molex **PRODUCT SPECIFICATION**

MULTICAT™ CIRCULAR

Wire-To-Wire

CONNECTOR SYSTEM

Female Crimp Terminal	Male Crimp Terminal
	
Series: 201846 [13A-30A]	Series: 201845 [13A-30A]

Receptacle Housing	Plug Housing
	
Series: 200915	Series: 200914

MultiCat Power Connectors Web Page | TABLE OF CONTENTS

REVISION:	ECM INFORMATION:	TITLE:	SHEET No.
A3	EC No: 621344 DATE: 25 / 7 / 2019	PRODUCT SPECIFICATION FOR MULTICAT™ CIRCULAR CONNECTOR SYSTEM (WtW)	1 of 15

DOCUMENT NUMBER:	DOC TYPE:	DOC PART:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
2009140003PS	PS	000	MANOHAR	MANOHAR	ISHWAR

Table of Contents

1.0 SCOPE

This Product Specification covers 3 CKT circular wire to wire connector system terminated with 10 to 18 AWG wire using Crimp technology on standard High-Power contacts.

2.0 PRODUCT DESCRIPTION

2.1 DESCRIPTION, SERIES NUMBER, AND LINKS

DESCRIPTION	SERIES NUMBER
Female Crimp Terminal	201846 [13A-30A]
Male Crimp Terminal	201845 [13A-30A]
Receptacle Housing	200915
Plug Housing	200914

2.2 DIMENSIONS, MATERIALS, PLATINGS

REFER 2009150003 PSD, 2009140003 PSD, 2018450010PSD, 2018450020PSD,2018450030PSD, 2018460010PSD, 2018460020PSD AND 2018460030PSD.

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 LISTINGS

UL / cUL File Number: E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

MultiCat Circular Connectors Test summary 2009140003-TS-000
MultiCat Circular Connectors Application summary 2009140003-AS-000
Molex Quality Crimping Handbook Order No. 63800-0029
Molex Package Handling Specification 454990100-PK
ATS – Application Tooling Specification*

Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com

3.2 INDUSTRY DOCUMENTS

EIA-364-1000

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

1000 Volts AC

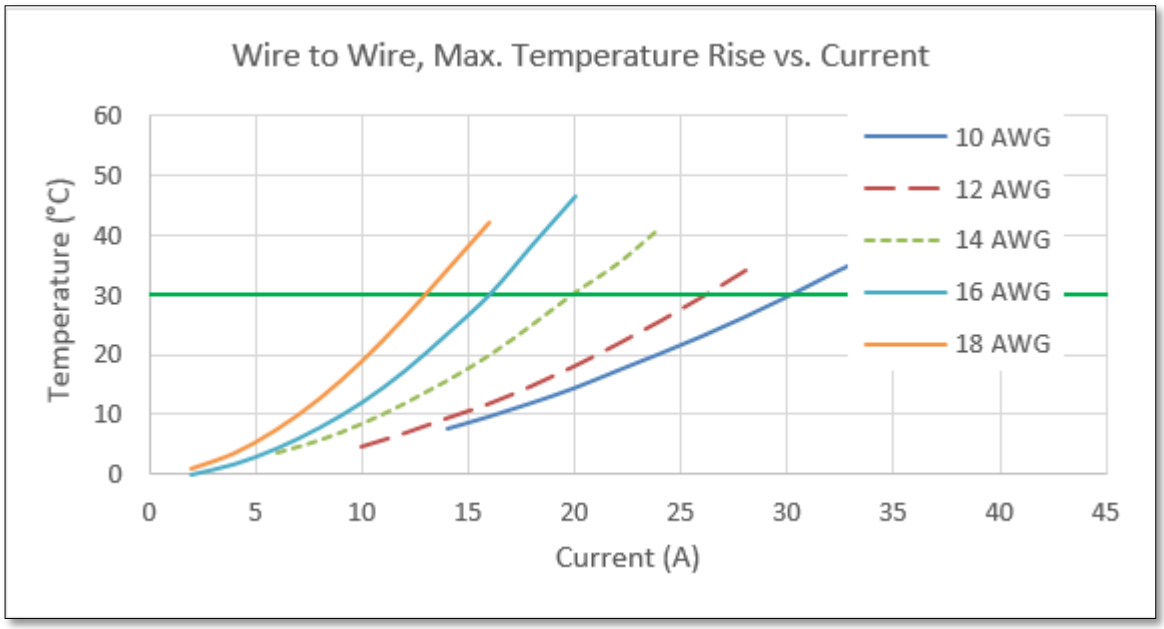
4.2 APPLICABLE WIRES

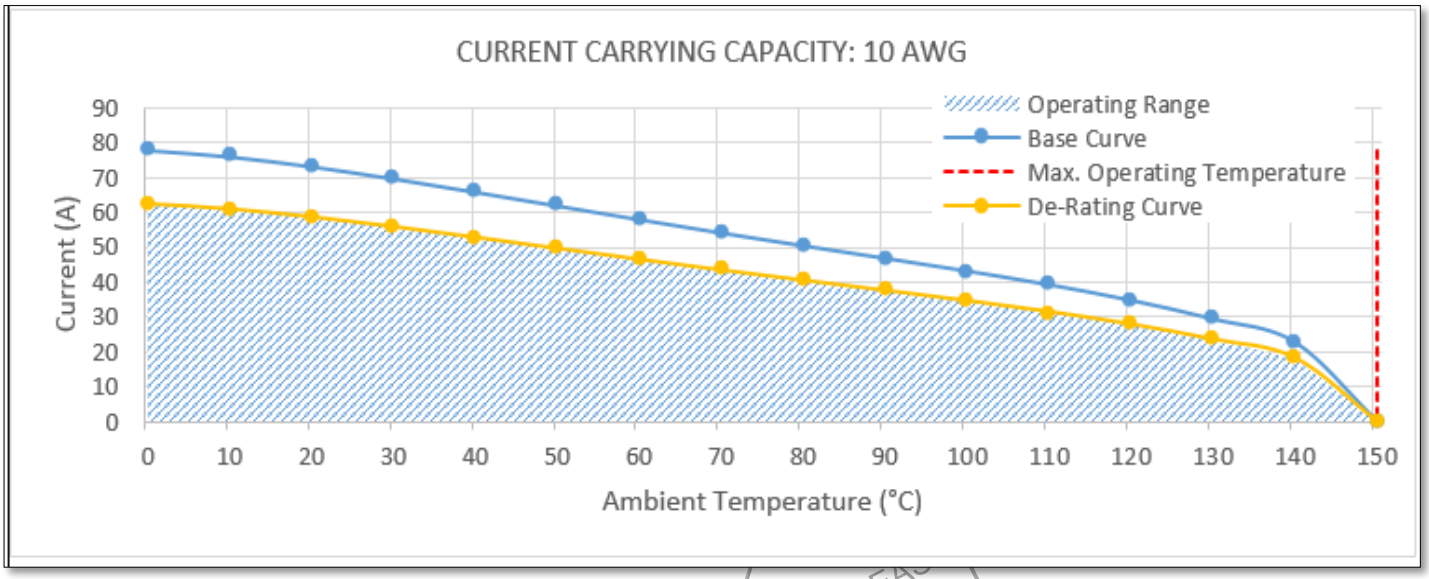
Wire Style	AWG	Nominal Insulation Diameter
UL1199	10	4.03mm
	12	3.40mm
	14	2.92mm
	16	2.59mm
	18	2.36mm

4.3 CURRENT RATING (MAXIMUM AMPERES)

Note: Ratings shown represent *MAXIMUM* current carrying capacity of a fully loaded connector with all circuits powered using **UL1199** stranded wire. Ratings are based on a 30°C maximum temperature rise limit over ambient (see section 6.1.4 for specifications). Current is dependent on connector size, ambient temperature, printed circuit board characteristics and related factors. Actual current rating is application dependent and should be evaluated for each use.

