

# SQUBA 1.8

## Wire to Wire Interconnect Systems

Receptacle Housing	Plug Housing
	
Series: <a href="#">204220</a>	Series: <a href="#">204223</a>

Receptacle Crimp Terminal	Plug Crimp Terminal
	
Series: <a href="#">204301</a>	Series: <a href="#">204226</a>

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<p align="center"><b>Plug with Clip Slot</b></p>	<p align="center"><b>Seal Plug</b></p>
	
<p align="center">Series: <a href="#">204223</a></p>	<p align="center">Series: <a href="#">224247</a></p>
<p align="center"><b>Receptacle Weather Cap</b></p>	<p align="center"><b>Plug Weather Cap</b></p>
	
<p align="center">Series: <a href="#">220424</a></p>	<p align="center">Series: <a href="#">220423</a></p>

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## 1.0 SCOPE

This Product Specification covers the performance requirements for the Squba 1.8 Sealed Wire-To-Wire, 1.80mm pitch single row connector series which uses copper terminals with tin plated contact interface terminated with 22 to 24 AWG wire using Molex crimp technology. The mated system meets IP68 requirements.

## 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBER (S)

Description	Series Number
Squba 1.8, Female Crimp Terminal	<a href="#">204301</a>
Squba 1.8, Male Crimp Terminal	<a href="#">204226</a>
Squba 1.8, Receptacle assembly	<a href="#">204220</a>
Squba 1.8, Plug assembly	<a href="#">204223</a>
Squba 1.8, Plug assembly with Clip slot	
Squba Plug Weather Cap	<a href="#">220423</a>
Squba Receptacle Weather Cap	<a href="#">220424</a>
Squba 1.8 Void Plug	<a href="#">224247</a>

### 2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS

Dimensions & Plating: See individual sales drawings.

Material: RoHS compliant materials\*.

\*Refer to the "Product Environmental Compliance" section in Molex.com to know the individual PN RoHS compliance status

### 2.3 SAFETY AGENCY APPROVALS

UL / cUL File Number: E29179

UL-cUL Ratings	
150 volts AC/DC – 4 Amps with 22 AWG leads	105°C

IEC 61984 Compliant

UL-IEC ratings	
150 volts AC/DC – 4 Amps with 22 AWG and 24 AWG leads	-40°C to + 105°C

NRTL type examination certificate available from Molex upon request

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### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

#### 3.1 MOLEX DOCUMENTS

- [Squba 1.8 Interconnect System Connectors Test summary 2042200000-TS-000](#)
- [Squba 1.8 Interconnect System Connectors Test summary 2042200100-TS-000](#)
- [Squba 1.8 Interconnect System Connectors Application summary 2042200000-AS-000](#)
- [Molex Quality Crimping Handbook Order No. 63800-0029](#)
- [Molex Moisture Technical Advisory AS-45499-001](#)
- [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
- UL-60950-1
- IEC / EN 61984
- SAE/USCAR-2 REV 6

### 4.0 ELECTRICAL PERFORMANCE RATINGS

#### 4.1 VOLTAGE

125 VAC RMS or DC

#### 4.2 APPLICABLE WIRES

Stranded Wire Gauge: 22 to 26 AWG  
 Insulation Diameter: 0.95 mm – 1.4 mm

#### 4.3 MAXIMUM CURRENT RATING (Amperes)\*\*

##### 4.3.1 Per EIA-364-70B

\*\*Note: Ratings shown represent *MAXIMUM* current carrying capacity of a fully loaded connector with all circuits powered in still air. Ratings are based on a 30°C maximum temperature rise limit over ambient (room temperature). Current rating is application dependent and below charts are intended as a guideline. Appropriate de-rating is required depending on factors such as higher ambient temperature, gross heating from adjacent modules or components and other factors that influence connector performance.

