

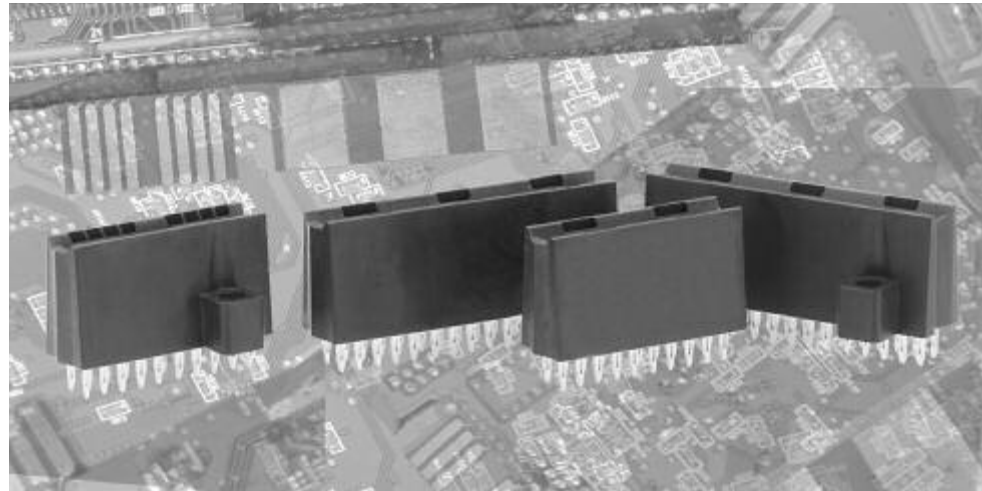
## CROWN EDGE Card Edge-style High Current Connectors

### Product Facts

- Low cost power solution
- Power, signal and mixed modules
- 35A per power contact
- Mates with .062 (1.6 mm) with thick card edge or bus bar tab
- Press-fit or solder tail terminations
- True hot-plug power modules
- Meets regulatory safety requirements
- All CROWN EDGE Products in this section are RoHS compliant.

### Typical Applications

- Board-to-board power connections
- DC-DC converters
- Uninterruptible Power Supply (UPS)
- Power supplies



CROWN EDGE Connectors are a board-to-board power interconnect solution that uses ELCON high performance CROWN BAND contact technology configured to mate directly with a printed circuit board edge or — for higher currents — with a solid bus bar. Power and signal can be combined and mounted end-to-end to meet the requirements of the applications.

### Product Highlights

#### High-current Card Edge Interface

CROWN EDGE Connectors uses Tyco Electronics proven ELCON CROWN BAND contacts that provide multiple points of contact for high current, and low voltage drop and minimal heat generation. The desired current rating for most applications can be achieved by bussing multiple contacts or even modules. For even higher currents, CROWN EDGE Connectors can be mounted onto a bus bar, and mate directly with a bus bar tab. Optimum interface to the mounting PC board is achieved through five termination tails.

#### Flexible Modular Design

To make easy work of power distribution design, CROWN EDGE Connectors are available in modules of 2 and 3 contact segments with power or signal contacts or a combination of both in a single module. Modules can be placed end-to-end for assemblies up to 8" (203.20 mm) long. Custom molded configurations are possible on high-volume projects. Consult Tyco Electronics or your local Tyco Electronics sales representative for details.

#### Versatile Power Arrangements

Opposing contacts are isolated, so power connections at different voltage levels can be on one side of the board, with ground or power return on the other side.

#### True Hot-Plug Support

CROWN EDGE power modules that support current interruption under load as defined by safety regulatory agencies are also available for mating to a metal blade or bus bar tab. These true hot-plug modules allow current interruption under load by incorporating a contact design that restricts the effects of arcing to areas that do not compromise the integrity of the connection.