AWG Wire Size	3 Circuit
10	30 amps @ 30°C
12	26 amps @ 30°C
14	20 amps @ 30°C
16	16 amps @ 30°C
18	13 amps @ 30°C

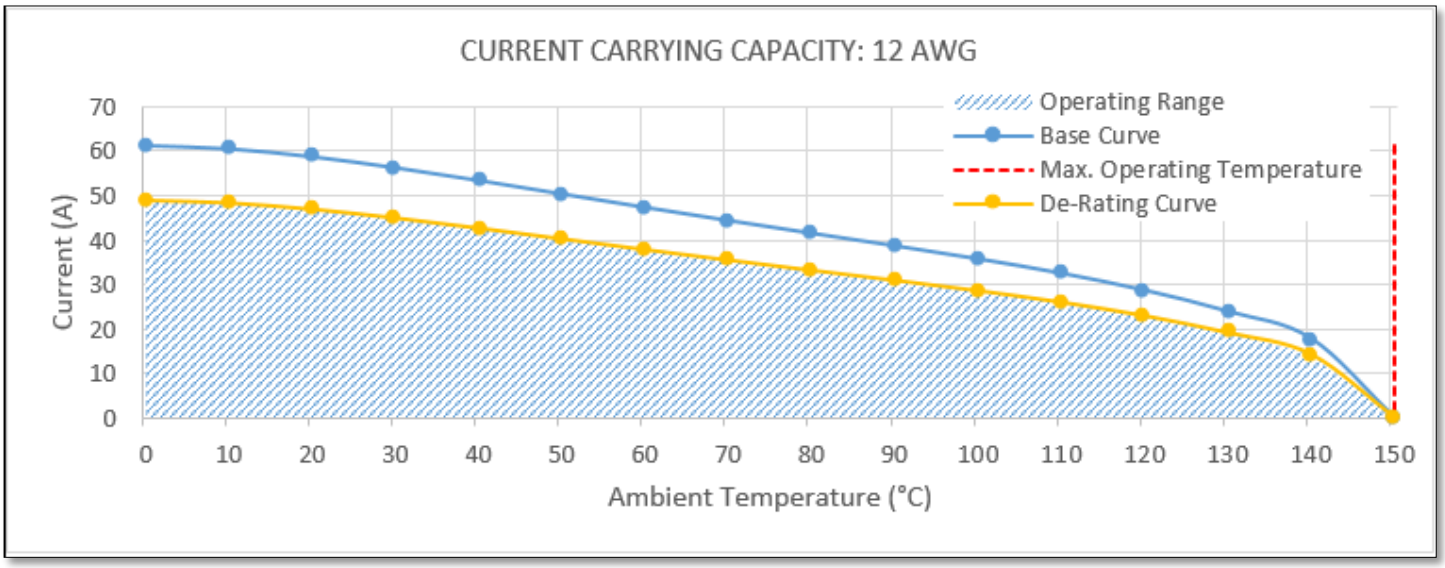


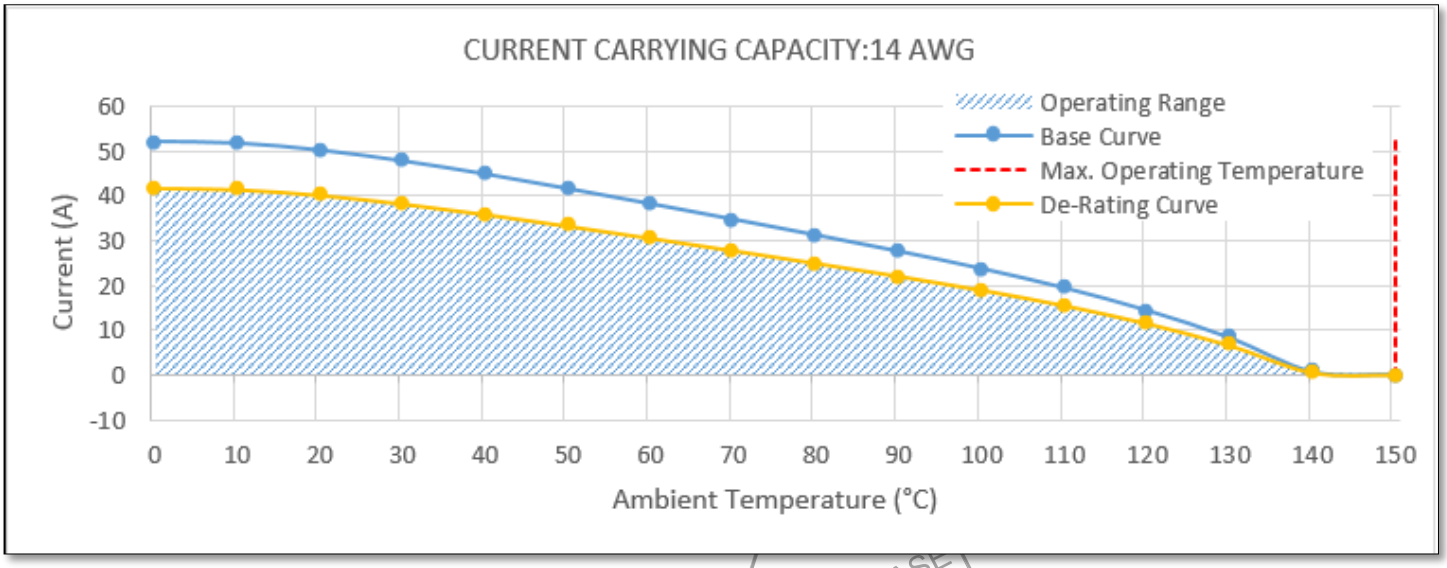


MultiCat Power Connectors Web Page | TABLE OF CONTENTS

REVISION:	ECM INFORMATION:	TITLE:	SHEET No.
A3	EC No: 621344 DATE: 25 / 7 / 2019	PRODUCT SPECIFICATION FOR MULTICAT™ CIRCULAR CONNECTOR SYSTEM (WtW)	5 of 15

DOCUMENT NUMBER:	DOC TYPE:	DOC PART:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
2009140003PS	PS	000	MANOHAR	MANOHAR	ISHWAR

