

# *Automotive* Interconnect Solutions and Design Capabilities



# Products and Expertise

## Automotive Expertise

Samtec earned its ISO/TS 16949 certification in 2006 and has assembled a team of experts and systems designed specifically to support the unique requirements of automotive applications requiring interconnect solutions. Samtec's automotive scope includes:

- Design and manufacturing of electronic connectors marketed as "ACD Series" (Automotive Certified Designs) for PCBs
- ACD Series connectors can be IMDS registered (International Material Data System)
- A wide range of products suitable for prototype and test equipment applications

With global manufacturing facilities, an extensive line of proven interconnect solutions, and full custom product development capabilities, Samtec is well positioned to support the interconnect needs of many automotive applications.

For more information on ACD Series certification or to discuss your automotive application, please contact [autosalesgroup@samtec.com](mailto:autosalesgroup@samtec.com).

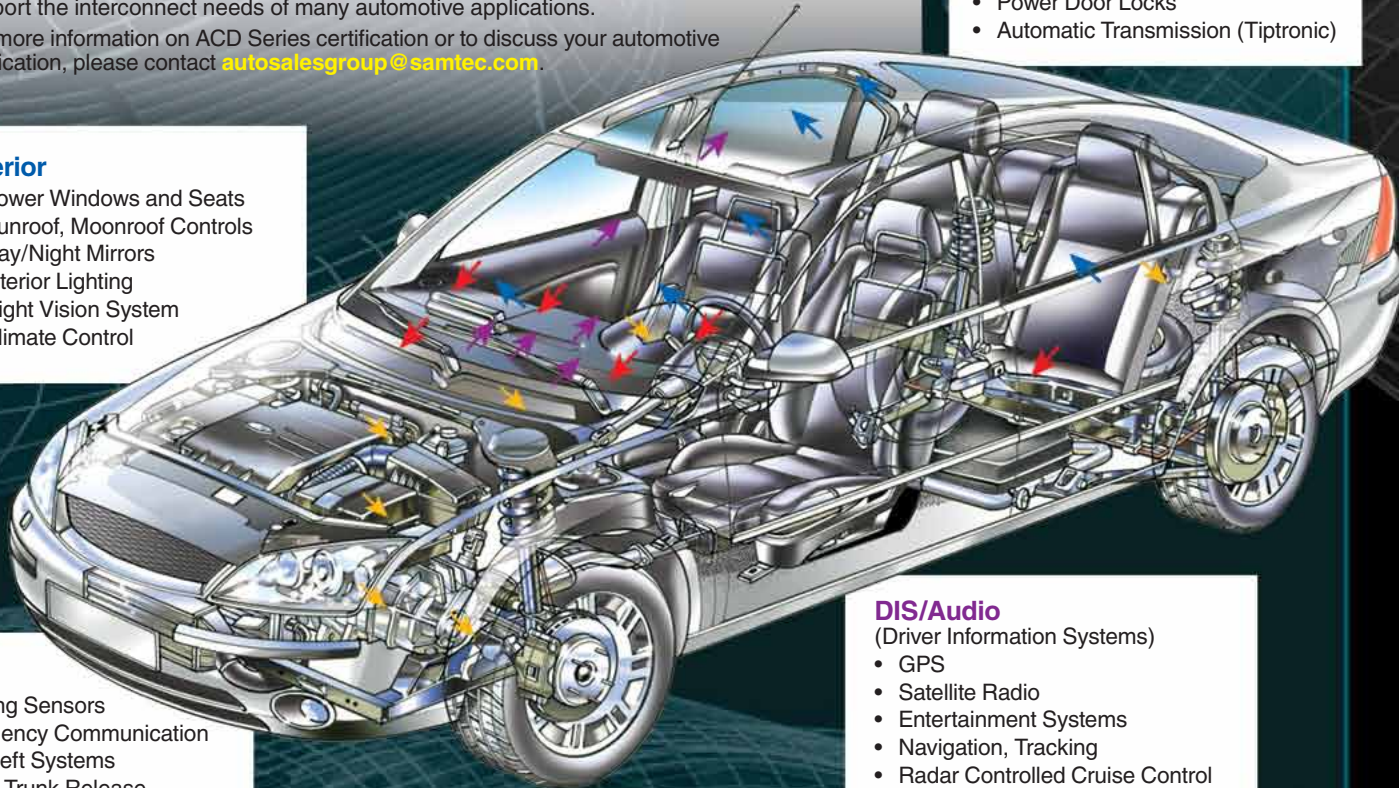


## Control Modules

- Instrument Panel and Cockpit
- Steering Modules
- Brake Modules
- Engine Control Systems
- Power Door Locks
- Automatic Transmission (Tiptronic)

