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, PCB, or Bus Bar.

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: 1482777 (LR 19980)
TUV File Number: R 72042763 (Pending)

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.

4.2 CURRENT

Power Contact: 40A, per mated contact.
Power Contact Current Interruption: 40A at 50V per mated contact (when mated with customer-supplied metal blade or bus bar).
Signal Contact: 3A, per mated contact.

4.3 TEMPERATURE

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

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Contact Resistance (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		15 milliohms MAX.
Contact Resistance @ Rated Current	Power	Mate connectors with PCB, apply voltage at the rated current.	1 milliohms MAX. (initial)
	Signal		15 milliohms Max (initial)
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.	

5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Mating Force, Single Segment (EIA-364-37)	Power	Mate connectors with PCB at a rate of 25+/-6mm per minute	8.8 N TYP. 2.0 lbf TYP.
	Signal		1.4 N TYP. 5.0 ozf TYP.
UnMating Force, Single Segment (EIA-364-37)	Power	Unmate connectors and PCB at a rate of 25+/-6mm per minute	4.4 N TYP. 1.0 lbf TYP.
	Signal		0.14 N TYP. 0.5 ozf TYP.
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		15 milliohms Max. change
Contact Retention (EIA-364-29)	Power	Axial pullout force on the terminal in the housing at a rate of 25+/-6mm per minute.	22 N TYP. 5.0 lbf TYP.
	Signal		22 N TYP. 5.0 lbf TYP.

5.3 ENVIRONMENTAL REQUIREMENTS

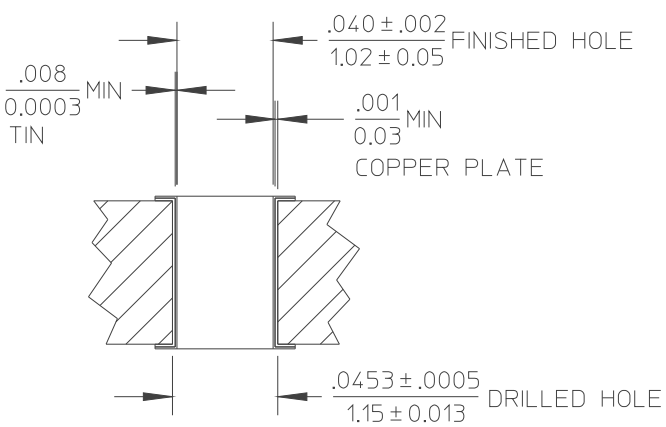
DESCRIPTION	TYPE	TEST CONDITION	REQUIREMENT
Vibration (EIA 364-28)	Power	Mate connectors with PCB and vibrate per EIA 364-28, test condition VII, letter "D", 15 minutes each axis.	1 milliohms Max change. Discontinuity < 1 microsec
	Signal		10 milliohms Max change. Discontinuity < 1 microsec
Shock (EIA-364-27)	Power	Mate connectors with PCB and shock at 50 g with ½ 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.

6.0 COMPLIANT PIN INTERFACE PERFORMANCE

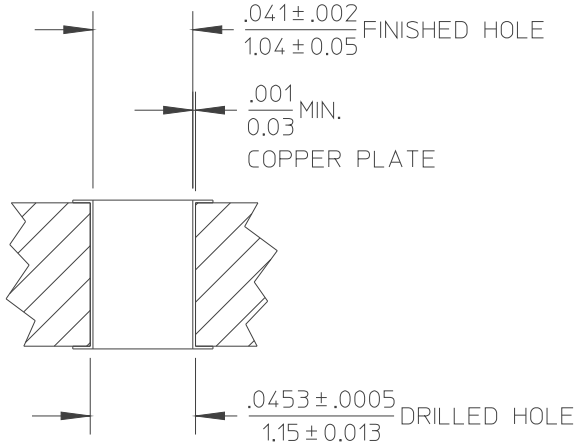
6.1 INSERTION AND WITHDRAWAL FORCE (3 TIMES IN THE SAME HOLE) PER EIA-364-37

COMPONENT	TEST CONDITION	REQUIREMENT	
		INSERT.	WITHDR.
Power Contact (Single section)	Insert the single compliant section into the PTH, extract the section from the hole after 12 hrs, repeat 2 times (new part in the same hole)	98 N 22 lb MAX.	45 N 10.1 lb. MIN.
Signal Contact (Single contact)	Insert the single compliant pin contact into the PTH, extract the contact from the hole after 12 hrs, repeat 2 times (new part in the same hole)	98 N 22 lb MAX.	45 N 10.1 lb. MIN.

