF10-P-C-VP-047D-SS**
  - 0.47, semi-rigid

**J = Cable Jack**
**P = Cable Plug**
**VP = Plating (75 µ” Gold center contact, passivated outer contact)**
**SS = Straight, Solder Clamp**

### 1.35 mm to 90 GHz

**Cable Assemblies**

**RF047-A**

- **1.35 mm**
  - 
  - **RF047-A**
    - 1.35 mm Straight Jack
    - 1.35 mm Straight Plug

**SERIES**

- **RF047-A**
  - (1.2 mm) .047” overshield DIA
  - 29 AWG millimeter wave cable

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

- **PRF13-P-C-VP-047A-SS**
  - .047 Temp-Flex, low loss flexible, 29 AWG
- **PRF13-J-C-VP-047A-BS**
  - .047 Temp-Flex, low loss flexible, 29 AWG

**P = Cable Plug**
**J = 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

**PRF13**

- **1.35 mm**
  - 
  - **RF047-A**
    - Cable Mates:

**135**

- **GENDER**
  - **J = Jack**
- **TYPE**
  - **P = PCB Mount**
- **PLATING**
  - **VP = Plating (75 µ” gold center contact, passivated outer contact)**
- **ORIENTATION**
  - **ST = Straight**
- **TERMINATION**
  - **CM = Compression Mount**
  - **CMM = Compression Mount Microstrip**
- **OPTION**
  - **1 = Without screws**
  - **2 = With screws**

**Contact Samtec**

**VSWR**

**1.85 mm, 2.40 mm, 2.92 mm, SMPM = RF047-A**

**OVERALL LENGTH**

- “XXXX” = Overall Length in millimeters
- 0100 (0100 mm) 3.94” minimum

**INTERFACE STANDARD**

- **RF047-A**
  - (1.2 mm) .047” overshield DIA
  - 29 AWG millimeter wave cable

- **PRF13-J-C-VP-047D-SS**
  - .047, semi-rigid

### Also Available

- **1.85 mm**
- **2.40 mm**
- **2.92 mm**
- **SMPM = RF047-A**

**Contact Samtec**

**samtec.com/100 • samtec.com/135**
1.85 mm
Cable Assemblies
RF047-A, RF086

**RF047-A**
= (1.2 mm) 0.047" Overseized DIA 29 AWG millimeter wave cable

**RF086**
= (2.18 mm) 0.086" Overseized DIA 23 AWG millimeter wave cable

**185 mm** TO 65 GHz

**185 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-P-C-EP-047D-SS</td>
<td>.047, semi-rigid</td>
</tr>
<tr>
<td>PRF18-J-C-EP-086-SS</td>
<td>.086 Temp-Flex, low loss flexible</td>
</tr>
<tr>
<td>PRF18-P-C-EP-086-SS</td>
<td>.086 Temp-Flex, low loss flexible</td>
</tr>
<tr>
<td>PRF18-J-C-EE-405-SD</td>
<td>RG 405, .085, semi-rigid</td>
</tr>
<tr>
<td>PRF18-J-C-EP-085-BS</td>
<td>Harbour SS405, flexible alternative to RG 405</td>
</tr>
<tr>
<td>PRF18-P-C-EP-085-SD</td>
<td>Harbour SS405, flexible alternative to RG 405</td>
</tr>
<tr>
<td>PRF18-P-C-EP-085-SS</td>
<td>Harbour SS405, flexible alternative to RG 405</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-086-SS</td>
<td>.086 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
185

**Cable Mates:**
RF047-A, RF086
2.40 mm TO 50 GHz

2.40 mm Cable Assemblies
RF047-A, RF085, RF086, RF23C, RF120

RF047-A
(1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable

RF086
(2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable

RF085
(2.16 mm) .085" overshield DIA 24 AWG millimeter wave cable

RF23C
MWC-235CU-01 millimeter wave cable with copper foil shield

RF120
MWC-19550-FCU-01 19 AWG millimeter wave cable

SERIES

END 1 CONNECTOR

-24SJ
= 2.40 mm Straight Jack

-24SP
= 2.40 mm Straight Plug

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

OVERALL LENGTH

–“XXXX”
= Overall Length in millimeters

–0100 (100 mm) 3.94” minimum (RF047-A, RF085, RF086, RF120)

–0152 (152 mm) 5.984” minimum (RF23C)

VSWR

RF047-A: 1.35 max.
RF086: 1.40 max.
RF085: 1.40 max.
RF23C: 1.40 max.
RF120: 1.40 max.

2.40 mm Cable Connectors
PRF24

CONNECTORS FOR INDUSTRY STANDARD CABLES

PRF24-J-C-EP-085-SS
Harbour SS405, flexible alternative to RG 405

PRF24-J-C-EP-405-BS
RG 405, .085, semi-rigid

PRF24-P-C-EE-085-SD
Harbour SS405, flexible alternative to RG 405

PRF24-P-C-EP-405-BS
RG 405, .085, semi-rigid

PRF24-J-C-EP-160-SS
Semflex HP160, low loss flexible

PRF24-J-C-EP-160-BS
Semflex HP160, low loss flexible

PRF24-J-C-EP-140B-SS
IW 1401, low loss flexible

PRF24-J-C-EP-140B-BS
IW 1401, low loss flexible

PRF24-J-C-EP-150-SS
Dynawave DF150, low loss flexible

PRF24-J-C-EP-150-BS
Dynawave DF150, low loss flexible

PRF24-J-C-EP-150B-SS
IW 1501, low loss flexible

PRF24-J-C-EP-150B-BS
IW 1501, low loss flexible

PRF24-J-C-EP-086-SS
.086 Temp-flex, low loss flexible

PRF24-J-C-EP-086-BS
.086 Temp-flex, low loss flexible

PRF24-P-C-EP-086-SS
.086 Temp-flex, low loss flexible

PRF24-P-C-EP-086-BS
.086 Temp-flex, low loss flexible

INTERFACE STANDARD

2.40 mm Board Connectors
240

Cable Mates:
RF047-A, RF086, RF085, RF23C, RF120

240

GENDER

–J
= Jack

–P
= PCB Mount

TYPE

–EP
= 50 µ” (1.27 µm) Gold center contact, passivated outer contact

PLATING

–ST
= Straight

ORIENTATION

TERMINATION

–CM
= Compression Mount Stripline

OPTION

–1
= Without Screws

–CM SHOWN

–CMM
= Compression Mount Microstrip

–2
= With Screws

–CMM SHOWN

samtec.com/240

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.
2.92 mm TO 40 GHz

2.92 mm Cable Assemblies
RF047-A, RF086, RF085, RF23C, RF120

RF047-A
= (1.2 mm), 0.047" overshield DIA
29 AWG millimeter wave cable

RF086
= (2.18 mm), 0.086" overshield DIA
23 AWG millimeter wave cable

RF085
= (2.16 mm), 0.085" overshield DIA
24 AWG millimeter wave cable

RF23C
= MWC-2350CU-01 millimeter wave cable
with copper foil shield

RF120
= MWC-19550-FCU-01 19 AWG millimeter wave cable

- 92SJ = 2.92 mm Straight Jack
- 92SP = 2.92 mm Straight Plug

ALSO AVAILABLE
1.35 mm, 1.85 mm, 2.40 mm, SMPM = RF047-A
1.85 mm, 2.40 mm, SMPM = RF086
2.40 mm = RF085
2.40 mm, SMPM = RF23C
2.40 mm = RF120

