

MULTICAT CIRCULAR CONNECTOR – WIRE TO WIRE

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 AND SERIES NUMBER(S)

PLUG HOUSING	200914
RECEPTACLE HOUSING	200915
MALE CRIMP TERMINAL	201845(10A-30A)
FEMALE CRIMP TERMINAL	201846(10A-30A)

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

2.3 SAFETY AGENCY APPROVALS

UL FILE NUMBER: E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

TEST SUMMARY: 2009140003-TS

APPLICATION SPECIFICATION: 2009140003-AS

SALES DRAWING

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

REFER SECTION 6.0 FOR ENVIRONMENTAL TEST SEQUENCES

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DOCUMENT NUMBER: 2009140003PS	CREATED / REVISED BY: MANOHAR	CHECKED BY: ISHWAR	APPROVED BY: ISHWAR

4.0 RATINGS

4.1 VOLTAGE

1000 Volts AC

4.2 APPLICABLE WIRE

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

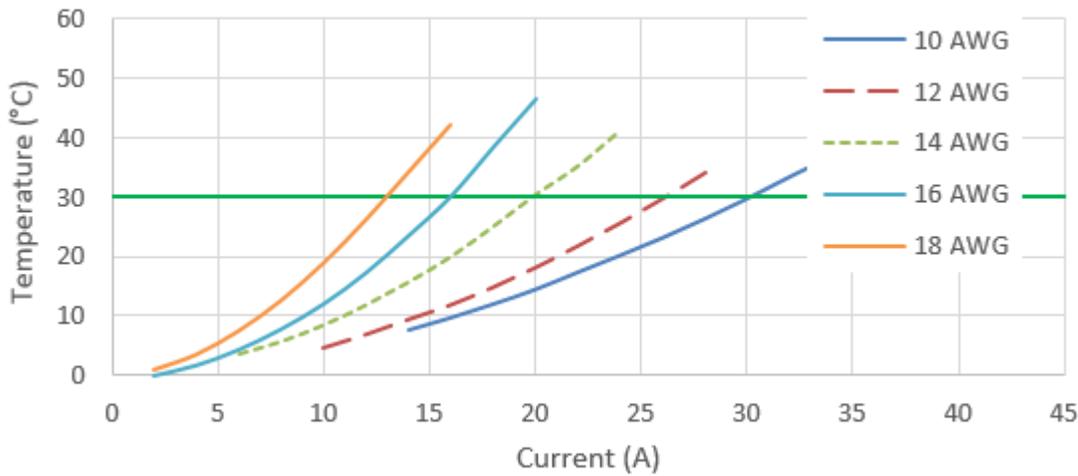
4.3 CURRENT

Ratings shown below represent maximum current carrying capacity of a fully loaded connector with all circuits powered using **UL 1199** stranded wire. Ratings are based on a 30 °C maximum temperature rise limit over ambient (see section 5.1.4 for specification) without derating. Current is dependent on connector size, ambient temperature and related factors. Actual current rating is application dependent and should be evaluated for each use.

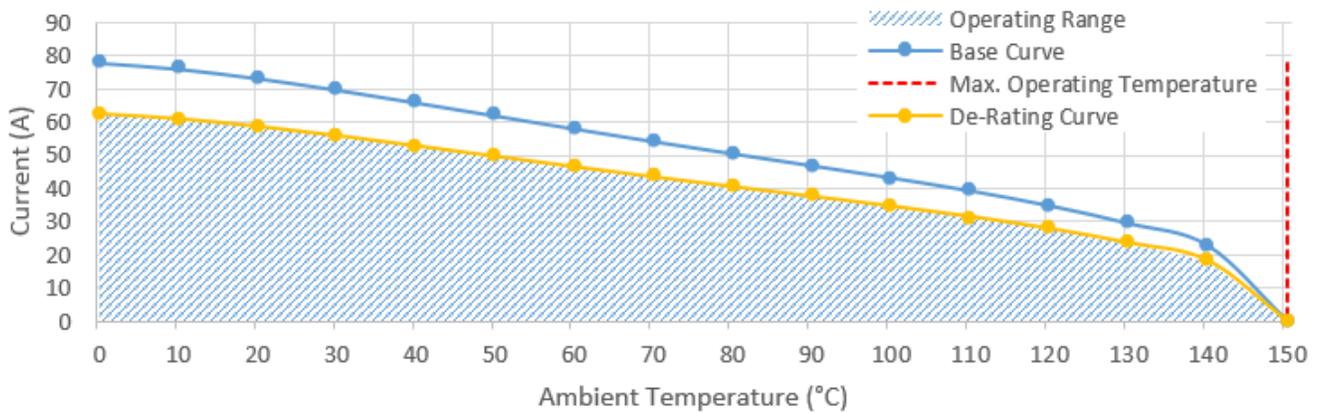
AWG Wire Size	3 Circuit
10	30 amps @ 30°C
12	26 amps @ 30°C
14	20 amps @ 30°C
16	16 amps @ 30°C
18	13 amps @ 30°C

