samtec

TRANSMISSION LINE SOLUTIONS GUIDE

SEPTEMBER 2008

The Path of Least Resistance

Connectors. Cables. Final Inch®. Sudden Service®. Samtec transmission line solutions provide paths of least resistance for routing signals from one location to another, when signal integrity, electromagnetic interference, pin mapping and power requirements present design challenges.

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Product Solutions

Whether you need off-the-shelf or custom solutions to interconnect your high speed signal paths, Samtec offers a full line of components and systems that will address your specific transmission line needs. In addition to its cataloged standard solutions, Samtec offers:

- the ability to ruggedize or otherwise customize standard products
- the ability to develop full custom interconnects
- a fully integrated operation with in-house plating, coax cable and flex circuit manufacturing
- redundant manufacturing facilities strategically placed around the globe

No other supplier is better positioned to provide the flexibility needed to achieve high speed signal transmission line solutions optimized for pricing, performance and delivery.

TRANSMISSION LINE SOLUTIONS

ARRAYS
HIGH SPEED EDGE CARD
FLEX CIRCUITS
DATA RATE CABLES
CONNECTOR STRIPS
I/O CABLES
RF CONNECTORS
MICRO BACKPLANES
I/O CONNECTORS
MICROWAVE & TEST
RF CABLES

SUDDEN SERVICE®

Final Inch® • Signal Integrity Group • High Speed Design & Validation
Vertically Integrated Manufacturing • Application Specific/Ruggedizing Capabilities

Service Solutions

Samtec's in-house staff of Signal Integrity engineers can provide full support for addressing the physical and electrical considerations of your system to ensure optimum results. This includes:

- design, development, simulation, testing and validation of high speed interconnect systems
- patented Final Inch® PCB design tools which provide optimized signal paths for most standard high speed interconnects
- the ability to develop custom Final Inch® layouts on short notice

All of this is supported by the best service in the industry as documented year after year by the Bishop Survey of Interconnect Industry.

SIGNAL INTEGRITY DIVISION

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CONNECTOR STRIPS

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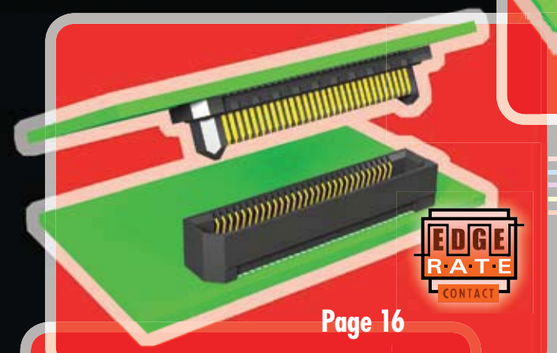

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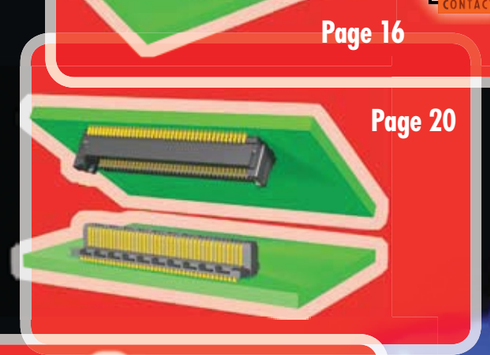

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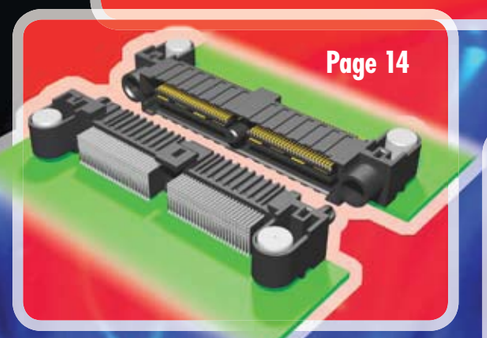

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TRANSMISSION LINE SOLUTION CAPABILITIES

- Board-to-Board
- Flex Circuits
- Data Rate Cables
- I/O Cables
- RF Cables
- Microwave and Test

RF CONNECTORS

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ARRAYS

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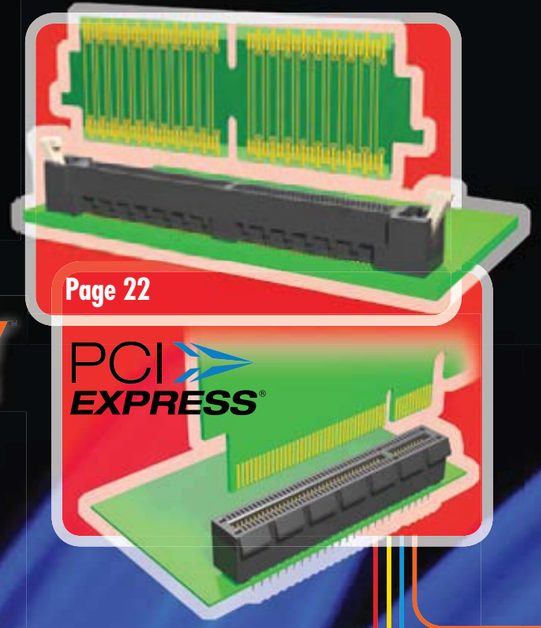
HIGH SPEED EDGE CARD



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MICRO BACKPLANES

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I/O CONNECTORS

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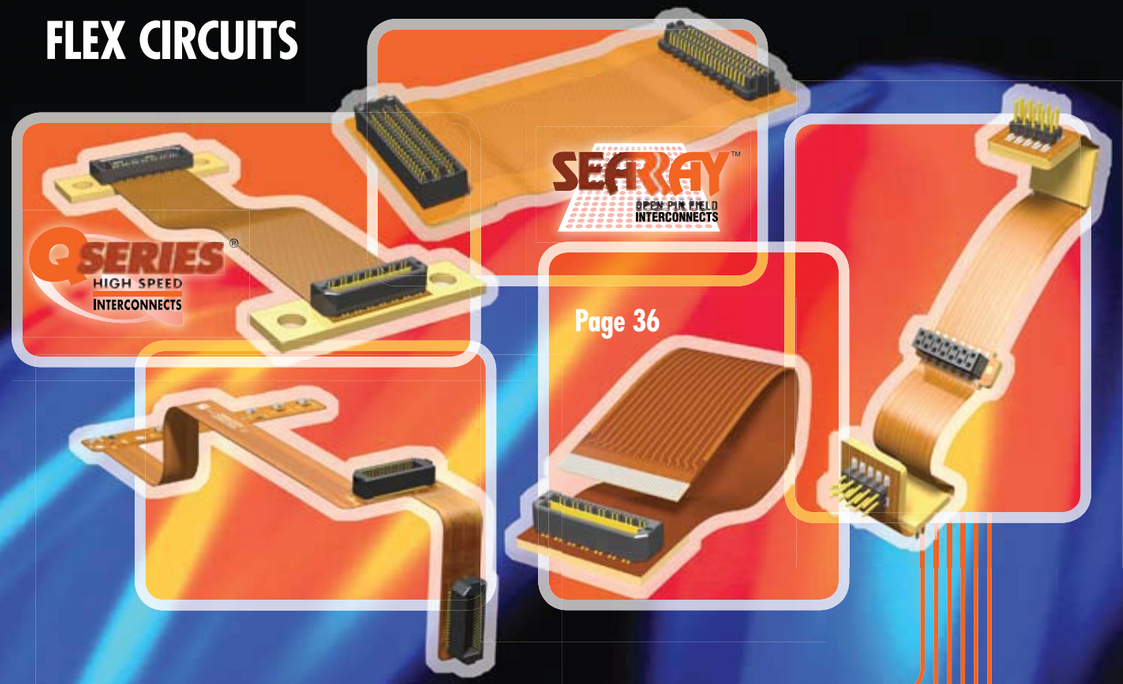
FLEX CIRCUITS



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DATA RATE CABLES

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MICROWAVE & TEST

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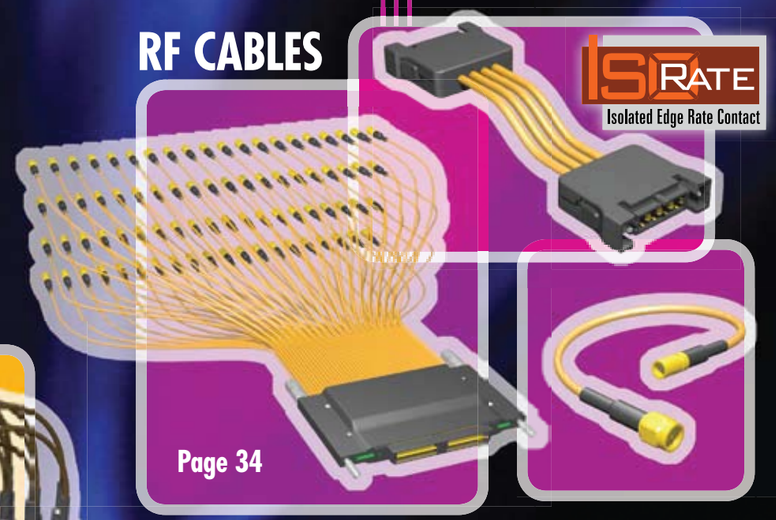
RF CABLES



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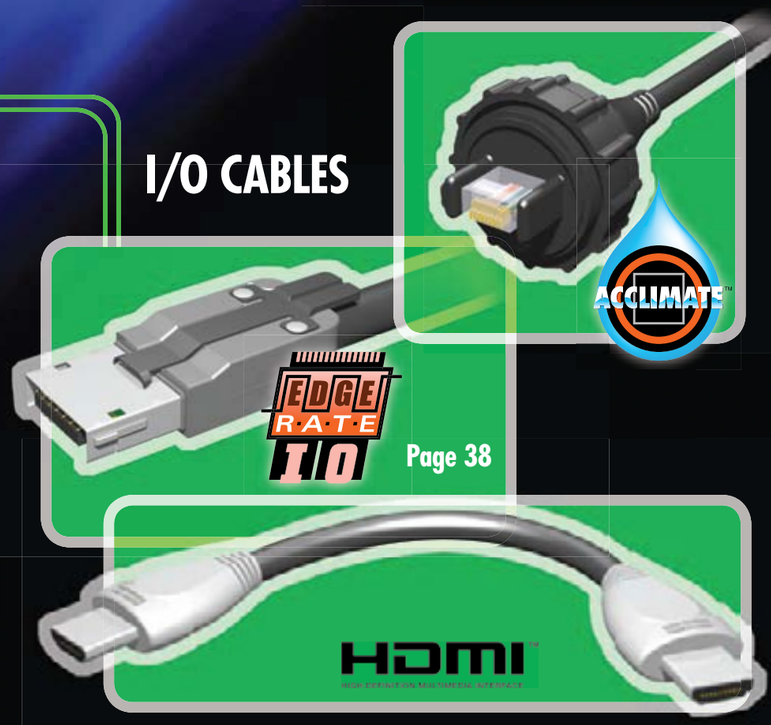
I/O CABLES



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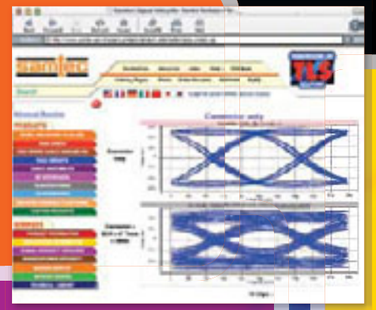
SIGNAL INTEGRITY SERVICES

TEST REPORTS & MODELS FOR SIMULATIONS

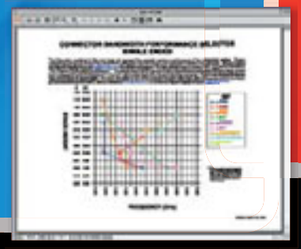


PRODUCT SEARCHES

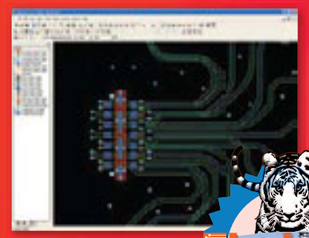
INTERACTIVE CABLE BUILDER

APPLICATION NOTES, WHITE PAPERS, ARTICLES

BANDWIDTH PERFORMANCE SELECTOR



ELECTRICAL MODELS AND TEST DATA



Signal Integrity Center

Online support and reference tools for the selection, development, simulation and testing of high speed systems for any application.

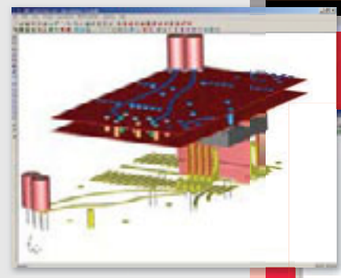
- User friendly website
- High speed connector simulations, models, reports, drawings and searches
- HSPICE, PSpice® model, Allegro® SigXplorer model, IBIS, ICM, HyperLinx ELDO and ADS models for simulation
- PCB libraries and footprint file types: Allegro® V15.2 & V15.7 file, Altium Designer V6 & V5, ASCII, Board Station, CADSTAR, Eagle, Expedition, NI Ultiboard, OrCAD® Layout library, OrCAD® PCB Editor V15.7 file, P-CAD, PADs, Pantheon, Pulsonix and Zuken CR5000
- High speed characterization reports
- Time and frequency domain test data
- Bandwidth Performance Selector and Interactive Cable Builders
- Application Notes: reference designs that verify performance to industry standards
- Cable Assembly Modeling
- Cable Performance Calculator
- Test Data Comparison Program
- High Speed Connector Selector
- White Papers, Presentations, Articles
- Engineering prints, PCB footprints and catalog pages
- Final Inch® breakout region design tool for ease of PCB manufacture and to optimize high speed performance
- “Personal Call Back” program provides immediate reply from Signal Integrity Group

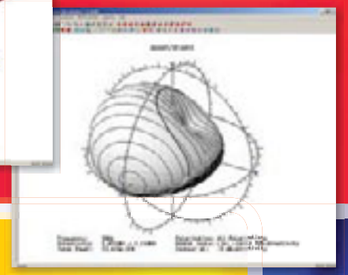
Final Inch® Break Out Region Performance Certified finalinch.com

Signal Integrity Group

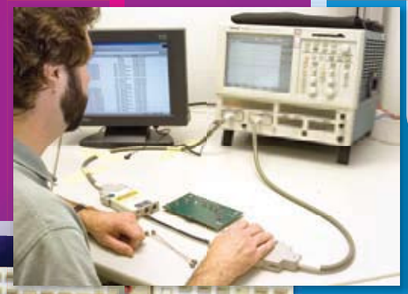
Personal SI support for questions that cannot be answered via the Signal Integrity Center.

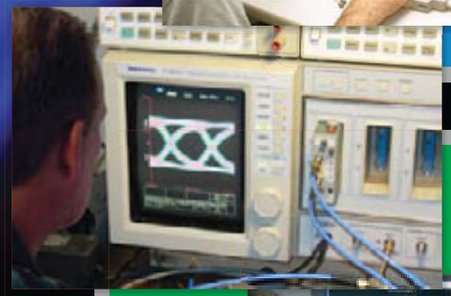
- EE customer interface
- In-house engineers
- Interpret test data, performance results and capabilities
- PCB layout, trace and routing assistance
- Connector ground pin assignment and assistance
- Extensive modeling, simulation and testing capabilities
- De-embedding capabilities
- On-request test data, including eye patterns for Final Inch® circuits using Agilent PLTS 50 GHz Characterization System

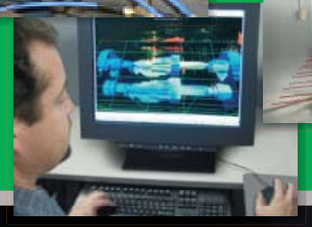




SIGNAL INTEGRITY DIVISION







Custom Signal Integrity Services

Application specific design, modeling and testing of your circuits, subsystems or complete system.