## Interior

- Power Windows and Seats
- Sunroof, Moonroof Controls
- Day/Night Mirrors
- Interior Lighting
- Night Vision System
- Climate Control



## Safety

- Warning Sensors
- Emergency Communication
- Anti-theft Systems
- Safety Trunk Release
- Hands Free Systems
- Airbag Release Systems

## DIS/Audio

(Driver Information Systems)

- GPS
- Satellite Radio
- Entertainment Systems
- Navigation, Tracking
- Radar Controlled Cruise Control
- Heads-up Display System

## Interconnect Solutions

- Rugged Systems
- Board-to-Board Interconnects
- Cable Assemblies
- EMI Shielded
- Micro Interconnects
- High Speed Connectors and Cables
- Edge Card/Micro Backplane Systems
- Custom & Application Specific Design



Samtec is TS 16949, ISO 14001, and ISO 9001 certified, and is fully integrated with in-house tooling, plating, and automated manufacturing capabilities for advanced development, low-cost, quick-turn, and high volume production.

In addition, Samtec is compliant with International Traffic and Arms Regulations (ITAR), and with EU WEEE and RoHS directives. Please visit [www.samtec.com/Lead-Free](http://www.samtec.com/Lead-Free) or email [lead-free@samtec.com](mailto:lead-free@samtec.com) for additional information.

Products must be certified as "ACD Series" in order to meet TS 16949 standards for automotive applications. Most Samtec products are suitable for prototype and test equipment applications. Please visit [www.samtec.com/TS](http://www.samtec.com/TS) for complete details.

# Service and Support



## The Sudden Service® Advantage

Completely integrated global service, manufacturing, and quality systems, along with Samtec's renowned Sudden Service®, ensure quick-turn deliveries, samples, and information:

- Interconnect expertise
- Build-to-order manufacturing policy allows Samtec to support high volume or small order quantities, while a flexible manufacturing model minimizes capacity bottlenecks
- No Minimum Order Quantity (MOQ)
- Upfront, aggressive pricing advantage
- Scheduling flexibility
- World Direct shipping
- 24-hour samples & quote turnaround
- Global pricing / global systems
- EDI capabilities
- In-house Signal Integrity Group offers personal SI consulting and support along with application specific design, modeling, and testing
- Ranked by the Bishop Report as the customer service industry leader for over a decade
- Second source available on most connectors
- Samtec rarely obsoletes or discontinues products



## Extended Life Products

E.L.P.™ certified systems are tested to rigorous standards that evaluate contact resistance in simulated storage and field conditions:

- 10 year Mixed Flowing Gas (MFG)
- High Mating Cycles (250 to 2,500)

For test results and complete details on Samtec's E.L.P.™ program, please visit [www.samtec.com/ELP](http://www.samtec.com/ELP) or email the Customer Engineering Support Group at [ces@samtec.com](mailto:ces@samtec.com).



## Pitch Type Contact Series\*

Pitch	Type	Contact Series*
0,5mm	Q Series® Strip	Blade & Beam QSH/OTH
	Basic Strip	Blade & Beam BSH/BTH
0,635mm	Q Series® Strip	Blade & Beam QSS/OTS
	Basic Strip	Blade & Beam BSS/BTS
0,8mm	Edge Rate™ Strip	Edge Rate™ ERF8/ERM8
	Q Rate® Strip	Edge Rate™ QRF8/QRM8
	Q Series® Strip	Blade & Beam QSE/QTE
	Basic Strip	Blade & Beam BSE/BTE
1,00mm	Strip	Tiger Eye™ SEM/TEM
	SEARAY™ Array	Tiger Claw™ CLM/FTMH
1,27mm	Strip	Edge Rate™ SEAF/SEAM
	Strip	Tiger Eye™ SFM/TFM
	Strip	Tiger Claw™ CLP/FTSH
2mm	Strip	Tiger Beam™ FLE/FTSH
	Strip	Tiger Eye™ SMM/TMM
2,54mm	Strip	Tiger Claw™ CLT/TMMH
	Strip	Box SSM/TSM
	Strip	Box BCS/TSW