**CROWN EDGE Card Edge-style High Current Connectors (Continued)**

**Product Specifications**

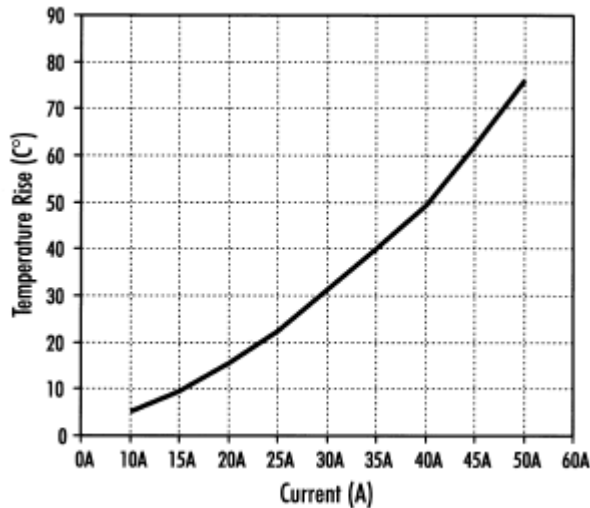
<b>Materials &amp; Finishes</b>			
Insulators		PPA, UL 94-V-0 flammability rated, color black	
Contacts	Non-hot-plug power contact	Copper alloy, selectively plated with gold (30 micro inches minimum) and tin on terminations, all over nickel	
	Hot-plug power contact	Contact holder	Phosphor bronze alloy, selectively plated with tin on terminations, over nickel
		CROWN BAND element	Beryllium copper alloy, selectively plated with gold (30 micro inches minimum), over nickel
Signal contacts		Phosphor bronze alloy, selectively plated with gold (30 micro inches minimum) and tin on terminations, all over nickel	
<b>Electrical</b>			
Current ratings	Power contact	35A (see graph below)	
	Signal contact	3A max.	
Insulation resistance		5,000MΩ minimum at 500 VDC for 2 minutes, power MIL-STD 1344, Method 3003	
Dielectric strength		1,500VDC for 1 minute, per MIL-STD 1344, Method 3001	
<b>Mechanical</b>			
Mating PCB thickness		.062" 91.6mm±.006" (0.15mm)	
Insertion Forces	2 segment power module	5.0 lbf typical using .062" (1.6mm) thick mating board with 5 oz. of copper	
	3 segment power module	6.0 lbf typical using .062" (1.6mm) thick mating board with 5 oz. of copper	
Extraction Forces	2 segment power module	3.0 lbf typical using .062" (1.6mm) thick mating board with 5 oz. of copper	
	3 segment power module	5.0 lbf typical using .062" (1.6mm) thick mating board with 5 oz. of copper	
Tooling		Press fixture is recommended for compliant press-fit assemblies Consult Tyco Electronics customer service for details	

Card Edge Products

**Current Ratings**

The chart below demonstrates the performance of the CROWN EDGE power contact by showing the temperature rise at different current levels applied to two power contacts connected in series.

Current rating for any given application will depend, among other things, on the module combination, PCB copper trace volume, and internal equipment temperature/air flow. Mounting and mating to a bus bar will increase current ratings.



**Safety Regulatory Compliance**

CROWN EDGE Connectors have been evaluated by Underwriters Laboratories and has been found to comply with the requirements of U.S. standard UL1997 and Canadian standard C22.2 No. 182.3-M1987.



**Compliance with Current Interruption Requirements**

Hot-Plug CROWN EDGE modules are available for applications that require current interruption as defined by safety regulatory agencies. These power-only modules have been evaluated and recognized by Underwriters Laboratories for current interruption up to 50 cycles as per the UL1977 standard. See Hot-Plug requirements on page 144.

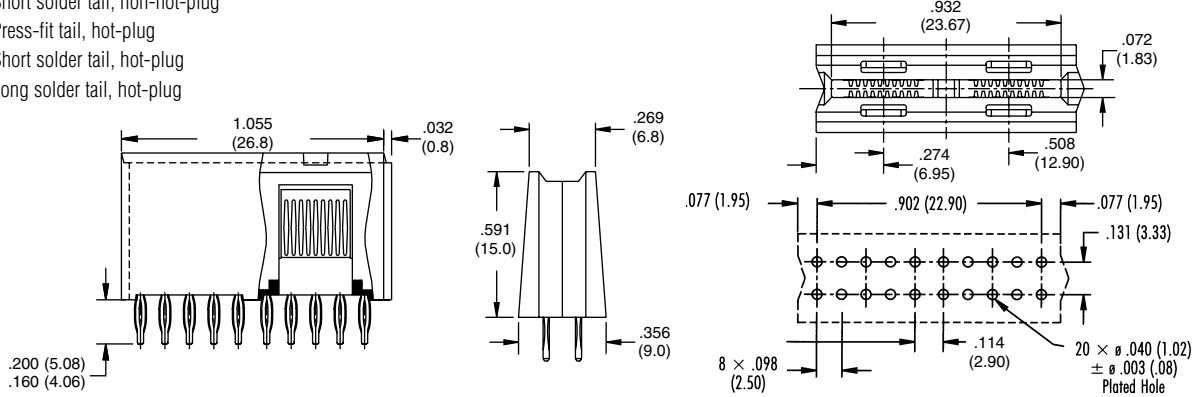
**CROWN EDGE Card Edge-style High Current Connectors (Continued)**