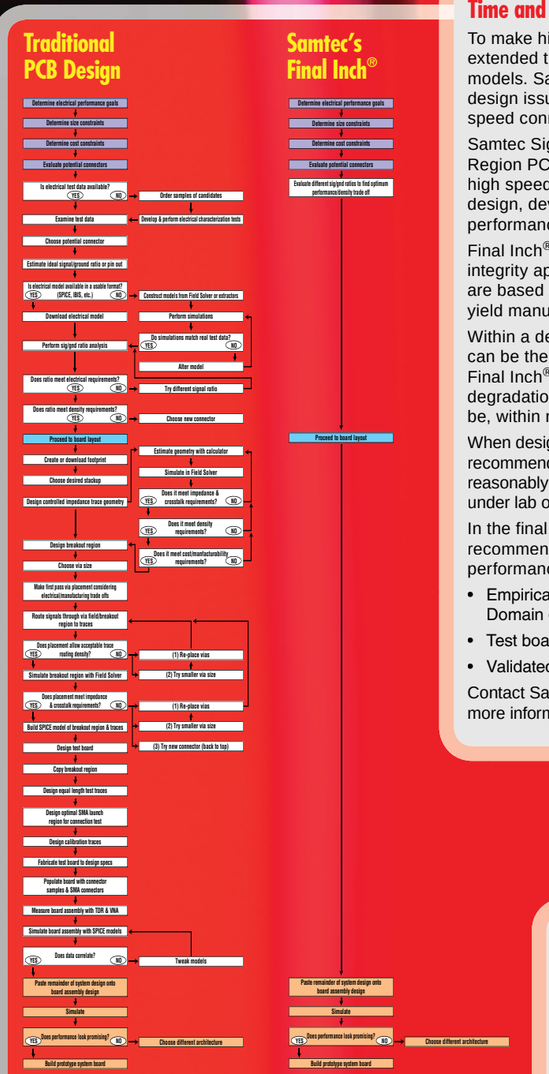
- Highly qualified in-house engineers
- Choose the depth of involvement and the breadth of service
- Layout and component strategies during the concept phase
- Customized simulation models to better optimize performance and enhance signal integrity during the design phase
- Testing and verification with Samtec’s Signal Integrity expertise during the final development stages
- Electrical engineering services are tailored to specific needs and products
- PCB design support is available for more advanced design needs
- Samtec’s support ranges from recommending solder pad footprints to laying out complete system circuits

Contact Us! *For assistance with…*

Signal Integrity Capabilities, contact sig@samtec.com
Data Rate Cables, contact dr@samtec.com
RF Cable Systems, contact rf@samtec.com
High Speed Flex, contact flexcircuits@samtec.com
Custom & Application Specific products, contact asp@samtec.com

info@samtec.com

FINAL INCH® PCB DESIGN TOOLS



See www.samtec.com/FI
for downloadable/printable flow chart

Time and Cost Savings

To make high speed connectors easier to specify and use, Samtec has extended the concept of manufacturer PCB layouts and connector SPICE models. Samtec supplies "reference designs" for one of the most difficult design issues on the board: the Break Out Region (BOR) around the high speed connector.

Samtec Signal Integrity engineers have developed Final Inch® Break Out Region PCB trace routing recommendations for many of its most popular high speed connector series. These design recommendations can save design, development and validation time and resources, and balance performance with manufacturability and cost.

Final Inch® BOR design recommendations are typical of real-world signal integrity applications and predict real-world performance expectations. They are based on standard board materials, multiple layers and low cost, high yield manufacturing processes (e.g. no special via treatment).

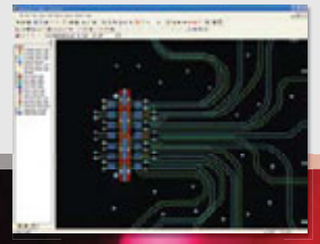
Within a design's overall transmission line length, the connector and BOR can be the dominating cause of signal integrity degradation. Samtec's Final Inch® BOR design recommendations attempt to minimize this degradation, making signal integrity performance the best it can reasonably be, within real-world design and manufacturing constraints.

When designers use Samtec connectors with Final Inch® BOR design recommendations, the signal integrity performance of their system can be reasonably predicted, as opposed to connector systems that are tested only under lab optimized conditions.

In the final analysis, Samtec provides connectors and PCB BOR design recommendations that work in the real world. In order to simulate the performance in your own system Samtec can provide:

- Empirical TDR and Frequency Domain data
- Test boards
- Validated electrical models

Contact Samtec today for more information.



Samtec Final Inch®	Other Suppliers
Real World	Lab Optimized
Test boards designed to study connector, footprint, Break Out Region and traces in an actual application environment	Test boards are designed to study connector and footprint, with the electrical effects of vias and traces minimized
Standard materials and manufacturing processes show connector and board under real-world conditions	Exotic materials and difficult manufacturing processes show connector under ideal conditions
Real-world performance expectations	Unrealistic performance expectations

Physical Models

Downloadable Gerber and DXF files can be cut and pasted into standard board layout software packages. The entire design is treated as a series of components that PCB designers can drop into their software and route to and from.

These files contain everything required for an optimized design, including:

- Stack Up
- Via Field
- Drill Charts
- Footprint
- Traces

Designs are based on standard materials and low cost, high yield manufacturing processes, and are optimized for the ultimate high speed performance obtainable within these constraints.

Electrical Models

With Final Inch®, Samtec extends the SPICE model concept beyond the connector further out onto the board. SPICE models of the Break Out Region and traces are provided so that the electrical effects of the entire Final Inch® design can be easily simulated. Samtec HSPICE models include:

- Connector
- Vias
- Footprint
- Trace Fanouts

Models of the optimized trace designs are length scalable. Models are also available for various stack heights within a connector family. The connector and Break Out Region models can be used in most SPICE-based simulation tools. The optimized trace design models can only be used in HSPICE.

Empirical Data

Final Inch® is not complete without validation of the electrical system performance through signal integrity modeling, simulations and measurements. Samtec supplies simulation and test reports to support our Final Inch® designs. Empirical signal integrity data is available for download at www.samtec.com/FI. Additionally, Samtec can provide assistance through its Signal Integrity Services Group to customers who wish to use the design in some way other than standard configurations.

Model Availability

Final Inch® physical art and electrical models are available for the following series:

Strips

- 0,5 mm pitch (QTH/QSH) Q Series® high speed connectors for single-ended and differential pairs
- 0,635 mm pitch (QTS-RA/QSS) right angle Q Series® high speed connectors for single-ended and differential pairs
- 0,635 mm pitch (QMS/QFS) Q2 Series high speed connectors for single-ended and differential pairs
- 0,8 mm pitch (QTE/QSE) Q Series® high speed connectors for single-ended and differential pairs
- 0,8 mm pitch (ERM8/ERF8) Edge Rate high speed connectors for single-ended and differential pairs

Arrays

- SEARAY™ (SEAM/SEAF) high density connectors for single-ended and differential pairs
- DP Array® (DPAM/DPAF) high density connectors for differential pairs
- DataBank™ (GCAM) board interface with (GCCA) high speed cable
- HD Mezz* (HDAM/HDAF) elevated high density array for single-ended and differential pairs

* HD Mezz is a trademark of Molex Incorporated

Edge Card

- RiseUp® (RU8) high speed elevated board stacking system for single-ended and differential pairs
- 0,8 mm pitch (HSEC8) high speed Micro Card system for single-ended and differential pairs
- PCI Express® (PCIE) connectors for differential pairs

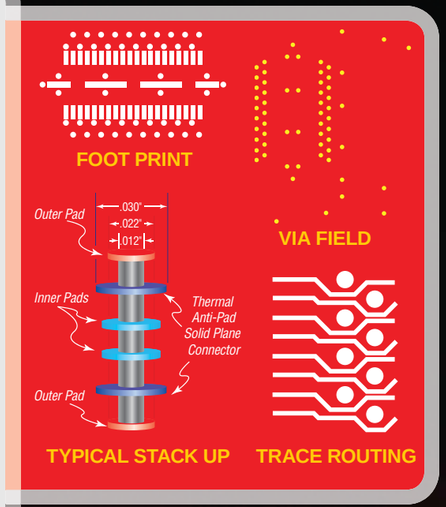
* PCI Express is a registered trademark of PC-SIG

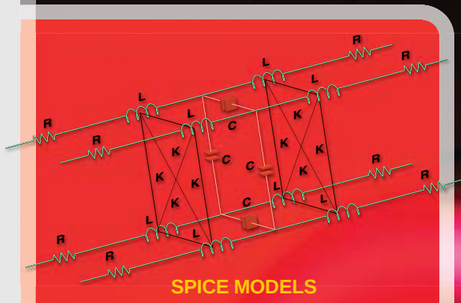
Test & Evaluation Kits

Samtec Final Inch® Test and Evaluation kits are available for loan to customers and allow laboratory testing of the complete Final Inch® design. Test paths include mated connector pair, Break Out Region, matched length controlled impedance traces, and SMA terminations to connect to test equipment. Contact finalinch@samtec.com for more information and availability.

"On-Request" Service

Samtec now offers on-request Final Inch® test data, and is constantly developing new Final Inch® models. For more information contact finalinch@samtec.com





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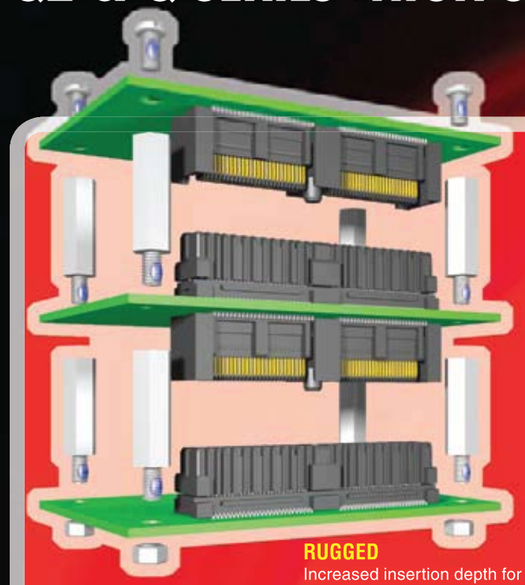
Q2 & Q SERIES® HIGH SPEED STRIPS



Second Generation Q Series®

- Increased insertion depth for rugged applications
- 0,635mm (.025") pitch
- 10mm, 11mm, 12mm, 13mm, 14mm and 16mm mated heights
- Up to 208 signal pins standard
- Up to 64 signal pairs standard
- Integral power/ground plane rated for up to 8.9 amps at 80°C
- Integrated Guide Posts
- Wide variety of standard high speed mating cables
- Choice of RF, power, retention pin and shielding options
- Application specific hot plugging
- Performance to 8 GHz with single-ended and 7.5 GHz with differential routing

RUGGED
Increased insertion depth for rugged applications

Multi-function Options

- Eight isolated power pins rated for up to 3 amps per pin at 80°C (signal pins rated for 1.8 amps per pin at 80°C)
- MMCX style RF connectors
- Application specific power and RF mating cables
- EMI shielding attached to the board via selected signal pins
- Optional locking screws and guide posts

Q2

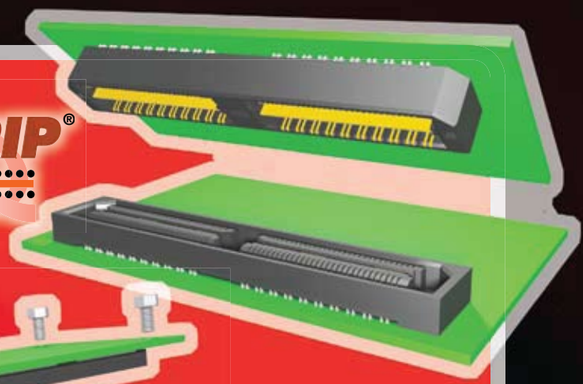
Series	QMS/QFS		QMSS/QFSS		ASP-129637/129646
Pitch	0,635 mm		0,635 mm		0,635 mm
Mezzanine Heights* (mm)	10, 11, 12, 13, 14, 16		11		15,24**
Signaling Type	SE	DP	SE	DP	SE
Pin / Pair Counts*	52, 104, 156, 208	16, 32, 48, 64	52, 104, 156, 208	16, 32, 48, 64	52, 104, 156
Performance (5mm Stack)	8 GHz / 16 Gbps	7 GHz / 14 Gbps			
Data Rate Cable Mates	Q2DA, 6QCD, 6QP (50Ω)	6QDP (100Ω)		6QDPS (100Ω)	
Notes	Right Angle, Edge Mount. Power & RF Options Available		EMI Shielded		StackableUSB™, SUMIT™ & PCI/104-Express™

*Other mezzanine heights and pin counts available. Call Samtec.
**Requires mechanical standoff (See SO Series).

The Standard for High Speed Board-to-Board

- Low profile 5mm and 8mm standard board stack heights
- Choice of 0,50mm, 0,635mm (.025") and 0,80mm pitch
- Elevated mated stack heights to 30mm
- Integral power/ground plane rated for up to 9.5 amps at 80°C depending on pitch
- Single-ended and differential pair designs
- Wide variety of standard high speed mating cables and flex circuits
- Guide posts, edge mount and friction lock designs available
- Application specific "partitioned" single-ended and differential in the same connector

QSTRIP®



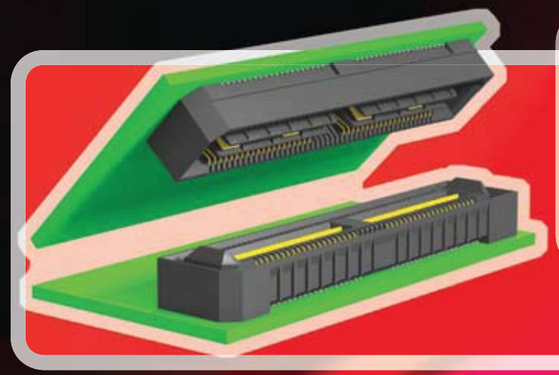
BOARD SPACERS
Precision machined standoffs for all standard board spacings

RUGGEDIZED by SAMTEC

APPLICATION OPTIONS
Single-ended, differential, low profile, right angle and rugged mixed technology

0,50mm QTH/QSH	0,635mm QTS/QSS	0,635mm MIT/MIS	0,80mm QTE/QSE
Stack Height			
5mm	5mm	5mm	5mm
8mm	8mm	8mm	8mm
11mm	11mm	11mm	11mm
14mm			14mm
16mm	16mm	16mm	16mm
19mm		18,75mm	19mm
22mm		22mm	22mm
25mm			25mm
30mm			30mm

Standard Single-Ended and Differential Pair
Standard Single-Ended; Application Specific Differential Pair
Application Specific Single-Ended and Differential Pair



High Speed Interface System

- Robust Edge Rate contact improves "zippered" unmating and reduces broadside coupling
- Footprint compatable with QTE/QSE Series on 0,8mm pitch
- Integral metal plane for power or ground
- Increased insertion depth and contact wipe
- 7mm and 10mm stacking height

Q Strip®

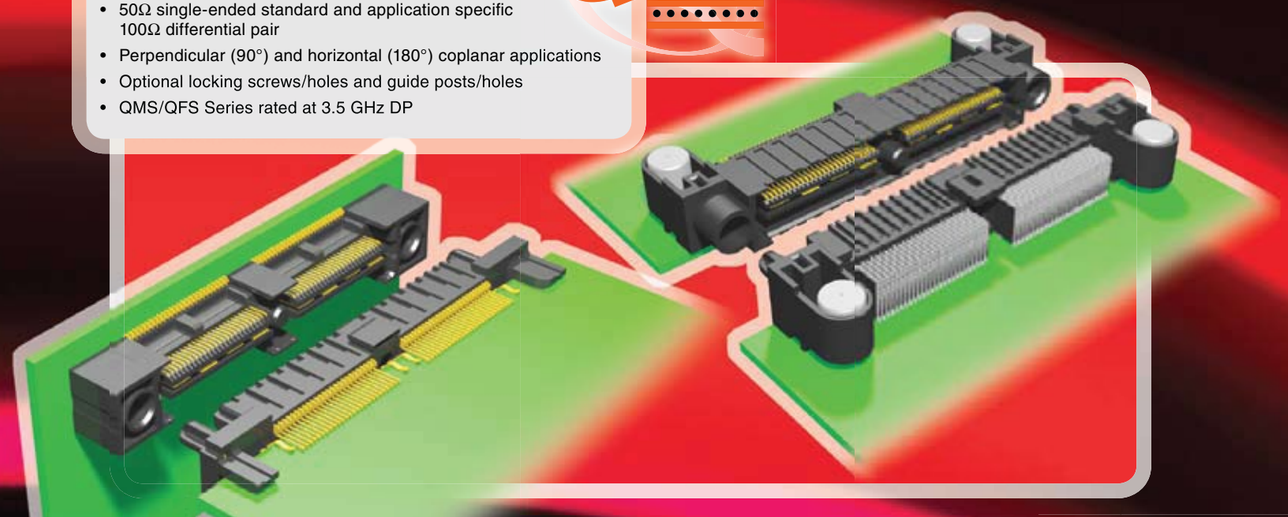
Series	QTH/QSH		QTS/QSS	MIT/MIS	QTE/QSE		QEM8/QEF8
Pitch	0,5 mm		0,635 mm		0,8 mm		0,8 mm
Mezzanine Heights* (mm)	5		5, 8		5, 8, 11, 16, 19, 25		7, 10
Signaling Type	SE	DP	SE	SE	SE	DP	SE
Pin / Pair Counts*	60, 120, 180, 240	40, 80, 120, 160	50, 100, 150, 200	38, 76, 114, 152	40, 80, 120, 160	28, 56, 84, 112	40, 80, 120
Performance (5mm Stack)	9 GHz / 18 Gbps	9.5 GHz / 19 Gbps	9 GHz / 18 Gbps	8.5 GHz / 17 Gbps	9 GHz / 18 Gbps	8.5 GHz / 17 Gbps	TBD
Data Rate Cable Mates	HQCD (50Ω)	HQDP (100Ω)	SQCD (50Ω)	MICD (50Ω)	EQCD (50Ω), EQSD (75Ω)	EQDP (100Ω)	
Flex Data Link Mates	HFHM	HFHM			HFHM	HFEM, ZFHF	
Notes			Right Angle Available; See Q2 Series for other options	Mixed technology footprint	See High Speed and Edge Rate Series for other options		Edge Rate Contact

*Other mezzanine heights and pin counts available. Call Samtec.