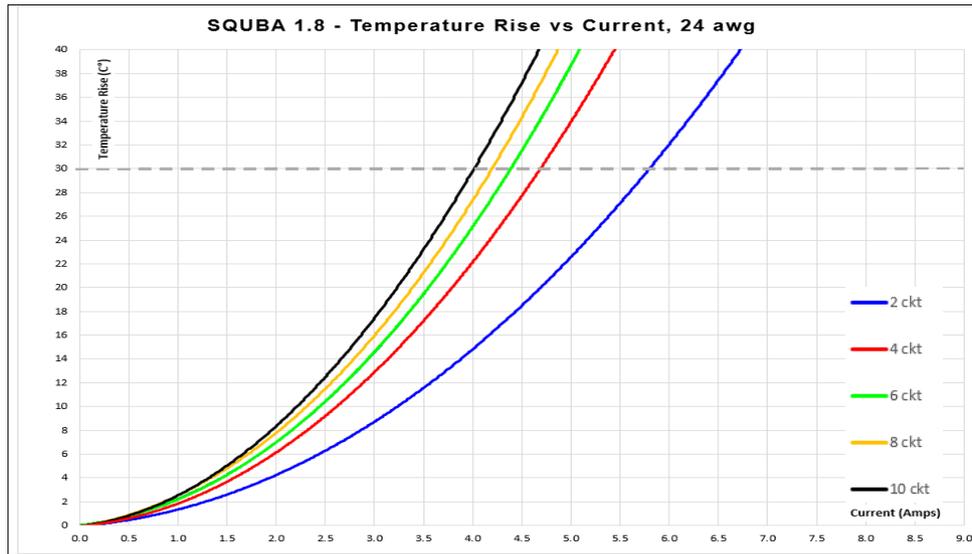
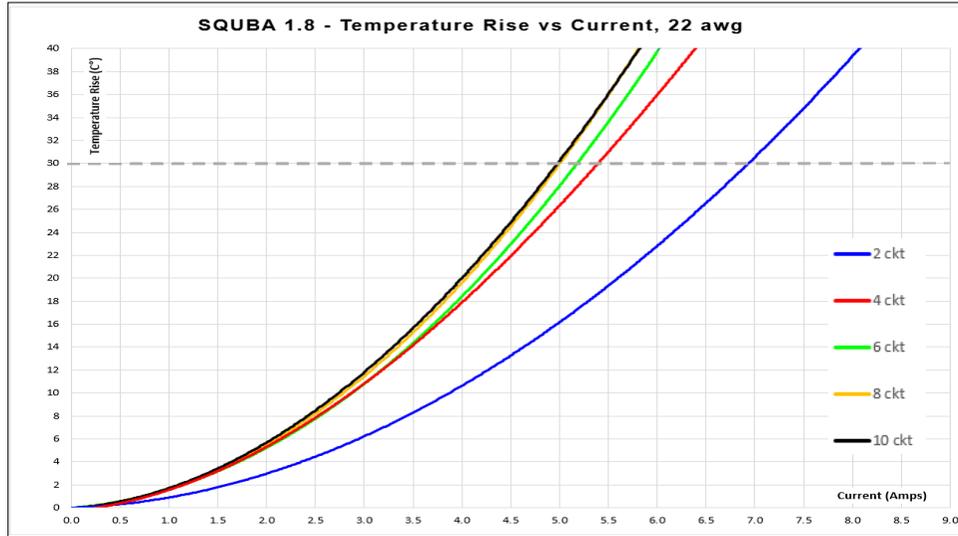
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Wire AWG	Ckt Size				
	2	4	6	8	10
22	6.5 A	5.25 A	5.0 A	5.0 A	5.0 A
24	5.5 A	4.5 A	4.25 A	4.0 A	4.0 A
26	TBD	TBD	TBD	TBD	TBD



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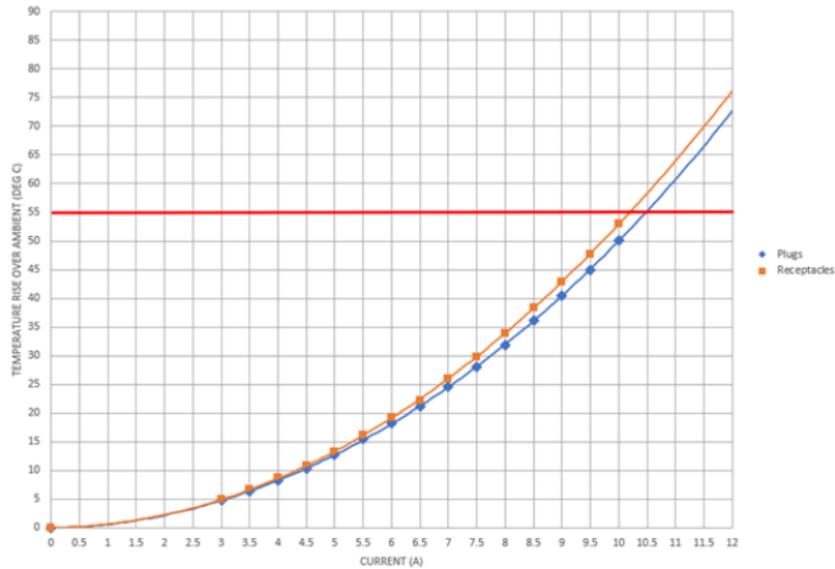


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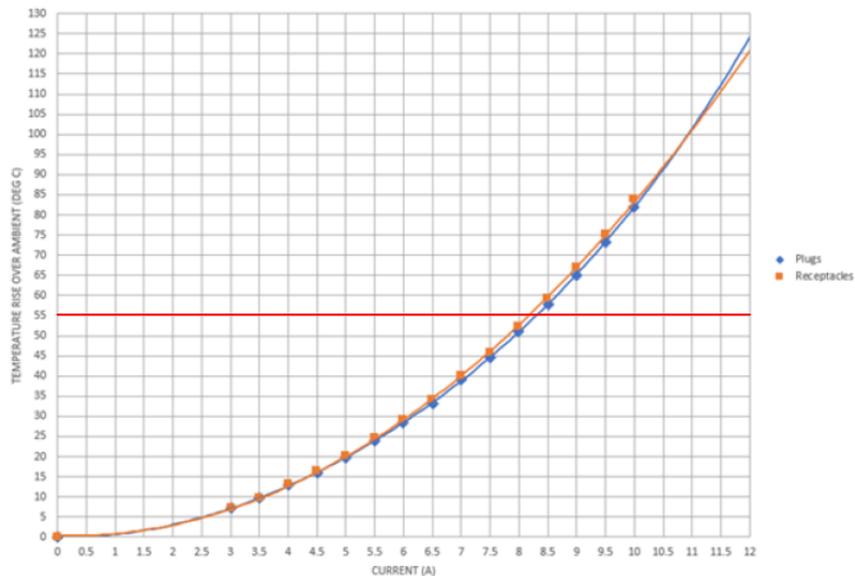
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### 4.3.2 Per USCAR-2 Rev 6 Section 5.3.3