**4-Position Power Module**

**Part Numbers**

- 6651170-1 Long solder tail, non-hot-plug\*
- 6651170-2 Press-fit tail, non-hot-plug\*
- 6651170-3 Short solder tail, non-hot-plug\*
- 6651331-1 Press-fit tail, hot-plug
- 6650380-1 Short solder tail, hot-plug
- 6650380-2 Long solder tail, hot-plug

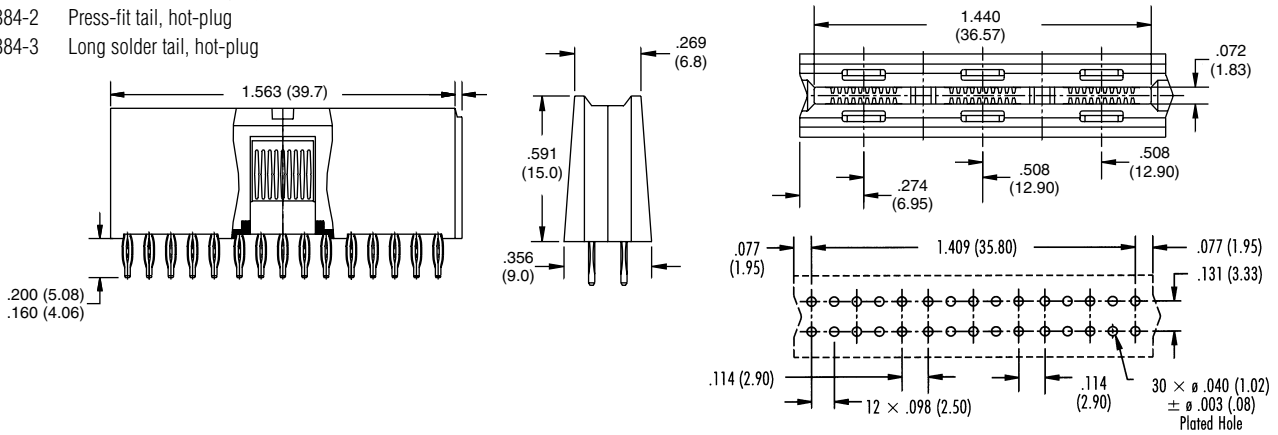
\* Also available for .093" (2.4 mm) thick mating board.  
Contact Tyco Electronics Customer Service for details.



**6-Position Power Module**

**Part Numbers**

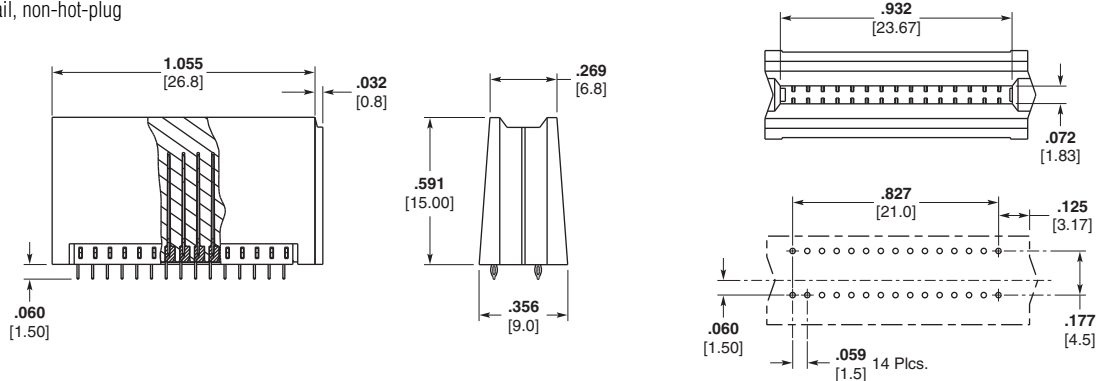
- 6650383-1 Press-fit tail, non-hot-plug
- 6650383-2 Long solder tail, non-hot-plug
- 6650383-3 Short solder tail, non-hot-plug
- 6650384-1 Short solder tail, hot-plug
- 6650384-2 Press-fit tail, hot-plug
- 6650384-3 Long solder tail, hot-plug