- "XXXX" = Overall Length in millimeters
- 0100 (100 mm) 3.94" minimum (RF047-A, RF085, RF086, RF120)
- 0152 (0152 mm) 5.984" minimum (RF23C)

ALSO AVAILABLE
1.35 mm, 1.85 mm, 2.40 mm, SMPM = RF047-A
1.85 mm, 2.40 mm, SMPM = RF086
2.40 mm = RF085
2.40 mm, SMPM = RF23C
2.40 mm = RF120

2.92 mm Cable Connectors
PRF92

PRF92.P.C-EE-405-SD
PRF92.P.C-EE-085A-SD
PRF92.P.C-EP-160-SS
PRF92.P.C-EP-1508-SS
PRF92.P.C-EP-142-SS
PRF92.J.C-EP-085-BS
PRF92.P.C-EP-085-SS
PRF92.P.C-EP-085-SD
PRF92.P.C-EE-402-SD
PRF92.P.C-EP-160-SS
PRF92.P.C-EP-140-SS
PRF92.P.C-EP-047D-SS
PRF92.P.C-EE-118-SD
PRF92.J.C-EP-118-SD
PRF92.P.C-EP-402-SS
PRF92.J.C-EP-402-SS
PRF92.P.C-EP-405-4S
PRF92.P.C-EE-405-SD
PRF92.J.C-EP-086-SS
PRF92.J.C-EP-200-SS

CONNECTORS FOR INDUSTRY STANDARD CABLES

INTERFACES STANDARD

2.92 mm Board Connectors
292

Cable Mates:
RF047-A, RF085, RF086, RF23C, RF120

292 - GENDER - TYPE - PLATING - ORIENTATION - TERMINATION
-J = Jack
-P = PCB Mount
-HP = 30 µ (0.76 µm) Gold center contact, Passivated outer contact
-ST = Straight
-CM2 = Compression Mount

VSWR
RF047-A: 1.35 max.
RF086: 1.40 max.
RF085: 1.40 max.
RF23C: 1.40 max.
RF120: 1.40 max.

samtec.com/292

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.
3.50 mm TO 34 GHz

3.50 mm Cable Assemblies
RF23S

<table>
<thead>
<tr>
<th>SERIES</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
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<tbody>
<tr>
<td>RF23S</td>
<td>-355JP</td>
<td>-355PP</td>
<td>“XXXX”</td>
</tr>
<tr>
<td></td>
<td>3.50 mm Straight Jack</td>
<td>3.50 mm Straight Plug</td>
<td>Overall Length in millimeters</td>
</tr>
<tr>
<td></td>
<td>MWC-2350-01 microwave cable with 23 AWG solid FEP Dielectric</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0100 (100 mm) 3.94* min.</td>
<td></td>
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</table>

VSWR
RF23S: 1.30 max

3.50 mm Cable Connectors
PRF35

<table>
<thead>
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<tbody>
<tr>
<td>PRF35-P-C-EP-405-SS</td>
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<tr>
<td>PRF35-J-C-EP-402-SS</td>
</tr>
<tr>
<td>PRF35-J-C-EP-402-BS</td>
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<tr>
<td>PRF35-P-C-EP-402-SS</td>
</tr>
<tr>
<td>PRF35-P-C-EP-120A-SS</td>
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<td>PRF35-J-C-EP-160-SS</td>
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P.C = Cable Plug
J.C = Cable Jack
EP = Plating (50 µ" Gold center contact, passivated outer contact)
SS = Straight, Solder Clamp
BS = Bulkhead, Solder Clamp

SSMA TO 34 GHz

SSMA Cable Connectors
PRFS1

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<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
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<tr>
<td>PRFS1-J-C-EE-405-BD</td>
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<tr>
<td>PRFS1-P-C-EE-405-SD</td>
</tr>
<tr>
<td>PRFS1-P-C-EP-141A-SS</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
BD = Bulkhead, Direct Solder

INTERFACE STANDARD

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## 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

### END 1 CONNECTOR
- **01SP1**: SMA Straight Plug
- **01RP1**: SMA Right-angle Plug (RF25S not available)
- **01BJ1**: SMA Bulkhead Jack (RF402 & RF405 not available)

### END 2 CONNECTOR
- **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)

### OVERALL LENGTH
- **”XXXX”**: Overall Length in millimeters
  -0100 (100 mm) 3.94* minimum

### VSWR
- **RF25S**: 1.60 max.
- **RF402**: 1.50 max.
- **RF405**: 1.35 max.
- **RF180**: 1.35 max.
- **RF280**: 1.35 max.

### ALSO AVAILABLE
- **SMP** = RF25S, RF405
- **TNCA, N Type** = RF180

### SMA TO 18 GHz

### SMA Cable Connectors
**PRF01**

### CONNECTORS FOR INDUSTRY STANDARD CABLES
- **PRF01-P-C-EP-1208-SS**: IW 1201, low loss flexible
- **PRF01-P-C-EP-120-SS**: Harbour LL120, low loss flexible
- **PRF01-P-C-EP-142-SS**: Harbour LL142, low loss flexible
- **PRF01-P-C-EP-142A-SS**: Harbour SS402, flexible alternative to RG 402
- **PRF01-P-C-EP-141A-SS**: Harbour SS402, flexible alternative to RG 402
- **PRF01-P-C-EP-190-SS**: Semflex HP190, low loss flexible
- **PRF01-P-C-EP-290-SS**: Semflex LA290, low loss flexible
- **PRF01-P-C-EP-335A-SS**: Harbour LL335i, low loss flexible
- **PRF01-P-C-EP-335-SS**: Harbour LL335, low loss flexible
- **PRF01-P-C-EP-150-SS**: Dynawave DF150, low loss flexible
- **PRF01-P-C-EP-4170-SD**: RG 405, .085, semi-rigid
- **PRF01-P-C-EP-4170-SD**: RG 405, .085, semi-rigid
- **PRF01-P-C-EP-4170-SD**: RG 405, .085, semi-rigid
- **PRF01-P-C-EP-200-SS**: Times Max Gain 200, low loss flexible

### SMA Board Connectors
**SMA-TH**, **SMA-SM**, **SMA-MT**, **SMA-EM**

### Cable Mates:
- **RF25S**, **RF402**, **RF405**, **RF180**, **RF280**

### INTERFACEx STANDARD

### ERA–ST–TH1

---

Additional connector options available. Contact RFGroup@samtec.com
SMPM TO 65 GHz

