molex **PRODUCT SPECIFICATION**

8.00MM COEUR SENTRALITY HIGH CURRENT CONNECTOR SYSTEM

SOCKETS	
Press-Fit – Standard Option	**SMT – Standard Option**
Series: 204316	**Series: 204318 ; 212194**
	
Press-Fit – With 1.00mm Float	**SMT – With 1.00mm Float**
Series: 204313	**Series: 204365 ; 212195**
	

COEUR HIGH – CURRENT INTERCONNECT SYSTEM | TABLE OF CONTENTS

PINS

Press-Fit	Standard SMT
Series: 203263	Series: 203263
	

Screw Mount

Series: 203263

211922 – Custom Male Pins
212460 – 2 Circuit Male Wafer Assemblies

Table of Contents

1.0 SCOPE

The Product Specification covers the reliability test data of family 8.00mm COEUR SENTRALITY High Power interconnect systems which consists of various mounting options.

2.0 PRODUCT DESCRIPTION

The 8.00mm COEUR SENTRALITY High Power Interconnect System Connector is a single circuit connector system with available 1.00mm of actual float for high power busbar and PCB applications. The power circuit terminals are terminated to a busbar and / or PCB and uses a gold mating to silver interface with a terminal tarnish protection lubricant.

2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

This specification covers the performance requirements and test methods for the following products listed by series:

SOCKETS		
Termination Style	**Series Number**	**Packaging Type**
Press-Fit Standard	204316	Tray
SMT Standard	204318	Tray
	212194	Tape & Reel
Press-Fit with Float	204313	Tray
SMT with Float	204365	Tray
	212195	Tape & Reel
		Tape & Reel
Screw Mount Socket	214338	Tray

Pin	
Series	**Termination Style**
203263	Press-Fit
	Surface Mount
	Screw Mount
211922 – Custom Male Pins **212460** – 2 Circuit Male Wafer Assemblies	

2.2 DIMENSIONS, MATERIALS, PLATINGS

1. Dimensions: Refer to sales drawing.
2. Material: RoHS compliant materials:
   a. Power Male Pins: Copper Alloy.
   b. Power Female Sockets:
      i. Terminal Contacts: Copper Alloy.
      ii. Components: Copper Alloy and Stainless Steel.
3. Plating:
   a. Power Male Pins: Silver Plating with a Tarnish Inhibitor.
   b. Power Female Sockets: Gold Plating for Terminal Contact (Mating Interference), Remaining Components are Silver Plated with Tarnish Inhibitor.
4. Refer to 2043131234-TS for effects of tarnish on connector.

2.3 ENVIRONMENTAL CONFORMANCE

To find product compliance information:
a. Go to molex.com
b. Enter the part number in the search field.
c. At the bottom of the page go to “Environmental” to see compliance status.

2.4 SAFETY AGENCY APPROVALS

2.4.1 File Number*: 70184994

CSA approval meets following standards/test procedures:

a) CSA STD. C22.2 No. 182.3-M1987
b) UL-1977

* - “C” and “US” mark adjacent to CSA signifies that the product has been evaluated to the applicable CSA and ANSI/UL standards, for use in Canada and US respectively.

CSA NON-current interruption
175 Amps @ 600V for standard interface 175 Amps @ 600V for floating interface

2.4.2 UL File Number: E29179

UL NON-current interruption
175 Amps @ 600V for standard interface 175 Amps @ 600V for floating interface

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

8.00mm COEUR SENTRALITY High Power interconnect System Documents					
Type	**Termination Style**	**Sales Drawing**	**Packaging Drawing**	**Test Summary**	**Application Specification**
Socket	Press-Fit Standard	2043160001-SD	2043180001-PK	2043130008-TS	2043130001-AS
	SMT Standard	2043180001-SD			
		2043185001-SD			
		2043180011-SD			
		2121940001-SD	2043180000-PK		
		2121945001-SD			
		2121940011-SD	2121940011-PK		
		2121940051-SD			
	Press-Fit with Float	2043130010-SD	2043650010-PK		
	SMT with Float	2043650010-SD			
		2043655010-SD			
		2043650012-SD			
		2121950010-SD	2043650000-PK		
		2121955010-SD			
		2121950012-SD	2121950012-PK		
		2121956012-SD			
		2121950014-SD	2121950014-PK		
	Screw Mount Socket	2143380001-SD	2143380001-PK		
Pin	Press-Fit	2032630001-SD	2032630006-PK		
	Surface Mount	2032633080-SD	2032630006-PK		
	Screw Mount	2032634185-SD	2032630006-PK		