1.8 Squba - Temp vs. Current (All) - 22AWG Terminals



1.8 Squba - Temp vs. Current (All) - 24AWG Terminals



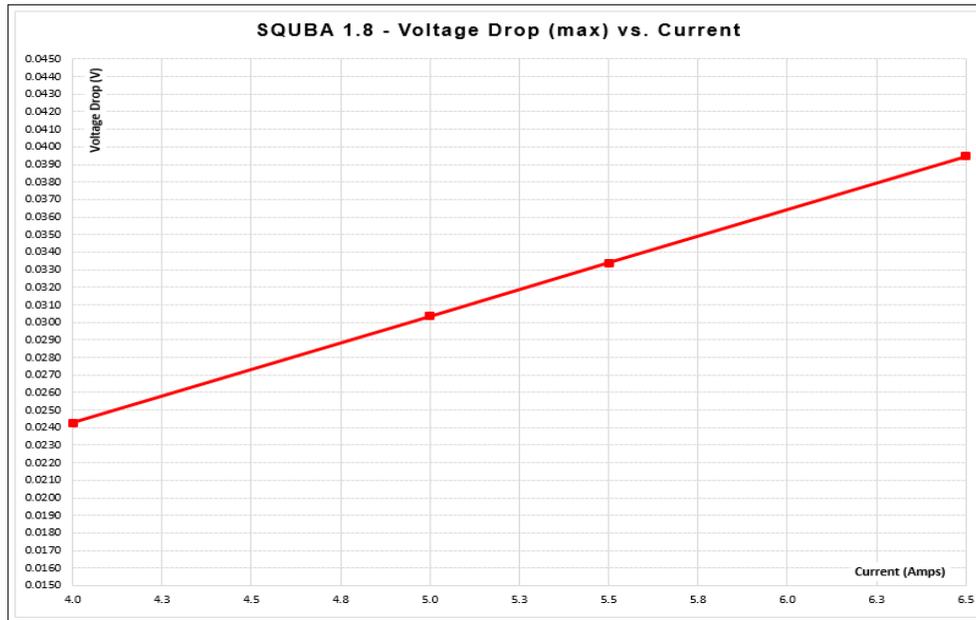
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**4.4 VOLTAGE DROP AT RATED CURRENT (EIA-364-70B)**



**4.5 TEMPERATURE**

Operating Range (including T-rise from applied current): - 40°C to + 105°C  
 Non-operating Range: - 40°C to + 105°C

Field Temperature and Field Life: 60°C for 10 years (based EIA-364-1000, table 8)

Note: Temperature life test duration (section 6.3. item 17) assumes that the contact spends its entire life at the rated field maximum temperature (based on EIA-364-1000, section 7).

**4.6 DURABILITY**

Tin plated: 10 mating cycles

*As tested in accordance with EIA-364-1000 test method (see sec 6.2 of this specification). Durability per EIA-364-09*

**4.7 GLOW WIRE SERIES**

The following series are glow capable: 204223, 204220. Representative samples were tested and found compliant with EN 60695-2-11-2001 / IEC 60695-2-11-2000 Glow Wire Test Methods for End-Products. These were additionally investigated for compliance with EN 60335-1 / IEC 60335-1 750°C & 850°C / 2 sec with no flaming.

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**4.8 POTTING COMPATIBILITY**

The product is compatible with 832TC - Thermally Conductive Epoxy for potting applications.

**5.0 QUALIFICATION**

Laboratory condition, sample selection and test sequences are in accordance with EIA-364-1000.

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## 6.0 PERFORMANCE CHARACTERISTICS: EIA-364

### 6.1 ELECTRICAL PERFORMANCE: EIA-364

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Contact Resistance (Low Level)</b>	Per EIA 364-23 Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value.	10 milliohms MAXIMUM [initial]
2	<b>Insulation Resistance</b>	Per EIA-364-21 Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	100 Megohms MINIMUM
3	<b>Dielectric Withstanding Voltage</b>	Per EIA 364-20 (initial only) Mate connectors: apply a voltage of 1250 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown. Current leakage < 5 mA
4	<b>Temperature Rise (via current profiling)</b>	Per EIA 364-70B	Temperature rise: +30°C MAXIMUM See chart section 4.3
5	<b>Voltage Drop (at rated current)</b>	Per EIA 364-70B Mate connectors. Apply the rated current.	See chart section 4.4
6	<b>Contact Resistance @ Rated Current</b>	Mate connectors: Apply a maximum voltage of 20mV at rated current. Wire resistance shall be removed from the measured value.	10 milliohms Max (Initial)
7	<b>Contact Resistance of Wire Termination</b>	Terminate the applicable wire to the terminal and measure wire using a voltage of 20mV and a current of 100mA	10 milliohms Max (Initial)

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## 6.2 MECHANICAL PERFORMANCE: EIA-364

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	<b>Connector Mate Forces (w/o thumb latch)</b>	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	45 N (10.12 lbf) MAX
9	<b>Connector Un-mate Forces (w/o thumb latch)</b>	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	35 N (7.86 lbf) MAX
10	<b>Connector Un-mate Force w/ Thumb Latch Locked (destructive)</b>	Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6mm (1 ± ¼ inch) per minute.	75 N (16.86 lbf) MIN
11	<b>Crimp Terminal Insertion Force (into Housing)</b>	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	5 N (1.1 lbf) MAX insertion force
12	<b>Crimp Terminal Retention Force</b>	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	30 N (6.74 lbf) MIN retention force
13	<b>Durability (w/o thumb latch)</b>	Per EIA-364-09 Mate/un-mate connectors 10 cycles at a maximum rate of 10 cycles per minute	10 milliohms MAX (change from initial)
14	<b>Durability (pre-conditioning)</b>	Per EIA-364-09 Mate/un-mate connectors 5 cycles at a maximum rate of 10 cycles per minute	10 milliohms MAX (change from initial)
15	<b>Vibration</b>	Per EIA-364-28 test condition VII-D Mate connectors and vibrate for 15 minutes each axis.	10 milliohms MAX (change from initial) & Discontinuity < 1 microsecond
16	<b>Wire Crimp Pullout Force (Axial)</b>	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).	22 AWG = 35.6 N (8 lbf) 24 AWG = 22.3 N (5 lbf) 26AWG = TBD N
17	<b>Thumb Latch Operation Force</b>	Depress latch at a rate of 25 ± 6mm (1 ± ¼ inch) per minute.	15 N (3.37 lbf) MAX
18	<b>Re-seating</b>	Perform 3 mate / un-mate cycles	10 milliohms MAX (change from initial)