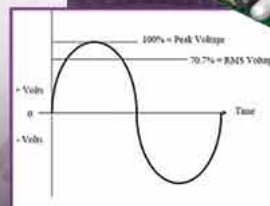
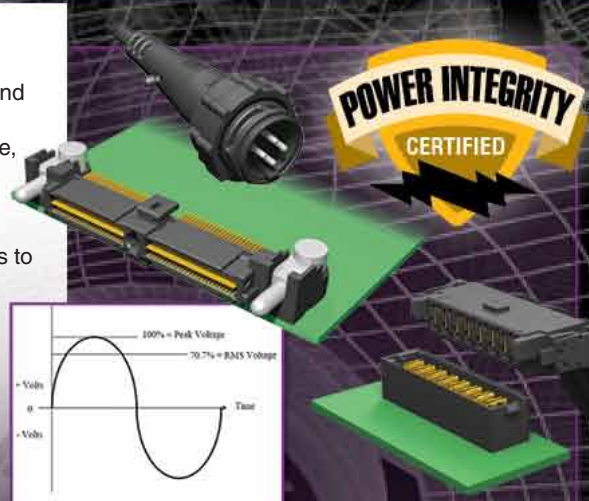
\* Tested socket/terminal combination shown. Other mating headers also available. Call Samtec if header design you need is not shown. QXX & BXX require special plating.

## Power Services, Support & Testing

Samtec's Power Integrity Group offers 24/7 support for the selection, testing, and validation of power interconnect systems including:

- Standard power test data including current carrying capacity, working voltage, voltage drop, and resistance for select power systems
- Current Cycling Testing Data which demonstrates connector performance in realistic and common applications available for select series
- Power Integrity Guidelines based on test data and proven design parameters to help in connector selection and PCB design maximization
- Power Integrity Certified® products undergo testing and additional requirements unique to Samtec
- Online Power Integrity Guidelines, test data, testing procedures, and Power/Signal Integrity Interface Combination Selector
- 24/7 support at [powerintegrity@samtec.com](mailto:powerintegrity@samtec.com)

Visit [www.samtec.com/powerintegrity](http://www.samtec.com/powerintegrity) for current information and test data.



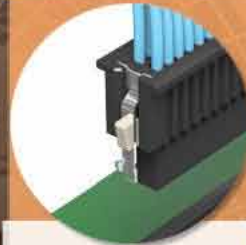
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# Features and Options

## Rugged Features

Samtec offers an unmatched selection of standard and optional features for ruggedizing board-to-board and cable-to-board systems including:

- Positive latching systems
- Friction and board locks
- Retention pins
- Threaded screw hardware
- Captive panel screws
- Weld tabs
- Standoffs
- Alignment pins



### Positive Latching

Manually activated latches increase unmating force by up to 200%



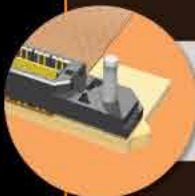
### Board Locks

Boards are mechanically locked together



### Friction Locks

Metal or plastic friction locks increase retention/withdrawal force



### Retention Pins

Increase unmating force by up to 50%



### Screw Downs

Secure mechanical attachment to boards



### Alignment Pins

Assures proper positioning and secure attachment to the board



### Weld Tabs

Relieve SMT leads from mating & unmating stress

## Contact Flexibility

Samtec offers a wide variety of contact systems designed specifically to address the needs of particular applications. Features include:

- High vibration
- High mating cycles
- High retention
- High reliability
- Power/high current carrying capacity
- Increased wipe
- Low profile
- Robust performance in harsh environments
- Cost-effectiveness
- Signal integrity



### Tiger Eye™

- High reliability
- High mating cycles
- Multi-finger contact
- High vibration



### Edge Rate™

- Designed for Signal Integrity
- Reduced broadside coupling (crosstalk)
- Rugged contact system
- Smooth broad milled surface for mating
- Single point-of-contact design