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Wire to Wire, Max. Temperature Rise vs. Current

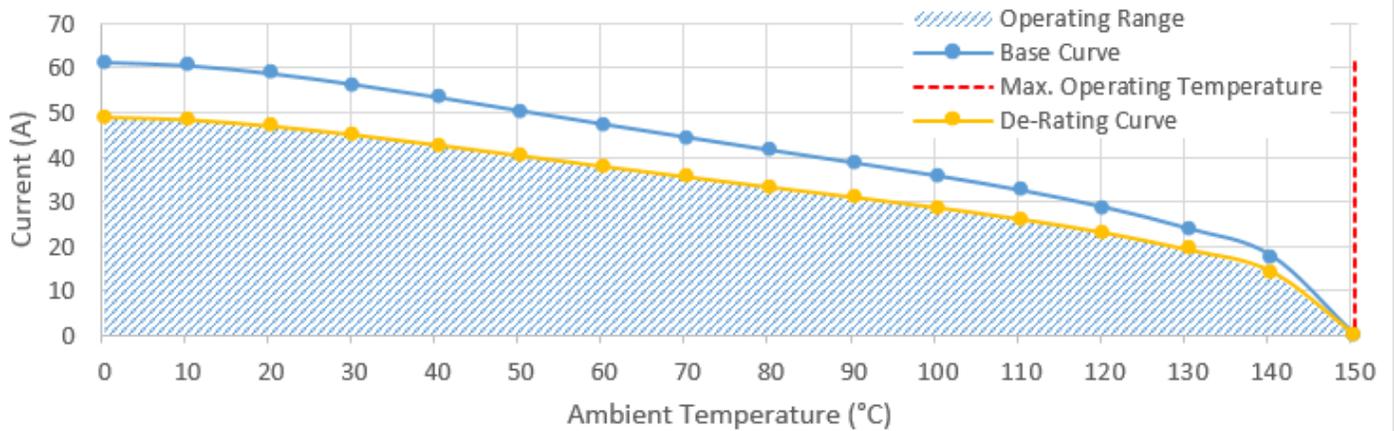


CURRENT CARRYING CAPACITY: 10 AWG

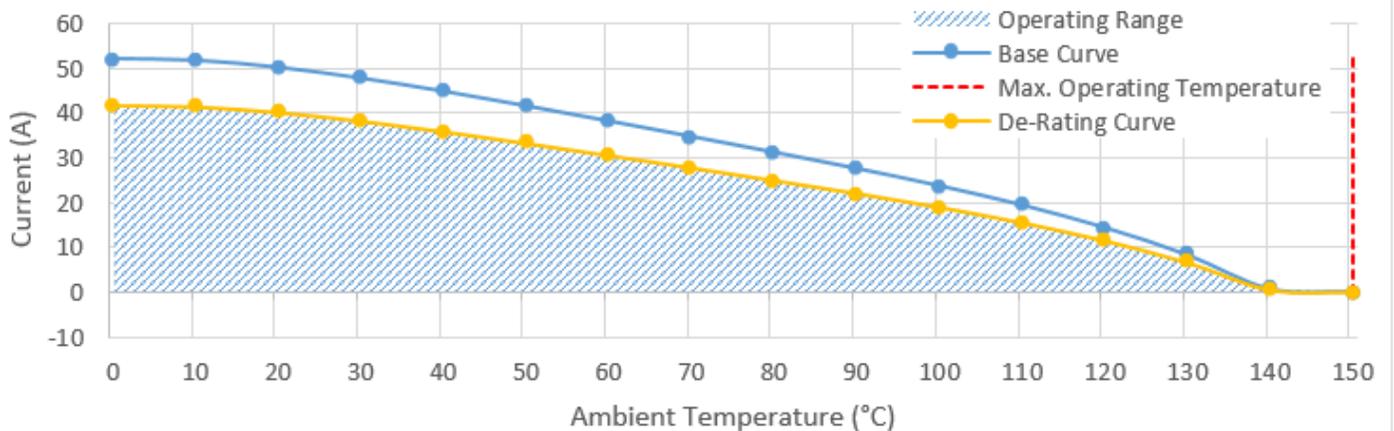


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CURRENT CARRYING CAPACITY: 12 AWG

