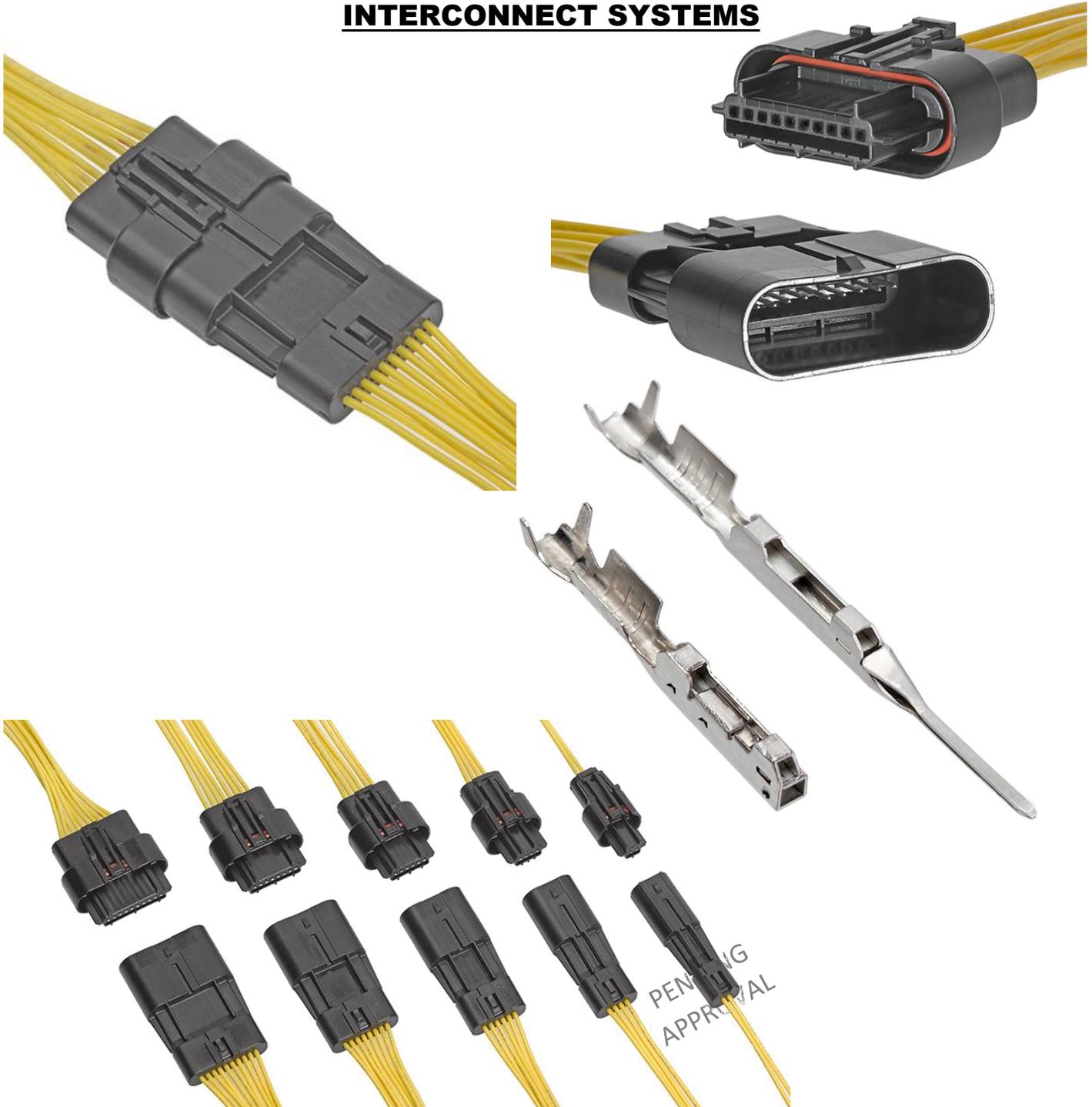




# PRODUCT SPECIFICATION

## SQUBA 1.8 Interconnect System

### Squba 1.8 INTERCONNECT SYSTEMS



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# PRODUCT SPECIFICATION

## SQUBA 1.8 Interconnect System

### 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 IP67 requirements.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 NAMES AND SERIES NUMBER(S)

Description	Series Number
Squba 1.8, Receptacle Assembly	204220
Squba 1.8, Plug Assembly	204223
Squba 1.8, Female Crimp Terminal	204301
Squba 1.8, Male Crimp Terminal	204226

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

#### 2.3 SAFETY AGENCY APPROVALS

UL / cUL File Number: E29179

IEC 61984 Compliant

NRTL type examination certificate available from Molex upon request.