Additional Reference Documents

1. Product Specification of 3.40mm COEUR Sentrality (Pin and Socket) – 2043130018-PS
2. Product Specification of 6.00mm COEUR Sentrality (Pin and Socket) – 2043130006-PS
3. Product Specification of 6.00mm PowerWize W-t-B Connector System – 2119410000-PS
4. Product Specification of 8.00mm PowerWize W-t-B Connector System – 2046000001-PS
5. Product Specification of 11.00mm COEUR Sentrality (Pin and Socket) – 2138800001-PS

Other General Molex Documents
Molex Solderability Specification SMES-152
Molex Heat Resistance Specification AS-40000-5013
Molex Moisture Technical Advisory AS-45499-001
Molex Package Handling Specification 454990100-PK

3.2 INDUSTRY DOCUMENTS

EIA-364-1000
UL-60950-1
CSA STD. C22.2 NO. 182.3-M1987

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

600 Volts

Connector Rating per UL-1977

Connector voltage rating meets the connector approval level defined by UL 1977, Sect. 11 for spacing per table 11.1. Example: 1.2 mm for ≤ 250 volt; 3.2 mm for ≥ 250 volt.

Exception taken for spacing less than those specified are permitted, if the device complies with the requirements in the dielectric voltage withstanding test per Sect. 17.