RIGHT ANGLE & EDGE MOUNT

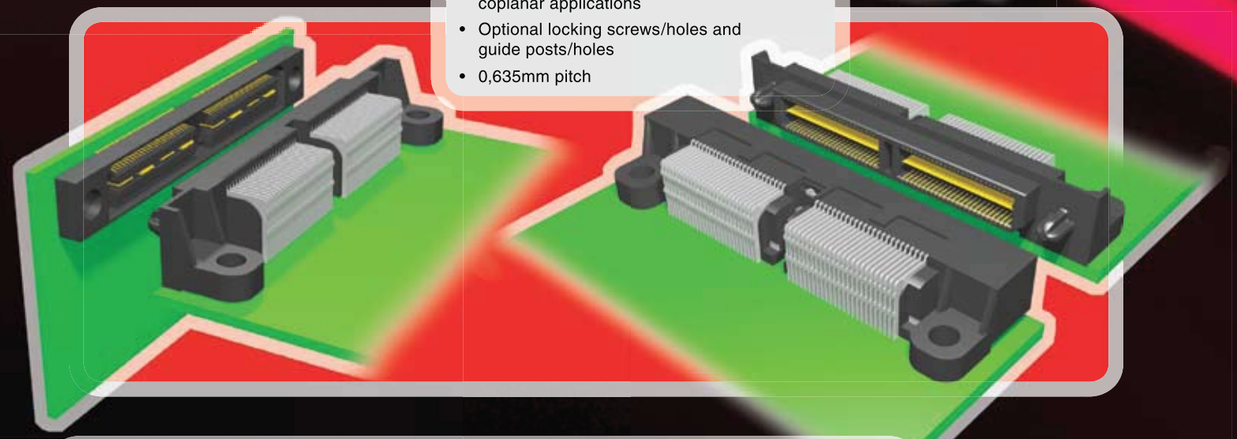
Right Angle & Edge Mount

- 50Ω single-ended standard and application specific 100Ω differential pair
- Perpendicular (90°) and horizontal (180°) coplanar applications
- Optional locking screws/holes and guide posts/holes
- QMS/QFS Series rated at 3.5 GHz DP



Right Angle Options

- 50Ω single-ended standard and application specific 100Ω differential pair
- Perpendicular (90˚) and horizontal (180˚) coplanar applications
- Optional locking screws/holes and guide posts/holes
- 0,635mm pitch



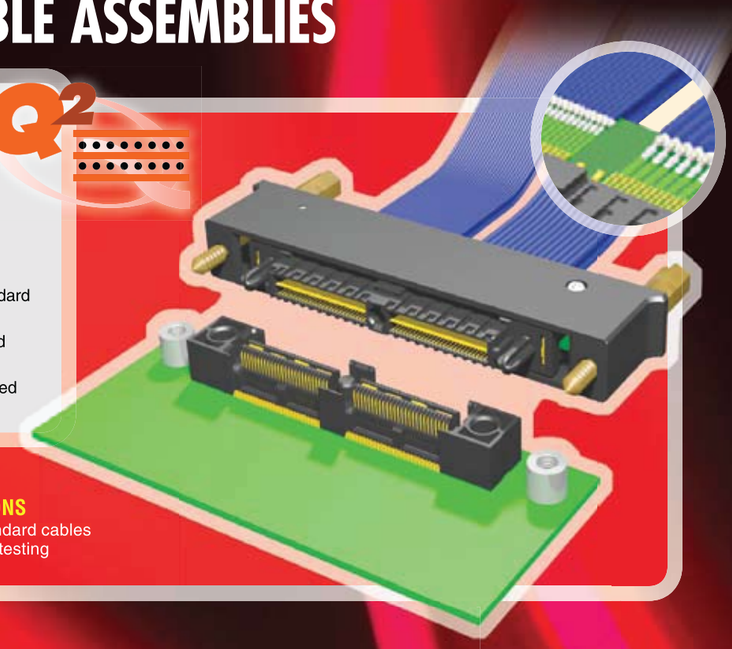
Right Angle & Edge Mount

Series	QMS/QFS		QTS/QSS
Brand Name	Q2		Q Series®
Pitch	0,635 mm		
Termination Options	Edge Mount & Right Angle		Right Angle
Signaling Type	SE	DP	SE
Pin / Pair Counts	52, 104, 156, 208	16, 32, 48, 64	50, 100, 150, 200
Data Rate Cable Mates	Q2DA, 6QCD, 6QP (50Ω)	6QDP (100Ω)	SQCD (50Ω)

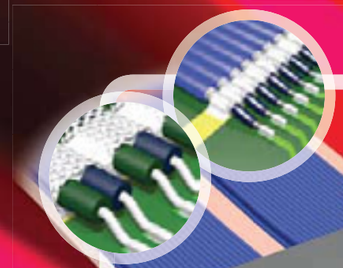
DATA RATE CABLE ASSEMBLIES

Cable Mating Options

- Single-ended, differential and Quiet Power™ Data Rate cables
- Rugged features including strain relief, plastic housings, screw downs, latches and locks
- Off-the-shelf standard cables mate with Q2 for testing
- Application specific cables at near standard cable prices
- EQCD Series single-ended cables rated at 2.8 Gbps
- EQDP Series differential pair cables rated at 8.2 Gbps



MATING OPTIONS
Off-the-shelf standard cables mate with Q2 for testing



Cable and Flex Mating Options

- 50Ω and 75Ω single-ended and 100Ω differential Data Rate cables
- Single-ended and differential high speed flex data links
- Rugged features including strain relief, plastic housings, screw downs, latches and locks
- Application specific cables at near standard cable prices
- HFHM Series High Speed Data Link rated at 3.28 Gbps

MATING OPTIONS
Coax, Twinax and flex cable solutions

Data Rate Cable Assemblies

Series	QTH/QSH		QMS/QFS		QTS/QSS	MIT/MIS	QTE/QSE	
Pitch	0,5 mm		0,635 mm				0,8 mm	
Signaling Type	SE	DP	SE	DP	SE	SE	SE	DP
Pin / Pair Counts	60, 120, 180, 240	40, 80, 120, 160	50, 104, 156, 208	16, 32, 48, 64	50, 100, 150, 200	38, 76, 114, 152	40, 80, 120, 160	28, 56, 84, 112
Data Rate Cable Mates	HQCD (50Ω)	HQDP (100Ω)	Q2DA, 6QCD, 6QP (50Ω)	6QDP (100Ω)	SQCD (50Ω)	MIDC (50Ω)	EQCD (50Ω), EQSD (75Ω)	EQDP (100Ω)
Flex Data Link Mates	HFHM	HFHM					HFEM	HFEM, ZFHF
Notes			Power & RF Options Available			Mixed technology footprint	See High Speed and Edge Rate Series for other options	

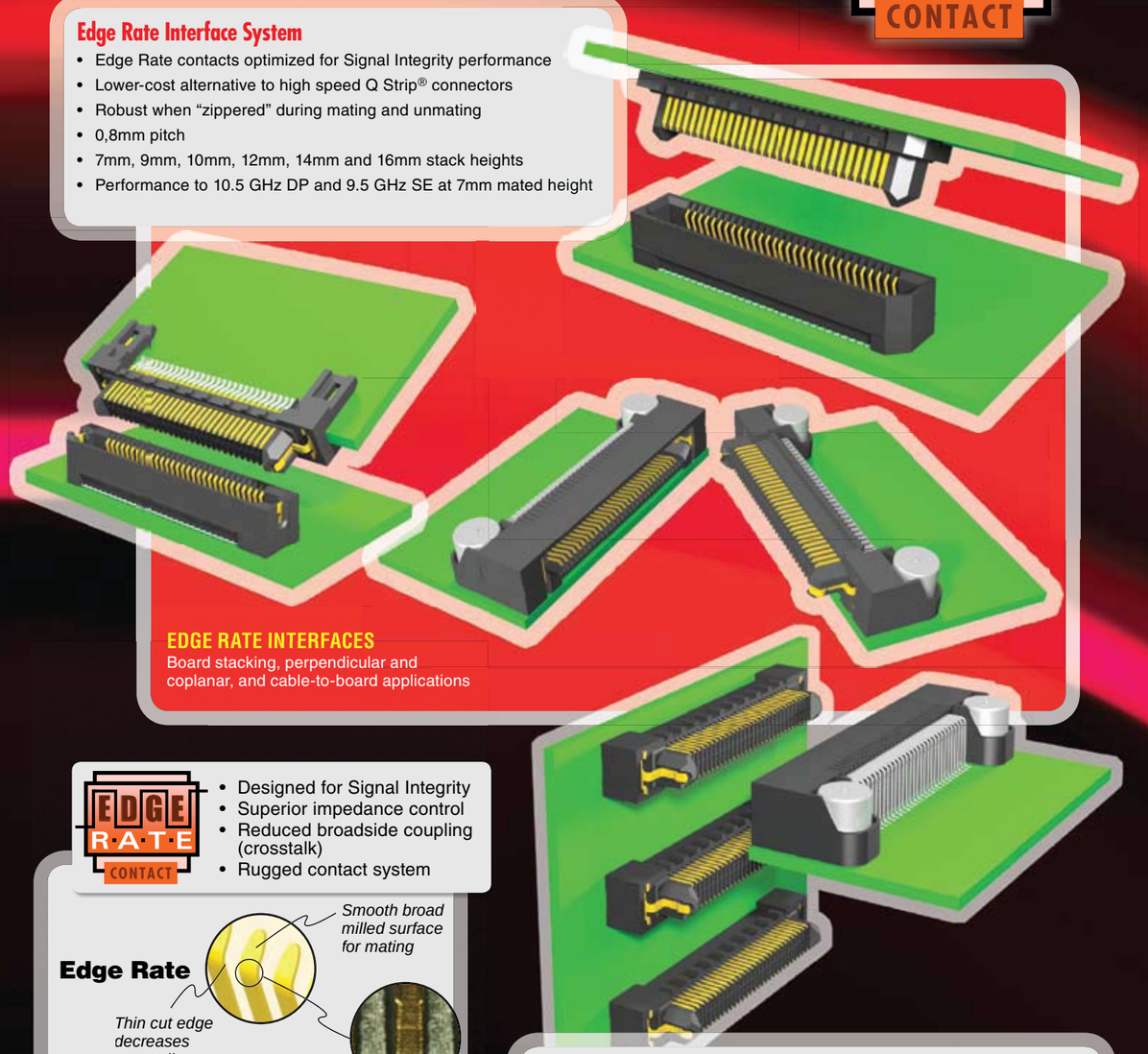
samtec

EDGE RATE CONNECTOR STRIPS

EDGE R·A·T·E CONTACT

Edge Rate Interface System

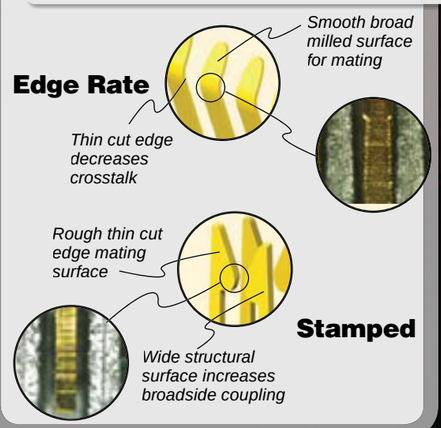
- Edge Rate contacts optimized for Signal Integrity performance
- Lower-cost alternative to high speed Q Strip® connectors
- Robust when “zippered” during mating and unmating
- 0,8mm pitch
- 7mm, 9mm, 10mm, 12mm, 14mm and 16mm stack heights
- Performance to 10.5 GHz DP and 9.5 GHz SE at 7mm mated height



EDGE RATE INTERFACES
Board stacking, perpendicular and coplanar, and cable-to-board applications

EDGE R·A·T·E CONTACT

- Designed for Signal Integrity
- Superior impedance control
- Reduced broadside coupling (crosstalk)
- Rugged contact system



Edge Rate Connector Strips

Series	ERM8/ERF8	QEM8/QEF8
Pitch	0,8mm	
Mezzanine Heights* (mm)	7, 9, 10, 12, 14, 16	7, 10
Pin Counts*	20 - 150	40, 80, 120
Performance (7mm Stack)	10.5 GHz / 21 Gbps (SE) 9.5 GHz / 19 Gbps (DP)	TBD
Data Rate Cable Mates	ERCDA	
Flex Data Link Mates	ERDL2	
Notes	Right Angle & Edge Mount Available	Footprint compatible with QTE/QSE

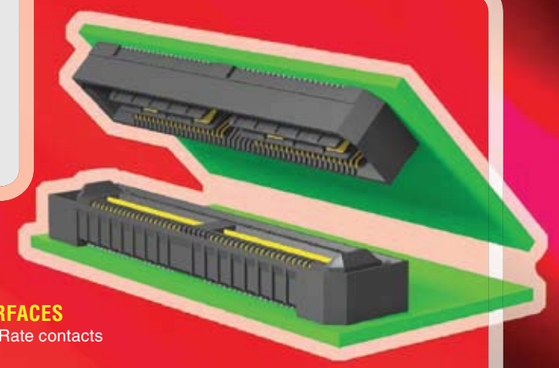
*Other mezzanine heights and pin counts available. Call Samtec.