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Application Specification.....	2042200000-AS
Receptacle Assembly sales drawing.....	2042200000-SD
Plug Assembly sales drawing.....	2042230000-SD
Receptacle Crimp Terminal sales drawing.....	2043010000-SD
Plug Crimp Terminal sales drawing.....	2042260000-SD
Test Summary.....	2042200000-TS
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
Applicator Tool Crimp Specification.....	638083700
Hand Tool Crimp Specification.....	2002180400

### 4.0 RATINGS

#### 4.1 VOLTAGE:

125 V

#### 4.2 APPLICABLE WIRES:

Wire Gauge: 22 to 24 AWG

Insulation Diameter: 0.95 mm – 1.4 mm

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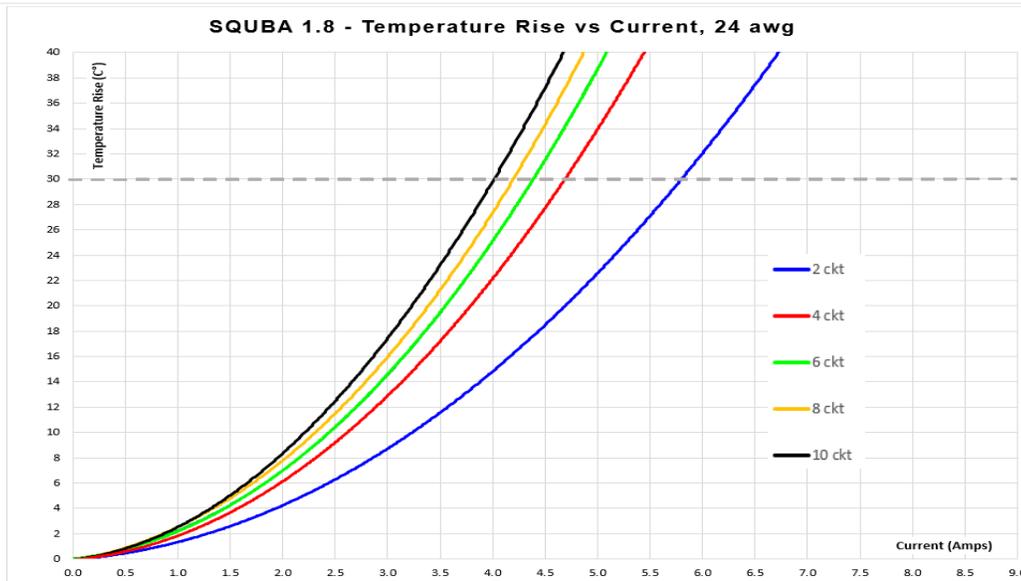
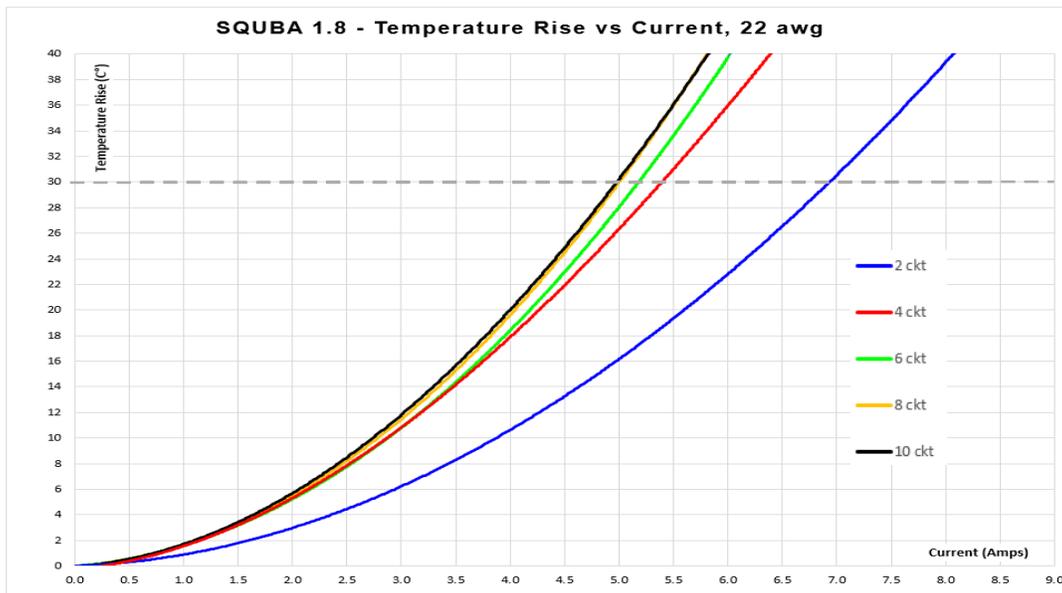
# PRODUCT SPECIFICATION