**30-Position Signal Module**

**Part Number**

- 1926088-1 Press-fit tail, non-hot-plug



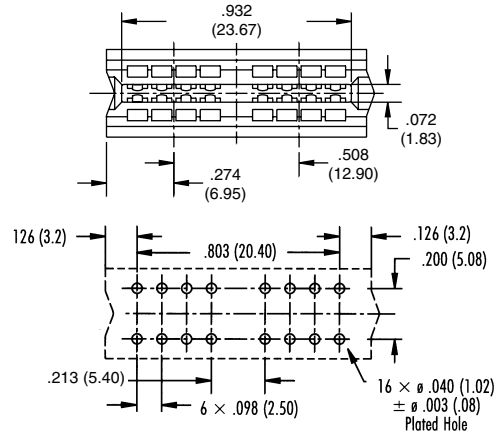
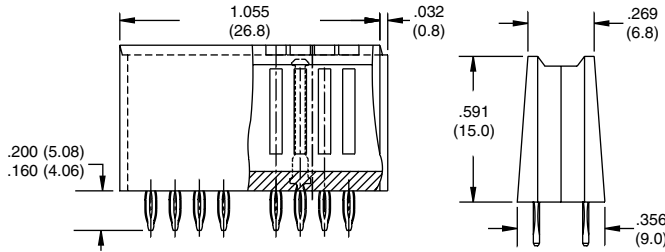
**Note:** All part numbers are RoHS compliant.

**CROWN EDGE Card Edge-style High Current Connectors (Continued)**

**16-Position Signal Module**

**Part Numbers**

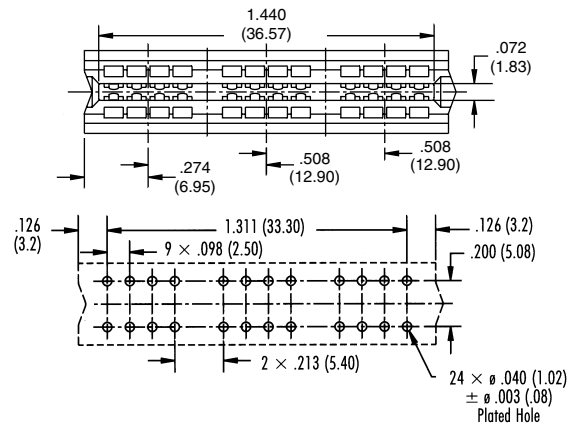
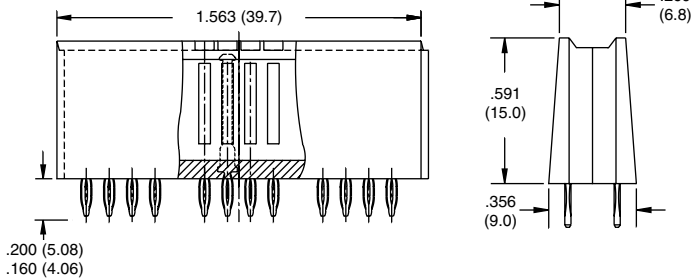
- 6650534-1 Press-fit tail
- 6650534-2 Short solder tail
- 6650534-3 Long solder tail



**24-Position Signal Module**

**Part Numbers**

- 6650494-1 Press-fit tail
- 6651193-1 Long solder tail
- 6651214-1 Short solder tail