### Power Eye

- Three-finger BeCu contact
- Power applications up to 15A
- Choice of pitches

### Tiger Buy™ Contacts

- High retention
- Cost effective
- Tuning fork contact



### Tiger Claw™ Contacts

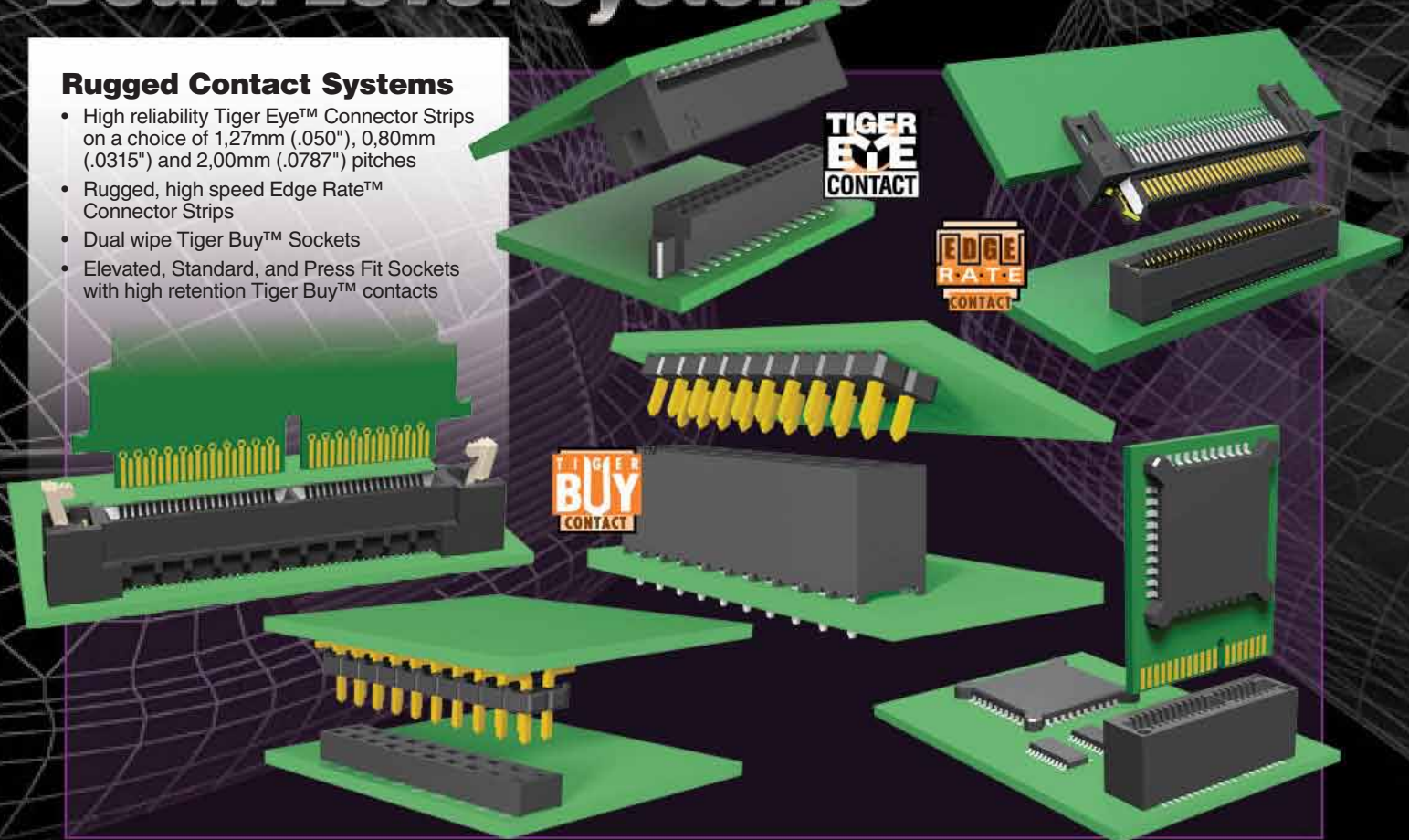
- Pass-through
- Ultra low profile
- Dual wipe contact



