

VALUSEAL SEALED CONNECTOR SYSTEM

1.0 SCOPE

This Product Specification covers 4.0 mm centerline pitch wire to wire sealed connector system terminated with 16 to 18 AWG wire using Crimp technology with Tin plating

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

PLUG HSG WITH INTEGRATED SEAL	172877
RECEPTACLE HSG WITH INTEGRATED SEAL	172878
VOID PLUG	173061
MALE CRIMP TERMINAL	173041
FEMALE CRIMP TERMINAL	173042

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

AS PER SALES DRAWING: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 & SD-173042-0001

2.3 SAFETY AGENCY APPROVALS

UL FILE NUMBER: E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Test Summary: 1728770001-TS

Sales Drawing: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 & SD-173042-0002

4.0 RATINGS

4.1 VOLTAGE

750 V AC

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4.2 CURRENT RATING AND APPLICABLE WIRES*

Wire to Wire Current Rating (Amp Max.) (Tested with TIN plated terminals)		
Connector fully loaded with all circuits powered		
AWG Wire Size	Circuit Size (Single Row)	Circuit Size (Dual Row)
	2	4
16	11.5***	11.0**
18	10.0***	9.5**

*For maximum cable outside diameter details refer applicable sales drawing.

**Ratings represent *maximum* current carrying capacity, based on 30°C maximum temperature rise (t-rise) above ambient. Current rating is application dependent and should be evaluated for each specific application.

***Estimated values

4.3 TEMPERATURE

Operating: - 40°C to + 85°C (including t-rise)

Non-operating: - 40°C to + 85°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance	Mate connectors and apply maximum voltage of 20mV and a maximum current of 100 mA per EIA-364-23C.(Wire and terminal resistance shall be removed from the measured value)	10 milliohms MAXIMUM [initial]
2	Insulation Resistance	Mate connectors, Apply a voltage of 500V DC between adjacent terminals or ground per EIA-364-21C	1000 Mega ohms MINIMUM
3	Dielectric Withstanding Voltage	1000 VAC plus twice rated voltage Per UL 1977 (1500 V AC)	No breakdown Current Leakage < 5 milliamps

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4	Temperature rise versus current (step profiling)	Mate connectors, measure the temperature rise at the rated current per EIA-364-70B method 2	Temp rise: +30°C Maximum (above ambient)
5	Temperature rise versus current (18-day stability test)	Mate connectors, measure the temperature rise at the rated current, test method 4 (45 Min on & 15 min off) Per EIA-364-55 Test condition A	+30°C above ambient

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Connector Mate and Unmate Forces (for all Circuits and single cycle only)	Mate and Unmate connector at the rate of 12.7mm/min per EIA-364-13E	50 N MAXIMUM Mate force 90 N MINIMUM Unmate force with lock engaged & 14 N MINIMUM Unmate force with lock disengaged
2	Crimp Terminal Insertion Force (into Housing)	Apply an axial insertion force on terminal per EIA-364-05B	45 N MAXIMUM insertion force
3	Crimp Terminal Retention Force (in Housing)	Apply an axial load to the contact at the maximum rate of 25.4 millimeter /min per EIA-364-29	35 N MINIMUM retention force
4	Thumb latch operation force at 1.8mm deflection	Apply axial force on the latch to the depth of 1.8mm	53 N MAXIMUM
5	Thumb Latch Yield Strength	Mate loaded connectors fully. Pull connectors apart per EIA-364-98	89 N MINIMUM
6	Wire crimp Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch) as per EIA-364-08	MINIMUM pullout forces 16 AWG - 133 N 18 AWG - 89 N
7	Durability EIA-364-1000 Test group 7A	Measure DWV and IR on the mated connectors	Dielectric withstand Voltage- 1500 V AC for 60 sec IR-1000 Mega ohms Minimum