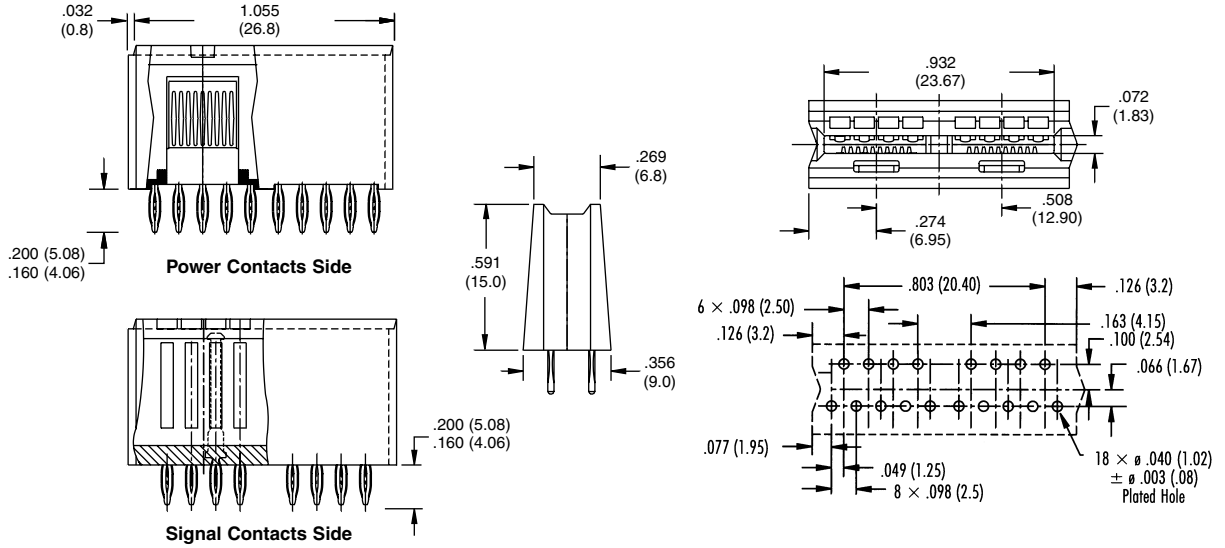
**Note:** All part numbers are RoHS compliant.

**CROWN EDGE Card Edge-style High Current Connectors (Continued)**

**2 Power + 8 Signal Modules**

**Part Numbers**

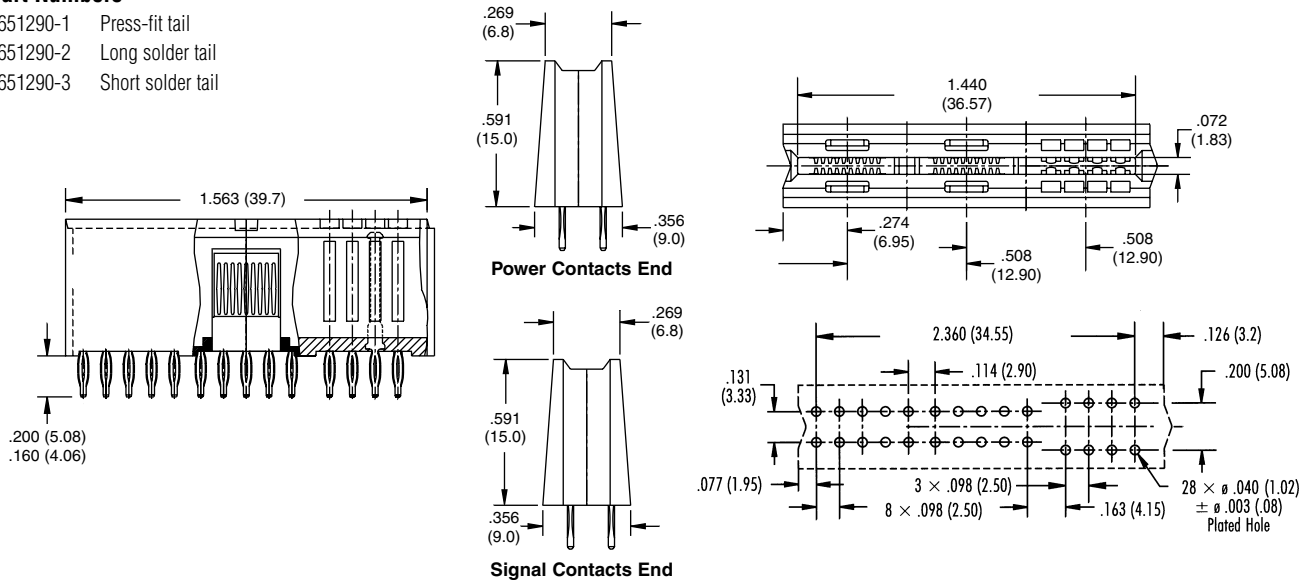
- 6643460-1 Short solder tail
- 6643460-2 Long solder tail
- 6643460-3 Press-fit tail