Cable and Flex Mating Options

- 50Ω and 75Ω single-ended and 100Ω differential Data Rate cables
- Single-ended and differential high speed flex data links
- Rugged features including strain relief, plastic housings, screw downs, latches and locks
- Application specific cables at near standard cable prices

High Speed Interface System

- Robust Edge Rate contact improves “zippered” unmating
- Footprint compatible with QTE/QSE on 0,8mm pitch
- Integral metal plane for power or ground
- Increased insertion depth and contact wipe
- Edge Rate contacts for reduced broadside coupling
- 7mm and 10mm stack heights



HIGH SPEED INTERFACES
Q Series® with Edge Rate contacts

samtec

HIGH DENSITY ARRAYS

SEARAY™ OPEN PIN FIELD INTERCONNECTS

SEARAY™
Maximum grounding and routing flexibility

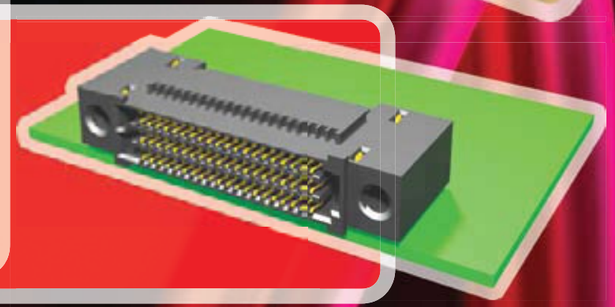
HIGH DENSITY JUMPERS
The perfect SEARAY™ test jumper

A Sea of Signals and Grounds

- (1,27mm x 1,27mm) .050" x .050" grid array for maximum grounding and routing flexibility
- Fifteen standard board stack heights from 7mm to 17,5mm
- Up to 500 single-ended I/Os or 125 differential pairs (using Samtec recommended pin assignments)
- Lower insertion/extraction forces
- Rugged Edge Rate contact system less prone to damage when "zippered" to unmate
- Choice of tin-lead or lead-free solder charged terminations for ease of processing
- Standard and custom jumper lengths and pin counts
- Rugged guide post option
- Intermateable with Molex HD Mezz Arrays

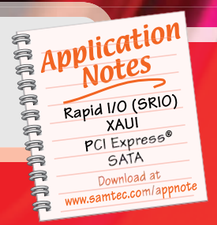
Right Angle/Micro Backplane

- Right angle arrays optimized to reduce skew and impedance mismatch
- Choice of 4 and 6 row designs with 20 to 50 contacts per row
- Rugged Edge Rate contacts with lead-free solder charges on tails
- Lower insertion/extraction forces
- Optional guide posts for blind mating
- Ideal for high-speed micro backplane applications



Signal Integrity Support

- Final Inch® PCB layout recommendations
- Application Notes for XAUI, Rapid I/O, PCI Express® and Serial ATA



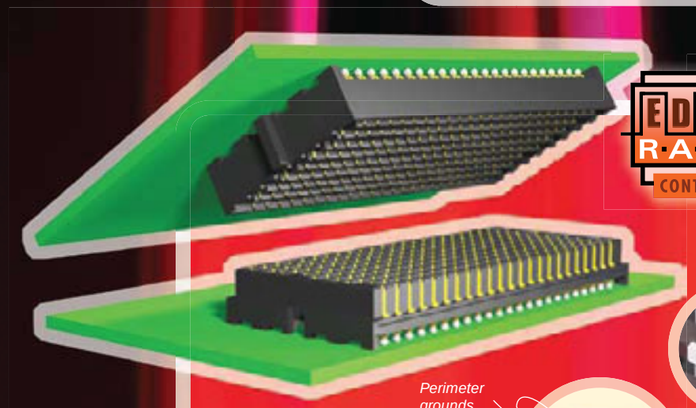
Final Inch® Break Out Region Performance Certified finalinch.com

HD Mezz Elevated High Density Arrays

- Open pin field for maximum grounding and routing flexibility
- Can be routed single-ended or differentially
- 20mm, 25mm, 30mm and 35mm standard board stack heights
- Application specific capability to build any height from 20mm to 35mm
- Up to 299 single-ended I/Os or 92 differential pairs
- Dual wipe contacts
- Integrated guide posts to minimize contact damage when mating and unmating
- Choice of tin-lead or lead-free solder charged terminations for ease of processing
- Intermateable with Molex HD Mezz Arrays

HD MEZZ

RUGGED ELEVATED
Mezzanine stack heights to 35mm with rugged features



MINIMUM GROUNDS
Differential pairs with perimeter grounds maximizes bandwidth per unit area

DP Array® Differential Pair Arrays

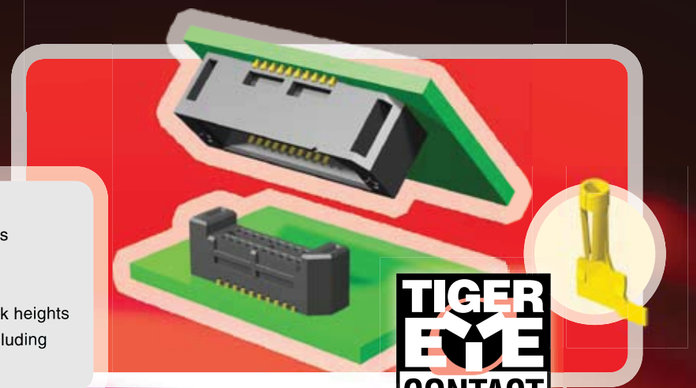
- Perimeter grounds and staggered pin layout eliminates interstitial grounds and makes board routing easier
- Fewer board layers required
- Performance of up to a terabit per connector (up to 4 GHz per pair)
- Lower insertion/extraction forces
- Solder crimp termination
- Up to 168 usable pairs
- 10mm, 14mm and 17mm mated heights

Arrays

Series	SEAM/SEAF (SEARAY™)		HDAM/HDAF (HD Mezz**)		DPAM/DPAF (DP Array®)	
Pitch	1,27mm x 1,27mm (.050" x .050")		1,20mm x 1,00mm (.047" x .079")		2,16mm x 2,54mm (.085" x .200")	
Mezzanine Heights* (mm)	7, 8, 8.5, 9.5, 10, 12, 13, 13.5, 12, 15, 15.5, 16, 17, 17.5		20, 25, 30, 35		10, 14, 17	
Signaling Type	SE	DP	SE	DP	SE	DP
Pin / Pair Counts*	100 - 500	25 - 125	143 - 529	44 - 92	143 - 529	18 - 168
Performance (5mm Stack)	5 GHz / 10 Gbps	10.5 GHz / 21 Gbps	9 GHz / 18 Gbps	9 GHz / 18 Gbps		7 GHz / 14 Gbps
Flex data Link Mates	SADL					
Notes	Right Angle Available		Intermateable with Molex			

* Other mezzanine heights and pin counts available. Call Samtec.
**HD Mezz is a trademark of Molex Incorporated

MICRO STRIPS



Micro Tiger Eye System

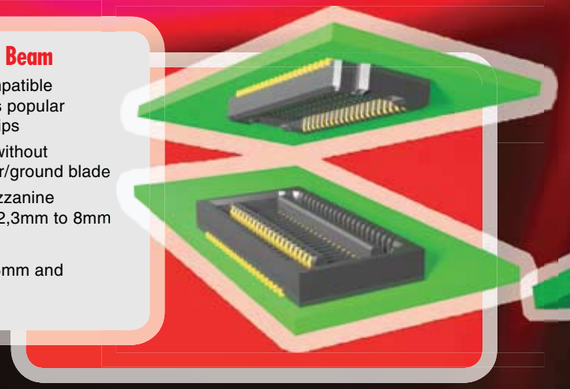
- High reliability BeCu Tiger Eye contacts
- 0,8mm pitch
- Shrouded and polarized
- 6mm, 7mm and 10mm mezzanine stack heights
- Optional additional rugged features including locking clips and weld tabs

Super Micro Pitch Strips

- 0,4mm pitch with 4mm mezzanine stack height
- Extra narrow body design saves PCB real estate
- 1mm of contact wipe with superior contact deflection
- Application specific mezzanine heights available

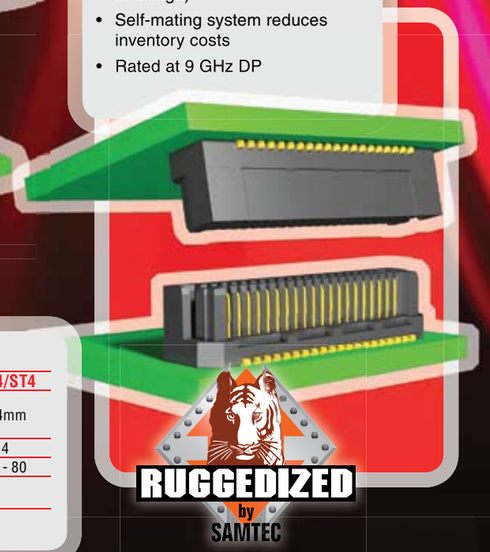
Micro Rugged Hermaphroditic Interface

- High Speed/High Density
- Slim row-to-row design
- Low cost blade and beam contact
- Mated height variety/flexibility
- Shrouded with audible click when properly mated
- 0,635mm pitch (0,50mm pitch in design)
- Self-mating system reduces inventory costs
- Rated at 9 GHz DP



Basic Blade & Beam

- Footprint compatible with Samtec's popular Q Series® strips
- Lower costs without integral power/ground blade
- Standard mezzanine profiles from 2,3mm to 8mm
- Polarized
- 0,5mm, 0,635mm and 0,8mm pitch



Micro Strips

Series	SEM/TEM	BTX/BSX	LSS	LTH/LSH	SS4/ST4
Pitch	0,8mm	0,8mm, 0,635mm, 0,5mm	0,635mm	0,5mm	0,4mm
Mezzanine Heights* (mm)	6, 7, 10	5, 8	6, 7, 8, 9, 10, 12	2.3	4
Pin Counts*	10 - 100	40 - 300	40 - 100	20 - 100	20 - 80
Notes	Tiger Eye Contacts		Micro Rugged		

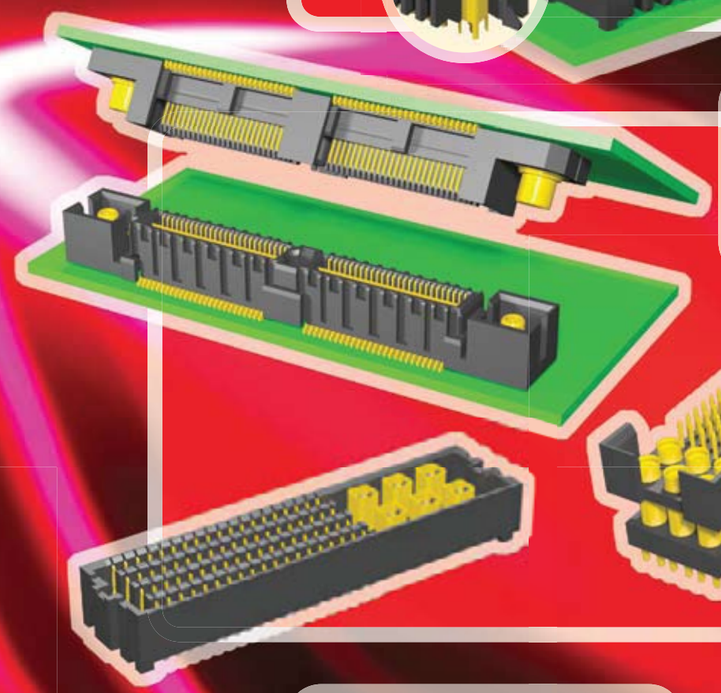
*Other mezzanine heights and pin counts available. Call Samtec.

UNIQUE & COMBINATION RF

ISORATE
Isolated Edge Rate Contact

IsoRate Connector Strips

- Low cost, high performance isolated transmission line board-to-board
- Radio frequency signal quality (Call for test data)
- 10mm board mezzanine height
- Choice of single or double row with 1, 2, 4 or 8 contacts per row
- Optional guide posts for blind mating applications
- Mating cable assemblies available



Combination RF Interconnects

- Combinations with Q Series® interconnect strips
- Combinations with high density arrays
- Combinations with standard and micro interconnect strips
- Full custom assemblies

Standard PCB Connectors

- One stop shop for in-stock 50Ω & 75Ω PCB RF connectors
- MHF1 and MHF3
- SMA, SMB, MCX, MMCX, BNC, TNC and N Type connectors
- Quick turn-around on finished cable assemblies

HIGH SPEED EDGE CARD SOCKETS

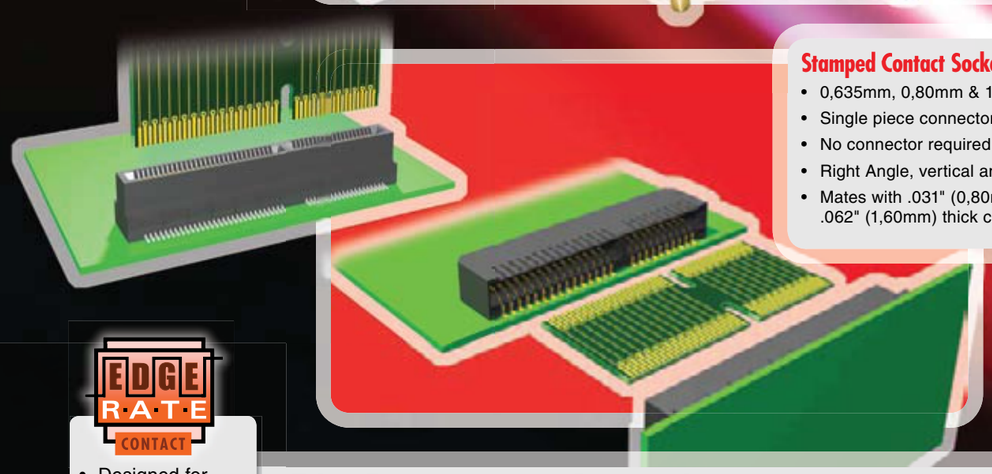
Edge Rate Contact Sockets

- Edge Rate contacts optimized for Signal Integrity performance
- Surface mount and edge mount designs for parallel, perpendicular and planar board mating
- Mates with standard .062" (1,60mm) PCB cards - supplied by Samtec (RU8 Series), or Samtec can supply physical art to make your own cards
- Optional rugged board locking and cable latching features

Mating Cable & Flex Jumpers

- Data Rate 100Ω twinax high speed edge card cables (will also mate with MEC8-RA series)
- High speed flex jumpers with single-ended or differential routing

CONTACT FLEXIBILITY
Edge Rate for highest performance, stamped for lowest cost



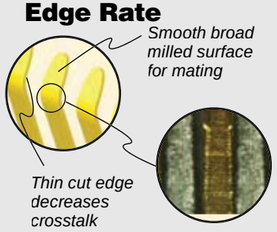
Stamped Contact Sockets

- 0,635mm, 0,80mm & 1mm Pitch
- Single piece connector system
- No connector required on card
- Right Angle, vertical and edge mount
- Mates with .031" (0,80mm) or .062" (1,60mm) thick cards

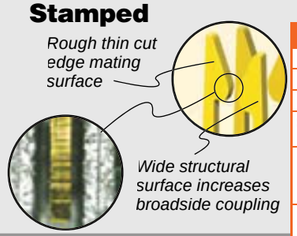
EDGE R·A·T·E CONTACT

- Designed for Signal Integrity
- Superior impedance control
- Reduced broadside coupling (crosstalk)
- Rugged contact system

Edge Rate



Stamped

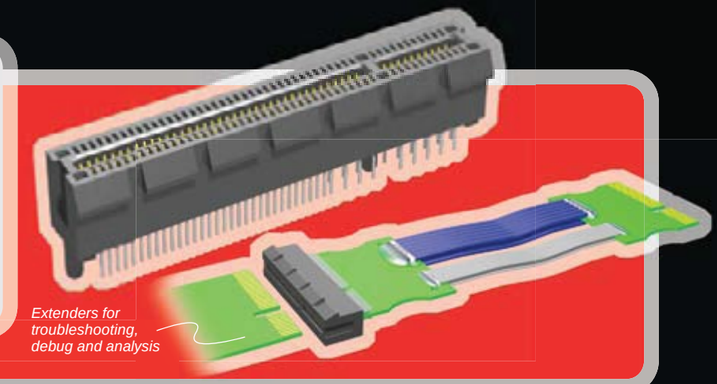


CONTACT SELECTOR		
Type	Edge Rate	Stamped
Pitch	.8mm	.635mm, .8mm, 1mm
Series	HSEC8	MEC6, MEC8, MEC1
Signal Integrity Performance	Excellent	Good
Insertion / Withdrawal Force	Average (1.8/1.0 oz/ contact)	High (3.0/1.8 oz/ contact)
Cycle Life Expectation	High	Moderate
Relative Cost	Good	Excellent

PCI Express® Sockets

- PCB Mount or Card Edge Mount
- Supports one, four, eight and sixteen PCI Express® links
- Loop back and SerDes extenders capable of PCIe speed/protocols
- Latching feature for card mounted retention clips
- 1mm pitch

PCI EXPRESS®



Extenders for troubleshooting, debug and analysis

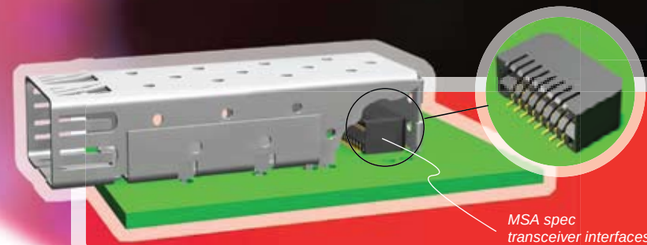
Advanced Mezzanine Connectors

- Sockets for Advanced (AMC.0 B+) and Micro TCA applications
- Identical to Molex in form, fit and function
- 170 contacts on high density 0,75mm pitch accept 1,6mm cards
- Press-fit tails for simple, reliable board terminations
- Supports hot plugging and high speed serial connections

High Speed Micro Plane Interface

- Mount in pairs on same side or opposite side of boards for easy signal routing
- 40 to 80 I/Os per pair
- Variable card mating thickness
- Large deflection BeCu contact
- 1mm pitch

Flexible card edge interfaces for Serial ATA or other high speed applications



MSA spec transceiver interfaces

SFP, XFP and XENPAK Transceiver Interfaces

- Choice of 2 x 10, 2 x 15 and 2 x 35 I/Os for standard Fiber Optic Transceivers
- Offset 0,80mm pitch
- SFP cages available separately or as a kit with interface