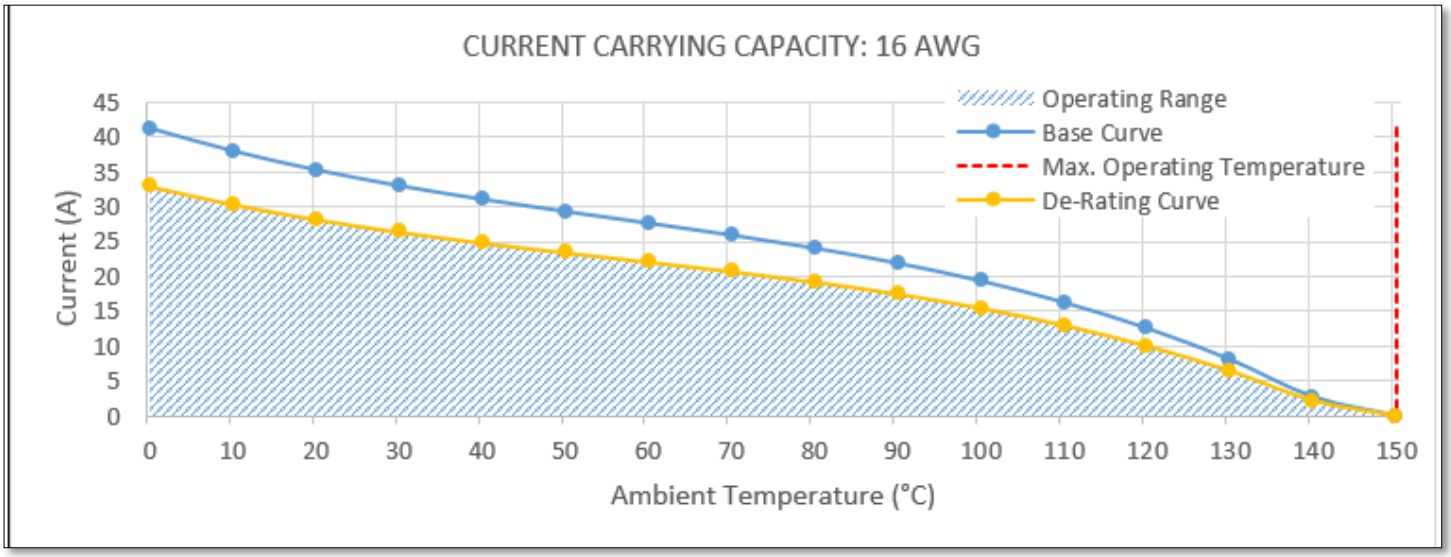


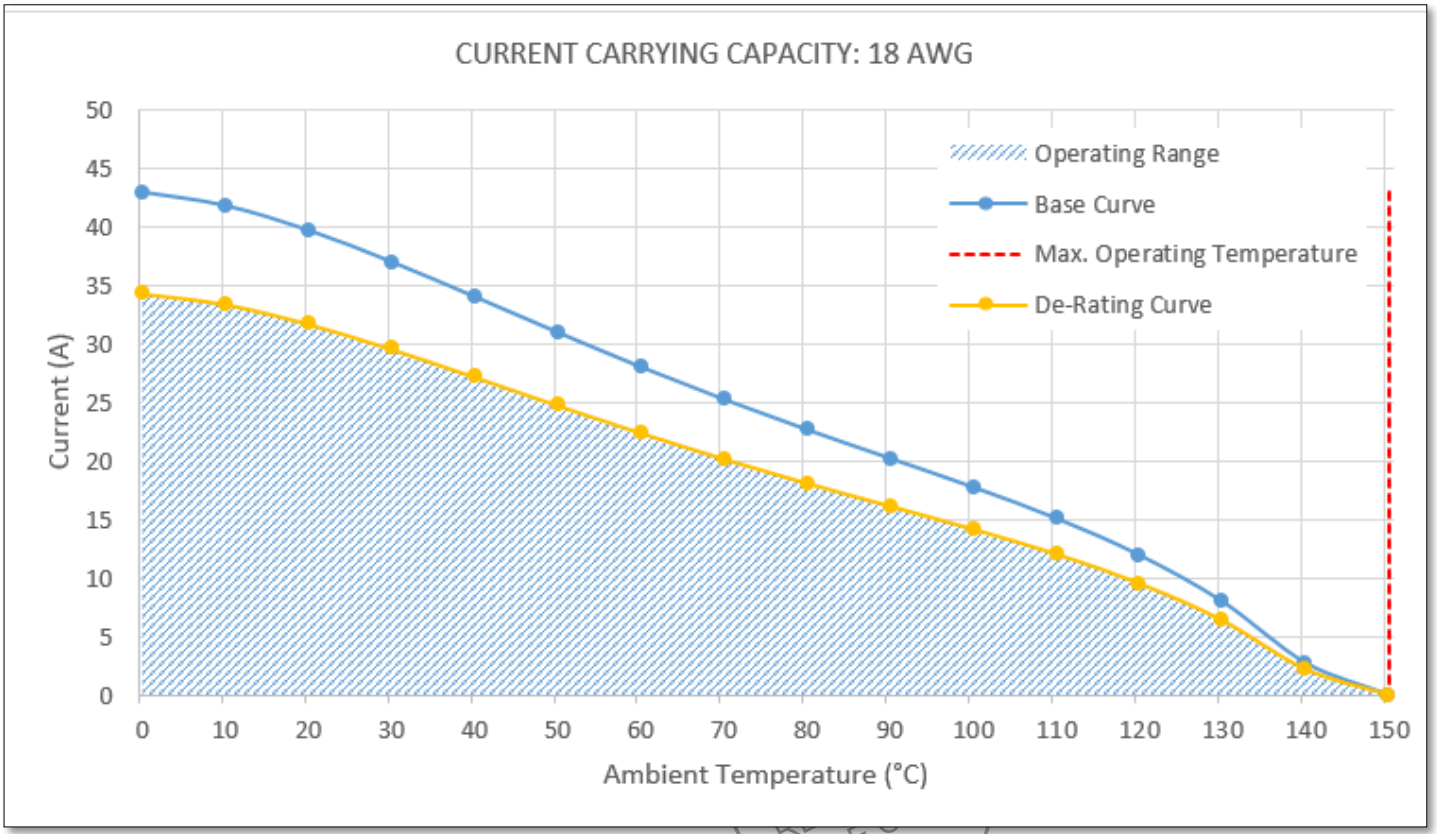


MultiCat Power Connectors Web Page | TABLE OF CONTENTS

REVISION:	ECM INFORMATION:	TITLE:	SHEET No.
A3	EC No: 621344 DATE: 25 / 7 / 2019	PRODUCT SPECIFICATION FOR MULTICAT™ CIRCULAR CONNECTOR SYSTEM (WtW)	6 of 15

DOCUMENT NUMBER:	DOC TYPE:	DOC PART:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
2009140003PS	PS	000	MANOHAR	MANOHAR	ISHWAR