# Board Level Systems

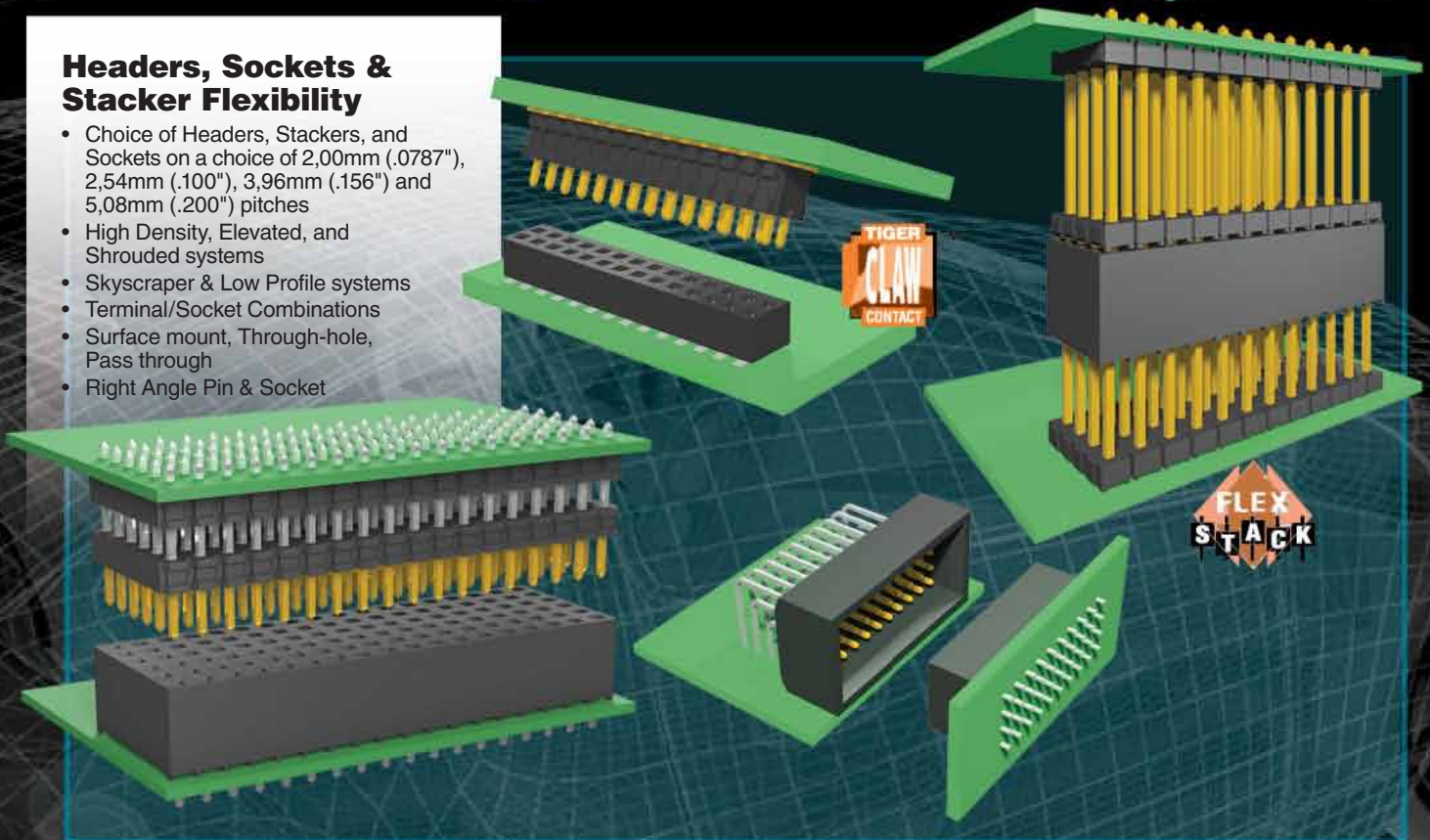
## Rugged Contact Systems

- High reliability Tiger Eye™ Connector Strips on a choice of 1,27mm (.050"), 0,80mm (.0315") and 2,00mm (.0787") pitches
- Rugged, high speed Edge Rate™ Connector Strips
- Dual wipe Tiger Buy™ Sockets
- Elevated, Standard, and Press Fit Sockets with high retention Tiger Buy™ contacts



## Headers, Sockets & Stacker Flexibility

- Choice of Headers, Stacker, and Sockets on a choice of 2,00mm (.0787"), 2,54mm (.100"), 3,96mm (.156") and 5,08mm (.200") pitches
- High Density, Elevated, and Shrouded systems
- Skyscraper & Low Profile systems
- Terminal/Socket Combinations
- Surface mount, Through-hole, Pass through
- Right Angle Pin & Socket