High Speed Edge Card Sockets

Series	HSEC8	RU8	MECT	MEC8	MEC1	PCIE	SAL1	MEC6	MTCA/AMC
Pitch	0,8mm					1mm		0,635mm	0,75mm
Applications	PCI Express®**, XAUI, SATA	Board Mezzanines	SFP, XFP XENPAK			PCI Express®**	SATALink		Advanced & Micro TCA
Pin Counts*	20 - 120	80 - 120	20, 30, 70	20 - 140	10 - 140	36 (X1), 64 (X), 98 (X8), 164(X16)	20, 27, 30, 40		170
Performance	8 GHz / 16 Gbps (SE) 10.5 GHz / 21 Gbps (DP)	7.5 GHz / 15 Gbps (SE or DP 25mm stack)		7 GHz / 14 Gbps (SE or DP)	5.5 GHz / 11 Gbps (SE) 6.5 GHz / 13 Gbps (DP)		8.5 GHz / 17 Gbps (SE) 9 GHz / 18 Gbps (DP)	7.5 GHz / 15 Gbps (SE) 7 GHz / 14 Gbps (DP)	
Data Rate Cable Mates	EEDP								
Flex Data Link Mates	HSF8			HSF8					
Notes	Edge Mount Available		Right Angle	Right Angle & Edge Mount Available		Edge Mount Available		Right Angle Available	

* Other pin counts available. Call Samtec.
**PCI Express is a registered trademark of PCI-SIG

MICRO BACKPLANES

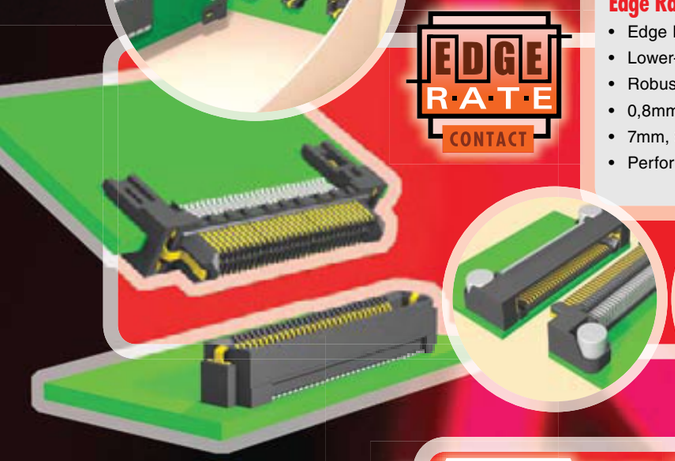
Right Angle & Edge Mount

- 50Ω single-ended standard and Application Specific 100Ω differential pair
- Perpendicular (90°) and horizontal (180°) coplanar applications
- Optional locking screws/holes and guide posts/holes

FLEXIBILITY
Perpendicular and coplanar applications

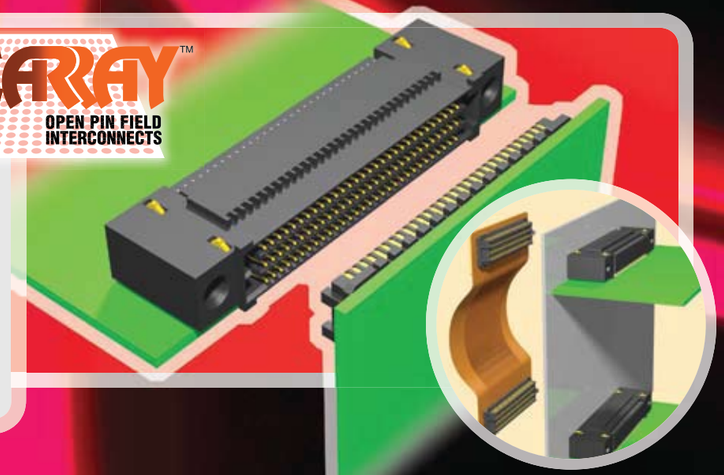
Edge Rate Interface System

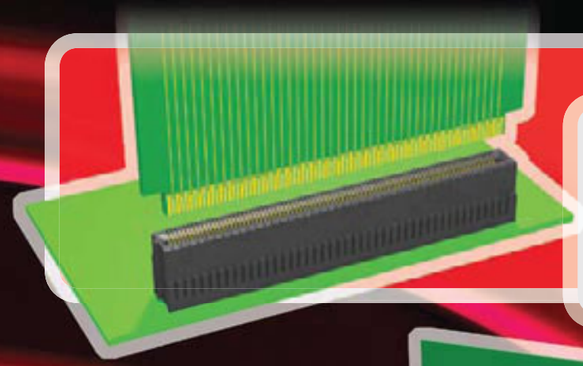
- Edge Rate contacts optimized for Signal Integrity performance
- Lower-cost alternative to high speed Q Strip® connectors
- Robust when “zippered” during mating and unmating
- 0,8mm pitch
- 7mm, 9mm, 10mm, 12mm, 14mm and 16mm stack heights
- Performance to 10.5 GHz DP and 9.5 GHz SE at 7mm mated height



Right Angle/Micro Backplane

- Right angle arrays optimized to reduce skew and impedance mismatch
- Choice of 4 and 6 row designs with 20 to 50 contacts per row
- Rugged Edge Rate contacts with lead-free solder charges on tails
- Lower insertion/extraction forces
- Optional guide posts for blind mating
- Ideal for high speed micro backplane applications





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- Optional rugged board locking and cable latching features
- 0,635mm, 0,80mm & 1mm pitch
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- High speed flex jumpers with single-ended or differential routing

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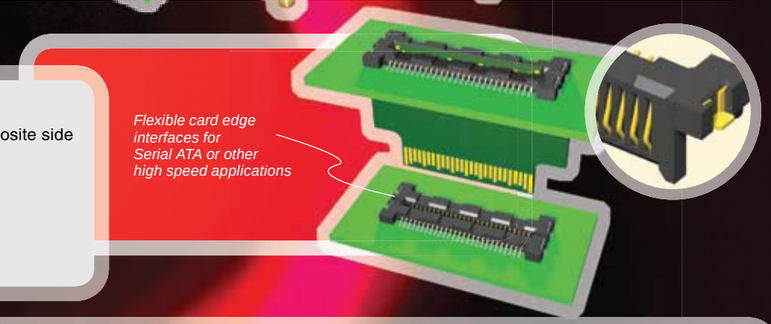


Micro Backplanes

Series	HSEC8	MEC8	MEC1	SAL1	MEC6	MTCA/AMC	SEAM/SEAF	ERF8/ERM8	QMS/QFS
Type	Card (One Piece) Interface						Socket/Header (Two Piece) Interface		
Pitch	0,8mm		1mm		0,635mm	0,75mm	1,27mm	0,8mm	0,635mm
Applications	PCI Express®, XAUI, SATA					Advanced & Micro TCA			
Pin Counts*	20 - 120	20 - 140	10 - 140	20, 27, 30, 40	20 - 140	170	80 - 300	20 - 150	52, 104, 156, 208
Performance	8 GHz / 16 Gbps (SE) 10.5 GHz / 21 Gbps (DP)	7 GHz / 14 Gbps (SE or DP)	5.5 GHz / 11 Gbps (SE) 6.5 GHz / 13 Gbps (DP)	8.5 GHz / 17 Gbps (SE) 9 GHz / 18 Gbps (DP)	7.5 GHz / 15 Gbps (SE) 7 GHz / 14 Gbps (DP)				
Data Rate Cable Mates	EEDP							ERDCA	6QP
Flex Data Link Mates	HSF8		HSF8				SADL	ERDL2	
Connector Orientations	Vertical & Edge Mount	Vertical, Right Angle & Edge Mount		Vertical	Vertical & Right Angle			Vertical, Right Angle & Edge Mount	
Backplane Orientations	Perpendicular & Coplanar			Perpendicular	Perpendicular & Coplanar		Perpendicular	Perpendicular & Coplanar	

*Other pin counts available. Call Samtec.

INTERFACE SELECTORS

This guide is designed to quickly and easily determine which Samtec connectors can work in your specific Parallel/Mezzanine high speed board stacking application. As you complete each step, simply eliminate any Samtec product series listed in the chart below that does not meet your needs. After all four steps have been completed and the necessary products eliminated, you will have left the suggested Samtec high speed product series that best fits your application.

1. **Choose the signaling configuration desired.**
2. **Choose the total number of pins (including grounds) or differential pairs that best fit your application.**
3. **Choose the stack height required.**
4. **Choose the performance that you would like the connectors to achieve.**

Parallel/Mezzanine Board Stacking

	Signaling Configuration	Total Number of Pins/Pairs	Stack Height	Performance	Series/Pitch/ Trade Name	Features/Benefits
Strips	Single-Ended	60, 120, 180, 240	5mm	9.0 GHz	QTH/QSH .5mm Q Strip®	Ground plane for power; Other Stack Heights: 8, 14*, 19*, 22*
			11mm*	6.0 GHz		
			16mm*	5.0 GHz		
			30mm*	3.0 GHz		
	Differential, with grounds	20, 40, 60, 80	5mm	8.0 GHz		Standard connector routed differentially. Other Stack Heights: 8, 14*, 19*, 22*
			11mm*	5.0 GHz		
			16mm*	5.0 GHz		
			30mm*	1.5 GHz		
	Differential, no grounds	20, 40, 60, 80	5mm	9.5 GHz	QTH-DP/QSH-DP .5mm Q Pairs®	Ground plane for power; Other Stack Heights: 8, 14*, 19*, 22*
			11mm*	6.0 GHz		
			16mm*	5.5 GHz		
			30mm*	7.0 GHz		
	Single-Ended	38, 76, 114, 152	5mm	8.5 GHz	MIS/MIT .635mm	Mixed Technology Footprint; Other Stack Heights: 8, 11*,16*, 18.75*
			22mm*	4.0 GHz		
	Differential, with grounds	12, 24, 36, 48	5mm	8.5 GHz		
			22mm*	7.0 GHz		
	Differential, no grounds	12, 24, 36, 48	5mm*	9.5 GHz		
			22mm*	8.5 GHz		
	Single-Ended	50, 100, 150, 200	5 mm	9.0 GHz	QTS/QSS .635mm Q Strip®	Ground plane for power; Other Stack Heights: 8
			11mm*	6.0 GHz		
			16mm*	5.0 GHz		
	Differential, with grounds	16, 32, 48, 64, 80	5mm	8.5 GHz		Ground plane for power; Other Stack Heights: 8
			11mm*	5.5 GHz		
			16mm*	5.0 GHz		
	Differential, no grounds	16, 32, 48, 64, 80	5mm	8.5 GHz	QTS-DP/QSS-DP .635mm Q Pairs®	Ground plane for power; Other Stack Heights: 8*
			11mm*	6.0 GHz		
			16mm*	6.0 GHz		
	Single-Ended	52, 104, 156, 208	11mm	8.0 GHz	QFS/QMS .635mm Q2	Increased insertion depth. Power pin, RF & retention options; Shields available. Other Stack Heights: 10, 12, 13, 14, 16
	Differential, with grounds	16, 32, 48, 64	11mm	7.5 GHz		Standard connector routed differentially.
	Differential, no grounds	16, 32, 48, 64	11mm	7.0 GHz	QFS-DP/QMS-DP .635mm Q2	Increased insertion depth. Power pin, RF & retention options; Shields available. Other Stack Heights: 10, 12*, 13*, 14*, 16*
	Single-Ended	40, 80, 120, 160, 200	5mm	9.0 GHz	QTE/QSE .8mm Q Strip®	Ground plane for power; Other Stack Heights: 8, 14*, 22*
			11mm	6.5 GHz		
			16mm	5.0 GHz		
			19mm	5.0 GHz		
			25mm	4.0 GHz		
	Differential, with grounds	14, 28, 42, 56, 70	5mm	8.0 GHz		Standard connector routed differentially. Other Stack Heights: 8, 14*, 22*
			11mm*	6.5 GHz		
			16mm*	5.0 GHz		
			19mm*	5.0 GHz		
			25mm*	7.0 GHz		
	Differential, no grounds	14, 28, 42, 56, 70	5mm	8.5 GHz	QTE-DP/QSE-DP .8mm Q Pairs®	Ground plane for power; Other Stack Heights: 8, 14*, 22*
			11mm*	9.5 GHz		
			16mm*	8.0 GHz		
			19mm*	7.5 GHz		
			25mm*	9.0 GHz		
	Single-Ended	80, 100, 120	25mm	7.5 GHz	RU8 .8mm RiseUp®	Stack height flexibility. Other Stack Heights: 19*, 30*
	Differential, with grounds	26, 32, 38	25mm	7.5 GHz		Standard connector routed differentially. Other Stack Heights: 19, 30
	Single-Ended	20, 40, 60, 80, 100, 120, 140, 150	7mm	10.5 GHz	ERM8/ERF8 .8mm	Edge Rate Contact Other Stack Heights: 9, 12, 14
			10mm	8.0 GHz		
			16mm	5.5 GHz		
	Differential, with grounds	20, 40, 60, 80, 100, 120, 140, 150	7mm	9.5 GHz	ERM8/ERF8 .8mm	Edge Rate Contact Other Stack Heights: 9, 12, 14
			10mm	8 GHz		
			16mm	5 GHz		
Arrays	Single-Ended	143, 195, 299	20mm	9.5 GHz	HDAM/HDAF 1.2mm HD Mezz***	Elevated board stacking; Other Stack Heights: 25, 30 Dual source to Molex; Intermateable with Molex HD Mezz
			35mm	9.0 GHz		
	Differential, with grounds	44, 60, 92	20mm	9.0 GHz		
			35mm	9.0 GHz		
	Differential, with grounds	18, 39, 48, 63, 104, 168	10mm	7.0 GHz	DPAM/DPAF 1.08mm DP Array®	No return paths needed, ease of board routing; Fewer board layers.
			17mm	4.0 GHz		
	Single-Ended	160, 200, 240, 300, 320, 400, 500	7mm	5.0 GHz	SEAM/SEAF .050" SEARAY™	Open pin field array; Other Stack Heights: 7 – 17.5
	Differential, with grounds	25, 40, 50, 60, 75, 80, 100, 125	7mm	10.5 GHz		Standard connector routed differentially. Other Stack Heights: 7 – 17.5

Please note that the information contained in this chart is obtained from our test data and does not represent the potential maximum performance of the interconnect system. The data reflects the point where a -3dB insertion loss occurs within the connector and is based from a test circuit with a characteristic impedance of 50 ohm for single-ended with a wiring pattern of G-S-G or 100 ohm for a differential pair with a wiring pattern of G-S-S-G.

If your application doesn't appear or may exceed the information provided in this chart, Samtec may still have a connector solution that will work.

Please contact our Signal Integrity Group at **sig@samtec.com** for additional support.

* Application Specific Stack Height. Please contact Samtec.
*** HD Mezz is a trademark of Molex Incorporated

Right Angle/Coplanar Board Mating Selector

Signaling Configuration	Total Number of Pins	Series/Pitch/Trade Name	Performance	Features/Benefits
Single-Ended	20, 40, 60, 80, 100, 120, 140	MEC6-DV .635mm	7.5 GHz	See also MEC6-RA configuration.
Differential, with grounds	7, 14, 21, 28, 35, 42, 49		7.0 GHz	Standard connector routed differentially.
Single-Ended	20, 40, 60, 80, 100	MEC6-RA .635mm	7.0 GHz	See also MEC6-DV configuration.
Differential, with ground	7, 14, 21, 28, 35		7.0 GHz	
Single-Ended	20, 26, 40, 50, 60, 74, 80, 98, 100, 120, 140, 160, 180, 200	HSEC8-DV .8mm Edge Rate Contacts	8.0 GHz	Multiple configurations - DV, EM; Suitable for power.
Differential, with grounds	7, 9, 14, 17, 21, 25, 28, 34, 35, 42		10.5 GHz	Standard connector routed differentially.
Single-Ended	20, 40, 60, 80, 100, 120, 140	MEC8-DV .8mm	7.0 GHz	Multiple configurations - DV, EM, RA.
Differential, with grounds	7, 14, 21, 28, 35, 42, 49		7.0 GHZ	Standard connector routed differentially.
Single-Ended	10, 16, 60, 80, 100, 120, 140	MEC1-DV 1mm	5.5 GHz	Multiple configurations - DV, EM, RA.
Differential, with grounds	3, 5, 14, 21, 28, 35, 42, 49		6.5 GHz	Standard connector routed differentially.
Single-Ended	10, 16, 40, 60, 80, 100, 120, 140	MEC1-RA 1mm	4.5 GHz	See also MEC1-DV configuration.
Differential, with grounds	3, 5, 14, 21, 28, 35, 42, 49		5.5 GHz	
Differential, with grounds	72, 128, 196, 328	PCIE 1mm PCI Express® Connector ****	7.0 GHz	Multiple configurations - DV, EM; PCI Express® Certified. ****
Single-Ended	50, 100, 150, 200	QTS-RA/QSS-RA .635mm Q Strip®	3.5 GHz	Ground plane for power.
Differential, with grounds	17, 35, 52, 70		1.2 GHz	Standard connector routed differentially.
Single-Ended	20, 27, 30, 40	SAL1 1mm	8.5 GHz (top) 8.5 GHz (bottom)	Variable card thicknesses; Connector can be inverted.
Differential, with grounds	7, 9, 10, 14		9.0 GHz (top) 10.0 GHz (bottom)	Standard connector routed differentially.

