

Molex 45719-0001 PDF

深圳创唯电子有限公司

<http://www.molex-connect.com>



PRODUCT SPECIFICATION

POWER EDGE CONNECTOR SYSTEM

1.0 SCOPE

This Product Specification covers the printed circuit board (PCB) and bus bar Power Edge Connector System mated with Edge Card.

2.0 PRODUCT DESCRIPTION

2.1 SERIES NUMBER(S) AND PRODUCT NAME

- 45719 – Power Edge Connector, Power, Solder Tails,
- 45714 – Power Edge Connector, Power, Press-Fit,
- 45844 – Power Edge Connector, Signal, Solder Tails,
- 45845 – Power Edge Connector, Signal, Press-Fit.
- 45911 – Power Edge Connector, Power / Signal Mixed, Solder Tails.
- 45912 – Power Edge Connector, Power / Signal Mixed, Press-Fit.
- 45941-- Power Edge Connector, Power Only, Custom Slotted

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housing Material: Liquid Crystal Polymer (LCP), 94V-0, Color: Black
 Terminal Material: Copper Alloys (see individual drawings for details)
 Plating: See individual drawings for details.

2.3 SAFETY AGENCY APPROVALS

UL File Number: E29179
 CSA File Number: LR 19980
 IEC File Number: R 72090228

	Current	Voltage
UL	Recognized (0 rating)	
CSA	40A (power) / 3A (signal) (Single circuit)	250 volt (power) / 50 volt (signal)
IEC	50A	250 volt

** The products were tested and certified by UL requirements.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 See sales drawings and the other sections of this specification for the necessary referenced documents and specifications.

4.0 RATINGS

4.1 VOLTAGE

Power Contact: 250 Volts. Signal Contact: 50 Volts

CURRENT

Power Contact: 40A, per contact
 Power Contact Current Interruption: 40A at 50V per contact
 Signal Contact: 3A, per contact

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**** Current rating is application dependent. Above rating is for reference only. Appropriate de-rating is required per ambient conditions, copper weight of PCB needed to achieve thermal balance, gross heating from adjacent components, and other factors that influence connector performance.**

4.2 TEMPERATURE

Operating: - 40°C to + 105°C (including 30°C temperature rise for current rating)

Nonoperating: - 40°C to + 105°C

Note: Operating temperature (including T-rise from applied current) is - 40°C to +105°C.

Temperature life tested per EIA-364-17 Method A for 240 hrs @ 105°C per Section 10.1 Test Group 1 to meet field temperature of 65°C for 10 years life. See sheet 6 for detail test Sequence of EIA-364-1000.01, Group 1.

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Contact Resistance Initial (Low Level) (EIA-364-23)	Power	Mate connectors with PCB, apply maximum voltage of 20mV and a current of 100 mA	1 milliohms MAX.
	Signal		10 milliohms MAX.
Contact Resistance Change @ Rated Current	Power	Mate connectors with PCB, apply voltage at the rated current.	1 milliohms MAX. (change)
	Signal		10 milliohms Max (change)
Insulation Resistance (EIA-364-21)	Power	Apply 500 VDC between adjacent terminals or ground.	5,000 Megohms Minimum
	Signal		
Dielectric Strength (EIA-364-20)	Power	Apply 1500 VDC for 1 minute between adjacent terminals or ground.	No Breakdown
	Signal	Apply 1000 VDC for 1 minute between adjacent terminals or ground.	