## SQUBA 1.8 Interconnect System

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

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.

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



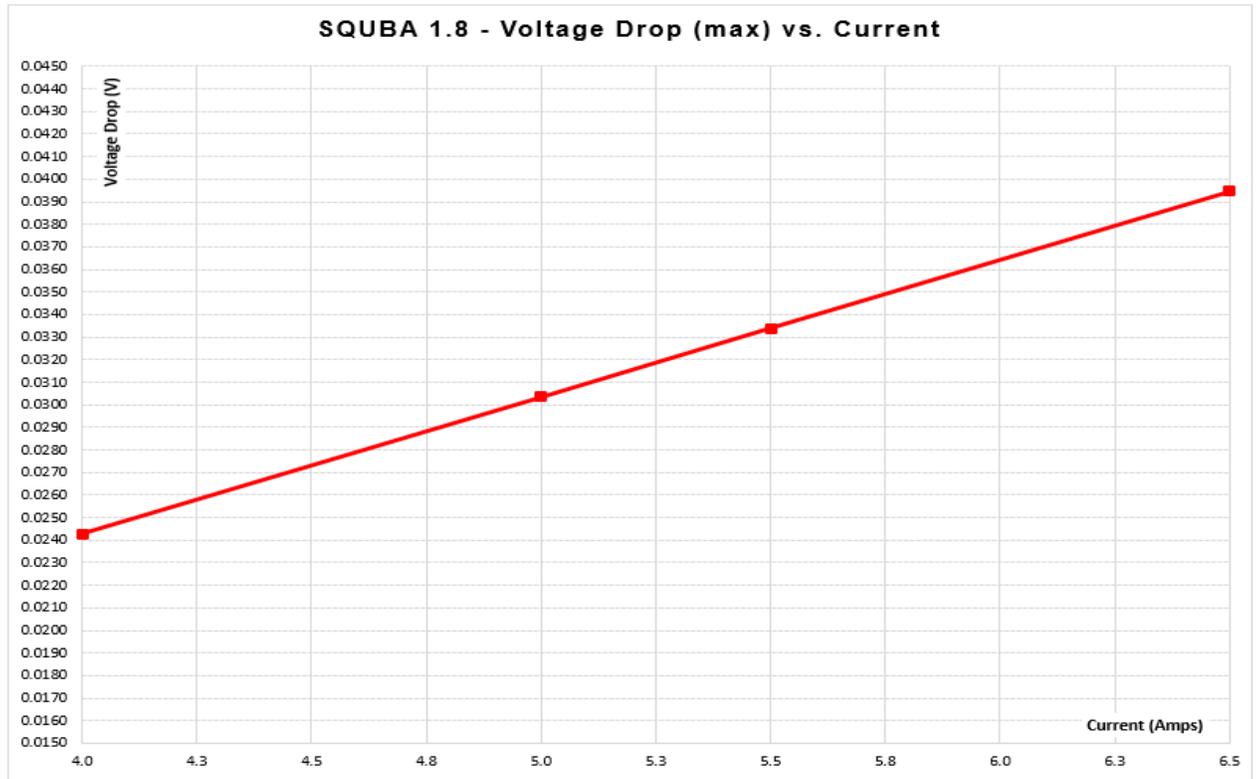
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## SQUBA 1.8 Interconnect System

### 4.4 VOLTAGE DROP AT RATED CURRENT



### 4.5 TEMPERATURE RATING

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 1) is based on the assumption that the contact spends its entire life at the rated field maximum temperature (based on EIA-364-1000, table 8).