Please note that the information contained in this chart is obtained from our test data and does not represent the potential maximum performance of the interconnect system.

The data reflects the point where a -3dB insertion loss occurs within the connector and is based from a test circuit with a characteristic impedance of 50 ohm for single-ended with a wiring pattern of G-S-G or 100 ohm for a differential pair with a wiring pattern of G-S-S-G.

The QTS-RA/QSS-RA is an exception and is based off of a +/- 10% cross talk and impedance mismatch rating.

If your application doesn't appear or may exceed the information provided in this chart, Samtec may still have a connector solution that will work.

Please contact our Signal Integrity Group for additional support.

Power Interfaces for combination with Signal Integrity Connectors by Stack Height

HIGH SPEED Stack Height	Trade Name	Series Name	Pitch	POWER Series Name	Pitch	Max Amps @80°C
5mm	Q Series®	QTH/QSH	.5mm	SMM/TMM	2mm	3.0
		QTS/QSS	.635mm			
		QTE/QSE	.8mm			
	SamArray®	YFT/YFS	1.27mm			
7mm	Edge Rate	ERM8/ERF8	.8mm	AW/CLE	.8mm	3.0
	SEARAY™	SEAM/SEAF	1.27mm	ZLTMM/SMM	2mm	
	SamArray®	YFW/YFS		TW/SMM		
				MTLW/SLW	2.54mm	
8mm	Q Series®	QTH/QSH	.5mm	PCT2/PCS2	2mm	6.0 (7.85mm Stack Height)
		QTS/QSS	.635mm			
		QTE/QSE	.8mm	TW/SMM		3.0
9mm	SamArray®	YFW/YFS	1.27mm	MTSW/SLW	2.54mm	
				MTLW/SLW		
10mm	Q2	QMSS/QFSS*	.635mm	TMMH/ESQT	2mm	3.0
		QMS/QFS		TSH/ESQT		
	Edge Rate	ERM8/ERF8	.8mm	TW/SMM		
	SEARAY™	SEAM/SEAF	1.27mm	TW/SQW		
				TW/SQT		
	DP Array®	DPAM/DPAF	2.16mm	TPCM/TPCF		
				MTLW/SSW	2.54mm	
				MTLW/SLW		
				MTLW/BCS		
				TSW/SLW		
11mm	Q Series®	QTH/QSH	.5mm	TMMH/ESQT	2mm	3.0
		QTS/QSS*	.635mm	TPCM/TPCF		
	Q2	QMSS/QFSS		TW/SQT		
		QMS/QFS		TW/SMM		
	Q Series®	QTE/QSE	.8mm	TSH/ESQT		
				TSW/SSW	2.54mm	
				MTSW/SLW		
				MTLW/SLW		
				MTLW/SSW		
				MTLW/BCS		
12mm	Q2	QMSS/QFSS**	.635mm	IPT1/IPS1		
		QMS/QFS**		TMMH/ESQT	2mm	3.0
	SEARAY™	SEAM/SEAF	1.27mm	TW/SQT		
	SamArray®	YFW/YFS		TPCM/TPCF		
				TW/SMM		

HIGH SPEED Stack Height	Trade Name	Series Name	Pitch	POWER Series Name	Pitch	Max Amps @80°C
14mm	Q Series®	QTH/QSH*	.5mm	TMMH/ESQT	2mm	3.0
	Q2	QMSS/QFSS**	.635mm	TSH/ESQT		
		QMS/QFS**		TW/SQT		
	Q Series®	QTE/QSE*	.8mm	TPCM/TPCF		
	SEARAY™	SEAM/SEAF	1.27mm	MTSW/SSW	2.54mm	
	DP Array®	DPAM/DPAF **	2.16mm	MTSW/ESW		
				MTSW/SLW		
				DW/SSW		
				EW/SSW		
				MTLW/SSW		
				MTLW/SLW		
				MTLW/BCS		
				TSS/ESW		
				IPT1/IPS1		
16mm	Q Series®	QTH/QSH	.5mm	HPW(SW)/PSS	5.08mm	6.8 @ 30°C
		QTS/QSS*		HPW(SW)/HPF	5.08mm	7.9 @ 30°C
	Q2	QMSS/QFSS **	.635mm	TPCM/TPCF	2mm	3.0
		QMS/QFS**		TSH/ESQT		
	Q Series®	QTE/QSE	.8mm	TMMH/ESQT		
	SEARAY®	SEAM/SEAF	1.27mm	TW/SQT		
				MTSW/ESW	2.54mm	
				MTSW/SSW		
				MTSW/SLW		
				MTLW/SLW		
				MTLW/BCS		
				MTLW/SSW		
				EW/SSW		
				DW/SSW		
				HW/SSM		
				IPT1/IPS1		
				JW/FHP	3.96mm	8.2 @ 30°C / 15 @ 70°C Ambient
				HPW(SW)/PSS	5.08mm	6.8 @ 30°C
				HPW(SW)/HPF	5.08mm	7.9 @ 30°C
				IPBT/IPBS	.165mm	10.0 @ 75°C
17mm	DP Array®	DPAM/DPAF	2.16mm	TPCM/TPCF	2mm	3.0
				TSH/ESQT		
				TSH/SQT		
				TW/SQT		
				TW/SQW		
				DW/ESW	2.54mm	
				DW/SSW		
				EW/ESW		
				EW/SSW		
				HW/SSW		
				HW/SSM		
				MTSW/ESW		
				MTSW/SLW		
				MTLW/SLW		
				MTLW/SSW		
				TSS/ESW		
				HPW/HPF	5.08mm	7.9 @ 30°C

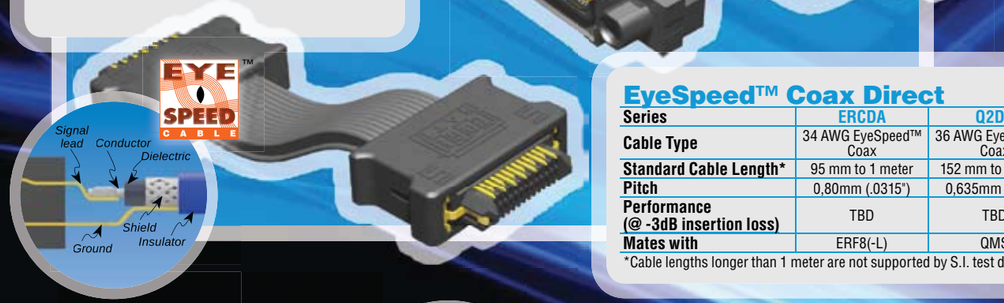
HIGH SPEED Stack Height	Trade Name	Series Name	Pitch	POWER Series Name	Pitch	Max Amps @80°C
19mm	Q Series®	QTH/QSH	.5mm	IPBT/IPBS	.165mm	10.0 @ 75°C
		QTS/QSS*	.635mm	TPCM/TPCF	2mm	3.0
		QTE/QSE	.8mm	TMMH/ESQT		
	RiseUp®	RU8		TW/SQT		
				MTSW/SSW	2.54mm	
				MTSW/ESQ		
				MTSW/SLW		
				MTLW/BCS		
				MTLW/SSW		
				DW/SSW		
				JW/FHP	3.96mm	8.2 @ 30°C / 15 @ 70°C Ambient
	SamArray®	YFW/YFS	1.27mm	HPW(SW)/PSS	5.08mm	6.8 @ 30°C
				HPW(SW)/HPF	5.08mm	7.9 @ 30°C
				PET/PES	6.35mm	25.0
20mm	HD Mezz ***	HDAM/HDAF	1.2mm	IPBT/IPBS	.165mm	10.0 @ 75°C
				TMMH/ESQT	2mm	3.0
	RiseUp®	RU8*	.8mm	JW/FHP	3.96mm	8.2 @ 30°C / 15 @ 70°C Ambient
				HPW/HPF	5.08mm	7.9 @ 30°C
25mm	Q Series®	QTH/QSH	.5mm	IPBT/IPBS	.165mm	10.0 @ 75°C
		QTE/QSE	.8mm	TW/ESQT	2mm	3.0
	RiseUp®	RU8		TSH/ESQT		
				TW/SQT		
	HD Mezz ***	HDAM/HDAF	1.2mm	MTSW/ESW	2.54mm	
				DW/SSW		
	SamArray®	YFW/YFS	1.27mm	EW/ESW		
				DW/ESW		
				HW/SSM		
				HW/SSW		15 @ 70°C
				JW/FHP	3.96mm	8.2 @ 30°C
				HPW(SW)/PSS	5.08mm	8.2 @ 30°C / 15 @ 70°C Ambient
				HPW(SW)/HPF	5.08mm	7.9 @ 30°C
30mm	Q Series®	QTH/QSH*	.5mm	TW/ESQT	2mm	3.0
		QTE/QSE*	.8mm	DW/ESW	2.54mm	
	RiseUp®	RU8		DW/SSW		
				EW/ESW		
	HD Mezz ***	HDAM/HDAF	1.2mm	EW/SSW		
				HW/SSW		
				MTSW/SSW		
				MTSW/ESW		
				MTSW/SLW		
35mm	RiseUp®	RU8*	.8mm	TW/ESQT	2mm	3.0
				DW/ESW	2.54mm	
	HD Mezz ***	HDAM/HDAF	1.2mm	DW/SSW		
				EW/SSW		
				EW/ESW		
				HW/SSM		
				MTSW/ESW		
				MTSW/SSW		
				MTSW/SLW		

* Application Specific Option
** In design
*** HD Mezz is a trademark of Molex Incorporated
**** PCI Express® is a registered trademark of PCI-SIG

COAX CABLE ASSEMBLIES

"Direct-to-Lead" Coax

- Data Rate EyeSpeed™ cable mates for Edge Rate and Q2 connectors
- Cable terminated directly to lead optimizes signal integrity
- Hot swappable option
- Edge Rate system with standard rugged friction lock
- Q2 system with standard guide post holes



EyeSpeed™ Coax Direct

Series	ERCDA	Q2DA
Cable Type	34 AWG EyeSpeed™ Coax	36 AWG EyeSpeed™ Coax
Standard Cable Length*	95 mm to 1 meter	152 mm to 1 meter
Pitch	0,80mm (.0315")	0,635mm (.025")
Performance (@ -3dB insertion loss)	TBD	TBD
Mates with	ERF8(-L)	QMS

*Cable lengths longer than 1 meter are not supported by S.I. test data.

Coax Data Rate Cables

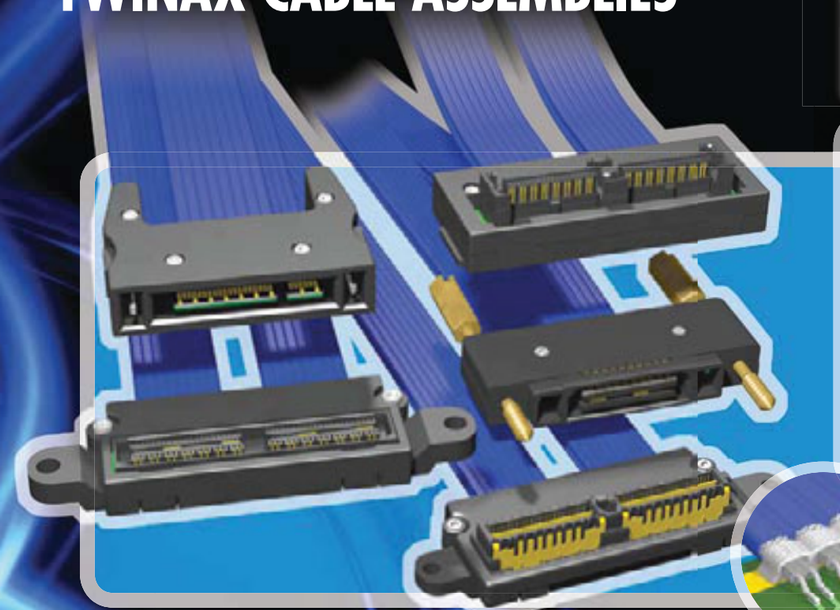
- 50Ω & 75Ω cable available
- 0,5mm, 0,635mm and 0,8mm pitch Q Series® mates
- Vertical or edge mount termination to cable
- Ideal for longer cable assemblies
- 26 AWG Quiet Power™ coax cable minimizes EMI aggression and coupling of high speed signals
- JTAG (IEEE 1149.1) compatible header or socket termination

EyeSpeed™ Coax

Series	HHSC	EQSD	EQCD	HQCD	MICD/ SQCD/6QCD	HBCD	6QP
Cable Type	38 AWG EyeSpeed™ Coax						
Standard Cable Length*	95,3 mm to 1 meter						
Pitch	2,54mm (.100")	0,80mm (.0315")		0,50mm (.0197")	0,635mm (.025")	0,50mm (.0197")	0,635mm (.025")
Performance (@ -3dB insertion loss)	400MHZ/0.8 Gbps	970 MHz/ 1.94 Gbps to 1.54 GHz/3.08 Gbps	480 MHz/0.96 Gbps to 1.74 GHz/3.48 Gbps	390 MHz/0.78 Gbps to 1.67 GHz/3.34 Gbps	458 MHz/916 Gbps to 1.64 GHz/3.28 Gbps	563 MHz/1.13 Gbps to 2.76 GHz/5.52 Gbps	TBD
Mates with	SSW, SSQ, SSM, ESW, ESQ, BCS, TSW, MTSW, TSM, TSS, ZSS	QTE, QSE		QTH, QSH	MIS, MIT/QTS, QSS/ QMS/QFS	BTH, BSH	QFS

*Cable lengths longer than 1 meter are not supported by S.I. test data.

TWINAX CABLE ASSEMBLIES

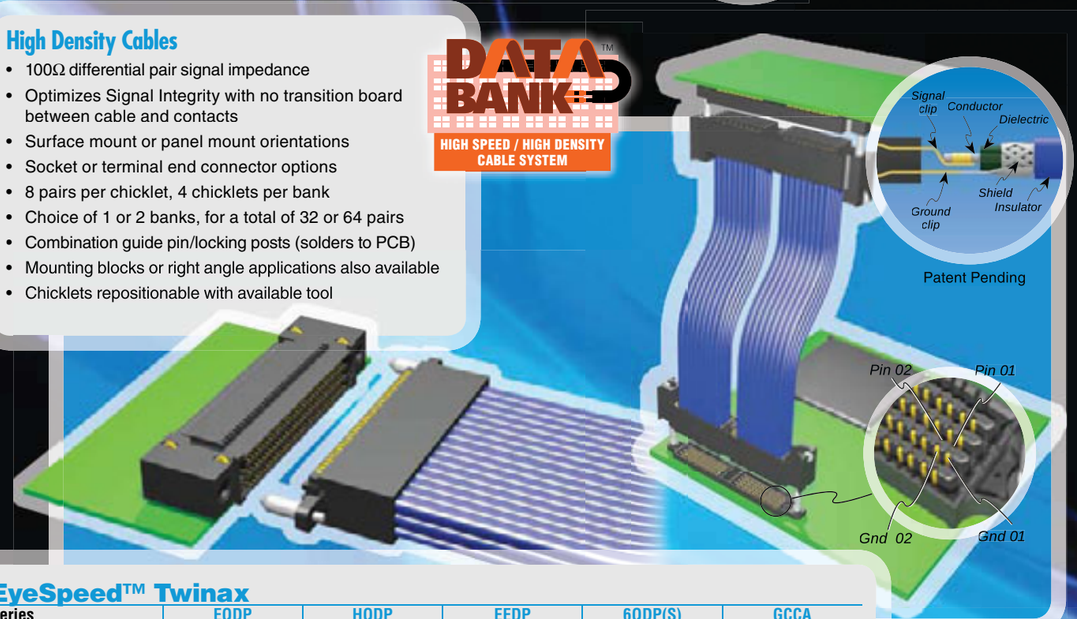


Twinax Data Rate Cables

- 100Ω differential pair impedance
- Choice of terminations:
  - Edge card
  - High speed connectors on 0,5mm, 0,635mm and 0,8mm pitch
- Low skew (pair-to-pair < 10ps/ft; within a pair < 5ps/ft)
- Superior EMI Performance (FCC Class A)
- Contact dr@samtec.com for custom Signal Integrity specifications