SMPM Cable Assemblies
RF047-A, RF086, RF23C

**RF047-A**
= (1.2 mm) .047" overshield DIA
29 AWG millimeter cable

**RF086**
= (2.18 mm) .086" overshield DIA
23 AWG millimeter cable

**RF23C**
= MWC-2350CU-01 millimeter wave cable with copper foil shield

** connectors for industry standard cables**

<table>
<thead>
<tr>
<th>connector code</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRFM0-J-C-EE-047A-BD</td>
<td>.047 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-085-BD</td>
<td>Harbour SS405, flexible alternative to RG 405</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-047A-RD</td>
<td>.047 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-086-SD</td>
<td>.086 Temp-Flex, low loss flexible</td>
</tr>
<tr>
<td>PRFM0-J-C-EE-047B-SD</td>
<td>.047 Temp-Flex, low loss flexible, 28 AWG</td>
</tr>
<tr>
<td>PRFM0-P-C-HG-047A-SD</td>
<td>.047 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
</tbody>
</table>

**SMPM Cable Connectors**
PRFM0

**SMPM Board Connectors**
SMPM-SM, SMPM-TH, SMPM-RA

**Cable Mates:**
RF047-A, RF086, RF23C

**Connectors for Industry Standard Cables**

<table>
<thead>
<tr>
<th>connector code</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRFM0-J-C-HG-047A-SD</td>
<td>.047 Temp-Flex, low loss flexible, 29 AWG</td>
</tr>
</tbody>
</table>

**VSWR**
RF047-A: 1.40 max.
RF086: 1.40 max.
RF23C: 1.40 max.

**ALSO AVAILABLE**
1.85 mm, 2.40 mm, 2.92 mm = RF086
1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm = RF047-A
2.40 mm, 2.92 mm = RF23C

**OVERALL LENGTH**

<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>MOSP</td>
<td>MOSJ</td>
<td>“XXXX”</td>
</tr>
<tr>
<td>= SMPM Straight Plug, Full Detent</td>
<td>= SMPM Straight Jack</td>
<td>= Overall Length in millimeters</td>
<td></td>
</tr>
<tr>
<td>RF086</td>
<td>0100 (0100 mm) 3.94” minimum (RF047-A, RF086)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF23C</td>
<td>0152 (0152 mm) 5.984” minimum (RF23C)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cable Mates:**
RF047-A, RF086, RF23C

**SMPM**

**GENDER**

<table>
<thead>
<tr>
<th>gender</th>
<th>type</th>
<th>plating</th>
<th>orientation</th>
<th>termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PF</td>
<td>= Full Detent</td>
<td>-HG</td>
<td>= Straight</td>
<td>-EM</td>
</tr>
<tr>
<td>-PS</td>
<td>= Smooth Bore</td>
<td>= Gold center contact, 10 μ&quot; (0.25 μm) Gold outer contact (-ST only)</td>
<td>= Righ-angle (-TH required)</td>
<td>= Drop-in Edge Mount (-ST only)</td>
</tr>
<tr>
<td>-PC</td>
<td>= Catchers Mitt (-ST-TH only)</td>
<td>= Gold center contact, 3 μ&quot; (0.08 μm) Gold outer contact (-RA only)</td>
<td>= Through-hole</td>
<td></td>
</tr>
</tbody>
</table>

**Samtec.com/SMPM**

F-221 (Rev 05MAY21)
SMPM TO 65 GHz

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: 4.22 mm (.166”), 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

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**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**

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### SMP Board Connectors
**SMP-TH, SMP-EM**

**Cable Mates:**
- RF405, RF25S

#### Gender Types
- **-PF** = Plug, Full Detent
- **-PL** = Plug, Limited Detent
- **-PS** = Plug, Smooth Bore
- **-PC** = Plug, Catcher’s Mitt

#### Type and Plating
- **-P** = PCB Mount
- **-GF** = 10 µ" (0.25 µm) Gold center contact, Gold Flash outer contact (–TH2 only)
- **-HH** = 30 µ" (0.76 µm) Gold center and outer contact (–EM3)

#### Orientation and Termination
- **-ST** = Straight
- **-TH2** = Through-hole
- **-EM3** = Drop-in Edge Mount (Not available with –PC)

#### Bullet Adaptor
**SMP-B**

**APPLICATION**
Compensates for axial & radial misalignment
### N Type to 18 GHz

#### N Type Cable Assemblies
RF180, RF280

<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</td>
<td>N Type Straight Plug</td>
<td>“XXXX”</td>
</tr>
<tr>
<td>RF280</td>
<td>-06RP</td>
<td>N Type Right-angle Plug</td>
<td>0100 (100 mm) 3.94* minimum</td>
</tr>
</tbody>
</table>

**VSWR**

- RF180: 1.35 max.
- RF280: 1.35 max.

#### ALSO AVAILABLE

- SMA, TNCA = RF180
- SMA, TNCA = RF280

### N Type Cable Connectors
PRF06

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
<th>SERIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF06-P-C-EP-142-SS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-190-SS</td>
<td>Semiflex HP190, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-335-SS</td>
<td>Harbour LL335, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-290-SS</td>
<td>Semiflex LA290, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-142A-SS</td>
<td>Harbour SB142, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-305-SS</td>
<td>Semiflex HP305, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-335-RS</td>
<td>Harbour LL335, low loss flexible</td>
</tr>
<tr>
<td>PRF06-J-C-EP-142-BS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF06-J-C-EP-190-BS</td>
<td>Semiflex HP190, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-120A-SS</td>
<td>Semiflex HP120, low loss flexible</td>
</tr>
<tr>
<td>PRF06-J-C-EP-402-4S</td>
<td>RG 402, 141, semi-rigid</td>
</tr>
<tr>
<td>PRF06-P-C-EP-142-RS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-99R-BS</td>
<td>Semiflex HP190, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-290-RS</td>
<td>Semiflex LA290, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-141A-SS</td>
<td>Harbour SS402, flexible alternative to RG 402</td>
</tr>
<tr>
<td>PRF06-J-C-EP-335-BS</td>
<td>Harbour LL335, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-335A-SS</td>
<td>Harbour LL335i, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-290-RS</td>
<td>Semiflex LA290, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-300A-SS</td>
<td>Times Max Gain 300, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-335A-RS</td>
<td>Harbour LL335i, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-160B-SS</td>
<td>ATM CF-210, low loss flexible</td>
</tr>
<tr>
<td>PRF06-P-C-EP-270A-RS</td>
<td>Dynawave DF218, low loss flexible</td>
</tr>
</tbody>
</table>

**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

**Also Available**

- SMA, TNCA = RF180
- SMA, TNCA = RF280

---

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TNCA TO 18 GHz

TNCA Cable Assemblies
RF180, RF280

RF180
= (4.52 mm) .178” overshield DIA, 16 AWG microwave cable

RF280
= (7 mm) .277” overshield DIA, 11 AWG microwave cable

VSWR
RF180: 1.35 max.
RF280: 1.35 max.