**4 Power + 8 Signal Modules**

**Part Numbers**

- 6651290-1 Press-fit tail
- 6651290-2 Long solder tail
- 6651290-3 Short solder tail



**Note:** All part numbers are RoHS compliant.

**CROWN EDGE Card Edge-style High Current Connectors** (Continued)

**Design Notes**

**Mating PCB Requirements**

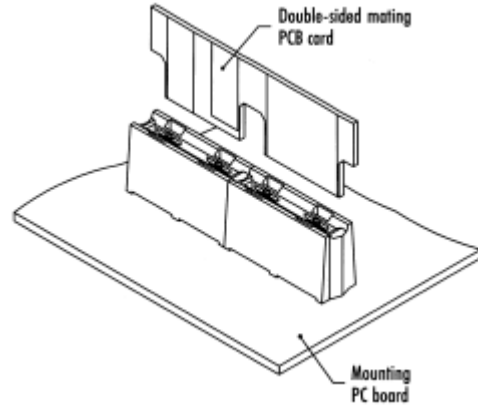
Mating PCB edge fingers should be gold plated, have .050" (1.3 mm) side margins, and be of suitable copper weight for power applications. Mating board thickness is .062 [1.60].

**Sequenced Mating**

Sequenced mating can be achieved by designing one or more setback traces on the mating card edge, or by notching the edge of the card.

**End-to-end Mounting**

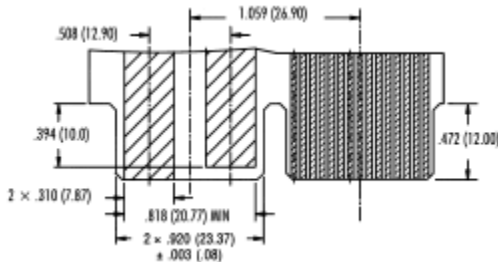
CROWN EDGE modules can be placed end-to-end for connector assemblies up to 8" (203.20 mm) long.



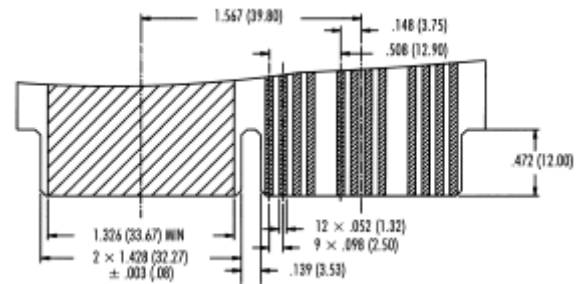
Card Edge Products

**Mating PC Card Edge Samples**

The drawings below show two PC card edge samples with signal and power lines designed to mate with 2 and 3-segment CROWN EDGE modules.



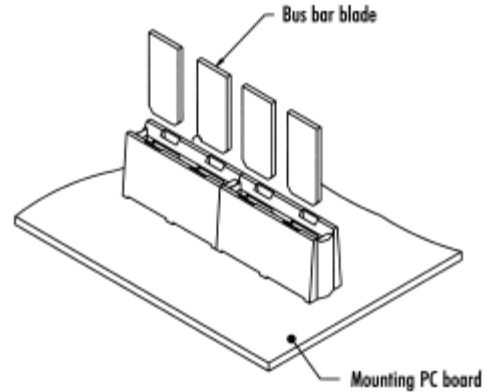
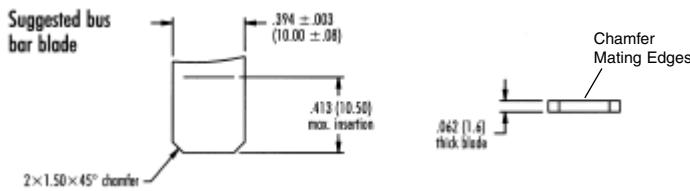
**2 x 2 Segment Modules Provide Two Sequenced Power Traces and 30 Signal Traces**