High Density Cables

- 100Ω differential pair signal impedance
- Optimizes Signal Integrity with no transition board between cable and contacts
- Surface mount or panel mount orientations
- Socket or terminal end connector options
- 8 pairs per chicklet, 4 chicklets per bank
- Choice of 1 or 2 banks, for a total of 32 or 64 pairs
- Combination guide pin/locking posts (solders to PCB)
- Mounting blocks or right angle applications also available
- Chicklets repositionable with available tool



EyeSpeed™ Twinax

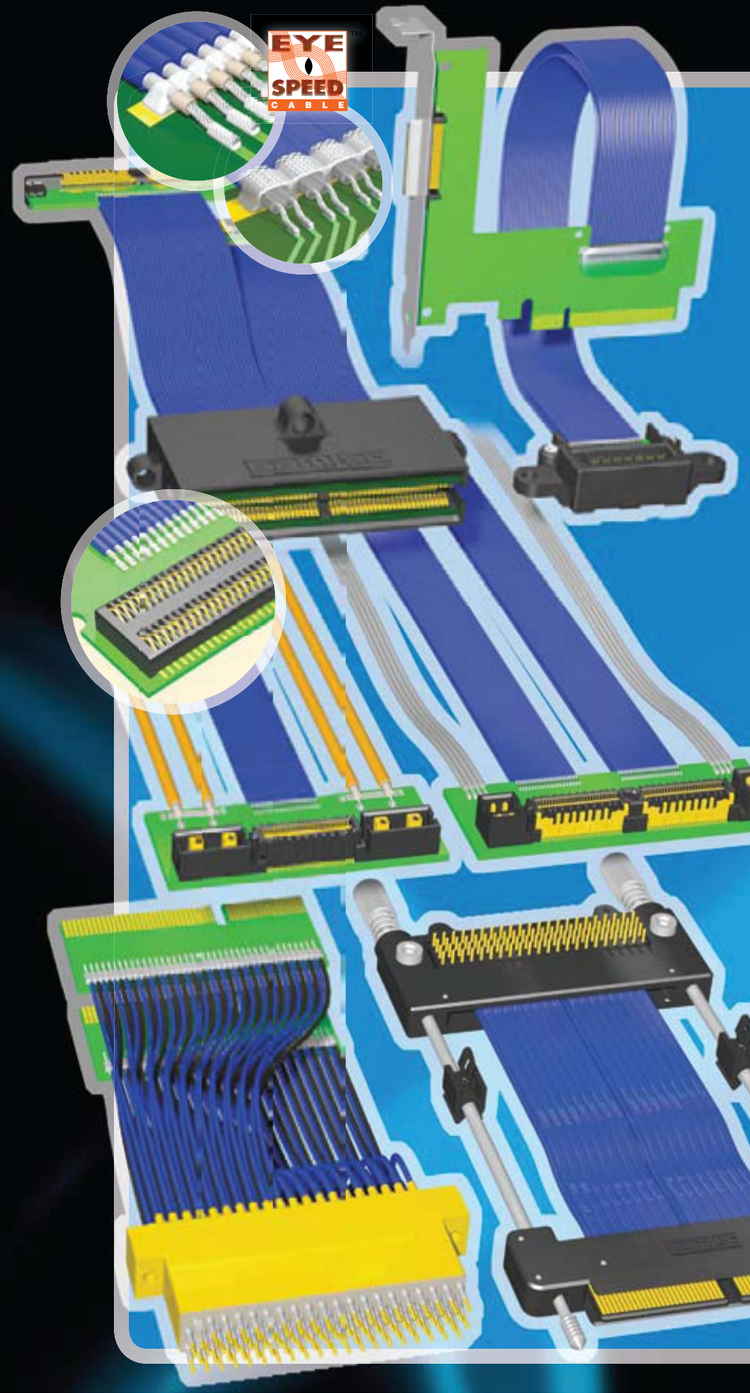
Series	EQDP	HQDP	EEDP	6QDP(S)	GCCA
Cable Type	30 AWG EyeSpeed™ MS Twinax				
Standard Cable Length*	95 mm to 1 meter				n/a
Pitch	0,80mm (.0315")	0,50mm (.0197")	0,80mm (.0315")	0,635mm (.025")	1,27mm (.050")
Performance (@ -3dB insertion loss)	1.32 GHz/2.64 Gbps to 4.48 GHz/8.96 Gbps	1.76 GHz/3.52 Gbps to 5.94 GHz/11.88 Gbps	1.15 GHz/2.30 Gbps to 2.85 GHz/5.70 Gbps	1.04 GHz/2.08 Gbps to 4.0 GHz/8.0 Gbps	5.89 GHz/2.95 Gbps to 2.3 GHz/1.15 Gbps
Mates with	QTE-DP, QSE-DP	QTH-DP, QSH-DP	MEC8-RA, HSEC8	QMSS-DP, QFSS-DP, QMS-DP, QFS-DP	GCAM

*Cable lengths longer than 1 meter are not supported by S.I. test data.

samtec

CUSTOM CABLE ASSEMBLIES

DATA RATE
HIGH SPEED CABLE ASSEMBLIES



Cables

- 26 and 30 AWG 100Ω EyeSpeed™ MS twinax
- 26, 28, 30, 32, 34, 36 and 38 AWG 50Ω EyeSpeed™ coax
- 32, 34 and 38 AWG 75Ω EyeSpeed™ coax
- 26, 28 and 36 AWG 13Ω Quiet Power™ coax
- 26 AWG 100Ω MiniSkew LSP Low Skew Pair
- 30 AWG 100Ω Shielded Twisted Pair
- RF and microwave

Ruggedized Cable Assembly Options

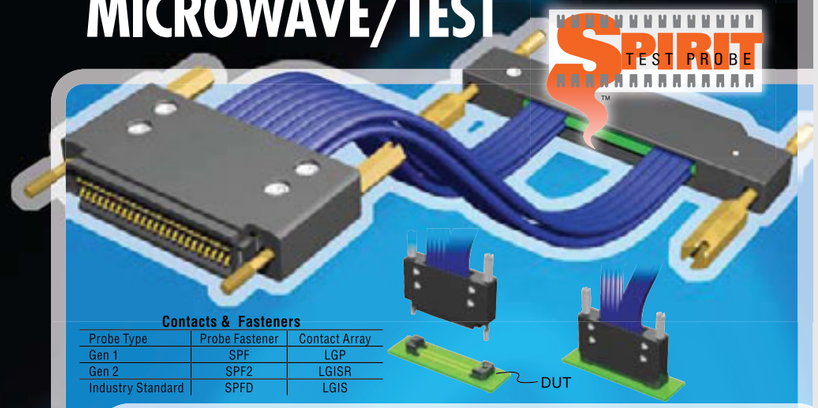
- Retention pins
- Friction locks
- Captive panel screws
- Screw downs and mounting brackets
- Ejector headers with locking caps
- AccliMate™ Sealed Circular Cable Systems
- Positive latching systems

RUGGEDIZED by SAMTEC

Modified Standards

- Wide variety of coax, twinax and RF cable choices
- Mix and match twinax and coax, signal and power, coax/twinax and RF cable
- Custom terminations including RF, I/O, High Speed and Pogo Pins/ Compression Contacts
- Rugged shielding, screw systems, locking and latching features, and retention clips
- Special housings and platings
- Customized routing and breakout to boards
- Contact dr@samtec.com for more information

MICROWAVE/TEST



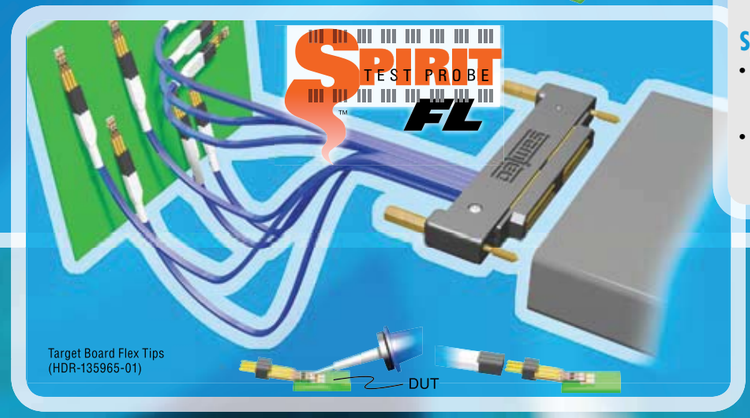
Contacts & Fasteners

Probe Type	Probe Fastener	Contact Array
Gen 1	SPF	LGP
Gen 2	SPF2	LGISR
Industry Standard	SPFD	LGIS

Spirit™ Connectorless Test Probe

PATENT PENDING

- Non-intrusive testing applications from 1.25 Gb/s to 5.2 Gb/s
- Enables high speed testing compatible with Intel specific PCI Express® protocol footprint
- Replaceable contact arrays extend probe life indefinitely
- Spring loaded shroud protects compression contact tips
- Choice of 8 or 16 pairs (Gen 1 & Gen 2) or 18 pairs (industry standard)
- Q Strip® or Micro Card instrument end interface
- Available as components or complete kits with probe, replacement contact arrays, extraction tool and probe fasteners
- Application specific logic and protocol analysis applications with differential pair counts and pinout maps available Contact dr@samtec.com



Spirit™ FL Flying Lead Test Probe

- Picks up differential signals not conveniently grouped or routed to connectors
- Flex Circuit tip provides improved SI performance over two-piece connector system

High Speed Test Probes

- 50Ω 25 AWG, low loss microwave coax cables or RG 178 & RG 316 RF cables
- High density pogo pin interface for high cycles (ATEP)
- PCI Express® RF System (PCRF)
- Q Series® system (EQRF)

Compliant Coax

- 20 GHz 50Ω microwave coax cable assemblies
- Spring-loaded, field reconfigurable or field replaceable cables
- Choice of end terminations
- High Speed characterization reports and models available
- Contact rf@samtec.com

Microwave/Test

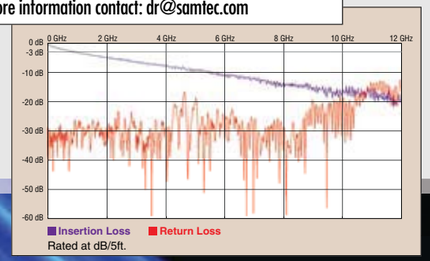
Series	SCTP	SFLTP	EQRF	ATEP	PCRF	Compliant Coax
Cable Type	30 AWG EyeSpeed™ MS Twinax	30 AWG EyeSpeed™ MS Twinax	RG178/RG318	25 AWG EyeSpeed™ Microwave		
Application	Replaceable compression contacts	Flying Lead Test Points	Q Series®	Zero Insertion Force	PCI Express®	Customizable Pin Outs
Performance (@ -3dB insertion loss)	1.25 Gbps to 5.2 Gbps	1.25 Gbps to 5.2 Gbps		10 GHz/20 Gbps	2.5 GHz/5 Gbps	n/a
Mates with	QSS or HSEC8	QSS	QTE, QSE/ SMA, MCX, MMCX	SMA	PCIE, PCIEC	SMA

EYESPEED™ CABLE SELECTOR

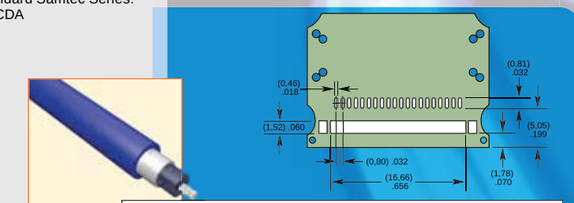
50Ω Coax EyeSpeed™ Cable – 34 AWG

Also Available: 50Ω - 26, 28, 30 and 32 AWG
For more information contact: dr@samtec.com

Standard Samtec Series: EOCDA



Rated at dB/5ft.

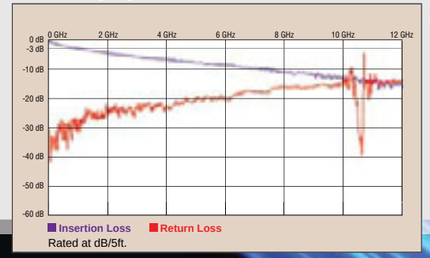


- Jacket: PVC 0,80 (.0315) DIA
- Shield: Serve, Silver Plated Copper
- Dielectric: Foamed FEP
- Center Conductor: 34 AWG Stranded 0,185 (.0073) DIA

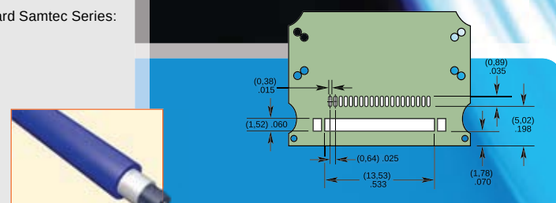
- Capacitance: 84.32 pF/meter (nominal)
- Inductance: .230 mH/meter (nominal)
- Propagation Delay: 1.29 nS/foot (4,23 nS/meter)

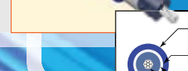
50Ω Coax EyeSpeed™ Cable – 36 AWG

Standard Samtec Series: Q2DA



Rated at dB/5ft.



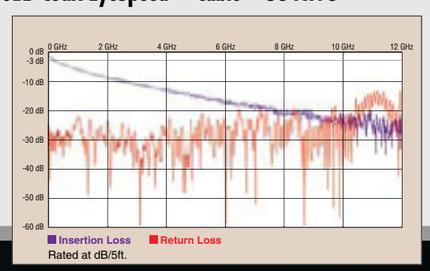


- Jacket: PVC 0,635 (.0250) DIA
- Shield: Serve, Silver Plated Copper
- Dielectric: Foamed FEP
- Center Conductor: 36 AWG Stranded 0,127 (.0055) DIA

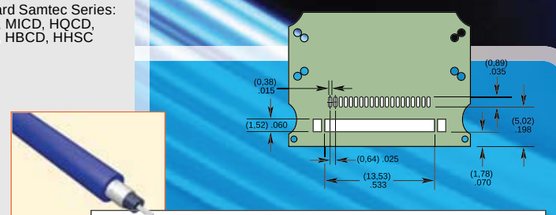
- Capacitance: 88.6 pF/meter (nominal)
- Inductance: .230 mH/meter (nominal)
- Propagation Delay: 1.33 nS/foot (4,36 nS/meter)

50Ω Coax EyeSpeed™ Cable – 38 AWG

Standard Samtec Series: SQCD, MICD, HQCD, EQCD, HBCD, HHSC



Rated at dB/5ft.



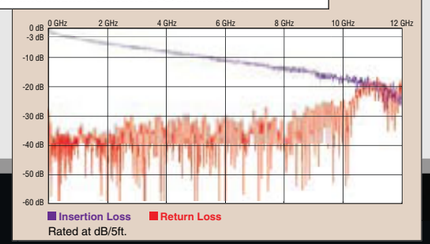
- Jacket: PVC 0,635(.0250) DIA
- Shield: Serve, Silver Plated Copper
- Dielectric: FEP
- Center Conductor: 38 AWG Stranded 0,117 (.0046) DIA

- Capacitance: 96.79 pF/meter (nominal)
- Inductance: .230 mH/meter (nominal)
- Propagation Delay: 1.46 nS/foot (4,79 nS/meter)

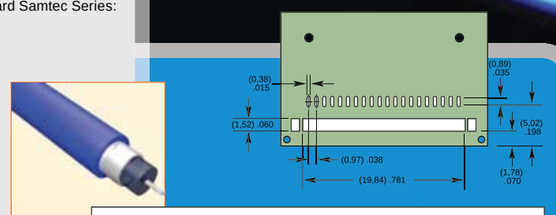
75Ω Coax EyeSpeed™ Cable – 38 AWG

Also Available: 75Ω - 32 and 34 AWG
For more information contact: dr@samtec.com

Standard Samtec Series: EOSD



Rated at dB/5ft.

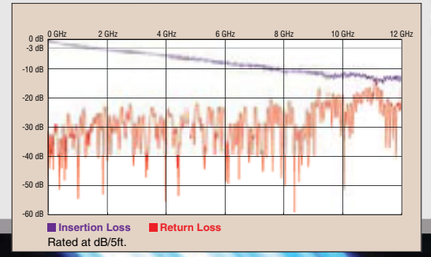


- Jacket: PVC 0,97 (.038) DIA
- Shield: Serve, Silver Plated Copper
- Dielectric: FEP
- Center Conductor: 38 AWG Stranded 0,117 (.0046) DIA

- Capacitance: 63.16 pF/meter (nominal)
- Inductance: .348 mH/meter (nominal)
- Propagation Delay: 1.46 nS/foot (4,79 nS/meter)

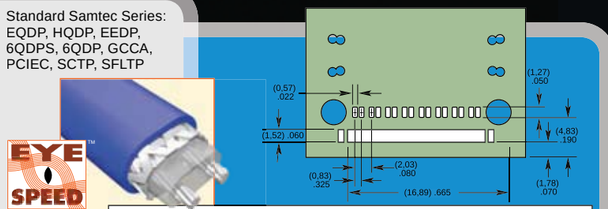
SPECIALTY CABLE SELECTOR

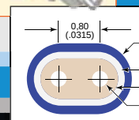
100Ω Twinax EyeSpeed™ MS Cable – 30 AWG



Rated at dB/5ft.