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5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Max. Mating Force, Single Segment (EIA-364-37)	Power	Mate connectors with PCB at a rate of 25+/-6mm per minute	8.8 N / BAY 2.0 lbf / BAY
	Signal		11.2 N / BAY 2.51 lbf / BAY
Min. UnMating Force, Single Segment (EIA-364-37)	Power	Unmate connectors and PCB at a rate of 25+/-6mm per minute	2.14 N / BAY 0.48 lbf / BAY
	Signal		1.12 N / BAY 4.0 ozf / BAY
Durability w/o Environment (EIA-364-09)	Power	Mate connectors with PCB 50 cycles at a maximum rate of 10 cycles per minute.	1 milliohms Max. change
	Signal		10 milliohms Max. change
Min. Contact Retention (EIA-364-29)	Power	Axial pullout force on the terminal in the housing at a rate of 25+/-6mm per minute.	10 N / CONTACT 2.25 lbf / CONTACT
	Signal		10 N / CONTACT 2.25 lbf / CONTACT

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Vibration (EIA 364-28)	Power	Mate connectors with PCB and vibrate per EIA 364-28, test condition VII, letter "D", 15 minutes each axis.	1 milliohms Max change. Discontinuity < 1 microsec
	Signal		10 milliohms Max change. Discontinuity < 1 microsec
Shock (EIA-364-27)	Power	Mate connectors with PCB and shock at 50 g with 1/2 sine wave (11 milliseconds) shocks in the X, Y, Z axes (18 shocks total)	1 milliohms Max change. Discontinuity < 1 microsec
	Signal		10 milliohms Max change. Discontinuity < 1 microsec
Humidity (EIA-364-31)	Power	Mate connectors with PCB: expose to 40+/-2 deg. C with relative humidity of 90-95% for 96 hours.	1 milliohms Max change.
	Signal		10 milliohms Max change.
Solderability (EIA-364-52)	Power	Dip connector terminal tails in solder, duration 5 sec. Solder temperature 245 +/- 5 deg. C.	Solder coverage: 95% Minimum
	Signal		
Thermal Shock (EIA-364-TP-32)	Power	Mate connectors with PCB, expose to 5 cycles from -55 deg. C to 85 deg. C per EIA-364-TP-32	1 milliohms Max change.
	Signal		10 milliohms Max change.
Temperature Life (EIA-364-17)	Power	Mate connectors with PCB, expose to 240 hours at 105 deg. C Per EIA-364-17 Method A	1 milliohms Max change
	Signal		10 milliohms Max change.

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6.0 COMPLIANT PIN INTERFACE PERFORMANCE