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8	Durability EIA-364-1000 Test group 7B	Mate and unmate connectors up to 25 Cycles, maximum rate of 10 cycles per min EIA-364-09C	10 milliohms MAXIMUM (change from initial)
9	Vibration (Random) EIA-364-1000 Test group 3	Mate connectors and vibrate Per EIA-364-28, test condition VII, Test condition letter D	10 milliohm MAX (change from initial) & discontinuity < 1 microsecond
10	Shock (Mechanical) EIA-364-1000 Test group 3	Mate connectors and shock at 30 g's with ½ sine wave (11 millisecond) shocks in the ±X, ±Y, ±Z axes (18 shocks total) per EIA-364-27, Test Condition H	10 milliohm MAX (change from initial) & discontinuity < 1 microsecond

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Temperature life EIA-364-1000 Test group 1	Mate connectors; expose to: 1578 hours at 105 ± 2°C . Tested for field temperature of 85 °C and field life of 10 years. EIA-364-17, Method A	See Test group 1 <input checked="" type="checkbox"/> (without reseating step), 10 milliohm MAXIMUM (change from initial) for each group
			See Test group 1 <input type="checkbox"/> (with reseating step), 15 milliohm MAXIMUM (change from initial) for each group
2	Thermal Shock EIA-364-1000 Test Group 2	Mate connectors, expose to 10 cycles from -55°C to 85°C Per EIA-364-32 method A, condition 1	10 milliohms MAX (change from initial) for each group
3	Thermal Cycling EIA-364-1000 Test Group 5	Cycle the connector between 15 °C ± 3 °C and 85 °C ± 3 °C. Humidity is not controlled. EIA-364-1000, Table 5	10 milliohms MAX (change from initial) for each group

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4	Humidity Test group 2	Mated connector to be subjected to a Cyclic Temperature/ Humidity EIA-364-31 Method III (w/exception) 25C at 80%RH_65C at 50%RH_Ramp 0.5Hr. Dwell 1 Hr.	10 milliohms MAX (change from initial) for each group
5	Cold Resistance Test group -1A	Mate Connectors and expose for -40°C for 96 hours (See Section 7.0 for Test Sequence Test Group-1A)	10 milliohms MAX (change from initial) for each group
6	Dust test IP 6X - Fully populated	Connector exposed to the talcum powder atmosphere for a period of 8 hours, Per IEC 60529 (Category 2)	No ingress of dust in connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
7	Dust test IP 6X - Void plug populated	Connector exposed to the talcum powder atmosphere for a period of 8 hours, Per IEC 60529 (Category 2)	No ingress of dust in connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
8	Dust test IP 6X - Fully Populated (Temperature induced – 85°C for 24 Hrs)	Connector exposed to the talcum powder atmosphere for a period of 8 hours, Per IEC 60529 (Category 2)	No ingress of dust in connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
9	Spray test IP X4 - Fully populated	Spray water from all practical directions As per IEC 60529	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
10	Spray test IP X4 - Void plug populated	Spray water from all practical directions As per IEC 60529,	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
11	Spray test IP X4 - Fully populated (Temperature induced – 85°C for 24 Hrs)	Spray water from all practical directions As per IEC 60529,	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals

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12	Water jet test IP X5 - Fully populated	Splash the connector, Water jet Nozzle with diameter 6.3 mm from distance of 2.5 to 3 meters, per IEC 60529	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
13	Water jet test IP X5 - Void plug populated	Splash the connector, Water jet Nozzle with diameter 6.3 mm from distance of 2.5 to 3 meters, per IEC 60529	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals
14	Water jet test IP X5 – Fully populated (Temperature induced – 85°C for 24 Hrs)	Splash the connector, Water jet Nozzle with diameter 6.3 mm from distance of 2.5 to 3 meters, per IEC 60529	No water drops inside the connector system post test. No breakdown when apply 1500V AC for 1 minute between adjacent terminals