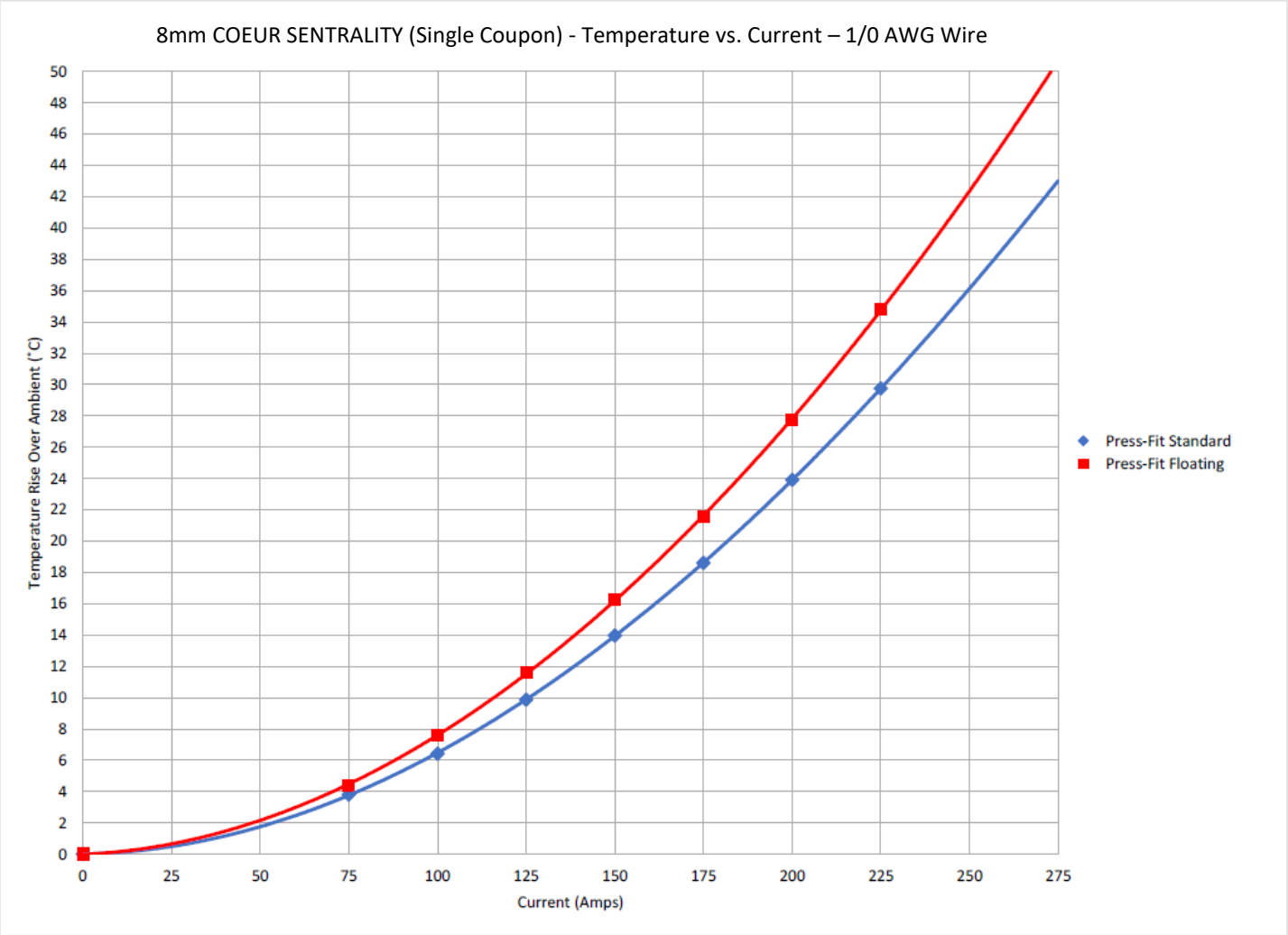
Application Voltage Guideline

For application voltage requirements per UL-60950 or other standards, the creepage & clearance also needs to be determined based upon pads/traces on the PCB.

4.2 CURRENT CAPABILITY **

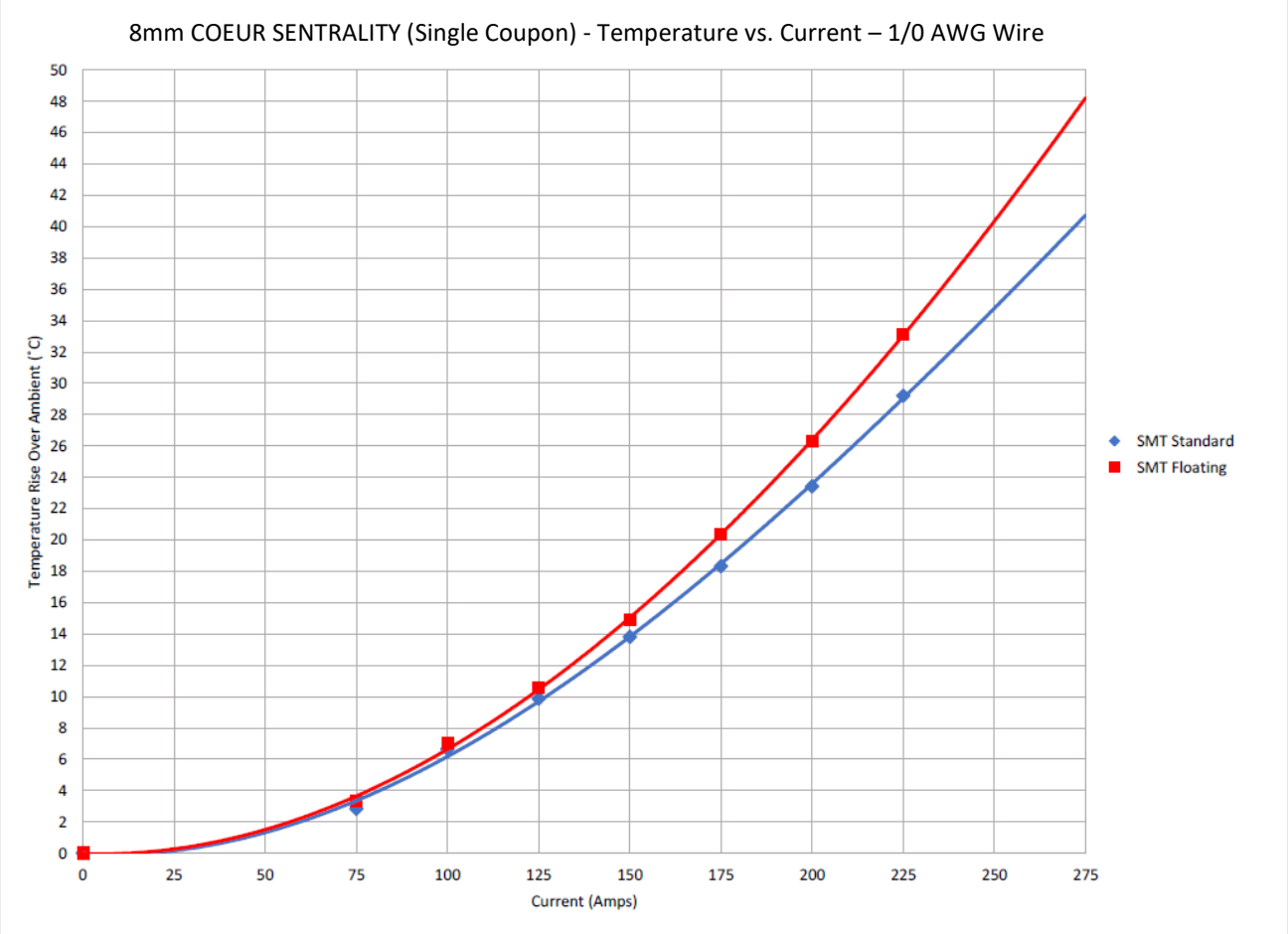
See Temperature vs. Current and Voltage Drop vs. Current charts below for applicable current rating per application.