6.1 INSERTION AND WITHDRAWAL FORCE (3 TIMES IN THE SAME HOLE) PER EIA-364-37

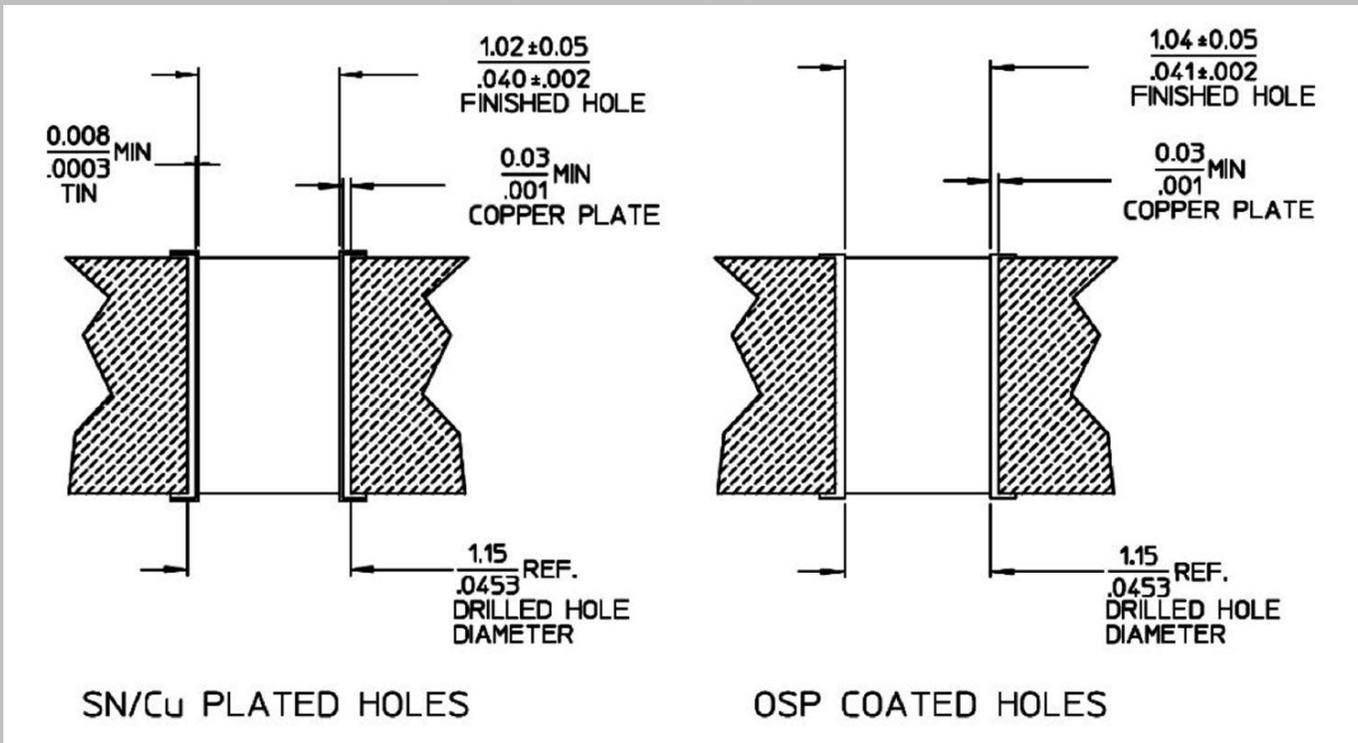
COMPONENT	TEST CONDITION	REQUIREMENT	
		INSERT.	WITHDR.
Power Contact * (Single Compliant Pin)	Insert the single compliant section into the OSP finished hole, extract the section from the hole after 12 hrs, repeat 2 times (new part in the same hole)	77 N * 17.7 lbf MAX.	28 N * 6.4 lbf MIN.
Signal Contact ** (Single compliant pin)	Insert the single compliant pin contact into the OSP finished hole, extract the contact from the hole after 12 hrs, repeat 2 times (new part in the same hole)	100 N ** 22.9 lbf MAX.	23.6 N ** 5.3 lbf MIN.

*10 compliant pins for each Power Bay, must multiply given value x 10 for total force requirement.

**8 compliant pins for each Signal Bay, must multiply given value x 8 for total force requirement.

Above readings based on PCB thickness 2.36/.093 and hole diameter 1.04/.041 OSP plated.

7.0 RECOMMENDED THROUGH HOLE DIMENSIONS:



NOTES:

- The finished hole size is the critical feature for proper performance of the compliant pin terminal. The reference drill sizes listed are recommended by Molex to achieve the finished PCB hole size.
- Depending on the specific manufacturers plating process a different drill size can be used to Achieve the required finished PCB hole size.

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8.0 PACKAGING:

Parts shall be packaged to protect against damage during handling, transit and storage.