Standard Samtec Series: EQDP, HQDP, EEDP, 6QDPS, 6QDP, GCCA, PCIEC, SCTP, SFLTP

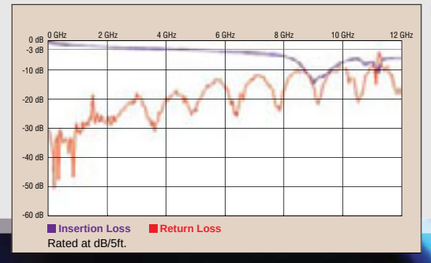




- Jacket: PVC 2,03 (.080) x 1,37 (.054)
- Shield: Braid, Silver Plated Copper
- Dielectric: FEP
- Signal Conductors: 30 AWG Stranded 0,305 (.012) DIA

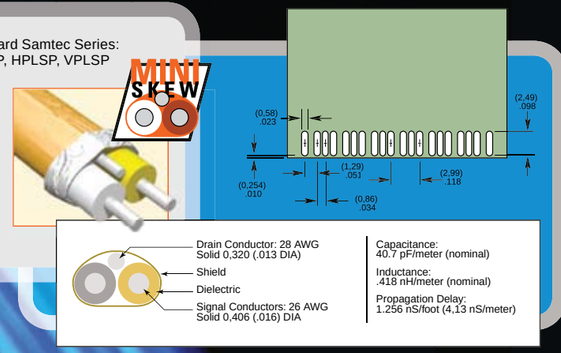
- Capacitance: 46.5 pF/meter (nominal)
- Inductance: .518 mH/meter (nominal)
- Propagation Delay: 1.46 nS/foot (4,79 nS/meter)

100Ω MiniSkew Low Skew Pair – 26 AWG



Rated at dB/5ft.

Standard Samtec Series: EPLSP, HPLSP, VPLSP

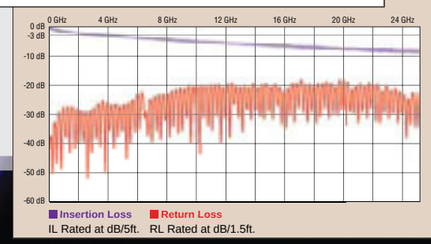


- Drain Conductor: 28 AWG Solid 0,320 (.013 DIA)
- Shield
- Dielectric
- Signal Conductors: 26 AWG Solid 0,406 (.016) DIA

- Capacitance: 40.7 pF/meter (nominal)
- Inductance: .418 nH/meter (nominal)
- Propagation Delay: 1.256 nS/foot (4,13 nS/meter)

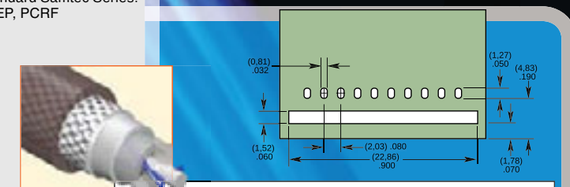
50Ω Temp-Flex Cable – 25 AWG

Also available: 100Ω - 30 AWG Shielded Twisted Pair
For more information contact: dr@samtec.com



IL Rated at dB/5ft. RL Rated at dB/1.5ft.

Standard Samtec Series: ATEP, PCRF



- Jacket: FEP
- Shield: Braid, Silver Plated Copper
- Dielectric: FEP
- Signal Conductor: 25 AWG Silver Plated Copper

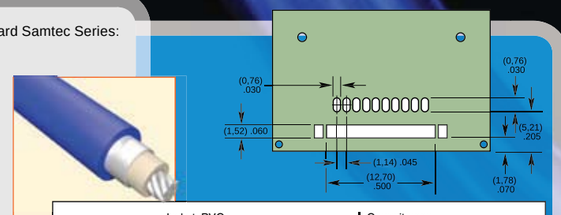
- Capacitance: 75.4 pF/meter (nominal)
- Inductance: .230 mH/meter (nominal)
- Propagation Delay: 1.17nS/foot (3,82 nS/meter)

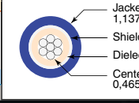
13Ω Coax Quiet Power™ Cable – 26 AWG

Also available: 13Ω - 28 & 36 AWG
For more information contact: dr@samtec.com

- Power Integrity: minimizes coupling to high speed signals
- Power EMI: minimizes EMI aggression
- Current Rating: 4A
- Capacitance: 239 pF/meter (nominal)
- Inductance: .092 mH/meter (nominal)
- Temp Rating: -25˚C to +105˚C

Standard Samtec Series: 6OP





- Jacket: PVC 1,137 (.0448) DIA
- Shield: Serve, Silver Plated Copper
- Dielectric: FEP
- Center Conductor: 26 AWG Stranded 0,465 (.0183) DIA

- Capacitance: 239 pF/meter (nominal)
- Inductance: .092 mH/meter (nominal)
- Propagation Delay: 1.46 nS/foot (4,79 nS/meter)

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RF CABLE ASSEMBLIES

IsoRate
Isolated Edge Rate Contact

IsoRate Cable Assemblies

- Low cost, high performance isolated transmission line cables
- Radio frequency signal quality (call for test data)
- Rugged positive latching system
- Choice of discrete wire or ganged 2, 4 or 8 pin assemblies
- Single or double ended assemblies up to 1 meter in length
- Board stacking systems available

RUGGEDIZED by SAMTEC

Wide Variety of Cables

- Micro High Frequency 25 AWG Microwave Cable Assemblies
- RG174 & RG316 RF Cable Assemblies
- RG178 RF Cable Assemblies
- RG179 RF Cable Assemblies
- RG58 RF Cable Assemblies

Wide Variety of Terminations

- MHF1 and MHF3
- SMA
- SMB
- MCX
- MMCX
- BNC
- TNC
- N Type

Wide Variety of Options

- Straight cables or bulkhead
- 50Ω and 75Ω systems
- Choice of PCB mount options

RF Cable Assemblies

Series	GITJ-C	MH081	MH113	RF174/RF316	RF178	RF058	RF179
Type	IsoRate	MHF		Board-to-Board, Panel-to-Board & Panel-to-Panel			
Impedance	50 Ω						75 Ω
Pitch	4mm	Discrete Wire					
Type Cable	RG316	0,81mm	1,13mm	RG174/RG316	RG178	RG058	RF179
Pin Counts	2, 4, 6, 8	Discrete Wire					
Terminations	Proprietary low cost high performance RF	MHF1, MHF3	MHF1	SMA, SMB, MCX, MMCX, BNC, TNC	SMA, MCX, MMCX	TNC, N	BNC, MCX, SMB

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RF CABLE SELECTOR

CABLE TYPE		0,81	1,13	RG178	RG174	RG316	RG58	RG179	CCA25M
Impedance	Ω	50 ± 3	50 ± 2	50 ± 2	50 ± 5	50 ± 2	50 ± 3	75 ± 3	50 ± 1
Attenuation (dB/m) (Except CCA25M Flexible Microwave Cable = dB/0.25m)	100 MHZ	1.0	0.6	0.5	0.4	0.3	0.2	0.3	0.3 @ 1 GHz
	400 MHZ	2.0	1.2	1.1	0.8	0.6	0.4	0.7	
	1 GHZ	3.3	1.9	1.7	1.4	1.0	0.8	1.0	1.47 @ 12 GHz
	2 GHZ	4.7	2.7	2.7	1.9	1.8	1.7	1.8	
	3 GHZ	5.8	3.3	3.5	2.6	2.5	2.6	2.1	1.44 @ 18 GHz
	4 GHZ	6.8	3.9	4.3	3.3	3.2	3.5	2.5	
	5 GHZ	7.7	4.4	5.1	3.8	4.0	4.5	3.4	1.48 @ 20 GHz
	6 GHZ	8.6	4.9	5.9	4.4	4.25	5.4	3.6	
Dielectric Constant (dk)	------	2.0	2.0	2.1	2.3	2.1	2.3	2.1	1.4
Dielectric Strength	VAC	1000	500	1000	500	1200	------	1200	------
Propagation Delay	nS/m	4.70	4.70	4.83	5.06	4.83	5.05	4.83	3.84
Current Rating	Amps	------	------	3	5	5	------	3	5
Capacitance	pF/m	100	95	96	100	96	101	64	75
Center Conductor	Material	Silver plated Copper	Silver plated Copper	Silver plated Copper Clad Steel	Copper	Silver plated Copper Clad Steel	Tinned Copper	Silver plated Copper	Silver plated Copper
	AWG	36	32	30	26	26	20	30	25
	Stranding (No./mm)	7/0.05	7/0.08	7/0.10	7/0.16	7/0.17	19/.018	7/0.10	n/a
	Diameter (mm)	0.15	0.24	0.3	0.48	0.51	0.90	0.3	0.46
	Max Resistance (Ω/m)	1.40	0.60	0.34	0.14	0.13	------	0.34	------
Dielectric	Material	FEP	FEP	PTFE	LEP	PTFE	Solid Polyethelyne	PTFE	FEP
	Diameter (mm)	0.4	0.66	0.84	1.45	1.52	2.95	1.6	1.17
Shield	Material	Silver plated Copper	Tinned Copper	Silver plated Copper	Tinned Copper	Silver plated Copper	Tinned Copper	Tinned Annealed Copper	Silver plated Copper
	Diameter (mm)	0.65	0.88	1.29	1.95	1.93	3.0	2.0	1.6
Jacket	Material	PFA	FEP	FEP	PVC	FEP	PVC	FEP	FEP
	Diameter (mm)	0.81	1.13	1.80	2.70	2.49	4.95	2.54	1.9
	Temp Rating	-10°C to +90°C	-10°C to +90°C	-55°C to +200°C	-40°C to +85°C	-55°C to +200°C	-40°C to +90°C	-55°C to +200°C	-65°C to +200°C
	Color	Gray	Gray	Brown	Black	Brown	Black	Brown	Brown
Bend Radius	Min	5mm	6.8mm	10.2mm	25.4mm	12.7mm	48.3mm	10.2mm	9mm
Termination Options	Standard Commodity	MHF1 MHF3 SMA	MHF1 SMA	MMCX MCX SMA	MMCX MCX SMA SMB BNC TNC N-TYPE	MMCX MCX SMA SMB BNC TNC N-TYPE	TNC N-TYPE	MCX SMB BNC	SMA
Termination Options	Unique Samtec	------	------	EQRF	------	EQRF GITJ	------	------	PCRF ATEP

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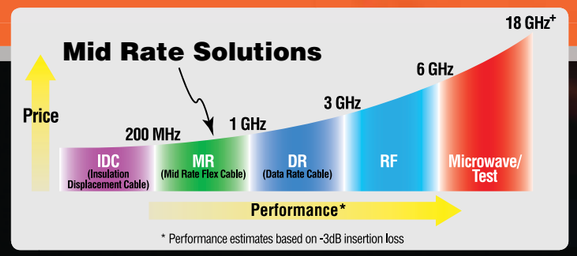
MID RATE TRANSMISSION LINE SOLUTIONS

FLEX CIRCUITS

High Speed Connectors on Flex

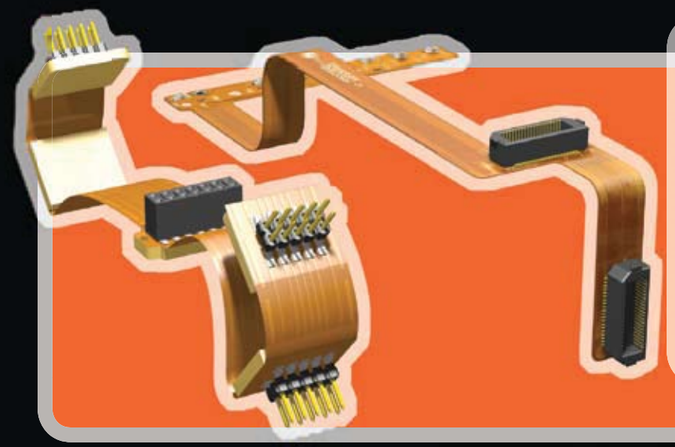
- Terminate with single-ended or differential pair high speed connectors
- High speed connector options include Q Series®, Edge Card and SEARAY™ Series
- Choice of vertical, horizontal and edge mount mating connectors
- Easy customization of cable lengths, pin counts, guide posts, connector heights, etc.
- Flex circuits available from 1-10 layer counts
- Contact flexcircuits@samtec.com



Mid Rate Flex with High Speed Connectors

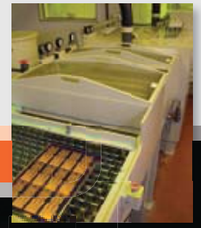
Series	HFHM/HFHM2	HFEM/HFEM2	HSF8/ZFHF	SADL	ERDL2/RFDL2	FSIF
Cable Type	1/2 oz. rolled annealed copper			1 oz. rolled annealed copper		
Standard Cable Length*	76,20 mm to 254,0 mm		127,0 mm & 254,0 mm	254,0 mm	127,0 mm & 254,0 mm	127,0 mm & 254,0 mm
Pitch	0,50mm (.0197")	0,80mm (.0315")	0,50mm (.0197")	1,27mm (.050")	0,80mm (.0315")	1,00mm (.03937")
Performance** (@ -3dB insertion loss)	1.05 GHz/2.10 Gbps to 2.36 GHz/4.72 Gbps	1.23 GHz/2.46 Gbps to 2.62 GHz/5.24 Gbps	1.21 GHz/2.62 Gbps to 3.16 GHz/6.32 Gbps	TBD	TBD	TBD
Mates with	QTH-DP, QSH-DP, QTH, QSH	QTE-DP, QSE-DP, QTE, QSE	HSEC8/QSE, ZF5	SEAM, SEAF	ERM8, ERF8	FSI-03

* Other sizes and lengths available. Contact Samtec.
**Performance based on (127mm) 5" to (254mm) 10" assemblies.



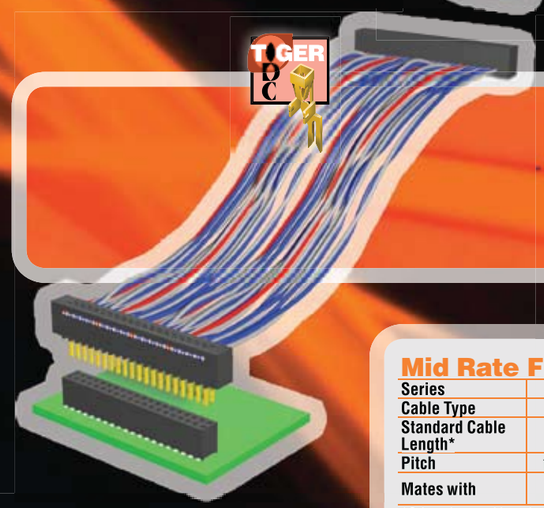
Complex Custom Flex Circuitry

- High-end flex circuits
- Full line of high speed connector & custom connector terminations
- Small quantity, quick turn-around; large quantity, competitive pricing
- Complex single-sided, double-sided, multi-layer & rigid flex
- Surface mount or through-hole
- Hotbar soldering of discrete fingers
- LIF/ZIF terminations



Mid Rate Flex Jumpers

- .050" (1,27mm) and 2mm pitch
- High reliability Tiger Eye contacts
- Choice of standard or friction lock sockets
- Easy customization of cable lengths, pin counts, etc.



Twisted Pair IDC

- Up to 2½ times the performance of traditional IDC flat cable
- Mid Rate flex jumpers
- Cost savings option

Mid Rate Flex & TP-IDC

Series	TFMDL	TCDL2	FFDL2	FFTP
Cable Type	1 oz. rolled annealed copper			30 AWG 7/40 tinned, TP
Standard Cable Length*	50,80 mm to 254,0 mm	127,0 mm & 254,0 mm		91,7 mm & 218,44 mm
Pitch	1,27mm (.050")	2,00mm (.0787")	1,27mm (.050")	1,27mm (.050")
Mates with	SFM, TFM, SFML, TFML	TMMH, CLT	FTSH, CLP	FTS, FTSH, EHF

* Other sizes and lengths available. Contact Samtec.

www.samtec.com

SUDDEN SERVICE

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