** Current rating is application dependent. Above rating is only a guideline. Appropriate de-rating is required per ambient conditions, copper weight of PCB, gross heating from adjacent modules/components, and other factors that influence connector performance.



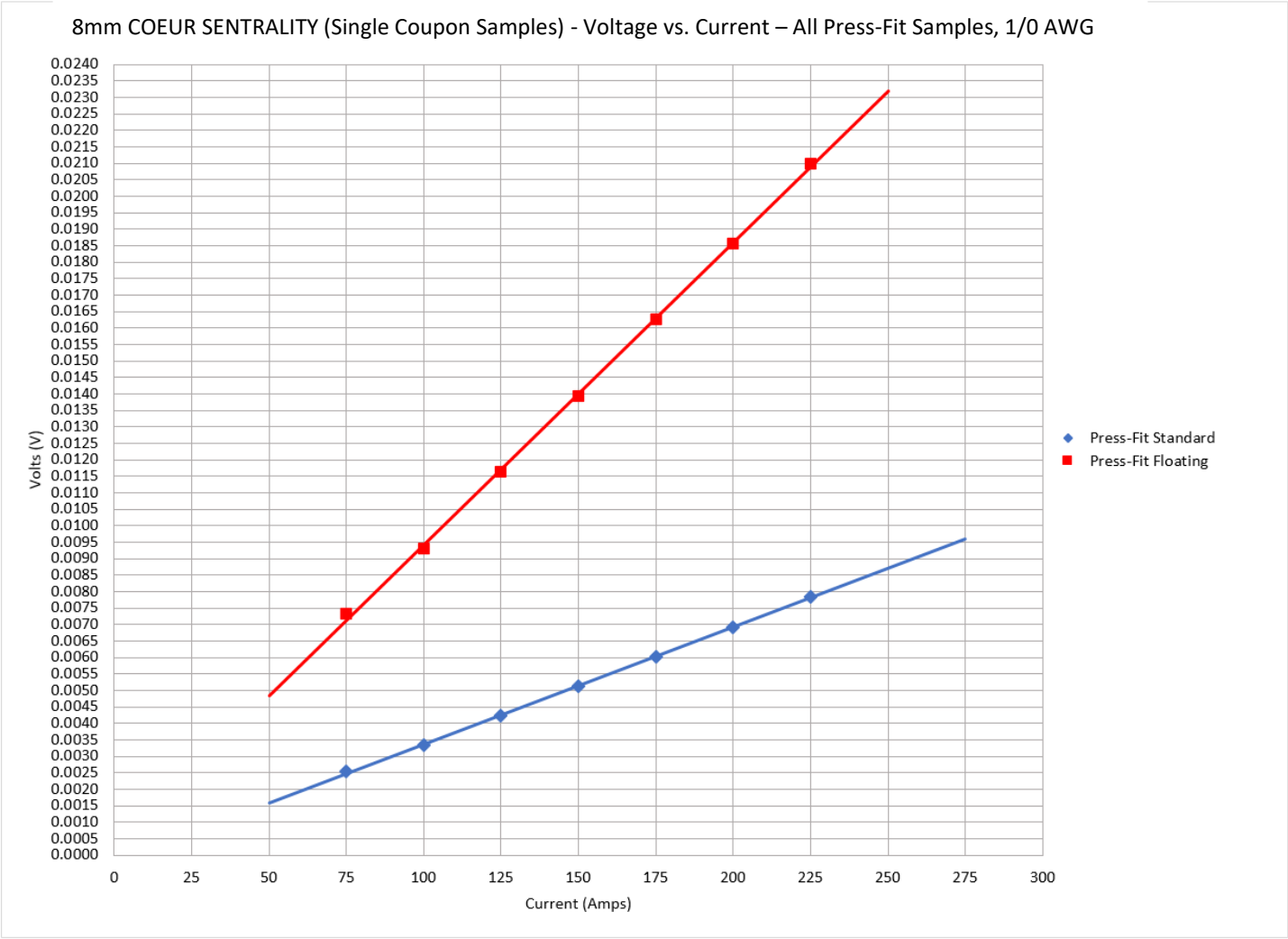
COEUR HIGH – CURRENT INTERCONNECT SYSTEM

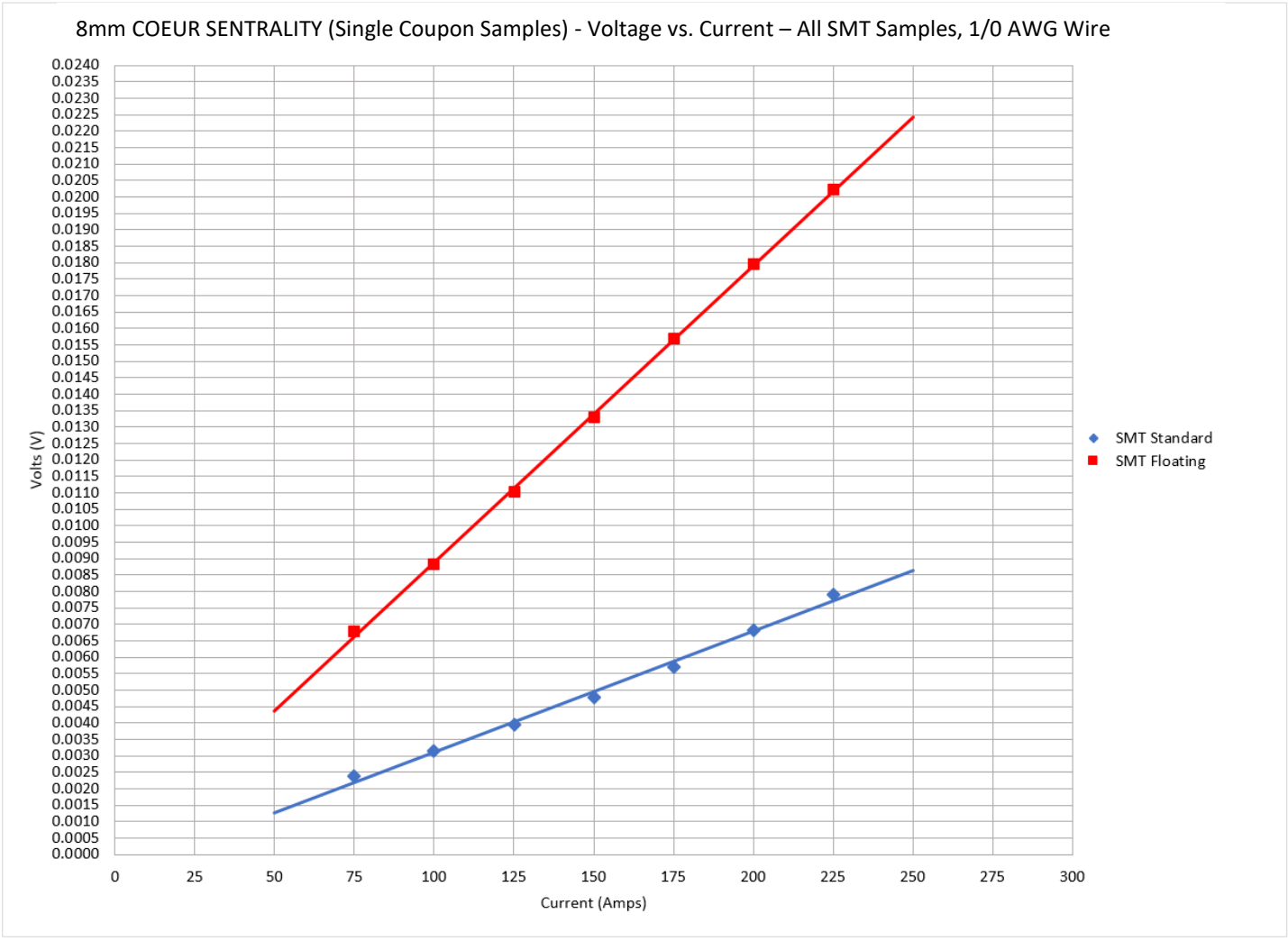
TABLE OF CONTENTS



COEUR HIGH – CURRENT INTERCONNECT SYSTEM

TABLE OF CONTENTS


8mm COEUR SENTRALITY (Single Coupon Samples) - Voltage vs. Current – All Press-Fit Samples, 1/0 AWG
Volts (V)
0.0240
0.0235
0.0230
0.0225
0.0220
0.0215
0.0210
0.0205
0.0200
0.0195
0.0190
0.0185
0.0180
0.0175
0.0170
0.0165
0.0160
0.0155
0.0150
0.0145
0.0140
0.0135
0.0130
0.0125
0.0120
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
0.0065
0.0060
0.0055
0.0050
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
0
25
50
75
100
125
150
175
200
225
250
275
300
Current (Amps)
Press-Fit Standard
Press-Fit Floating