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ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
19	<b>Mechanical Shock</b>	Mate connectors and shock at 50g's with ½ sine wave (11 milliseconds) shocks in ±X, ±Y, ±Z axes (18 shocks total)	10 milliohms max
20	<b>Thumb Latch Yield Strength</b>	Insert and withdraw fully loaded connector housings (10 times) and pull apart at a speed rate of 25 +/- 6mm / minute	70N Minimum
21	<b>Plug weather Cap Mate/Unmate</b>	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	Mate: 70N Max Unmate: 4N Min
22	<b>Receptacle Weather Cap Mate/Unmate</b>	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	Mate: 35N Max Unmate: 50N Min
23	<b>Vibration (Weather cap)</b>	Per EIA-364-28 test condition VII-G Mate connectors halves to respective Caps and vibrate for 15 minutes each axis.	Weather Cap should not unmate
24	<b>CPA Blocking</b>	The force to move the CPA from the pre-load (as shipped) position to the final position at a rate of 50 ± 6 mm while not mated to header.	TBD
25	<b>CPA Engage Force</b>	The force to move the CPA from the pre-load (as shipped) position to the final position at a rate of 50 ± 6 mm while fully mated to header	TBD
26	<b>CPA Disengage Force</b>	The force to disengage the CPA from the final position to the pre-load position at a rate of 50 ± 6 mm while fully mated to header.	TBD
27	<b>CPA Extraction Force</b>	The force to disengage the CPA from the final position to the pre-load position at a rate of 50 ± 6 mm	TBD
28	<b>Polarization Feature Effectiveness (wrong key)</b>	Mate connector halves with wrong polarization (Male to female) at a rate of 10 mm/Min	TBD
29	<b>Seal Plug Insertion Force</b>	Apply an axial insertion force on the seal plug at a rate of 25 ± 6 mm (1 ± ¼ inch).	9N Max
30	<b>Seal Plug Retention force</b>	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	17N Min

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## 6.3 ENVIRONMENTAL PERFORMANCE: EIA-364

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
31	Temperature Life	Per EIA-364-17 Mate Connectors, expose to 108 hours at 105°C	10 milliohms MAX (Change from initial)
32	Temperature Life (pre-conditioning)	Per EIA-364-17 Mate Connectors, expose to 66 hours at 105°C	10 milliohms MAX (Change from initial)
33	Thermal Shock	Per EIA-364-32 Mate connectors: expose for 5 cycles Between temperatures -40 and 105° C. Dwell 0.5 hours at each temperature.	10 milliohms MAX (Change from initial) Visual: No Damage
34	Cyclic Temperature and Humidity	Per EIA-364-31 method 3 Mate connectors: expose to 24 cycles from 25 °C / 80% RH to 65 °C / 50% RH	10 milliohms MAX (Change from initial)
35	IPX8 Continuous Water Immersion	IEC 60529, Ed. 2.1. Mate connectors/ weather caps and immerse in water at a depth of 1.5 meter from the water surface for 30 minutes.	No signs of water indicating ingress inside the connector system
36	IP6X Dust Exposure	IEC 60529, Ed. 2.1, Connectors: Category 1 Enclosure,8-hour duration. Weather Caps: Category 2 Enclosure,8-hour duration.	No deposit of dust indicating ingress inside the connector system
37	Humidity (Steady State)	Mate Connectors: expose to a temperature of 40 ± 2°C with a relative humidity of 90-95% for 96 hours Note: Remove surface moisture and air dry for 1hour prior to measurements	10 milliohms Max (change from initial)
38	Cold Resistance	Mate Connectors: Duration: 96 hours. Temperature: -40 ± 3°C	10 milliohms Max (change from initial)
39	Salt Spray	Mate Connectors: Duration: 48 hours exposure. Atmosphere: Salt spray from a 5% solution. Temperature: 35 +1/-2°C	10 milliohms Max (change from initial)
40	Thermal Cycling	Cycle the connector between 15° ± 3°C and 85° ± 3°C, 500 cycles. Humidity is not controlled. EIA-364-1000, Table 5	10 milliohms Max (change from initial)

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## 7.0 PERFORMANCE CHARACTERISTICS: USCAR-2

### 7.1 ELECTRICAL PERFORMANCE: USCAR-2

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Dry Circuit Resistance	Per Section 5.3.1 of SAE/USCAR-2 REV 6	25 milliohms MAXIMUM [initial]
2	Insulation Resistance	Per Section 5.5.1 of SAE/USCAR-2 REV 6 With an unmated connector, apply a voltage of 500VDC between adjacent terminals and measure the resistance	100 Megohms MINIMUM
3	Voltage Drop (Terminal to Terminal)	Per Section 5.3.2 of SAE/USCAR-2 REV 6 Apply a current of 5A/mm2 of conductor cross section. Measure voltage drop across connection	50mV Max
4	Maximum Test Current Capability	Per Section 5.3.3 of SAE/USCAR-2 REV 6	Record Max Current temperature of any terminal interface exceeds a 55deg C rise over ambient
5	Current Cycling	Per Section 5.3.4 of SAE/USCAR-2 REV 6 45 minutes on and 15 minutes off at the maximum test current determined by "Max Test Current Capability" Test for 1008 cycles	Temperature of any terminal interface must not exceed a 55deg C Rise over ambient