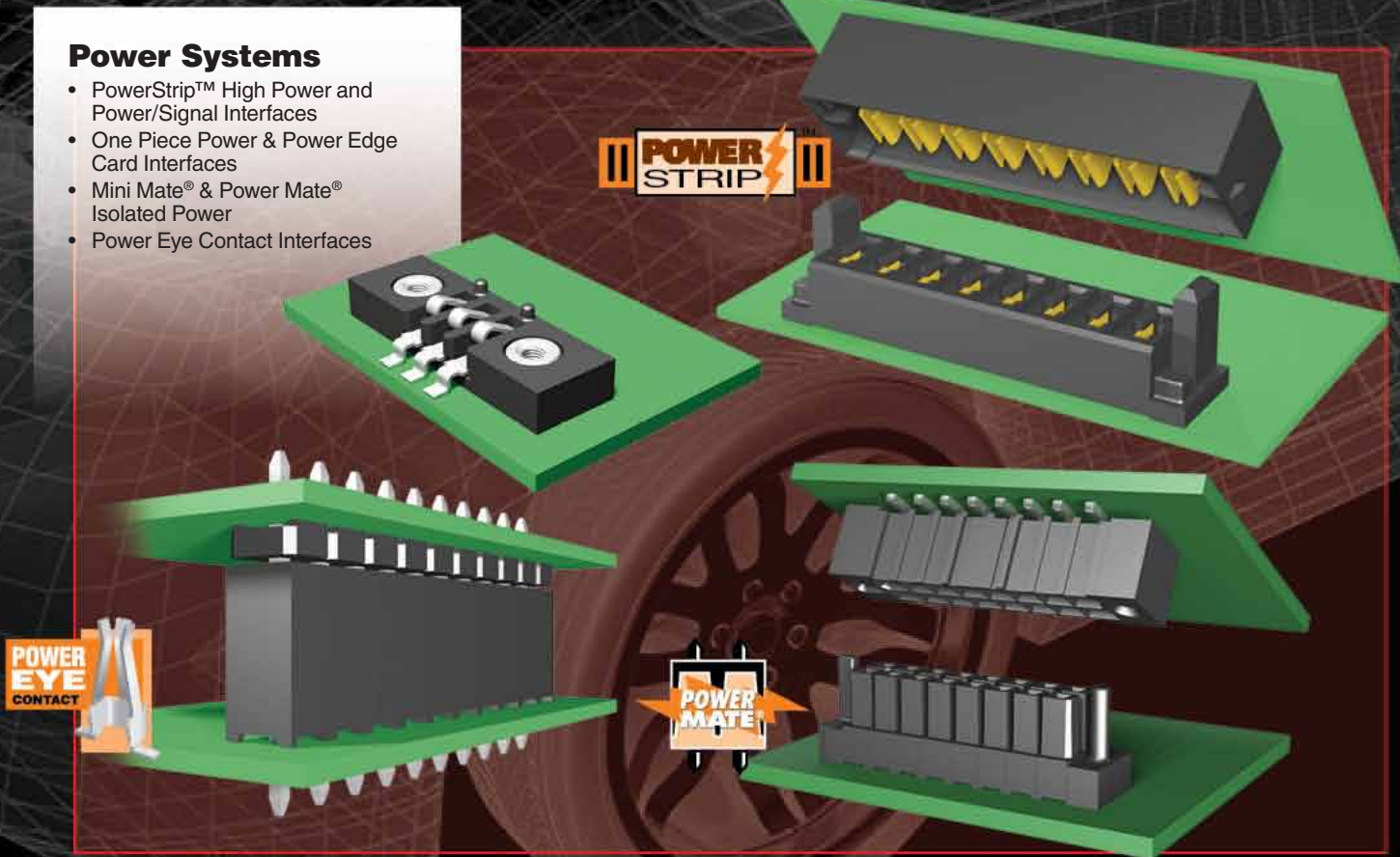


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# Power and Cable Systems

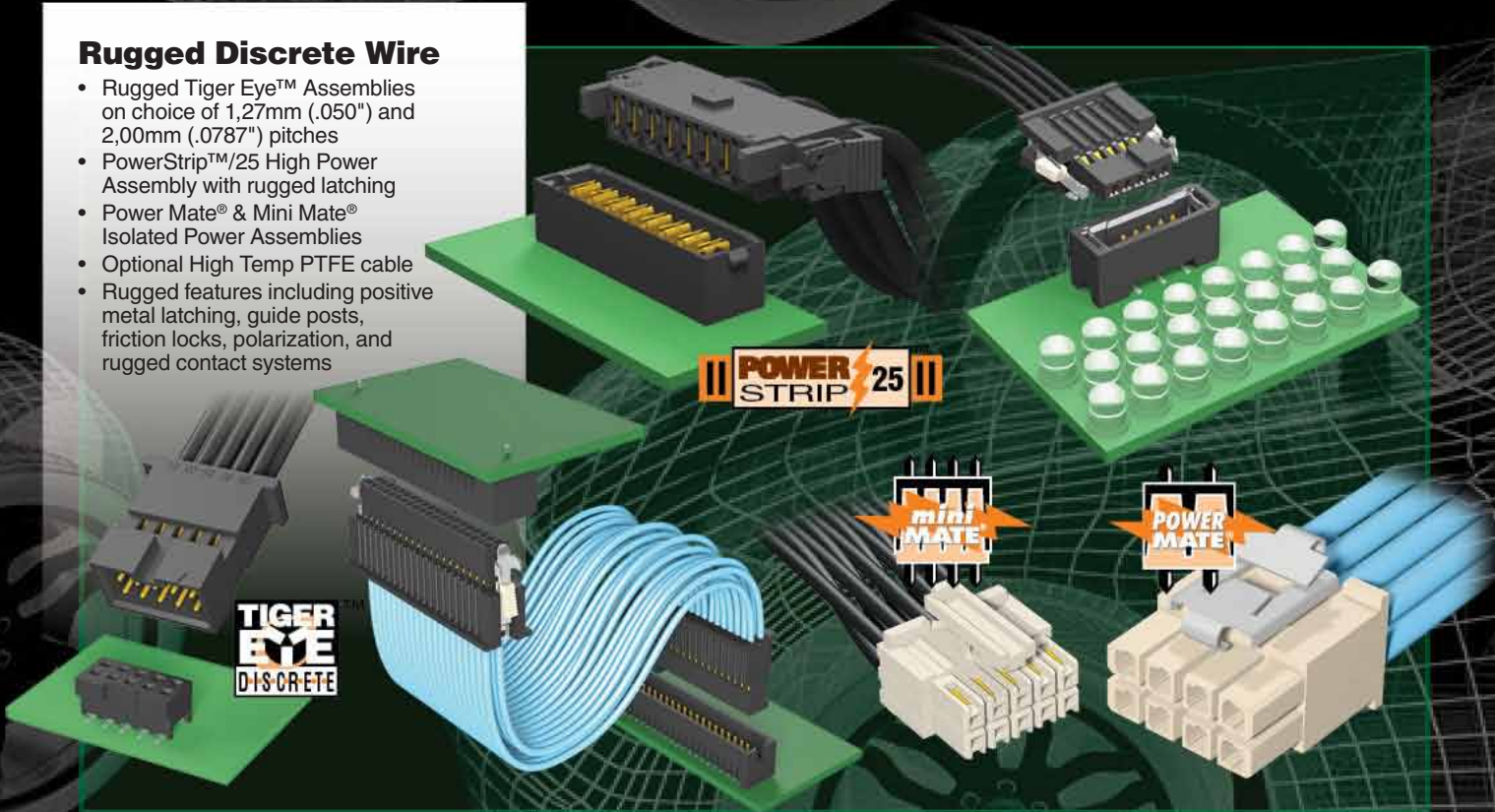
## Power Systems

- PowerStrip™ High Power and Power/Signal Interfaces
- One Piece Power & Power Edge Card Interfaces
- Mini Mate® & Power Mate® Isolated Power
- Power Eye Contact Interfaces



## Rugged Discrete Wire

- Rugged Tiger Eye™ Assemblies on choice of 1,27mm (.050") and 2,00mm (.0787") pitches
- PowerStrip™/25 High Power Assembly with rugged latching
- Power Mate® & Mini Mate® Isolated Power Assemblies
- Optional High Temp PTFE cable
- Rugged features including positive metal latching, guide posts, friction locks, polarization, and rugged contact systems