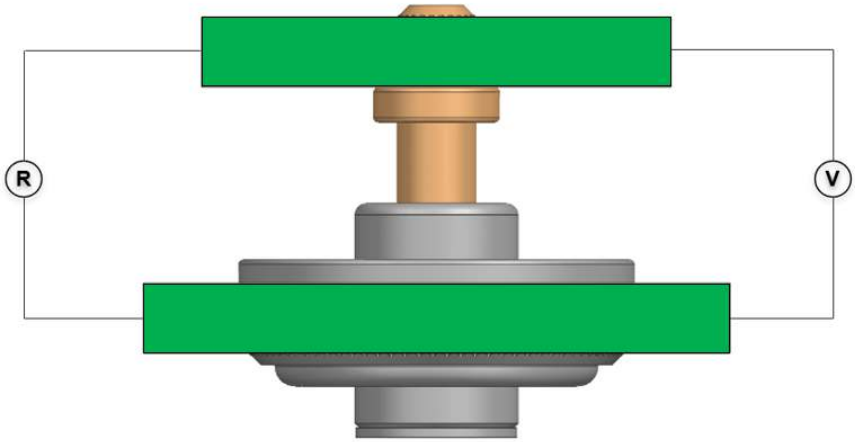


COEUR HIGH – CURRENT INTERCONNECT SYSTEM

TABLE OF CONTENTS

4.3 RESISTANCE

0.25 milliohm (Nominal).
All resistance values are nominal, From Male Pin Board – to – Socket Board, values including connector bulk resistance and contact resistance.



4.4 TEMPERATURE

Operating Temperature Range (includes T-Rise from applied current) : - 40 °C to + 125 °C
Storage / Non-Operating Temperature Range : - 40 °C to + 85 °C

Field Temperature and Field Life: Temperature life tested per **EIA 364-17** Method A for **114 hrs@125º C** per table 8 to meet field temperature of **85º C for 10 years life***.

Further testing completed per USCAR-2 Rev6 for 1008 hrs@150ºC. See 2043131000-TS.

***Note:**
Temperature life tested per EIA 364-17 Method A for 114 hrs. @ 125 ºC per table – 8.
Temperature life test duration (section 6.3 item 1) is based on the assumption that the contact spends **1/3** of its field life at that temperature which is **85º C** and its remaining life at **40 ºC** or less. (Based on EIA-364-1000, table 8)

4.5 DURABILITY

Plating Type	Number of Cycles
Gold Plated – Socket Contact Silver Plated – Pin Surface	200*

Mechanical / Non – Environmental Durability.
Based on EIA-364-1000.01 test method C section 7.
As tested in accordance with EIA-364-1000 test method (see section 6.2 item 5 of this specification).
Durability per EIA-364-09

5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with EIA-364-1000.
See page 16 for detail test sequence of EIA-364-1000.01

6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Contact Resistance (Low Level) (EIA-364-23)	Mate connectors, apply maximum voltage of 20 mV and current of 100 mA	Maximum 0.40 mΩ
6.1.2	Voltage Drop @ RATED CURRENT	Mate connectors, apply maximum current of 75 amps.	See Charts; Section 4.0
6.1.3	Temperature Rise	Mate connectors & Measure T-Rise @ Rated Current after 96 Hours per EIA-364-70	30 °C T-Rise
6.1.4	Temperature Rise (Via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after 96 hours (steady state) 240 hours (45 minutes ON and 15 minutes OFF per hour) 96 hours (steady state) Steady state per EIA-364-70, Method 2. Current cycling per EIA-364-55, Test Condition A, Test Method 4	30 °C T-Rise

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.1	Mating Force (EIA-364-37)	Mate connectors at a rate of 25.4 +/- 6 mm per minute.	45N Maximum
6.2.2	Unmating Force (EIA-364-37)	Unmate connectors at a rate of 25.4 +/- 6 mm per minute.	10N Minimum
6.2.3	Initial Floater Displacement Force (Side Force)	Displacement Float Feature 1.50mm (0.75mm both directions off center)	10N Minimum 60N Maximum
6.2.4	Offset Mating Insertion Force into Floater	Mate and Unmate receptacle male power pin 10 times in the offset position	90N Maximum
6.2.5	Durability w/o Environment (EIA-364-09)	Mate connectors 200 cycles at a maximum rate of 10 cycles per minute.	No damage which would impair operation Maximum Change: 0.17 mΩ
6.2.6	Vibration (EIA-364-28)	Mate connectors and vibrate per EIA-364-28, test condition D 15 minutes each axis	Maximum Change: 0.17 mΩ No discontinuities greater than 1 µs
6.2.7	Mechanical Shock (EIA-364-27)	Mate connectors and shock at 50 g with ½ sine wave pulse (11 milliseconds) shocks in the X, Y, Z axis (18 shocks total)	Maximum Change: 0.17 mΩ No discontinuities greater than 1 µs