END 1 CONNECTOR
-04SP
= TNCA Straight Plug

END 2 CONNECTOR
-04RP
= TNCA Right-angle Plug

OVERALL LENGTH
"XXXX" = Overall length in millimeters
-0100 (100 mm) 3.94” minimum

ALSO AVAILABLE
SMA, N Type = RF180
SMA, N Type = RF280

CONNECTORS FOR INDUSTRY STANDARD CABLES

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>SERIES DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRF04-P.C-EP-142-BS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF04-J-C-EP-142-BS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-142-SS</td>
<td>Harbour LL142, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-335-SS</td>
<td>Harbour LL335, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-290-SS</td>
<td>Semflex LA290, low loss flexible</td>
</tr>
<tr>
<td>PRF04-J-C-EP-190-BS</td>
<td>Semflex HP190, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-190-SS</td>
<td>Semflex HP190, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-335A-SS</td>
<td>Harbour LL335I, low loss flexible</td>
</tr>
<tr>
<td>PRF04-J-C-EP-335A-BS</td>
<td>Harbour LL335I, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-300A-SS</td>
<td>Times Max Gain 300, low loss flexible</td>
</tr>
<tr>
<td>PRF04-P.C-EP-200A-SS</td>
<td>Times Max Gain 200, low loss flexible</td>
</tr>
</tbody>
</table>

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

INTERFACE STANDARD

samtec.com/TNCA
F-221 (Rev 01APR21)
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

### HIGH-DENSITY & SPACE-SAVING
Enables smaller evaluation boards and shorter trace lengths.

### 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 MWC-2350CU-01</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>

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### 70 GHz ASSEMBLIES

<table>
<thead>
<tr>
<th>BE70A</th>
<th>TRANSMISSION TYPE</th>
<th>END 2</th>
<th>PHASE MATCHING</th>
<th>2 POSITIONS PER ROW</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>-S</td>
<td>= Stripline</td>
<td>-18SJ</td>
<td>= 2.0 Pico-second</td>
<td>-03, -04, -06, -08, -10, -12, -14, -16</td>
<td>= Overall length in millimeters</td>
</tr>
<tr>
<td>-M</td>
<td>= Microstrip</td>
<td>-18SP</td>
<td>= 5.0 Pico-second</td>
<td></td>
<td>= “XXXX”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Overall length in millimeters</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= 0152 (0152 mm) 5.984” to</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= 9999 (9999 mm) 393.7”</td>
</tr>
</tbody>
</table>

**BE70A**

End 2 Connectors:
1.85 mm (70 GHz)

**12 POSITIONS PER ROW SHOWN**

**BE70A, 2 X 4 FOOTPRINT, 12-INCH CABLE**

~3 dB LOSS: BREAKOUT REGION + BE70A

MEASURED: 1.975 mm STRIPLINE + BREAKOUT REGION + BE70A
### 50 GHz & 40 GHz Assemblies

**BE40A**

**End 2 Connectors:**
- 2.40 mm (50 GHz)
- 2.92 mm (40 GHz)

**2.92 mm Straight Plug**
- **-92SJ**
  - 40 GHz
- **-24SJ**
  - 50 GHz
- **-92SP**
  - 40 GHz
- **-24SP**
  - 50 GHz

**Phase Matching**
- **-2**
  - 2.0 Pico-second
- **-5**
  - 5.0 Pico-second
- **-10**
  - 10.0 Pico-second

**Overall Length**
- **“XXXX”**
  - Overall length in millimeters
  - ~0152 (0152 mm) 5.984" to ~9999 (9999 mm) 393.7"

**16 Positions per Row Shown**

**Footprint**
(Backward compatible with BDRA Series)

**Photo**

---

### 20 GHz Assemblies

**BDRA**

**End 2 Connectors:**
- 2.92 mm

**2.92 mm Straight Plug**
- **-92SJP**
  - 40 GHz
- **-24SJP**
  - 50 GHz

**Phase Matching**
- **-2**
  - 2.0 Pico-second
- **-5**
  - 5.0 Pico-second
- **-10**
  - 10.0 Pico-second

**Overall Length**
- **“XXXX”**
  - Overall length in millimeters
  - -0100 (100 mm) 3.94" to ~9999 (9999 mm) 393.7"

**12 Positions per Row Shown**

**Footprint**
(Compatible with BE40A series footprint)

**Photo**

---

**BQRA**

**End 2 Connectors:**
- 2.92 mm

**2.92 mm Straight Plug**
- **-92SJP**
  - 40 GHz
- **-24SJP**
  - 50 GHz

**Phase Matching**
- **-2**
  - 2.0 Pico-second
- **-5**
  - 5.0 Pico-second
- **-10**
  - 10.0 Pico-second

**Overall Length**
- **“XXXX”**
  - Overall length in millimeters
  - -0100 (100 mm) 3.94" to ~9999 (9999 mm) 393.7"

**20 Positions, 4 Rows**

**Footprint**

---

samtec.com/BullsEye

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)

Flexible Cable Construction

Stripline Routing

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>RG 316 DS</td>
<td>RG S8</td>
<td>RG 179</td>
<td>RG 195</td>
</tr>
<tr>
<td>RG 174</td>
<td>RG 316</td>
<td>RG 179</td>
<td>RG 195</td>
</tr>
<tr>
<td>RG 178</td>
<td>CTB-2650F-01</td>
<td>RG 174</td>
<td>4855R</td>
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</table>

### ELECTRICAL

<table>
<thead>
<tr>
<th>Impedance</th>
<th>50 Ω</th>
<th>50 ± 2</th>
<th>50 ± 5</th>
<th>50 ± 2</th>
<th>50 ± 3</th>
<th>75 ± 3</th>
<th>100 ± 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss (dB/m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 MHz</td>
<td>0.50</td>
<td>0.68</td>
<td>0.40</td>
<td>0.30</td>
<td>1.4 @ 2 GHz</td>
<td>0.20</td>
<td>0.30</td>
</tr>
<tr>
<td>1 GHz</td>
<td>1.70</td>
<td>2.37</td>
<td>1.40</td>
<td>1.25</td>
<td>1.6 @ 3 GHz</td>
<td>0.80</td>
<td>0.80</td>
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<tr>
<td>6 GHz</td>
<td>5.90</td>
<td>6.53</td>
<td>4.40</td>
<td>4.25</td>
<td>2.2 @ 5 GHz</td>
<td>5.40</td>
<td>3.60</td>
</tr>
<tr>
<td>Propagation Delay</td>
<td>nS/m</td>
<td>4.83</td>
<td>4.17</td>
<td>5.06</td>
<td>4.83</td>
<td>-----</td>
<td>5.05</td>
</tr>
<tr>
<td>Current Rating</td>
<td>Amps</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Capacitance</td>
<td>pF/m</td>
<td>96</td>
<td>85.6</td>
<td>101</td>
<td>96</td>
<td>95.8</td>
<td>102</td>
</tr>
</tbody>
</table>