7.0 RECOMMENDED THROUGH HOLE DIMENSIONS:



Sn/Cu PLATED HOLES



OSP COATED HOLES

NOTES:
1. 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.
2. Depending on the specific manufacturers plating process a different drill size can be used to Achieve the required finished PCB hole size.

8.0 PACKAGING:

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

10. TEST SEQUENCES:

10.1 Reliability Test Sequences (per EIA-364-1000 Test Groups 1,2,and 3):

Test Group 1	Test Group 2	Test Group 3
Sample Preparation	Sample Preparation	Sample Preparation
Initial Low Level Contact Resistance (LLCR)	Initial Low Level Contact Resistance (LLCR)	Initial Low Level Contact Resistance (LLCR)
Durability	Durability	Durability
Temperature Life 240 hours @ 105C	Thermal Shock	Temperature Life 120 hours @ 105C
LLCR	LLCR	LLCR
Reseating	Cyclic Temperature And Humidity	Vibration
LLCR	LLCR	LLCR
	Reseating	Mechanical Shock
	LLCR	LLCR

10.2 Electrical Performance Test Sequence:

Sample Preparation

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Initial Low Level Contact Resistance (LLCR)

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30° C Temperature Rise (Profile)

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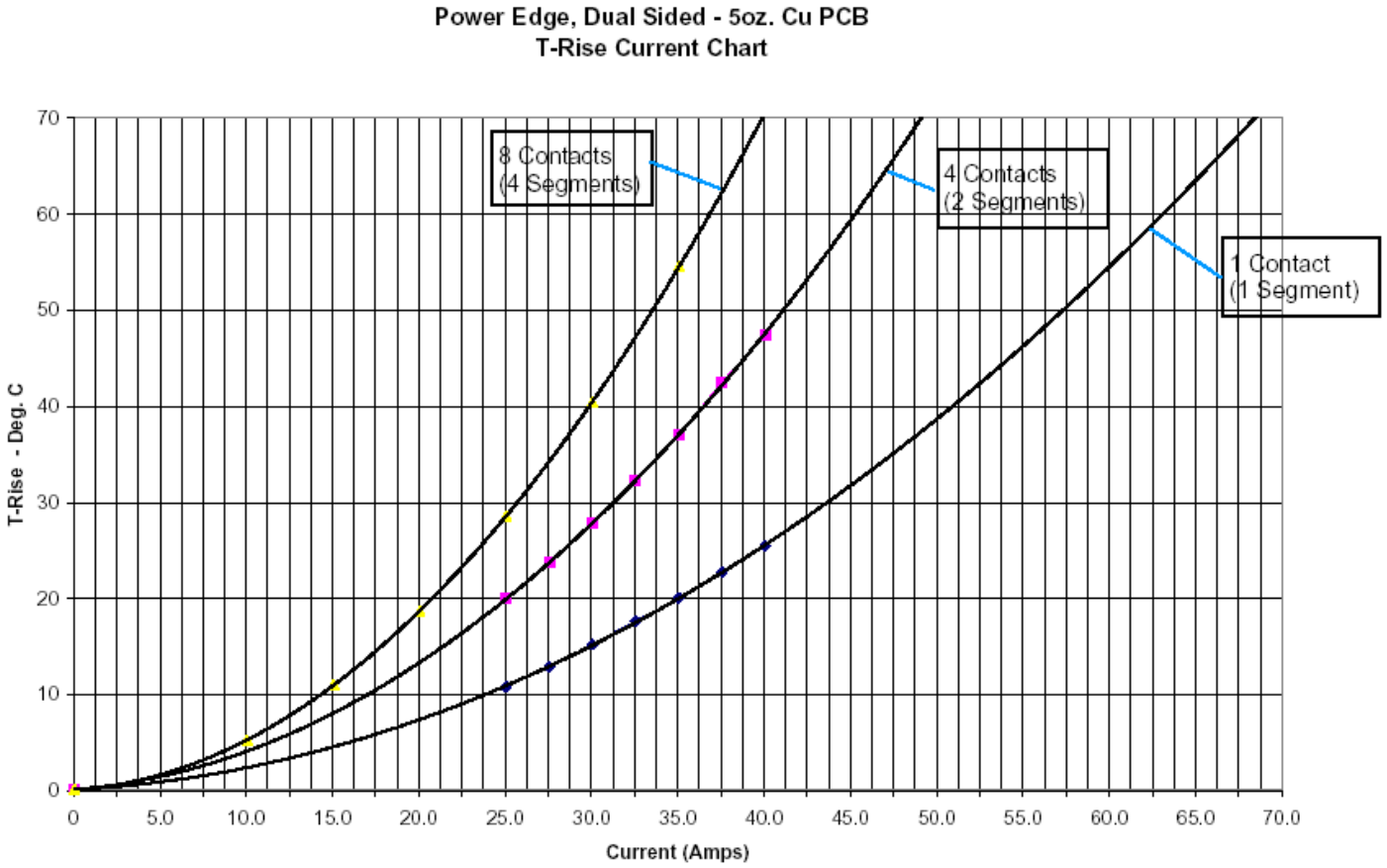
Current Cycling