### 4.6 DURABILITY RATING

10 cycles

### 5.0 QUALIFICATION

Laboratory condition, sample selection and test sequences are in accordance with EIA-364-1000. See page 8 for detail test sequences.

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# PRODUCT SPECIFICATION

## SQUBA 1.8 Interconnect System

### 6.0 PERFORMANCE REQUIREMENTS

#### 6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	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	Insulation Resistance	Per EIA-364-21 Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	100 Megohms MINIMUM
3	Dielectric Withstanding Voltage	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	Temperature Rise (via current profiling)	Per EIA 364-70B	Temperature rise: +30°C MAXIMUM See chart section 4.3
5	Voltage Drop (at rated current)	Per EIA 364-70B Mate connectors. Apply the rated current.	See chart section 4.4

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### 6.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	Connector Mate Forces (w/o thumb latch)	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	45 N (16.9 lbf) MAX
7	Connector Un-mate Forces (w/o thumb latch)	Insert and withdraw (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	35 N (13.5 lbf) MAX
8	Connector Un-mate Force w/ Thumb Latch Locked (destructive)	Mate loaded connectors fully. Pull connectors apart at a rate of 25 ± 6mm (1 ± ¼ inch) per minute.	75 N (10.12 lbf) MIN
9	Crimp Terminal Insertion Force (into Housing)	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
10	Crimp Terminal Retention Force	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	30 N (4.5 lbf) MIN retention force
11	Durability (w/o thumb latch)	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)
12	Durability (pre-conditioning)	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)
13	Vibration	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
14	Wire Crimp Pullout Force (Axial)	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)
15	Thumb Latch Operation Force	Depress latch at a rate of 25 ± 6mm (1 ± ¼ inch) per minute.	15 N (3.37 lbf) MAX
16	Re-seating	Perform 3 mate / un-mate cycles	10 milliohms MAX (change from initial)

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### 6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
17	Temperature Life	Per EIA-364-17 Mate Connectors, expose to 108 hours at 105°C	10 milliohms MAX (change from initial)
18	Temperature Life (pre-conditioning)	Per EIA-364-17 Mate Connectors, expose to 66 hours at 105°C	10 milliohms MAX (change from initial)
19	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
20	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)
21	IPX7 Temporary Water Immersion	IEC 60529, Ed. 2.1. Mate connectors and immerse in water at a depth of 1 meter from the water surface for 30 minutes.	No signs of water indicating ingress inside the connector system
22	IP6X Dust Exposure	IEC 60529, Ed. 2.1, Category 1 Enclosure. 8 hour duration.	No deposit of dust indicating ingress inside the connector system