### CONSTRUCTION

<table>
<thead>
<tr>
<th>Center Conductor</th>
<th>Material</th>
<th>Silver Plated Copper Clad Steel</th>
<th>Bare Copper</th>
<th>Silver and Copper Plated Steel</th>
<th>Silver Plated Copper Clad Steel</th>
<th>Tinned Copper</th>
<th>Silver Plated Copper</th>
<th>Bare Copper</th>
<th>Silver Plated Copper</th>
<th>Bare Copper</th>
<th>Silver Plated Copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG</td>
<td></td>
<td>30</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>20</td>
<td>30</td>
<td>23</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Dielectric</td>
<td>Material</td>
<td>PTFE</td>
<td>Foamed FEP</td>
<td>KLPE</td>
<td>PTFE</td>
<td>Solid Polyethylene</td>
<td>PTFE</td>
<td>FHDPE</td>
<td>FHDPE</td>
<td>PE (Foam)</td>
<td>FHDPE</td>
</tr>
<tr>
<td>Shield Material</td>
<td>Silver Plated Copper</td>
<td>Tinned Copper</td>
<td>Silver Plated Copper</td>
<td>Tinned Copper</td>
<td>Silver Plated Copper</td>
<td>1. Al Foil</td>
<td>Tape-Al Foil</td>
<td>2. Al Foil</td>
<td>1. Al Foil</td>
<td>Tape-Al Foil</td>
<td>2. Tinned Copper</td>
</tr>
<tr>
<td>Jacket Material</td>
<td>FEP</td>
<td>PVC</td>
<td>FEP</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
</tr>
<tr>
<td>Temperature Rating</td>
<td>-50 °C to +165 °C</td>
<td>-40 °C to +200 °C</td>
<td>-20 °C to +80 °C</td>
<td>-55 °C to +165 °C</td>
<td>-50 °C to +90 °C</td>
<td>-50 °C to +165 °C</td>
<td>-30 °C to +75 °C</td>
<td>-30 °C to +75 °C</td>
<td>-20 °C to +75 °C</td>
<td>-30 °C to +75 °C</td>
<td>-20 °C to +105 °C</td>
</tr>
</tbody>
</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Bend Radius</th>
<th>Min</th>
<th>10.2 mm</th>
<th>3.175 mm</th>
<th>25.4 mm</th>
<th>12.7 mm</th>
<th>12.8 mm</th>
<th>48.3 mm</th>
<th>10.2 mm</th>
<th>38.1 mm</th>
<th>69.85 mm</th>
<th>41 mm</th>
<th>70 mm</th>
<th>69.85 mm</th>
<th>19.05 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Options</td>
<td>MMCCX, MCM, SMA, SMB, BNC, TNC, N Type</td>
<td>IsoRate®</td>
<td>MMCCX, MMCCV, MCM, SMA, SMB, BNC, TNC, N Type, Ganged</td>
<td>MMCCX, MCM, SMA, BNC, TNC</td>
<td>MCM, MCMX, SMB, BNC, DIN 1.0/2.3</td>
<td>Ganged</td>
<td>HD-BNC, ©, DIN 1.0/2.3</td>
<td>BNC, HD-BNC, ©, DIN 1.0/2.3</td>
<td>Ganged</td>
<td>HD-BNC, ©, DIN 1.0/2.3</td>
<td>BNC, HD-BNC, ©, DIN 1.0/2.3</td>
<td>Ganged</td>
<td>HD-BNC, ©, DIN 1.0/2.3</td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>RF178</td>
<td>RJ5C</td>
<td>RF174</td>
<td>RF316, L5C, L5H, GRF1-C, GRF1-H-C</td>
<td>RS316</td>
<td>RF058</td>
<td>RF179, GRF7-C, GRF7-H-C</td>
<td>RFB8T</td>
<td>RFB6T</td>
<td>RFC8T</td>
<td>RFC6T</td>
<td>RFA6T</td>
<td>C28S</td>
<td></td>
</tr>
</tbody>
</table>

### PART NUMBER

[271x24]samtec.com/RF

Unpublished information 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

Specify END OPTIONS from chart

**APPLICATION**

- **MH1RP**
  - 2.5 mm MAX
  - 1.55 mm MAX
  
- **MH3RP**
  - 1.2 mm MAX

**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

**SPECIFICATIONS**

**0.81 mm Cable:**
- Capacitance: 100 pF/meter
- Max. Attenuation: 3.1 dB @ 1 GHz
- Conductor Size: 36 AWG, 0.032" dia.
- Conductor Material: Silver Plated Copper
- Conductor Resistance: 1.40 Ωv/meter max
- Insulator Diameter: 0.4 mm, 0.016”
- Insulator Material: FEP
- Shield Material: Silver Plated Copper
- Jacket Material: PFA
- Jacket Diameter: 0.81 mm, 0.032” dia.
- Bend Radius: 5.0 mm
- Jacket Temp Rating: -40 °C to +90 °C

**1.13 mm Cable:**
- Capacitance: 95 pF/meter
- Max. Attenuation: 2 dB @ 1 GHz
- Conductor Size: 32 AWG, 1.13 mm, 0.045” dia.
- Conductor Material: Silver Plated Copper
- Conductor Resistance: 0.60 Ω/meter max
- Insulator Diameter: 0.66 mm, 0.026”
- Insulator Material: FEP
- Shield Material: Tinned Copper
- Jacket Material: FEP
- Jacket Diameter: 1.13 mm, 0.045” dia
- Bend Radius: 6.8 mm
- Jacket Temp Rating: -40 °C to +90 °C

**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)
  - (MH4RP is not available with MH1RP & MH3RP - MH081 only)

- **-01BJ1 = SMA Straight Bulkhead Jack (MH081 only)**
  - Reversed Polarity

- **-01BJ2 = SMA Straight Bulkhead Jack, Reversed Polarity**

- **-01SB1 = SMA Straight Jack, Sealed Bulkhead**

- **-01SR1 = SMA Straight Jack, Sealed Bulkhead, Reversed Polarity**

- **-01581 = SMA Straight Jack, Sealed Bulkhead, Reversed Polarity**
  - (30 µ (0.76 µm) Gold on Center Contact, Gold Flash on Shell)

- **-01591 = SMA Straight Jack, Sealed Bulkhead, Reversed Polarity**

- **-SING = Single Ended**
  - (End 2 callout)

- **XXXXXX = Stripped & Tinned**
  - (End 2 callout)

**STRIPPED & TINNED (Dimensions in mm)**

- **CALLOUT A B C**
  - 30030 3.0 1.0 3.0
  - 30030 3.0 1.0 4.0
  - 40030 4.0 1.0 3.0
  - 40030 4.0 1.0 4.0
  - 40040 4.0 4.0 4.0

Both center conductor and braid shield are stripped, only the center conductor is tinned.
### 50 Ω SMA TO 6 GHz