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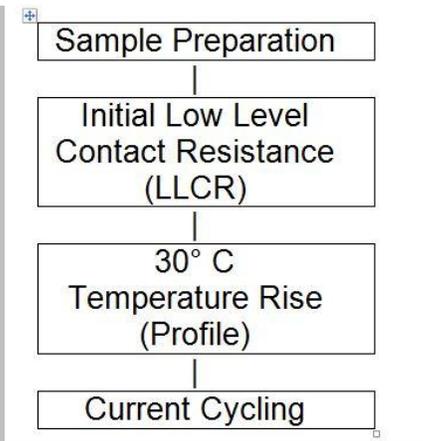
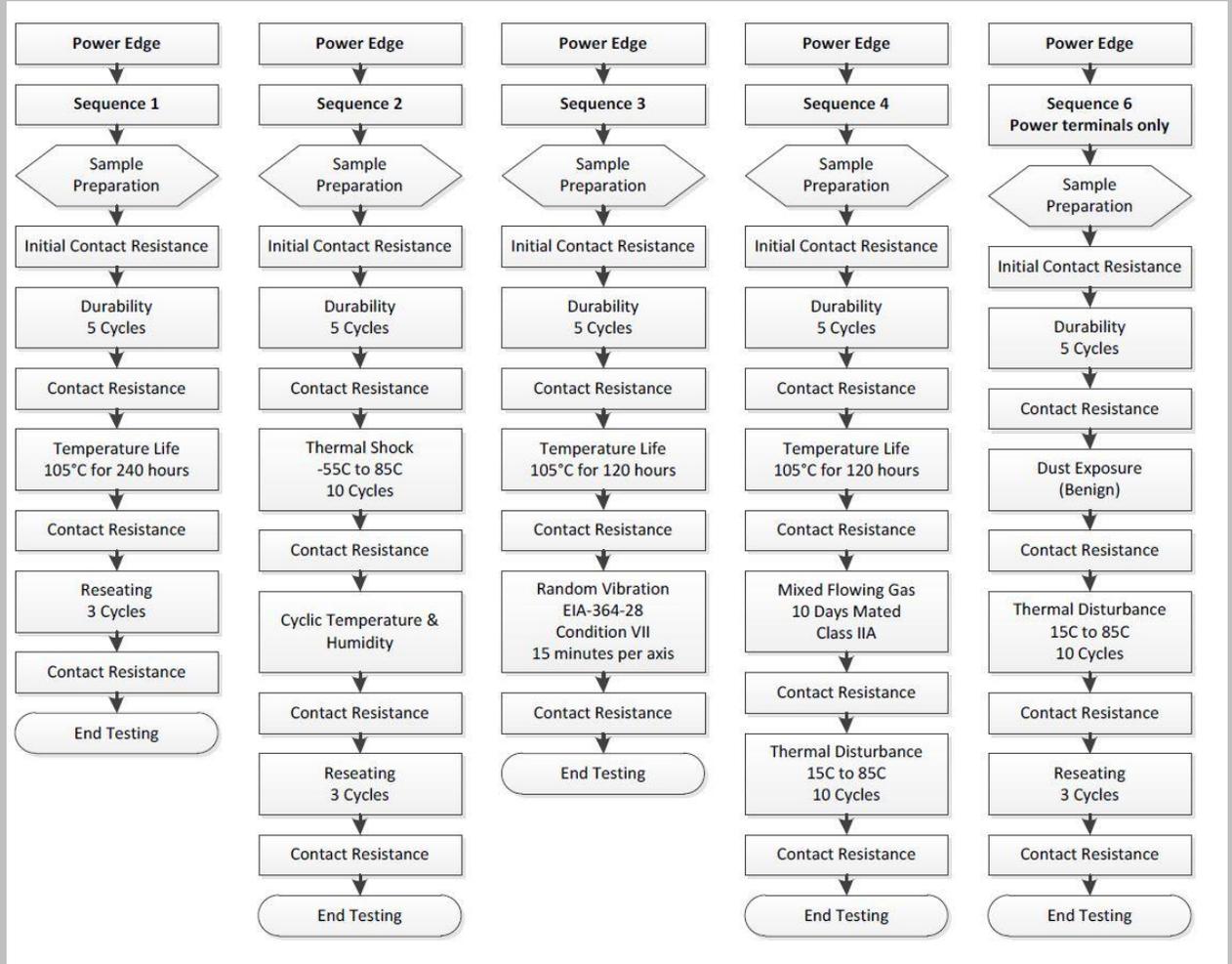


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10. TEST SEQUENCES:

10.1 TESTING PROCEDURES AND SEQUENCES



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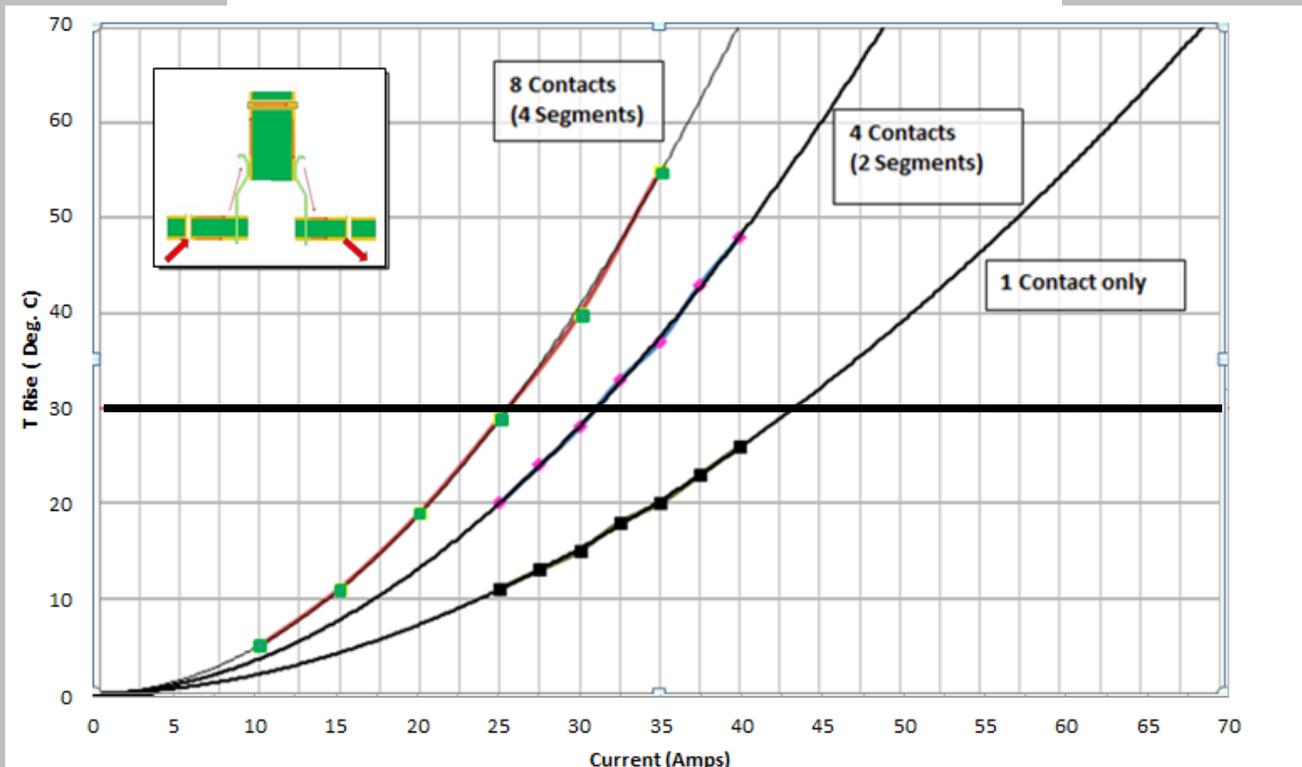
10.2 Miscellaneous Testing

- Insulation Resistance
- Dielectric Strength
- Mating/Unmating Force
- Contact Retention
- Rework per EIA-364-61 Procedure 4
 - Receptacle only-
 - * Bake @ 125C for 48 hr.
 - * Pre-heat @ 180C for 2 minutes
 -