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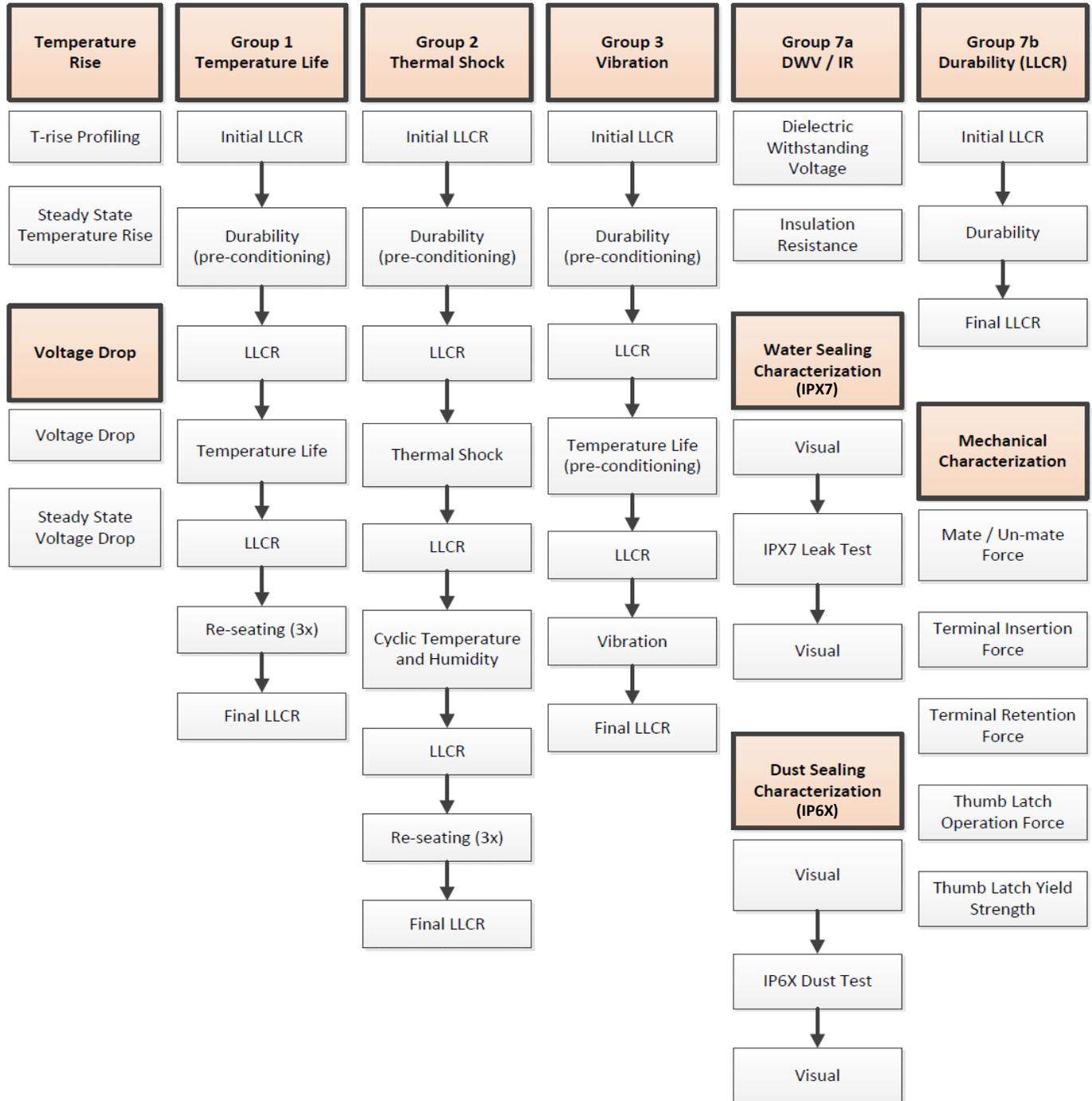


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### 7.0 TEST SEQUENCES

Testing sequences to be performed in accordance with EIA-364-1000.01



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### 8.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. See packaging specifications listed in section 3.0 (sheet 2).

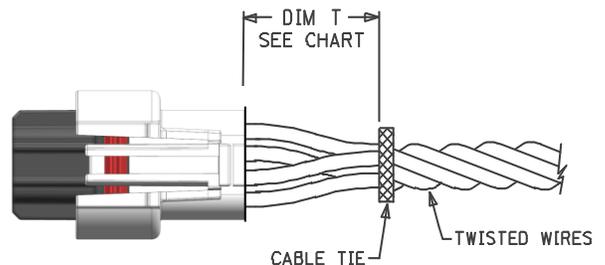
### 9.0 OTHER INFORMATION

#### 9.1 CRIMP APPLICATION TOOLING

Description	Order Number	Crimp Spec Document Number
Crimp Applicator	638083700	638083700
Crimp Hand Tool	2002180400	2002180400

#### 9.2 CABLE TIE AND OR WIRE TWIST LOCATION

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 a general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

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