MultiCat Power Connectors Web Page | TABLE OF CONTENTS

REVISION:	ECM INFORMATION:	TITLE:	SHEET No.
A3	EC No: 621344 DATE: 25 / 7 / 2019	PRODUCT SPECIFICATION FOR MULTICAT™ CIRCULAR CONNECTOR SYSTEM (WtW)	7 of 15

DOCUMENT NUMBER:	DOC TYPE:	DOC PART:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
2009140003PS	PS	000	MANOHAR	MANOHAR	ISHWAR

4.4 TEMPERATURE

Operating Temperature Range : - 40°C to + 150°C

4.5 DURABILITY

Plating Type	Number of Cycles
Gold Plated	500

As tested in accordance with EIA-364-1000 test method (see sec 6.2.8 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.

6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.1.1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. EIA-364-23C	1 milliohms MAXIMUM [initial]
6.1.2	Insulation Resistance	Mate connectors: Apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. EIA-364-21C	1000 Megohms MINIMUM
6.1.3	Dielectric Withstanding Voltage	Apply a voltage of 3000 VAC for 1 minute between adjacent terminals EIA-364-20D	No breakdown; current leakage < 5 mA
6.1.4	Temperature Rise versus current (Step profiling)	Mate connectors: measure the temperature rise at the rated current. EIA-364-70, Method 2	Temperature rise: +30°C MAXIMUM (above ambient)
6.1.5	Temperature rise versus current (18-day stability test)	Mate connectors, measure the temperature rise at the rated current, 2 measurements per day, test method 3 (30 Min on & 15 min off) Per EIA-364-55 Test condition A	Temperature rise: +30°C MAXIMUM (above ambient)

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
6.2.1	Connector Mate and Unmate Forces (Latch disengaged) Initial	Mate and unmate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. EIA-364-13E	50.0 N MAXIMUM Mate force & 15.0 N MINIMUM Unmate force	
6.2.2	Thumb Latch Yield Strength (Without terminal)	Unmate housing (plug to receptacle) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. EIA-364-13E	75 N Minimum	
6.2.3	Crimp Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	40 N MAXIMUM insertion force	
6.2.4	Crimp Terminal Retention Force (From Housing) Initial	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	175 N Minimum retention force	
6.2.5	Crimp Terminal Retention Force (From Housing) After High Temperature exposure test		150 N Minimum retention force	
6.2.6	Latch Strength Test TR 54307	The latch should be cycled a total of 500 times, at a rate of 250 to 300 cycles per hour (per EIA-364-09), and inspect for cracks and other deformation or damage every 50 cycles. Finally, a latch strength test should be performed after cycling and meet 75 N Min force.	75 N MINIMUM	
6.2.7	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch). UL1977 Edition 2	AWG	MIN pullout force
			10	355 N
			12	275 N
			14	200 N
			16	135 N
			18	90 N

MultiCat Power Connectors Web Page | TABLE OF CONTENTS

6.2 MECHANICAL PERFORMANCE CONTINUED

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.2.8	Durability-500 cycle EIA-364-1000 Test Group 7A& 7B	Mate connector: Test as per EIA-364-09	5 milliohms MAXIMUM (change from initial) & Dielectric withstanding voltage: no breakdown; Current leakage < 5 MA & Visual: No Damage
6.2.9	Vibration (Random) + Mechanical Shock Test Group 3	Mate connectors and vibrate per EIA 364-28, test condition VII. Letter D. (acceleration 3.1 g) Mechanical shock- per EIA-364-27C Test condition H	5 milliohms MAXIMUM (Change from initial) & Discontinuity < 1 Microsecond

6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6.3.1	Shock (Thermal) EIA-364-1000 Test Group 2A & 2B	Mate connectors; expose to 5 cycles of: Temperature °C Duration (Minutes) -40 +0/-3 30 +25 ±10 5 MAXIMUM +150 +3/-0 30 +25 ±10 5 MAXIMUM EIA-364-32F,Method A, Test condition IV	5 milliohms MAXIMUM (change from initial) & Visual: No Damage
6.3.2	Cyclic Temperature & Humidity EIA-364-1000 Test Group 2A& 2B	Mate connectors: cycle per EIA-364-31: 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 0.5 hours.	5 milliohms MAXIMUM (change from initial)
6.3.3	Mixed Flow Gas EIA-364-1000 Test Group 4	EIA-364-1000 Table 5 – Test Group 4	5 milliohms MAXIMUM (change from initial)
6.3.4	High Temperature Exposure @ 150C as per USCAR-2 5.6.3 Refer to table 5.9.6	Place the samples in the chamber, set to the maximum ambient temperature, so that there is no substantial obstruction to air flow across and around the samples, and the samples are not touching each other. Leave the samples in the chamber for 1008 hours	5 milliohms MAXIMUM (change from initial) Terminal-connector Retention force 150N Minimum & Visual: No Damage