#### SMA Cable Assemblies
- **RF174**, **RF178**, **RF316**, **RS316**, **RF058**

<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>RF174</strong></td>
<td>= RG 174 Cable</td>
<td>= SMA Straight Plug</td>
<td>= Overall Length in millimeters</td>
</tr>
<tr>
<td><strong>RF178</strong></td>
<td>= RG 178 Cable (-01BJ1 &amp; -01BR1 only)</td>
<td>= SMA Right-angle Plug</td>
<td>-0100 (100 mm) 3.94” minimum</td>
</tr>
<tr>
<td><strong>RF316</strong></td>
<td>= RG 316 Cable, Single Braid Shield</td>
<td>= SMA Straight Bulkhead Jack</td>
<td></td>
</tr>
<tr>
<td><strong>RS316</strong></td>
<td>= RG 316 Cable, Double Shield (-01SP1 &amp; -01BJ1 only)</td>
<td>= Straight Bulkhead Jack, Sealed</td>
<td></td>
</tr>
<tr>
<td><strong>RF058</strong></td>
<td>= RG 58 Cable (-01SP1, -01BJ1 &amp; 01SB1 only)</td>
<td>= Straight Bulkhead Jack, Sealed, Reversed Polarity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 4-Hole Panel Mount Jack</td>
<td>= Straight Bulkhead Jack, Reversed Polarity</td>
<td></td>
</tr>
</tbody>
</table>

#### ALSO AVAILABLE
- 50 Ω: MCX, MMCX, SMB, BNC, TNC, N Type = RF174, RF178, RF316
- 50 Ω: MCX, MMCX, BNC, TNC = RS316
- 50 Ω: TNC = RF058

#### 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></td>
<td>–J</td>
<td>= Jack</td>
<td>-H</td>
<td>= Straight</td>
<td>= Bulkhead</td>
</tr>
<tr>
<td></td>
<td>–C</td>
<td>= Cable</td>
<td>Gold center contact, 3 µ&quot; (0.08 µm)</td>
<td></td>
<td>RG 174 / 316 Cable</td>
</tr>
<tr>
<td></td>
<td>–C4</td>
<td>= Cable</td>
<td>Gold outer contact (N/A with –BH1S)</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>–BH1</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–BH2</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–BR1</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–BR2</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–BH1S</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–B10</td>
<td>= Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–PN1</td>
<td>= 4-Hole Panel Mount</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–S10</td>
<td>= Sealed Bulkhead</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Supplied with pins, washers, nuts and ferrules. See website for dimensions.**

#### SMA Board Connectors

**See page 145 for 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></td>
<td>–P</td>
<td>= Plug</td>
<td>-H</td>
<td>= Straight</td>
<td>= RG 174 / 316 Cable</td>
</tr>
<tr>
<td></td>
<td>–C</td>
<td>= Cable</td>
<td>Gold center contact, 3 µ&quot; (0.08 µm)</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>–CA1</td>
<td>= RG 174 / 316 Cable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–C10</td>
<td>= RG 58 Cable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–CA1S</td>
<td>= RG 316 Double Shielded Cable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Supplied with pins, washers, nuts and ferrules. See website for dimensions.**
**50 Ω MCX TO 6 GHz**

**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>RG 174 Cable</td>
<td>-02SJ1</td>
<td>&quot;XXXX&quot;</td>
</tr>
<tr>
<td>RF178</td>
<td>RG 178 Cable</td>
<td>-02RP1</td>
<td>-0100 (100 mm) 3.94&quot; minimum</td>
</tr>
<tr>
<td>RF316</td>
<td>RG 316 Cable, Single Braid Shield</td>
<td>-02SP1</td>
<td></td>
</tr>
<tr>
<td>RS316</td>
<td>RG 316 Cable, Double Shielded</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Also Available**
50 Ω: MMCX, 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</td>
</tr>
<tr>
<td>MCX-J-C-H-ST-CA2</td>
</tr>
<tr>
<td>MCX-J-HF-ST-CA15</td>
</tr>
<tr>
<td>MCX-P-C-H-ST-CA1</td>
</tr>
<tr>
<td>MCX-P-C-H-ST-CA2</td>
</tr>
<tr>
<td>MCX-P-C-HRA-CA1</td>
</tr>
<tr>
<td>MCX-P-C-HRA-CA2</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

**Cable Mates:**
RF174, RF178, RF316, RS316, GRF1H-C, IJ5H

**Supplied with pins and ferrules. See website for dimensions.**

**Samtec.com/MCX**
**50 Ω MMCX TO 6 GHz**

**MMCX Cable Assemblies**
RF174, RF178, RF316, RS316

- **RF174** = RG 174 Cable
- **RF178** = RG 178 Cable
- **RF316** = RG 316 Cable, Single Braid Shield
- **RS316** = RG 316 Cable, Double Shielded

**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>-03SP1 = MMCX Straight Plug</td>
<td>-03RP1 = MMCX Right-angle Plug</td>
<td>-“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td>-V3SP1 = MMCXV Straight Plug, High Vibration</td>
<td>-V3RP1 = MMCXV Right-angle Plug, High Vibration</td>
<td>-0100 (100 mm) 3.94” minimum</td>
</tr>
<tr>
<td>RS316</td>
<td>-V3SP1 = MMCXV Straight Plug, High Vibration</td>
<td>-V3RP1 = MMCXV Right-angle Plug, High Vibration</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

- **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.

**Connectors for Industry Standard Cables**

<table>
<thead>
<tr>
<th>CONNECTORS</th>
<th>END 1 CONNECTOR</th>
<th>END 2 CONNECTOR</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMCX-P-C-H-ST-CA1</td>
<td>RG 174/316 Cable</td>
<td>-03SP1 = MMCX Straight Plug</td>
<td>-“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>MMCX-P-C-H-ST-CA2</td>
<td>RG 178 Cable</td>
<td>-03RP1 = MMCX Right-angle Plug</td>
<td>-0100 (100 mm) 3.94” minimum</td>
</tr>
<tr>
<td>MMCX-P-C-HF-ST-CA1S</td>
<td>RG 316 Double Shielded Cable</td>
<td>-V3SP1 = MMCXV Straight Plug, High Vibration</td>
<td></td>
</tr>
<tr>
<td>MMCX-P-C-H-RA-CA1</td>
<td>RG 174/316 Cable</td>
<td>-V3RP1 = MMCXV Right-angle Plug, High Vibration</td>
<td></td>
</tr>
<tr>
<td>MMCX-P-C-H-RA-CA2</td>
<td>RG 178 Cable</td>
<td>-V3SJ1 = MMCXV Straight Jack, High Vibration</td>
<td></td>
</tr>
</tbody>
</table>

**MMCX Board Connectors**

<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>MMCX-SM, MMCX-TH, MMCX-MT, MMCX-EM</td>
<td>-J = Jack</td>
<td>-P = Plug</td>
<td>-H = 30 μ” (0.76 μm) Gold center contact, 3 μ” (0.08 μm) Gold outer contact</td>
<td>-ST = Straight</td>
<td>-TH1 = Through-hole</td>
</tr>
<tr>
<td>Cable Mates: RF174, RF178, RF316, RS316, GRF1H-C, IJ5H</td>
<td>-P = Plug</td>
<td>-H = 30 μ” (0.76 μm) Gold center contact, 3 μ” (0.08 μm) Gold outer contact</td>
<td>-ST = Straight</td>
<td>-RA = Right-angle</td>
<td>-MT1 = Mixed Technology</td>
</tr>
</tbody>
</table>

samtec.com/MMCX
50 Ω TNC TO 6 GHz

**TNC Cable Assemblies**
RF174, RF178, RF316, RS316, RF058

<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>-05SP3</td>
<td>= Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td>= RG 178 Cable</td>
<td>-05BJ3</td>
<td>= 0100 (100 mm) 3.94&quot; minimum</td>
</tr>
<tr>
<td>RF316</td>
<td>= RG 316 Cable, Single Braid Shield</td>
<td>-05SR3</td>
<td>= TNC Straight Plug, Reversed Polarity (RF058 only)</td>
</tr>
<tr>
<td>RS316</td>
<td>= RG 316 Cable, Double Shielded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF058</td>
<td>= RG 58 Cable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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**