6.3 ENVIRONMENTAL PERFORMANCE

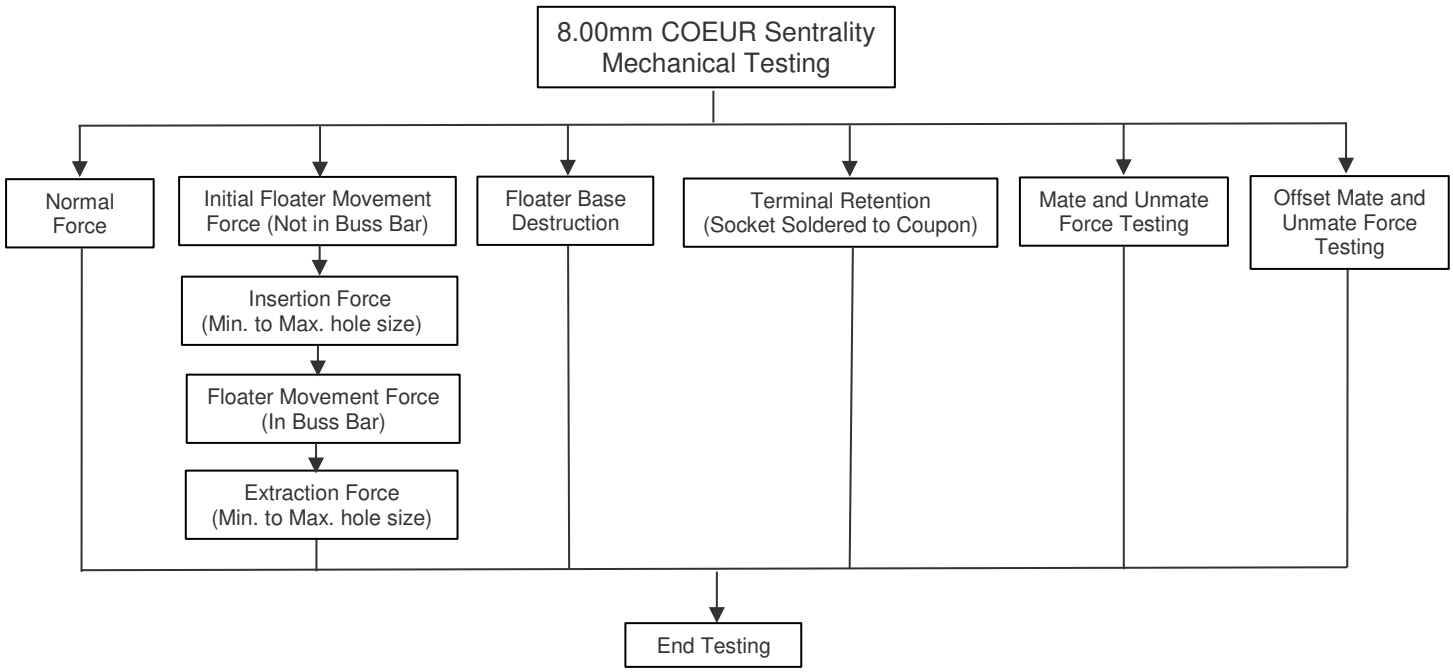
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Temperature Life (EIA-364-1000)	Mate Connectors, expose to 114 hours at 125 °C Per EIA-364-17 and EIA-364 TS-1000	Maximum Change: 0.17 mΩ
6.3.2	Thermal Shock (EIA-364-1000)	Mate connectors, expose to 10 cycles from -55 ºC to 85 ºC, dwell time for each extreme temperature is 30 minutes. Per EIA-364-32 Test Condition 1, Test Duration A-4	Maximum Change: 0.17 mΩ
6.3.3	Cyclic Temperature & Humidity (EIA-364-1000)	Mate connectors: 24 cycles at temperature 25 ± 3 °C at 80 ± 5% relative humidity and 65 ± 3 °C at 50 ± 5% relative humidity; dwell time of 1.0 hour; ramp time of 30 minutes. Per EIA-364-31	Maximum Change: 0.17 mΩ
6.3.4	Thermal Disturbance (EIA-364-1000)	Mate Connectors, cycle the connectors between 15 ± 3 °C and 85 ± 3 °C. Ramps should be a minimum of 2 °C per minute, and dwell times should ensure contacts reach the temperature extremes. Humidity is not controlled. 10 cycles Per EIA-364-110	Maximum Change: 0.17 mΩ
6.3.5	Mixed flowing Gas (EIA-364-1000)	Expose to MFG 224 hours unmated, 112 hours mated, Per EIA-364-65 Class IIA	Maximum Change: 0.17 mΩ
6.3.6	Dust Exposure (EIA-364-1000)	Unmate the connectors, expose the connector to Dust. Per EIA-364-91, Benign Dust Composition.	Maximum Change: 0.17 mΩ