Based on: EIA-364-1000, Test Group

11.0 CURRENT CARRYING CAPACITY:

Power Edge, Dual sided -5 oz Cu PCB T Rise Chart



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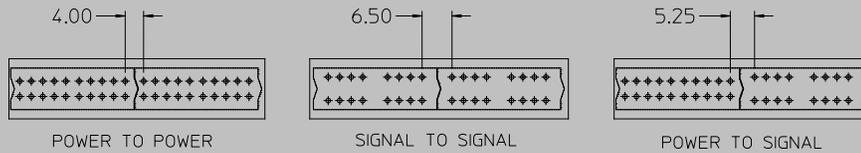


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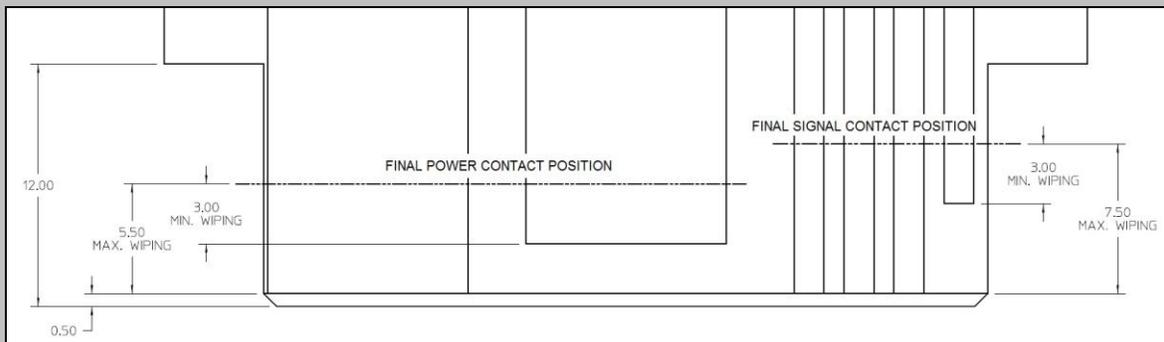
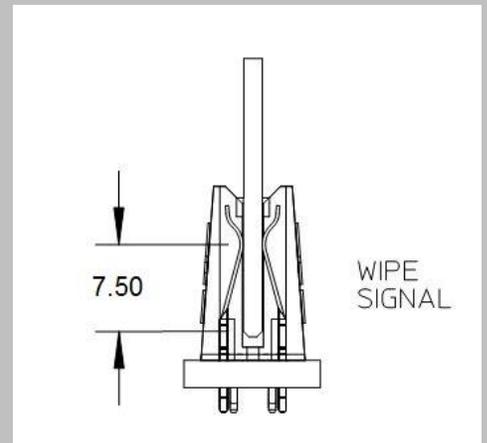
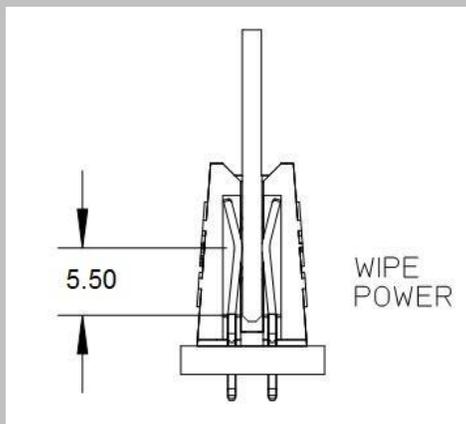
12.0 MINIMUM SPACING REQUIREMENTS WHEN USING MULTIPLE CONNECTORS TOGETHER:

When the modules are mounted end to end the minimum required spacing varies depending on the type of modules used. See example below.