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## 7.2 MECHANICAL PERFORMANCE: USCAR-2

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	Terminal to Terminal Engage/Disengage Force	Per Section 5.2.1 of SAE/USCAR-2 REV 6 Engage and disengage the mating terminals at a uniform rate not to exceed 50 mm/min	No Plating Wear/ Base metal Exposure
7	Terminal Insertion force	Per Section 5.4.1 of SAE/USCAR-2 REV 6 Insert the terminal into the housing until fully seated and record the force at rate of 50mm/min	30N MAX insertion force
8	Terminal Retention Force	Per Section 5.4.1 of SAE/USCAR-2 REV 6 Apply pullout force at a uniform rate not to exceed 50mm/min, until pullout occurs.	20 N MIN
9	Mate and Unmate Force (w/o latch)	Mate: Per Section 5.4.2 A of SAE/USCAR-2 REV 6 Mate fully populated connectors and record force at a uniform rate not to exceed 50mm/min  Unmate: Per Section 5.4.2 B of SAE/USCAR-2 REV 6 Pull fully populated unlocked (i.e. latch disabled) connector halves apart until complete separation occurs. Record the force.	Mate: 45N MAX Unmate: 75N MAX
10	Polarization Feature Effectiveness	Per Section 5.4.4 of SAE/USCAR-2 REV 6 Attempt to mate connector halves of the same key in the incorrect orientation (90°, 180°, and 270° Misorientation). Apply 60N and hold for 3 seconds.	No damage to the connector or electrical contact shall occur
11	Connector-to-Connector Audible Click (Pre/ post Moisture Conditioning)	per Section 5.4.7 of SAE/USCAR-2 REV 6  Mate unpopulated housings by hand at a distance of 600 ± 50 mm from a microphone. Record locking volume.	Record the reading
12	Connector Drop Test	Per Section 5.4.8 of SAE/USCAR-2 REV 6 Connectors in as-shipped condition. Drop sample from a height of at least 1 meter onto a horizontal concrete surface. Drop on each of the six faces of a rectangular connector	No Damage

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13	Vibration	<p><b>Per Section 5.4.6 of SAE/USCAR-2 REV 6 Class V1 – Non-Engine Coupled</b> Mate connectors. Apply the below vibration profile for 8 hours per axis. Continually monitor contact resistance with 100 mA test current.</p> <p>Vibration Profile</p> <table border="1"> <thead> <tr> <th>Freq (Hz)</th> <th>PSD (m/s<sup>2</sup>)<sup>2</sup>/Hz</th> </tr> </thead> <tbody> <tr><td>5.0</td><td>.192</td></tr> <tr><td>12.5</td><td>23.8</td></tr> <tr><td>77.5</td><td>0.307</td></tr> <tr><td>145</td><td>0.192</td></tr> <tr><td>200</td><td>1.13</td></tr> <tr><td>230</td><td>.031</td></tr> <tr><td>1000</td><td>.002</td></tr> </tbody> </table> <p>RMS value of acceleration: 17.74 m/s<sup>2</sup></p>	Freq (Hz)	PSD (m/s <sup>2</sup> ) <sup>2</sup> /Hz	5.0	.192	12.5	23.8	77.5	0.307	145	0.192	200	1.13	230	.031	1000	.002	<p>10 milliohms MAX (change from initial) &amp; Discontinuity &lt; 1 microsecond</p>
Freq (Hz)	PSD (m/s <sup>2</sup> ) <sup>2</sup> /Hz																		
5.0	.192																		
12.5	23.8																		
77.5	0.307																		
145	0.192																		
200	1.13																		
230	.031																		
1000	.002																		
14	Mechanical Shock	<p><b>Per Section 5.4.6 of SAE/USCAR-2 REV 6 Class V1 - Non-Engine Coupled</b> Mate Connectors. Apply the below vibration profile. Continually monitor contact resistance with 100 mA test current. Wave Shape: Positive Half Sine Wave Acceleration = 35g Duration = 5 ~ 10 millisecond Number of shocks: 10 per axis</p>	<p>10 milliohms MAX (change from initial) &amp; Discontinuity &lt; 1 microsecond</p>																
15	Connector Seal Retention - Unmated Connector	<p><b>Per Section 5.4.13 of SAE/USCAR-2 REV 6</b> Secure the connector to a rotating platform, Rotate the table to generate a minimum acceleration of 1960 m/s<sup>2</sup> [≈200g] for a minimum of 10 seconds</p>	<p>Seal shall remain on the connector and in its intended position.</p>																
16	Connector Seal Retention - Mated Connector	<p><b>Per Section 5.4.4 of SAE/USCAR-2 REV 6</b> Mate the connector, Unmate by hand such that Connector shall be fully separated within one second</p>	<p>Seal shall remain on the connector and in its intended position</p>																
17	Clip Engage and Disengage Force	<p><b>Per SAE/USCAR-2 Rev 6 section 5.4.5</b> Engage and Disengage Clip to connector at a uniform rate not to exceed 50mm/min and record force</p>	<p>60N MAX Insertion 110N MIN Disengage</p>																
18	Connector Mounting Feature Mechanical Strength	<p><b>Per SAE/USCAR-2 Rev 6 Section 5.4.11</b> Apply force on the mounting feature in all the directions<sup>#</sup> until failure at a uniform rate not to exceed 50mm/min and record force</p>	<p>50N MIN F1 to F4, F6</p>																