**2 x 3 Segment Modules Provide Ground Plane and 12 Signal Lines**

**Hot-Plug Requirements**

Hot-plug application of this product requires the use of the CROWN EDGE true hot-plug modules (see part numbers on pages 141-143) mated with a customer-supplied metal blade or bus bar. Dimensions of a sample mating blade for use with CROWN EDGE hot-plug modules is shown below.

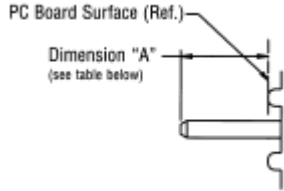


**CROWN EDGE Card Edge-style High Current Connectors** (Continued)

**Connector Mounting**

**Solder Tails**

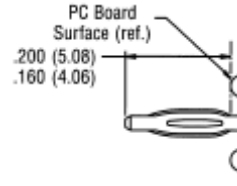
Solder termination is available in two lengths. See table below for board thicknesses and recommended tail lengths.



Solder Tail Detail

**Press-fit Tails**

CROWN EDGE Connectors use truly compliant eye of the needle press-fit tails designed for boards 0.093" thick and above.



Press-fit Tail Detail

**Tail Length vs. Board Thickness**

Board Thickness	Dimension "A"
.062" (1.6mm)	.100" - .140" (2.55 - 3.57mm) [.115" (2.92mm) nominal]
.092"/.125" (2.3/3.0mm)	.160" - .200" (4.06 - 5.08mm) [1.77" (4.5mm) nominal]

**Tooling for Compliant Press-fit Assemblies**

Pressing fixtures are recommended for compliant press-fit assemblies. Contact Tyco Electronics for a detailed tool drawing.

**Suggested Printed Circuit Hole for Power and 2.5mm Signal**

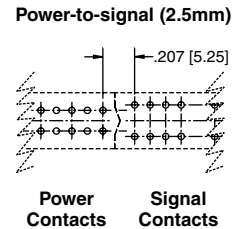
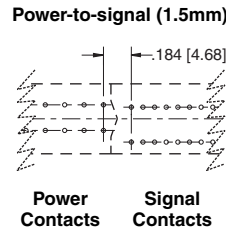
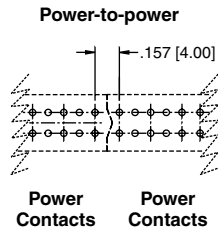
Finished Hole:  $\varnothing .040 \pm .003$  [ $\varnothing 1.02 \pm .08$ ]  
 Drilled Hole:  $\varnothing .0453 \pm .005$  [ $\varnothing 1.151 \pm .013$ ]  
 Copper Plate: .0010 [.025] min. (per surface)  
 Tin Plate: .0003 [.008] min. (per surface)

**Suggested Printed Circuit Hole for 1.5mm Signal**

Finished Hole:  $\varnothing .022 \pm .002$  [ $\varnothing 0.56 \pm 0.05$ ]  
 Drilled Hole:  $\varnothing .026 \pm .002$  [ $\varnothing 0.65 \pm 0.02$ ]  
 Copper Plate: .0010 [.025] min. (per surface)  
 Tin Plate: .0003 [.008] min (per surface)

**Spacing Between Modules in End-to-end Mounting**

This spacing between plated thru-holes for end-to-end mounting varies depending on the chosen module combination. Spacing for the three possible combinations is shown below.



**Custom Solutions**

**Non-standard Modules**

In case the standard CROWN EDGE modules do not meet your design requirements, Tyco Electronics has the capability to mold any combination of power and signal contact layouts in 2 and 3 segment modules.



**Application-specific Custom Designs**

Tyco Electronics has a long history of designing and building application specific custom connectors, and CROWN EDGE Connectors are no exception. A one-piece CROWN EDGE insulator, instead of a combination of several modules, provides a more robust interconnection design, as well as cost savings in high volume projects. Consult Tyco Electronics Customer Service for details.