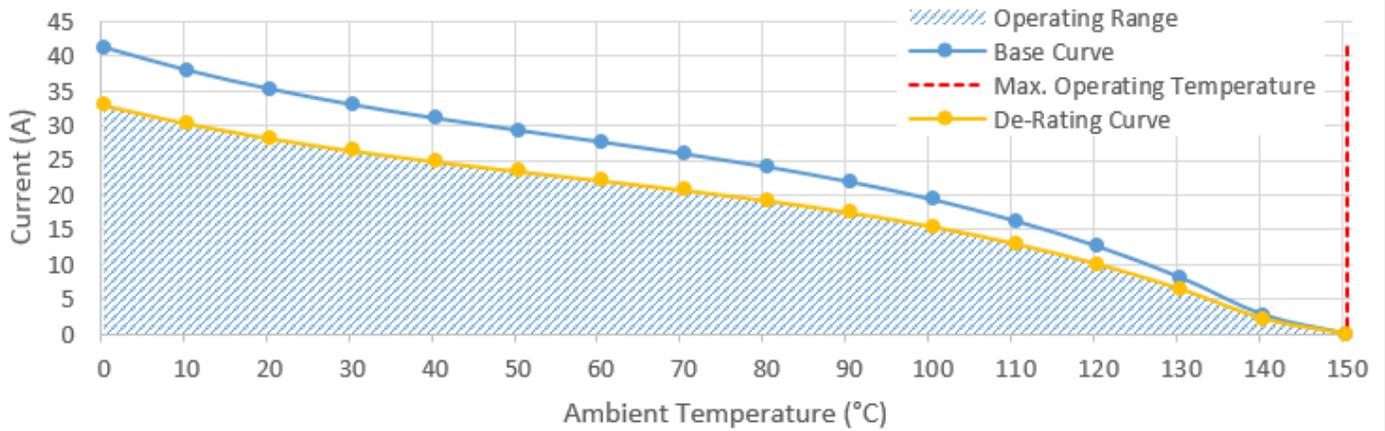


CURRENT CARRYING CAPACITY: 14 AWG

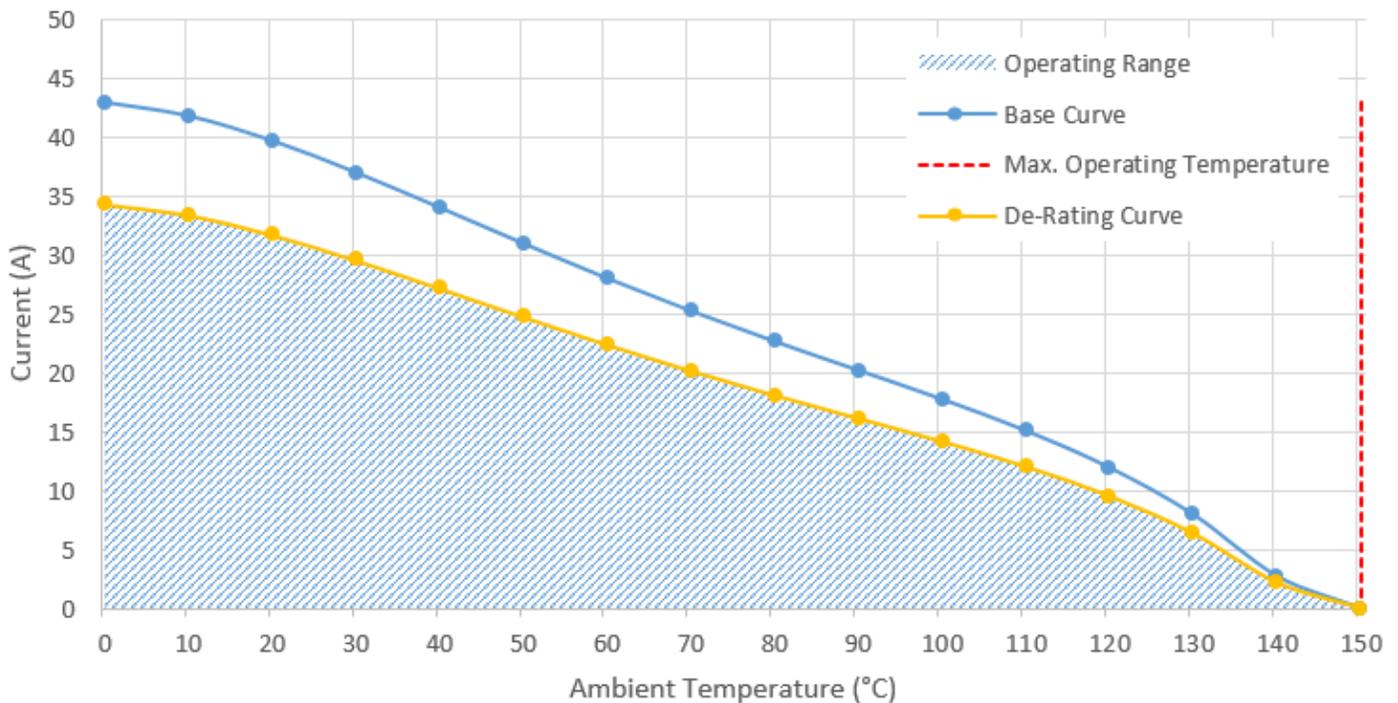


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CURRENT CARRYING CAPACITY: 16 AWG



CURRENT CARRYING CAPACITY: 18 AWG



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4.4 TEMPERATURE

Operating: - 40 °C to + 150 °C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	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]
5.1.2	Insulation Resistance	Mate connectors: Apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. EIA-364-21C	1000 Megohms MINIMUM
5.1.3	Dielectric Withstanding Voltage	Apply a voltage of 3000 VAC for 1 minute between adjacent terminals EIA-364-20D	No breakdown; current leakage < 5 mA
5.1.4	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)
5.15	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)

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5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.2.1	Connector Mate and Unmate Forces (Latch disengaged) Initial	Mate and unmate connector (male to female) at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute. EIA-364-13E	50.0 N MAXIMUM Mate force & 15.0 N MINIMUM Unmate force	
5.2.2	Thumb Latch Yield Strength (Without terminal)	Unmate housing (plug to receptacle) at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute. EIA-364-13E	75N Minimum	
5.2.3	Crimp Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch).	40 N MAXIMUM insertion force	
5.2.4	Crimp Terminal Retention Force (From Housing) Initial	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	175 N Minimum retention force	
5.2.4.1	Crimp Terminal Retention Force (From Housing) After High Temperature exposure test		150 N Minimum retention force	
5.2.5	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 75N Min force.	75N MINIMUM	
5.2.6	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch). UL1977 Edition 2	AWG	MIN pullout force
			10	355 N
			12	275 N
			14	200 N
			16	135 N
18	90 N			