- **TNC-P-C-GN-ST-CA1** RG 174/316 Cable
- **TNC-P-C-GN-ST-CA2** RG 178 Cable
- **TNC-P-C-GN-SR-C10** RG 58 Cable
- **TNC-J-C-GN-ST-BH1** RG 174/316 Cable, Bulkhead
- **TNC-J-C-GN-ST-BH2** RG 178 Cable, Bulkhead

**Connectors for Industry Standard Cables**
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

**TNC GENDER**
- **J** = Jack
- **P** = PCB Mount

**Type**
- **H** = 30 µ" (0.76 µm) Gold center contact, Nickel on shell
- **RA** = Right-angle
- **TH1** = Through-hole

Supplied with pins, washers, nuts and ferrules. See website for dimensions.

samtec.com/TNC
**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</td>
<td>-=-04SP3=- BNC Straight Plug (RS316 not available)</td>
<td>-=-04BJ2=- BNC Bulkhead Jack</td>
<td>-=&quot;XXXX&quot;=- Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF316</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS316</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RF174**
= RG 174 Cable

**RF178**
= RG 178 Cable

**RF316**
= RG 316 Cable, Single Braid Shield

**RS316**
= RG 316 Cable, Double Shielded

**ALSO AVAILABLE**
50 Ω: MCX, MMCX, SMA, SMB, TNC, N Type = RF174, RF178, RS316
50 Ω: MCX, MMCX, SMA, TNC = RS316

**BNC Cable Connectors**
BNC5-CA

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BNCS-P-C-GN-ST-CA1</td>
<td>RG 174/316 Cable</td>
</tr>
<tr>
<td>BNCS-P-C-GN-ST-CA2</td>
<td>RG 178 Cable</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH1</td>
<td>RG 174/316 Cable, Bulkhead</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH2</td>
<td>RG 178 Cable, Bulkhead</td>
</tr>
<tr>
<td>BNCS-J-C-GN-ST-BH1S</td>
<td>RG 316 Double Shielded 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

supplier with pins, washers, nuts, gaskets and ferrules.
See website for dimensions.
## 50 Ω SMB TO 4 GHz

### 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>-07SP1</td>
<td>“XXXX” = Overall Length in millimeters</td>
</tr>
<tr>
<td>RF178</td>
<td>SMB Right-angle Plug</td>
<td>-07RP1</td>
<td>-0100 (100 mm) 3.94” minimum</td>
</tr>
<tr>
<td>RF316</td>
<td>SMB Bulkhead Jack</td>
<td>-07BJ1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SMB Bulkhead Jack (RF178 only)</td>
<td>-07BJ2</td>
<td></td>
</tr>
</tbody>
</table>

**Also Available**

50 Ω: MCX, MMCX, SMA, BNC, TNC, N Type = RF174, RF178, RF316

### SMB Cable Connectors

**SMB5-CA**

<table>
<thead>
<tr>
<th>CONNECTORS FOR INDUSTRY STANDARD CABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMB5-P-C-H-ST-CA1</td>
</tr>
<tr>
<td>SMB5-P-C-H-RA-CA1</td>
</tr>
<tr>
<td>SMB5-J-C-H-ST-CA2</td>
</tr>
<tr>
<td>SMB5-J-C-H-ST-BH1</td>
</tr>
</tbody>
</table>

P-C = Cable Plug  
J-C = Cable Jack  
H = Plating (30 μm Gold center contact, 3 μm Gold on outer contact)  
ST = Straight  
RA = Right-angle

Supplied with pins, washers, nuts and ferrules. See website for dimensions.

### SMB Board Connectors

**SMB5-TH**

**Cable Mates:** RF174, RF178, RF316, GRF1H-C, IJSH

<table>
<thead>
<tr>
<th>SMB5</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>-RA</td>
<td>-TH1</td>
</tr>
<tr>
<td></td>
<td>Jack</td>
<td>PCB Mount</td>
<td>30 μm (0.76 μm) Gold center contact, 3 μm (0.08 μm) Gold outer contact</td>
<td>Right-angle</td>
<td>Through-hole</td>
</tr>
</tbody>
</table>

samtec.com/SMB
**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 = 75 Ω BNC Straight Plug</td>
<td>–“XXXX” = Overall Length in millimeters</td>
<td>–0300 (300 mm) 11.81” minimum (RFA6T, RFB6T, RFC6T)</td>
</tr>
<tr>
<td>RFA6T</td>
<td>–D4SP3 = 75 Ω BNC Die Cast Straight Plug</td>
<td>–0100 (100 mm) 3.94” minimum (RF179)</td>
<td></td>
</tr>
<tr>
<td>RFB6T</td>
<td>–74BJ3 = 75 Ω BNC Bulkhead Jack (RF179 only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF179</td>
<td>–74RP3 = 75 Ω BNC Right-angle Plug (RFA6T, RFB6T, RFC6T only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RFC6T** = 12G-SDI, Belden 4694R Cable

**RFA6T** = RG 6 Cable

**RFB6T** = Belden 1694A Cable

**RF179** = RG 179 Cable

**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.

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**BNC Cable Connectors**
BNC7T-CA

Supplied with pins, washers, nuts, gaskets and ferrules. See website for dimensions.

**CONNECTORS FOR INDUSTRY STANDARD CABLES**

<table>
<thead>
<tr>
<th>connector</th>
<th>description</th>
<th>notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNC7T-P-C-GN-ST-CA3</td>
<td>Machined, RG 179 Cable</td>
<td>P.C = Cable Plug</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-RA-CA3</td>
<td>Machined, RG 179 Cable</td>
<td>J.C = Cable Jack</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-ST-CA6</td>
<td>*Machined, RG 6, Belden 1694A or Belden 4694R Cable</td>
<td>GN = Plating (10 μ” Gold on contact, Nickel on outer contact and shell)</td>
</tr>
<tr>
<td>BNC7T-P-C-GN-RA-CA6</td>
<td>*Machined, RG 6, Belden 1694A or Belden 4694R Cable</td>
<td>ST = Straight</td>
</tr>
<tr>
<td>BNC7T-J-C-GN-ST-BH3</td>
<td>Machined, Bulkhead, RG 179 Cable</td>
<td>RA = Right-angle</td>
</tr>
<tr>
<td>BNC7T- P-C-GN-ST-CA3D</td>
<td>Die Cast, RG 179 Cable</td>
<td></td>
</tr>
<tr>
<td>BNC7T-P-C-GN-ST-CA6D</td>
<td>Die Cast, RG 179 Cable</td>
<td></td>
</tr>
</tbody>
</table>