# -refer appendix A for directions F1 to F6

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## 7.3 ENVIRONMENTAL PERFORMANCE: USCAR-2

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT												
19	Thermal Shock	<p>Per Section 5.6.1 of SAE/USCAR-2 REV 6 Class T2</p> <p>Mate connectors. Expose to 100 cycles of:</p> <table border="0"> <tr> <td>Temperature (°C)</td> <td>Duration (Min)</td> </tr> <tr> <td>-40</td> <td>30</td> </tr> <tr> <td>100</td> <td>30</td> </tr> </table> <p>Acclimatization Period: 30s Max.</p>	Temperature (°C)	Duration (Min)	-40	30	100	30	10 milliohms MAX (Change from initial)						
Temperature (°C)	Duration (Min)														
-40	30														
100	30														
20	Temperature / Humidity Cycling	<p>Per Section 5.6.2 of SAE/USCAR-2 REV 6 Class T2</p> <p>Mate connectors. Expose to 40 cycles of:</p> <table border="0"> <tr> <td>Temp (°C)</td> <td>Duration (min)</td> <td>RH</td> </tr> <tr> <td>-40</td> <td>30</td> <td>NA</td> </tr> <tr> <td>85</td> <td>240</td> <td>90%</td> </tr> <tr> <td>100</td> <td>90</td> <td>NA</td> </tr> </table> <p>NA = Humidity uncontrolled</p>	Temp (°C)	Duration (min)	RH	-40	30	NA	85	240	90%	100	90	NA	<p>LLCR: 10 milliohms MAX (Change from initial)</p> <p>IR: 100 Megohms MINIMUM</p>
Temp (°C)	Duration (min)	RH													
-40	30	NA													
85	240	90%													
100	90	NA													
21	High Temperature Exposure	<p>Per Section 5.6.3 of SAE/USCAR-2 REV 6 Class T2</p> <p>Mate connectors. Expose to 100°C for 1008 hours</p>	10 milliohms MAX (Change from initial) Visual: No Damage												
22	Fluid Resistance	<p>Per Section 5.6.4 of SAE/USCAR-2 REV 6 Class S2</p> <p>Submerge connector assemblies in the following fluids: gasoline, diesel fuel, engine oil, ethanol, power steering fluid, automatic transmission fluid, engine coolant, and brake fluid for 30min.</p>	<p>No signs of fluid ingress inside the connector system</p> <p>IR: 100 Megohms MINIMUM</p>												
23	Submersion	<p>Per Section 5.6.5 of SAE/USCAR-2 REV 6 Sealing Class S2, Temp Class T2</p>	<p>No signs of solution ingress inside the connector system</p> <p>IR: 100 Megohms MINIMUM</p>												
24	Pressure/Vacuum Leak	<p>Per Section 5.6.6 of SAE/USCAR-2 REV 6 Sealing Class S2, Temp Class T2</p>	<p>No signs of solution ingress inside the connector system</p> <p>IR: 100 Megohms MINIMUM</p>												

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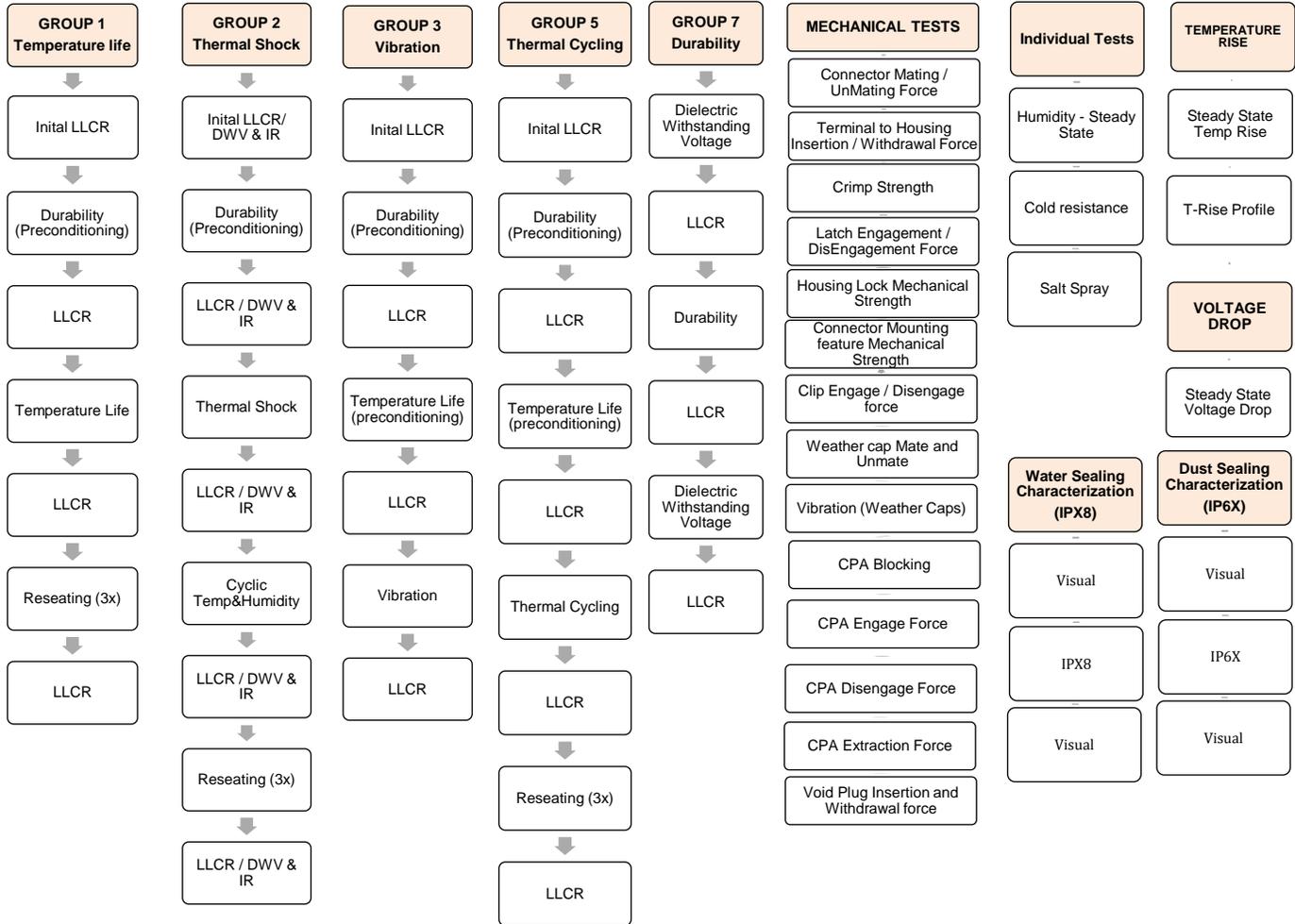