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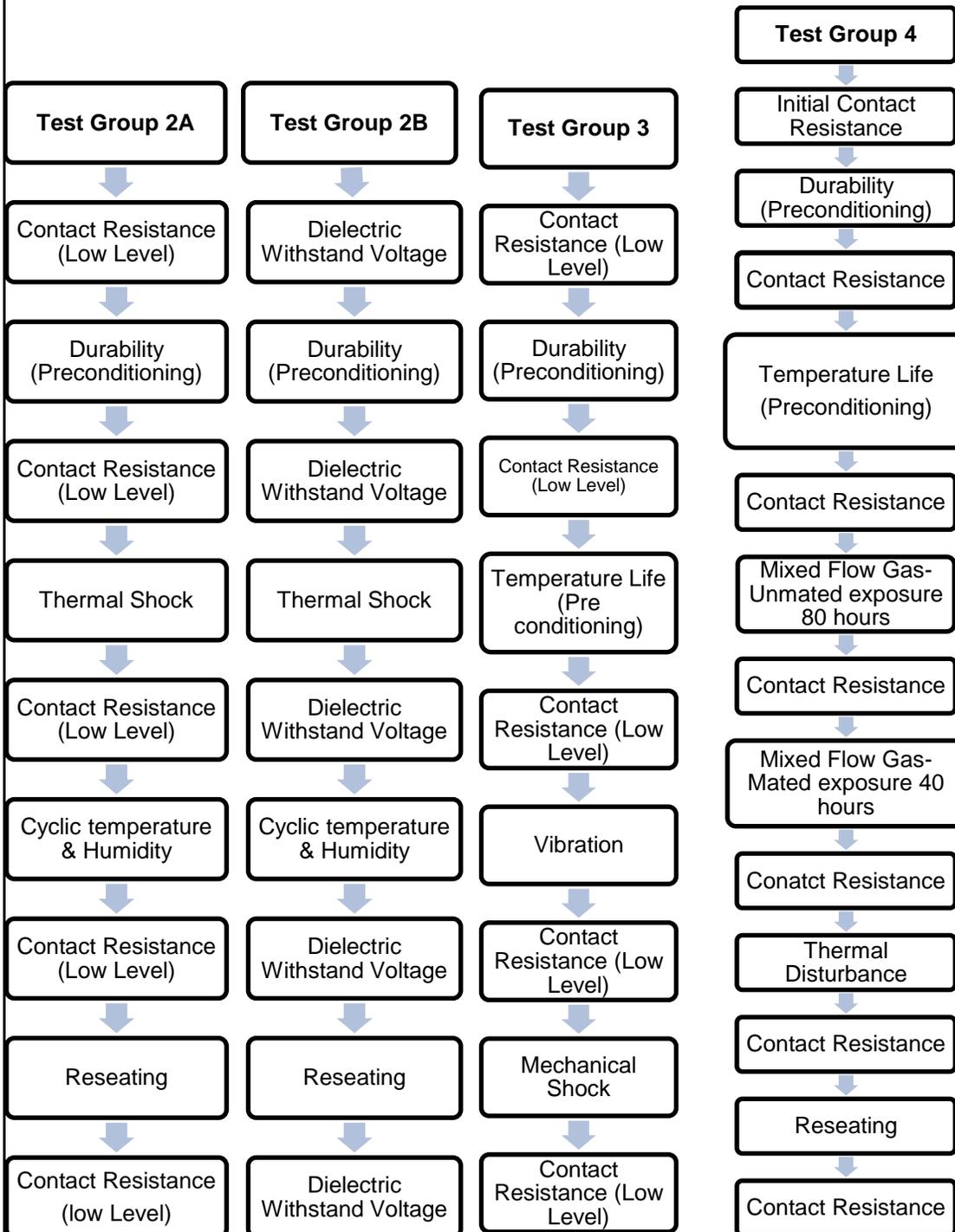
5.2.7	Durability-500 Cycle EIA-364-1000 Test Group 7A& 7B	Mate Connector: Test as per EIA-364-09	5 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No breakdown; current leakage < 5 mA & Visual: No Damage
5.2.8	Vibration (Random) + Mechanical Shock Test Group 3	Mate connectors 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