7.0 TEST SEQUENCE GROUPS

Reliability Test Sequences per EIA-364-1000

Group II A	Group II B	Group III	Group IV	Group VII A
Contact Resistance (Low Level)	Dielectric withstand & Insulation Resistance	Contact Resistance (Low Level)	Initial Contact Resistance	Contact Resistance (Low Level)
Durability (Preconditioning)	Durability (Preconditioning)	Durability (Preconditioning)	Durability (Preconditioning)	**Durability**
Contact Resistance (Low Level)	Dielectric Withstand Voltage	Contact Resistance (Low Level)	Contact Resistance	Contact Resistance (Low Level)
Thermal Shock	**Thermal Shock**	Temperature Life (Preconditioning)	Temperature Life (Preconditioning)	**Group VII B**
Contact Resistance (Low Level)	Dielectric Withstand Voltage	Contact Resistance (Low Level)	Contact Resistance	Dielectric Withstand Voltage
Cyclic Temperature and Humidity	Cyclic Temperature and Humidity	**Vibration**	**Mixed Flow Gas-Unmated Exposure 80 hours**	**Durability**
Contact Resistance (Low Level)	Dielectric Withstand Voltage	Contact Resistance (Low Level)	Contact Resistance	Dielectric Withstand Voltage
Reseating	Reseating	**Mechanical shock**	**Mixed Flow Gas-Mated Exposure 40 hours**	
Contact Resistance (Low Level)	Dielectric Withstand Voltage	Contact Resistance (Low Level)	Contact Resistance	
			Thermal Disturbance	
			Contact Resistance	
			Reseating	
			Contact Resistance	

MultiCat Power Connectors Web Page | TABLE OF CONTENTS

High Temperature Exposure @ 150° C as per USCAR-2 5.6.3 table 5.9.6

Dry Circuit Resistance

Connector and/or terminal cycling

Dry Circuit Resistance

High Temperature 150°C for 1008 hours

Dry Contact Resistance

Terminal-Connector Retention Force

Temperature Rise

T-Rise Profiling

Steady State Temperature Rise

Individual Tests

- Connector Mate / Un-mate Force
- Crimp Terminal Insertion force
- Crimp Terminal Retention force
- Thumb Latch Yield Strength
- Wire Pullout force (Axial)
- Latch Strength Test

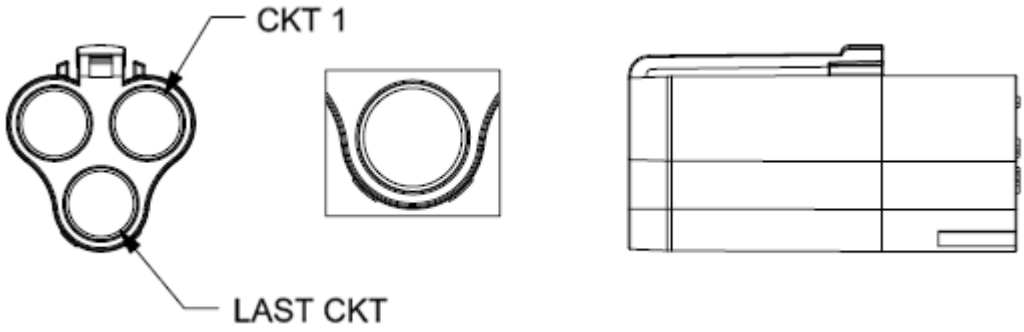
MultiCat Power Connectors Web Page | TABLE OF CONTENTS

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 to get the exact packaging document for that item.

9.0 POLARIZATION AND KEYING OPTIONS

9.1 Receptacle Housing (Series: 200915)



9.2 Plug Housing (Series: 200914)