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**8.0 TEST SEQUENCE GROUPS**

**8.1 Reliability Test Sequences Per EIA-364-1000**



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## 8.2 Reliability Test Sequences Per SAE/USCAR-2 REV 6

### 8.2.1 Mechanical Test Sequence

		5.9.3	5.9.4	5.9.5								
		Terminal to Terminal engage/Disengage Force	Maximum Test Current Capability	Terminal - Connector Insertion/Retention Force	Miscellaneous Component Engage/Disengage Force	Audible Click	Connector-to-Connector Mate / Unmate	Polarization Feature Effectiveness	Drop	Connector Mounting Feature Mechanical Strength	Connector Seal Retention – Unmated Connector	Connector Seal Retention – Unmated Connector
	SEQUENCE	A	C	D	E	F	G	H	I	L	Y	Z
	Sample Group##	(i) (ii)	(i) (ii)	(i) (ii)	(iii)	(i) (ii)	(i) (ii)	(i) (ii)	(i) (ii)	(iii)	(i) (ii)	(i) (ii)
5.1	General	1	1	1	1	1	1	1	1	1	1	1
5.1.7	Connector and/or Terminal Cycling		3									
5.1.8	Visual Inspection	2,4	2,6	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4
5.2.1	Terminal to Terminal Engage/Disengage Force	3										
5.3.3	Maximum Test Current Capability		4									
5.3.4	Current Cycling		5									
5.4.1	Terminal - Connector Insertion/Retention Force			3								
5.4.2	Mating/Unmating Force						3					
5.4.4	Polarization Feature Effectiveness							3				
5.4.5	Miscellaneous Component Engage/Disengage Force				3							
5.4.7	Connector-to-Connector Audible Click					3						
5.4.8	Connector Drop Test								3			
5.7.2	Connector Mounting Feature Mechanical Strength									3		
5.4.13	Connector Seal Retention – Unmated Connector										3	
5.4.14	Connector Seal Retention – Mated Connector											3

## - Refer Appendix B for Sample group

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## 8.2.2 Electrical Test Sequence

		5.9.6			
		Vibration	Thermal Shock	Temperature/Humidity Cycling	High Temperature Exposure
	SEQUENCE	M	N	O	P
	Sample Group##	(i) (ii)	(i) (ii)	(i) (ii)	(i) (ii)
5.1	General	1	1	1	1
5.1.7	Connector and/or Terminal Cycling	3	3	3	3
5.1.8	Visual Inspection	2,8	2,8	2,9	2,8
5.1.9	Circuit Continuity Monitoring	5	5		
5.3.1	Dry Circuit Resistance	4,6	4,6	4,6	4,6
5.3.2	Voltage drop	7	7	7	7
5.4.1	Terminal-Connector Retention Force			10	9
5.4.6	Vibration/Mechanical Shock	5			
5.5.1	Insulation Resistance			8	
5.6.1	Thermal Shock		5		
5.6.2	Temperature/Humidity Cycling			5	
5.6.3	High Temperature Exposure				5

## - Refer Appendix B for Sample groups

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## 8.2.3 Environmental Test Sequence

		5.9.7				
		Fluid Resistance	Temperature/ Humidity - Submersion	Temperature/ Humidity – PV Leak	High Temperature/- Submersion	High Temperature/- PV Leak
SEQUENCE		Q	R	S	T	U
Sample Group##		(i)	(i)	(i)	(i)	(i)
5.1	General	1	1	1	1	1
5.1.7	Connector and/or Terminal Cycling		3	3	3	3
5.1.8	Visual Inspection	2,4	2,8	2,9	2,8	2,9
5.4.1	Terminal - Connector Retention Force		9	10	9	10
5.5.1	Insulation Resistance		4,6	4,7	4,6	4,7
5.6.2	Temperature/ Humidity Cycling		5	6		
5.6.3	High Temp Exposure				5	6
5.6.4	Fluid Resistance	3				
5.6.5	Submersion		7		7	
5.6.6	Pressure/ Vacuum Leak			5,8		5,8

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## - Refer

## 9.0 PACKAGING

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

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See Packaging specification listed below for Squba 1.8 System –

- Receptacle Assembly Packaging Specification.....2042200000-PK
- Plug Assembly Packaging Specification.....2042230000-PK
- Receptacle Crimp Terminal Packaging Specification. ....2042200000-PK
- Plug Crimp Terminal Packaging Specification.....2042230000-PK
- Plug Assembly with Clip slot Packaging Specification.....2042230100-PK
- Plug Weather Cap Packaging Specification.....2204230000-PK
- Receptacle Weather Cap Packaging Specification.....2204240000-PK
- Seal Plug Packaging Specification.....2242480000-PK