5.3 ENVIRONMENTAL REQUIREMENTS

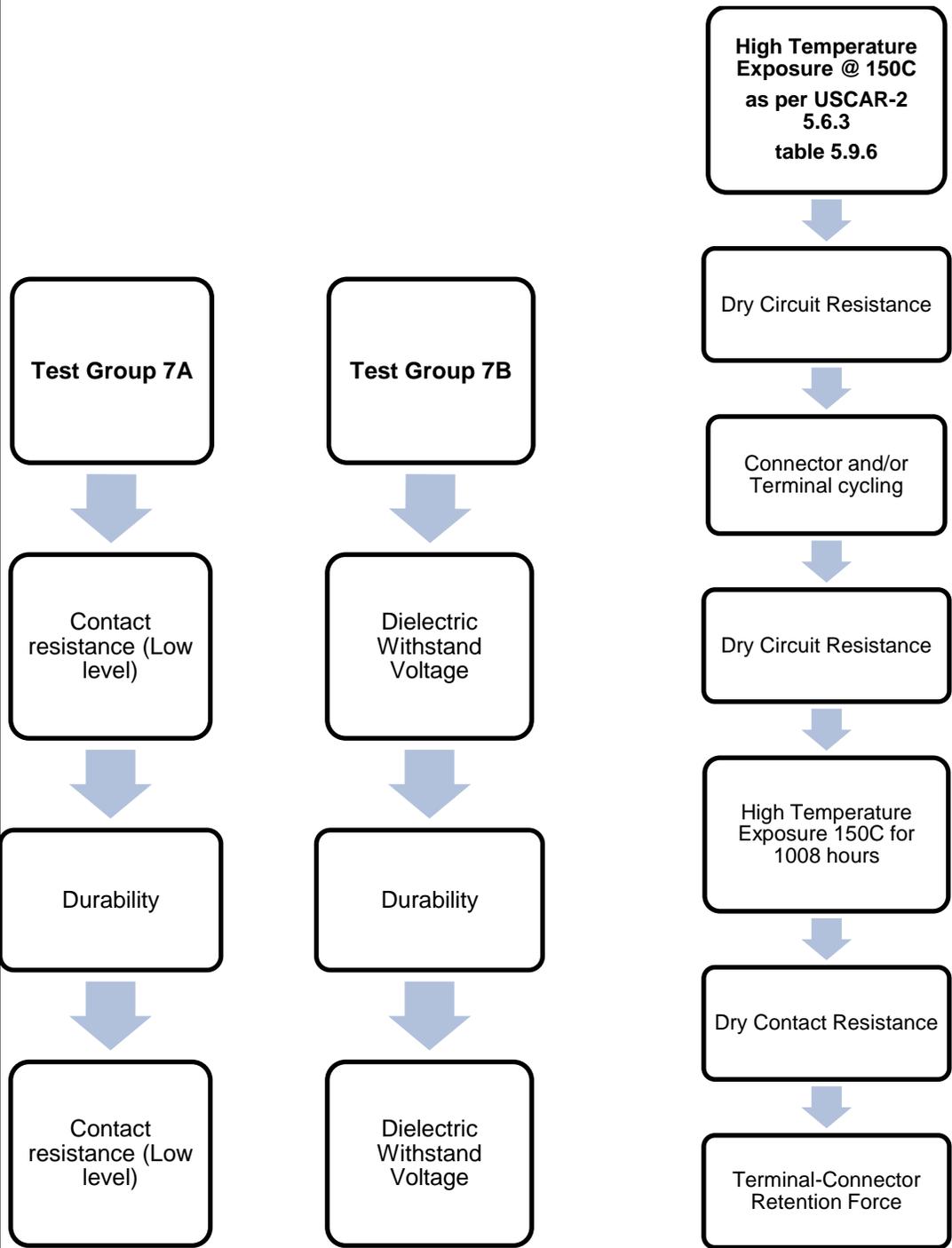
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	Shock (Thermal) EIA-364-1000 Test Group 2A & 2B	Mate connectors; expose to 5 cycles of: <u>Temperature °C</u> <u>Duration (Minutes)</u> -40 +0/-3 30 +25 ±10 5 MAXIMUM +150 +3/-0 30 +25 ±10 5 MAXIMUM EIA-364-32F, Method A, Test condition IV	5 milliohms MAXIMUM (change from initial) & Visual: No Damage
5.3.2	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)
5.3.3	Mixed Flow Gas EIA-364-1000 Test Group 4	EIA-364-1000 Table 5 – Test Group 4	5 milliohms MAXIMUM (change from initial)]
5.3.4	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

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6.0 Test sequences



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7.0 PACKAGING

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

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