7.0 TEST SEQUENCE

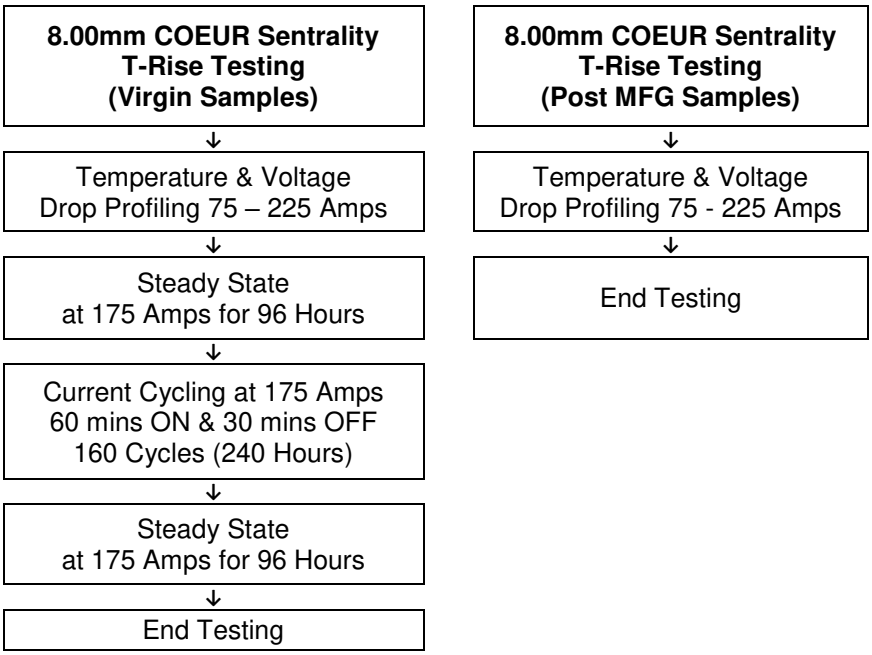
7.1 RELIABILITY TEST SEQUENCES PER EIA-364-1000

Group I	Group II	Group III	Group IV	Group VI	Group VII
Initial Contact Resistance EIA-364-23	Initial Contact Resistance EIA-364-23	Initial Contact Resistance EIA-364-23	Initial Contact Resistance EIA-364-23	Initial Contact Resistance EIA-364-23	Initial Contact Resistance EIA-364-23
Durability (Preconditioning) 20 cycles EIA-364-09	Durability (Preconditioning) 20 cycles EIA-364-09	Durability (Preconditioning) 20 cycles EIA-364-09	Durability (Preconditioning) 20 cycles EIA-364-09	Durability (Preconditioning) 20 cycles EIA-364-09	Durability 200 cycles EIA-364-09
Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance
Temperature Life 125°C, 114 hours EIA-364-17	Thermal Shock 10 cycles -55°C and +85°C EIA-364-32	Temperature Life (Preconditioning) EIA-364-17	Temperature Life (Preconditioning) EIA-364-17	Dust EIA-364-91 Benign Composition	End Testing
Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	
Reseating 3 cycles EIA-364-1000	Cyclic Temperature and Humidity EIA-364-31	Random Vibration EIA-364-28 Condition VIID	Flowing Mixed Gas, Class IIA Unmated for 224 hours, EIA-364-65	Thermal Disturbance EIA-364-1000	
Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	
End Testing	Reseating 3 cycles EIA-364-1000	Mechanical Shock EIA-364-27	Flowing Mixed Gas, Class IIA mated for 112 hours, EIA-364-65	Reseating 3 cycles EIA-364-1000	
	Contact Resistance	Contact Resistance	Contact Resistance	Contact Resistance	
	End Testing	End Testing	Thermal Disturbance EIA-364-1000	End Testing	
			Contact Resistance		
			Reseating 3 cycles EIA-364-1000		
			Contact Resistance		
			End Testing		

7.2 MECHANICAL TEST SEQUENCES



7.3 TEMPERATURE RISE TEST SEQUENCES



8.0 PACKAGING

Parts shall be packaging to protect the parts from damage during standard shipping, storage, and handling. Refer Molex.com specific part number webpage / Refer to table in the section 3.1 to get the exact packaging document for that item.