## 10.0 OTHER INFORMATION

### 9.1 CRIMP APPLICATION TOOLING

Terminal Series	AWG	Description	Order Number	Crimp Spec Document Number
204301	22-24	Crimp Applicator	638083700	638083700
		Crimp Hand Tool	2002180400	2002180400
204226	22	Crimp Applicator	2130690510	2130690510
		Crimp Hand Tool	2002180400	2002180400
	24	Crimp Applicator	2130690500	2130690500
		Crimp Hand Tool	2002180400	2002180400

### 9.2 CABLE TIE AND/ OR TWIST LOCATION

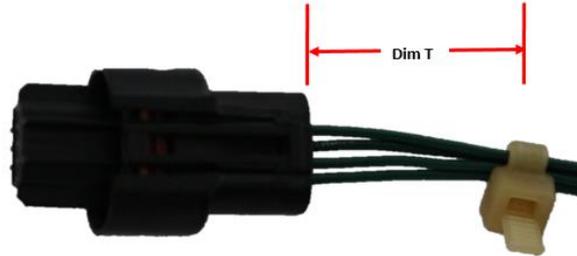
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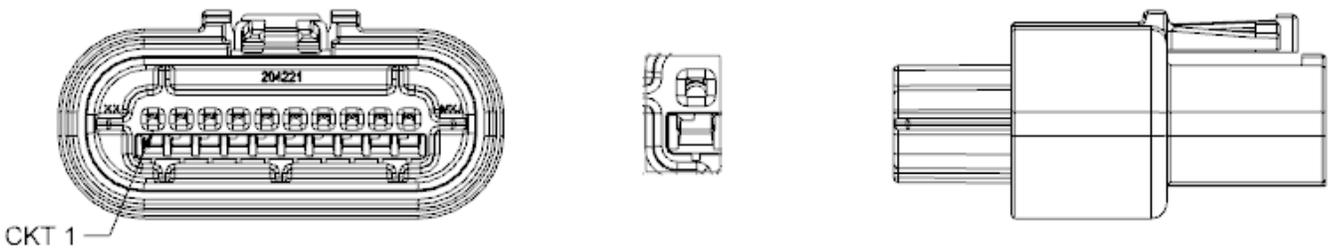
CKT Size	Dim T Min.
2-6	50.8 mm (2.00")
8	76.2 mm (3.00")
10	101.6 mm (4.00")



The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

**11.0 POLARIZATION AND KEYING OPTIONS**

**10.1 Squba 1.8, Receptacle Assembly (Series: [204220](#))**



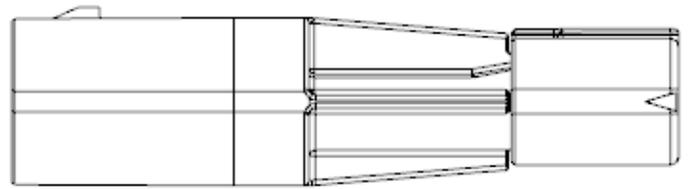
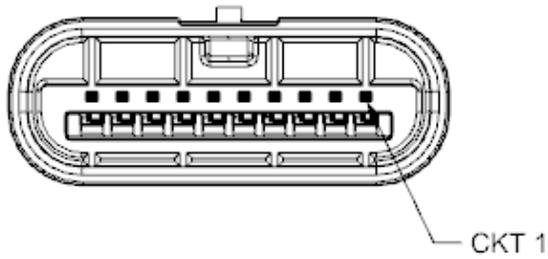
**10.2 Squba 1.8, Plug Assembly (Series: [204223](#))**

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**APPENDIX A**

**Connector Mounting Feature Mechanical Strength: Force Application Directions**

(Per SAE/USCAR-2 Rev 6 Section 5.4.11)

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<p>F6 →</p> <p>DOC</p>		<p>← F5</p> <p><b>Squba 1.8 Inter</b></p> <p>REVISED BY: JFR</p>	<p>← F1</p>	<p>← F3</p> <p>SHEET No. <b>24 of 25</b></p> <p>APPROVED BY: AKRISHNA</p>
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## APPENDIX B SAE/USCAR-2 Test Sample groups

Group	Part Number	Description
i.	2042230002	Squba 1.8 Plug Assembly, 2ckt
	2042230010	Squba 1.8 Plug Assembly, 10ckt
	2042200002	Squba 1.8 Receptacle Assembly, 2ckt
	2042200010	Squba 1.8 Receptacle Assembly, 10ckt
	2042261001	Squba 1.8 Plug terminal, <b>22AWG</b>
	2030100001	Squba 1.8 Receptacle Assembly, <b>22AWG</b>
ii.	2042230002	Squba 1.8 Plug Assembly, 2ckt
	2042230010	Squba 1.8 Plug Assembly, 10ckt
	2042200002	Squba 1.8 Receptacle Assembly, 2ckt
	2042200010	Squba 1.8 Receptacle Assembly, 10ckt
	2042261001	Squba 1.8 Plug terminal, <b>24AWG</b>
	2030100001	Squba 1.8 Receptacle Assembly, <b>24AWG</b>
iii.	2042230102	Squba 1.8 Plug Assembly, <b>2ckt Clip Slot</b>
	2042230110	Squba 1.8 Plug Assembly, <b>10ckt Clip Slot</b>
	2042200002	Squba 1.8 Receptacle Assembly, 2ckt
	2042200010	Squba 1.8 Receptacle Assembly, 10ckt

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