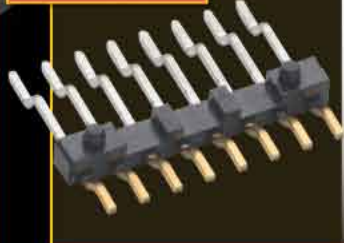
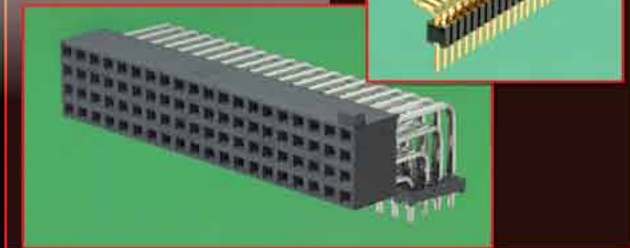
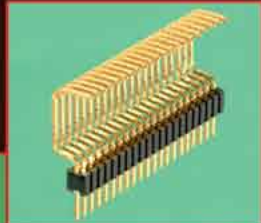
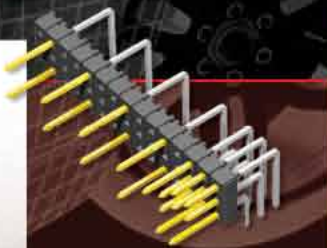
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# Customs



## Pin Modifications

- Hot pluggable
- Special crimps
- Modified footprints
- Unusual angles
- Special jumpers
- Varied pin height
- Elevated right angles
- Opposing bends
- Multiple polarization/  
selectively loaded
- Adaptors

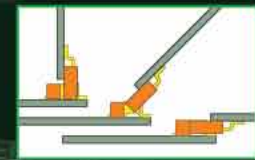


## Body Modifications

- Custom material
- Molded pick & place pads
- Shrouds
- Modified alignment pin size and position
- Screen printing
- Multiple stacked bodies
- Hardware enhancements for ease of placement and mechanical stability

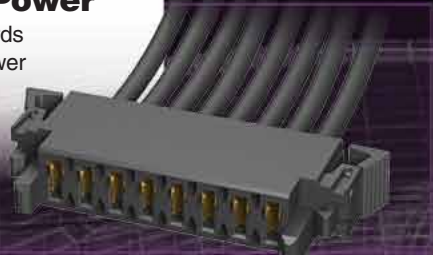
## Custom Connectors

- "Hinged" connectors
- Special pins
- Custom molding



## Rugged & Power

- Modified standards
- Rugged and Power contact systems
- "Power Blades"

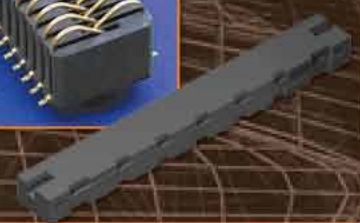
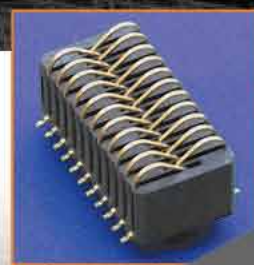


## Special Plating

- Custom metals and alloys
- Special thicknesses
- Selective plating
- Plating on plastic

## One Piece and Micro Card

- Interstitial designs
- Battery contacts
- Special features
- Elevated designs
- Special edge mount
- Card rail modifications



## Testing & Development

- SMT lab for processing studies
- Stereolithography for mechanical studies
- Quick-turn prototype capabilities
- In-house mold design and fabrication
- Quick change tooling for easy modification
- Mechanical and electrical testing labs



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# Global Operations

## Global Operations Model

Worldwide facilities provide redundant manufacturing capabilities, optimized labor costs and deliveries, and the flexibility to quickly achieve additional capacity to support market demands.

- Manufacturing, plating, and sourcing in both hemispheres
- Manufacturing locations in USA, Panama, Costa Rica, Malaysia, and China
- Low cost, quick-turn and advanced development
- Global logistics, custom worldwide systems



## Global Network

- 24-hour, real-time responsiveness anywhere in the world
- Complete synergy among Samtec's service, manufacturing, and quality strategies
- Integrated sales, support offices, and manufacturing facilities worldwide, 24 hours a day, 7 days a week
- Associates able to provide real-time responsiveness and make decisions from anywhere in the world, at any time
- No interruption or delays due to location, time zone, or language



## Manufacturing & Quality Systems

Samtec is ISO 14001, ISO 9001 and TS 16949 certified, with vertically integrated manufacturing systems designed to achieve lower cost and greater flexibility.

- In-house plating, coax cable, and flex circuit manufacturing
- In-house mold and assembly tooling design & fabrication
- Testing & Development
- Quick-turn prototype capabilities
- Connector processing, mechanical, and electrical testing labs and vision inspection
- Automated design and fabrication
- Tape and Reel molding and fabrication
- International Traffic and Arms Regulation (ITAR) compliant
- Compliant with EU WEEE and RoHS Directives



[www.samtec.com](http://www.samtec.com)

SUDDEN SERVICE



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