10.3 Miscellaneous Testing

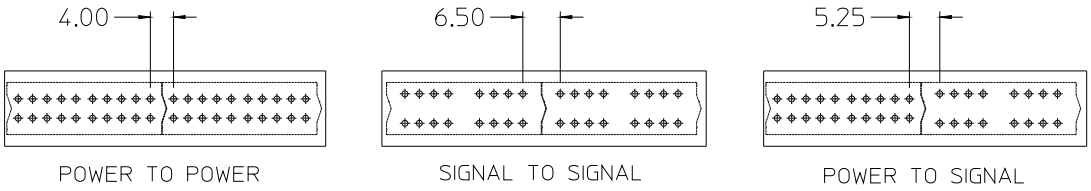
- Insulation Resistance
- Dielectric Strength
- Mating/Unmating Force
- Contact Retention
- Solderability
- Compliant Pin Insertion/Withdrawal Force
- Contact Normal Force

11. CURRENT CARRYING CAPACITY:

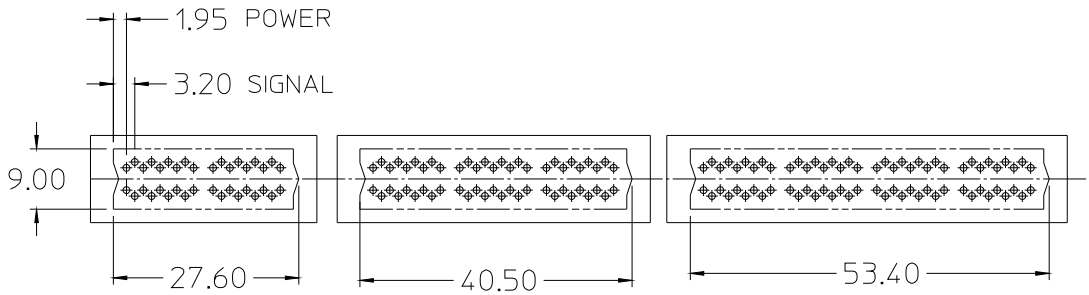


12.0 MINIMUM SPACING REQUIREMENTS:

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 PCB SPACE REQUIRMENTS:



14.0 EDGECARD MATING AND ALIGNMENT:

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

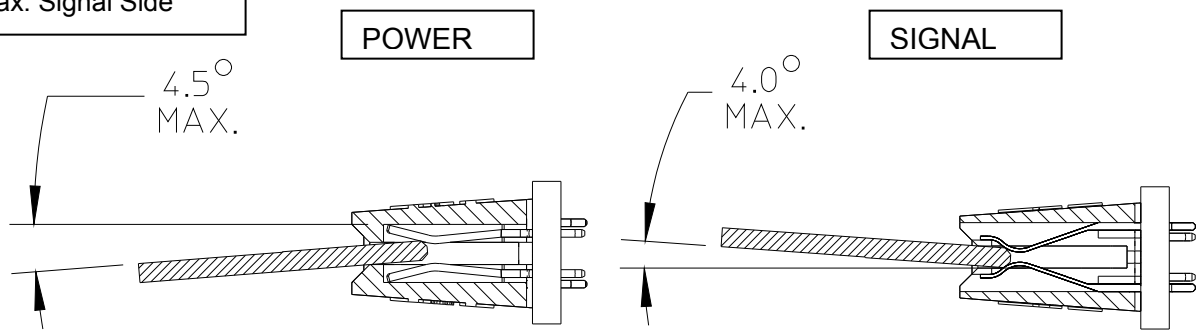


Figure 1

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

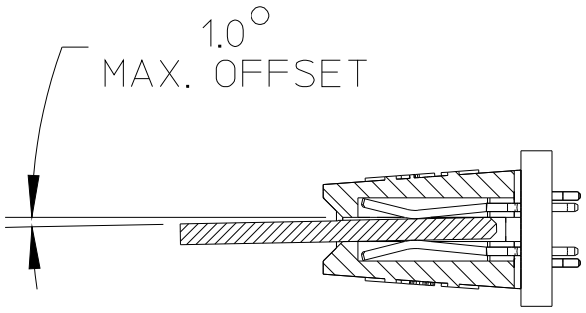


Figure 2

1.50 Degree Skew
Max Allowable @ Full Insertion

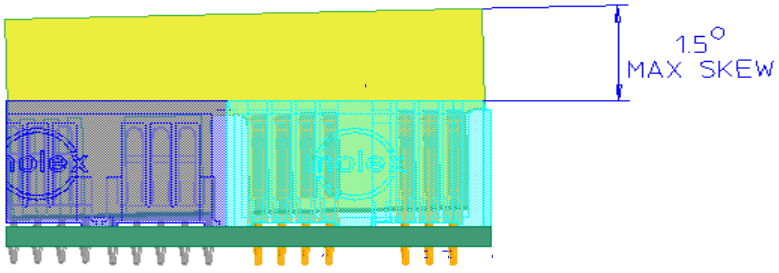
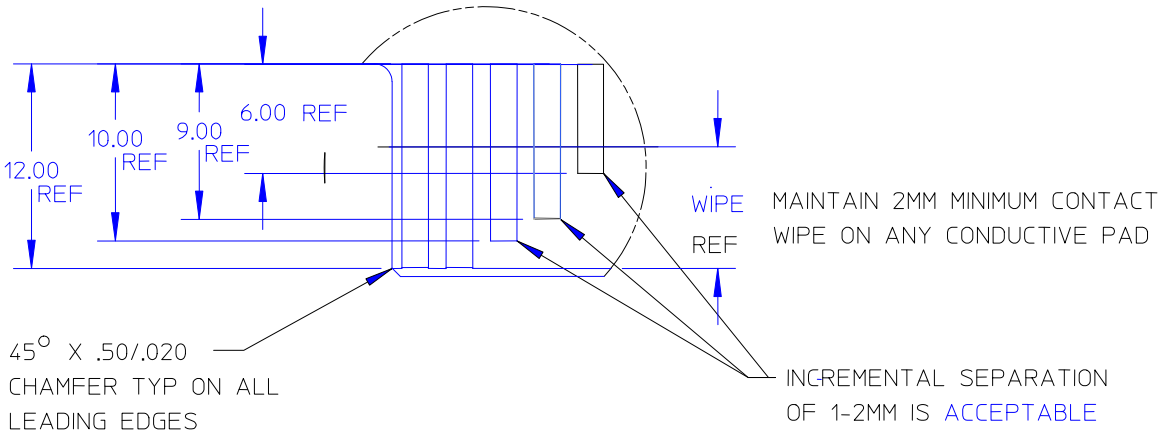


Figure 3



CONDUCTIVE PAD
VERTICAL SEPARATION
RECOMMENDATION