*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

---

samtec.com/BNC

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, RFB6T, RFC6T, GRF7H-C

**Table:**

<table>
<thead>
<tr>
<th>BNC7T</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>-GN</td>
<td>-ST</td>
<td>-TH2D</td>
</tr>
<tr>
<td></td>
<td>= Jack</td>
<td>= PCB Mount</td>
<td>= 10 µ“ (0.25 µm) Gold contact, 100 µ“ (2.54 µm) Nickel Shell</td>
<td>= Straight</td>
<td>= Tall Through-hole Die Cast (~ST only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-RA</td>
<td>-BH2D*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Right-angle Bulkhead/Panel Mount</td>
<td>= Low-Profile Die Cast Bulkhead Through-hole (~RA only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-BM1D*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Low-Profile Die Cast Bulkhead Mixed Technology for (1.60 mm) .062” PCB (~RA only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-BM2D*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Low-Profile Die Cast Bulkhead Mixed Technology for (2.40 mm) .093” PCB (~ST only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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 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, RFB6T, RFC6T, GRF7H-C

**Table:**

<table>
<thead>
<tr>
<th>BNC7T</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>-GN</td>
<td>-ST</td>
<td>-TH1</td>
</tr>
<tr>
<td></td>
<td>= Jack</td>
<td>= PCB Mount</td>
<td>= 10 µ“ (0.25 µm) Gold contact, 100 µ“ (2.54 µm) Nickel Shell</td>
<td>= Straight</td>
<td>= Standard Through-hole (~ST only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-RA</td>
<td>-BH1*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Right-angle Bulkhead/Panel Mount</td>
<td>= Standard Bulkhead Through-hole (~RA 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 Bulkhead/Panel Mount for (1.60 mm) .062” PCB (~ST only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-EM2*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>= Edge Mount Bulkhead/Panel Mount for (2.40 mm) .093” PCB (~ST only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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 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, RFB8T, RFC6T, RFC8T

**HD-BNC™ Cable Connectors**
- HDBNC-CA

**END 1 CONNECTOR**
- RFC6T* = 12G-SDI, Belden 4694R Cable
- RFC8T* = 12G-SDI, Belden 4855R Cable
- RFA6T = RG 6 Cable
- RFB6T = Belden 1694A Cable
- RFB8T = Belden 1855A Cable

**END 2 CONNECTOR**
- –H4SP3 = 75 Ω High-Density BNC Straight Plug

**OVERALL LENGTH**
- –“XXXX” = Overall Length in millimeters
  - 0300 (300 mm)
  - 11.81” minimum

**ALSO AVAILABLE**
- 75 Ω: DIN 1.0/2.3 = RFB6T, RFA6T, RFC6T
- 75 Ω: DIN 1.0/2.3 = RFB8T, RFC8T

**CONNECTORS FOR INDUSTRY STANDARD CABLES**
- HDBNC-P-C-GN-ST-CA6 = RG 6, Belden 1694A or Belden 4694R Cable
- HDBNC-P-C-GN-ST-CA8 = Belden 1855A or Belden 4855R Cable

P.C = Cable Plug
GN = Plating (10 μ" Gold on contact, Nickel on outer contact & shell)
ST = Straight

Supplied with pins and ferrules. See website with dimensions.

**HD-BNC™ Board Connectors**
- HDBNC-TH, HDBNC-EM, HDBNC-BH, HDBNC-BM

Cable Mates:
- RFA6T, RFB6T, RFB8T, RFC6T, RFC8T

**SERIES**
- RFCA6T*
  - H4SP3

**END 2 CONNECTOR**
- ST = Straight
- RA = Right-angle

**TERMINATION**
- BH1 = Through-hole
- BH2 = Through-hole (2.36 mm).093” PCB (RA only)
- BM1D = Die Cast Bulkhead Mixed Technology for (1.60 mm).062” PCB (RA only)
- BM2D = Die Cast Bulkhead Mixed Technology for (3.18 mm).125” PCB (RA only)
- EM1 = Edge Mount (ST only)
- TH1 = Through-hole (ST only), Three Legs

*Designed to meet SMPTE 2082 12G-SDI specifications.

**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

Supplied with pins and ferrules. See website with dimensions.

**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

*Designed to meet SMPTE 2082 12G-SDI specifications.

**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

**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

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**Notes:**
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- Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

**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
### DIN Cable Assemblies

**RFC6T**
- 12G-SDI, Belden 4694R Cable

**RFC8T**
- 12G-SDI, Belden 4855R Cable

**RFA6T**
- RG 6 Cable

**RFB6T**
- Belden 1694A Cable

**RF179**
- RG 179 Cable

**RFB8T**
- Belden 1855A Cable

*Designed to meet SMPTE 2082 12G-SDI specifications.

### DIN Cable Connectors

**DIN7A-CA**

<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.

**Series**
- RFC6T*
  - 12G-SDI, Belden 4694R Cable
- RFC8T*
  - 12G-SDI, Belden 4855R Cable
- RFA6T
  - RG 6 Cable
- RFB6T
  - Belden 1694A Cable
- RF179
  - RG 179 Cable
- RFB8T
  - Belden 1855A Cable

**End 1 Connector**
- 78SP4
  - 75 Ω DIN Straight Plug

**End 2 Connector**
- “XXXX”
  - Overall length in millimeters
  - 0100 (100 mm) 3.94” minimum (RF179)
  - 0300 (300 mm) 11.81” minimum (RFA6T, RFB6T, RFB8T, RFC6T, RFC8T)

**Overall Length**
- 78SP4
  - 75 Ω DIN Straight Plug

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**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
## 75 Ω SMB TO 4 GHz

### SMB Cable Assemblies
**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>RF179</td>
<td>-77SP1</td>
<td>-77RP1</td>
<td>“XXXX”</td>
</tr>
</tbody>
</table>

- **77SP1** = 75 Ω SMB Straight Plug
- **77RP1** = 75 Ω SMB Right-angle Plug
- “XXXX” = Overall Length in millimeters

### Also Available
75 Ω: DIN 1.0/2.3, BNC, MCX, MMCX = RF179

### Connectors for Industry Standard Cables

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P.C = Cable Plug  
H or HF = Plating (30 ″ Gold center contact, 3 ″ Gold outer contact)  
ST = Straight  
RA = Right-angle

Supplied with pins and ferrules. See website for dimensions

### SMB Cable Connectors
**SMB7H-CA**

### SMB Board Connectors
**SMB7H-TH, SMB7H-EM**

#### Cable Mates:
RF179, GRF7H-C

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<td>-PCB Mount</td>
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<td>-Through-hole (0.51 mm) .020&quot; DIA Signal Pin (-ST only)</td>
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<td>-RA-TH1</td>
<td>-RA</td>
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- ST = Straight  
- RA = Right-angle  
- TH1 = Through-hole (0.90 mm) .035" DIA Signal Pin  
- TH2 = Through-hole (0.51 mm) .020" DIA Signal Pin (-ST only)  
- EM1 = Edge Mount (-ST only)  

Note: Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

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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

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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

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.
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