13.0 EDGE CARD MATING AND ALIGNMENT:

Max. Wiping Distance



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Tilt- Initial Insertion
 4.5 Degree Max. Angular Offset
 4.0 Degree Max. Signal Side

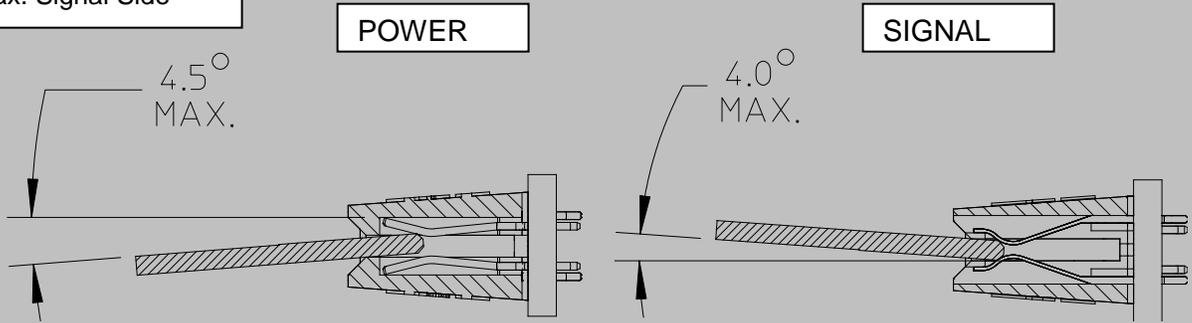


Figure 1

Tilt- Full Insertion
 1.0 Degree Max. Angular Offset
 Power & Signal

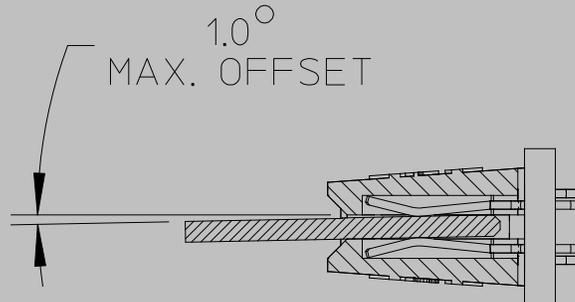


Figure 2

1.50 Degree Skew
 Max Allowable @ Full Insertion

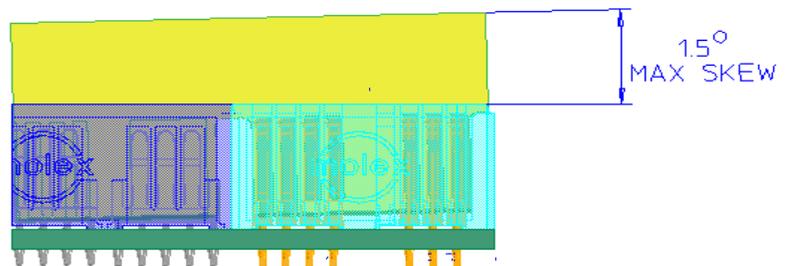


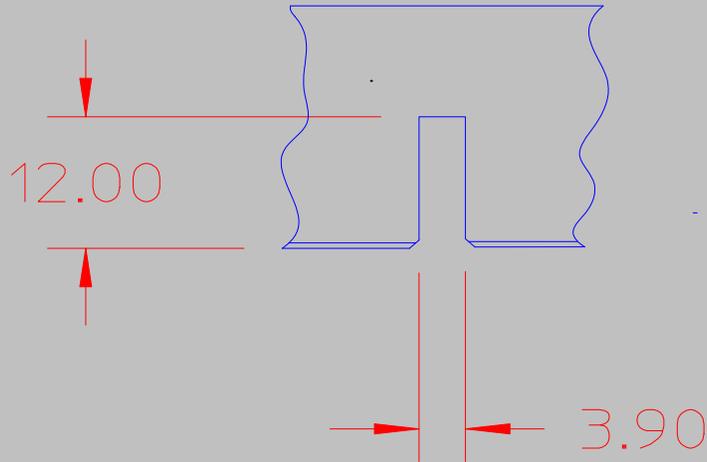
Figure 3

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When an edge card must straddle two stacked housings, a slot is required.
Dimensions shown are for reference only.

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