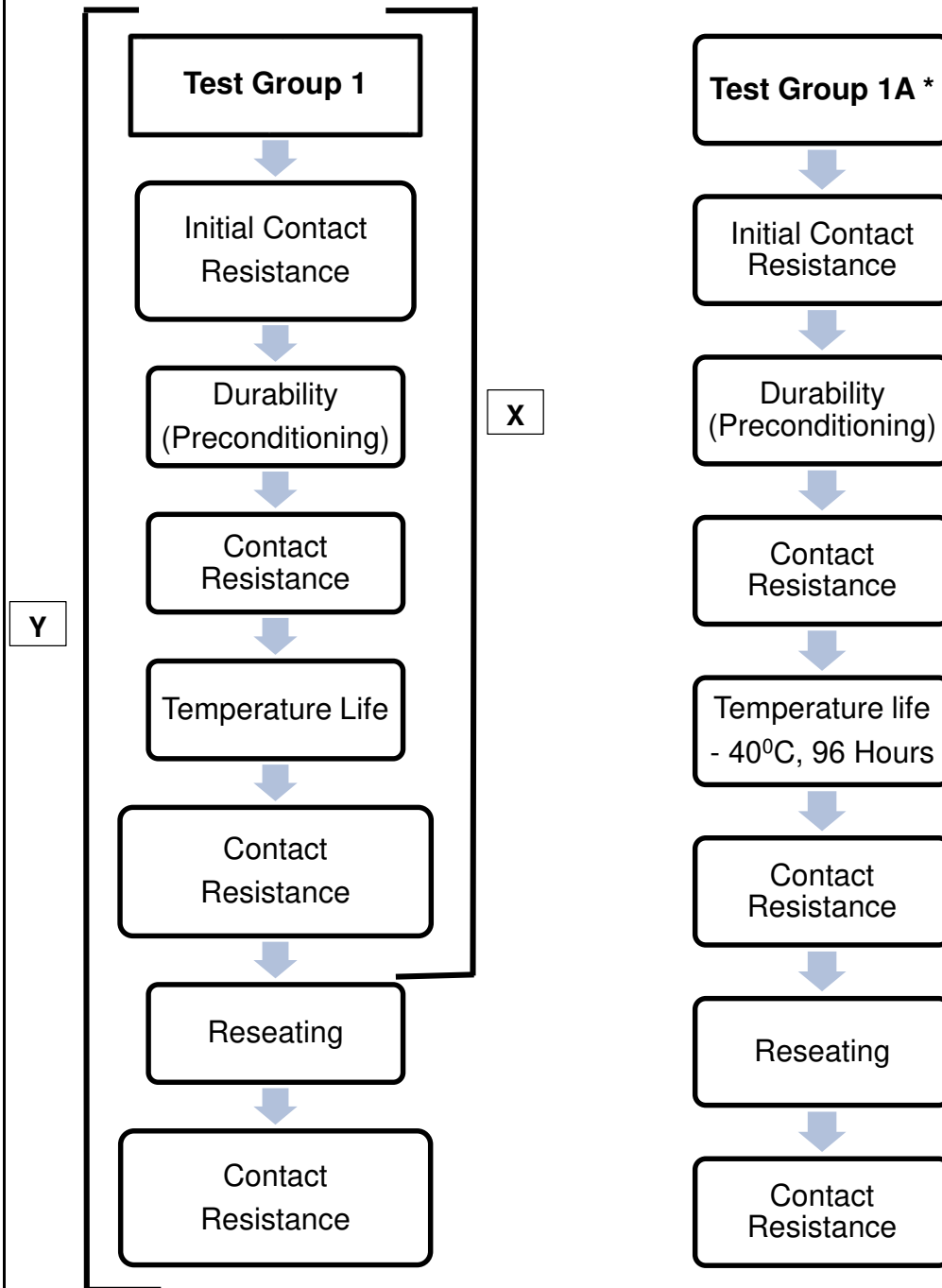
6.0 PACKAGING

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

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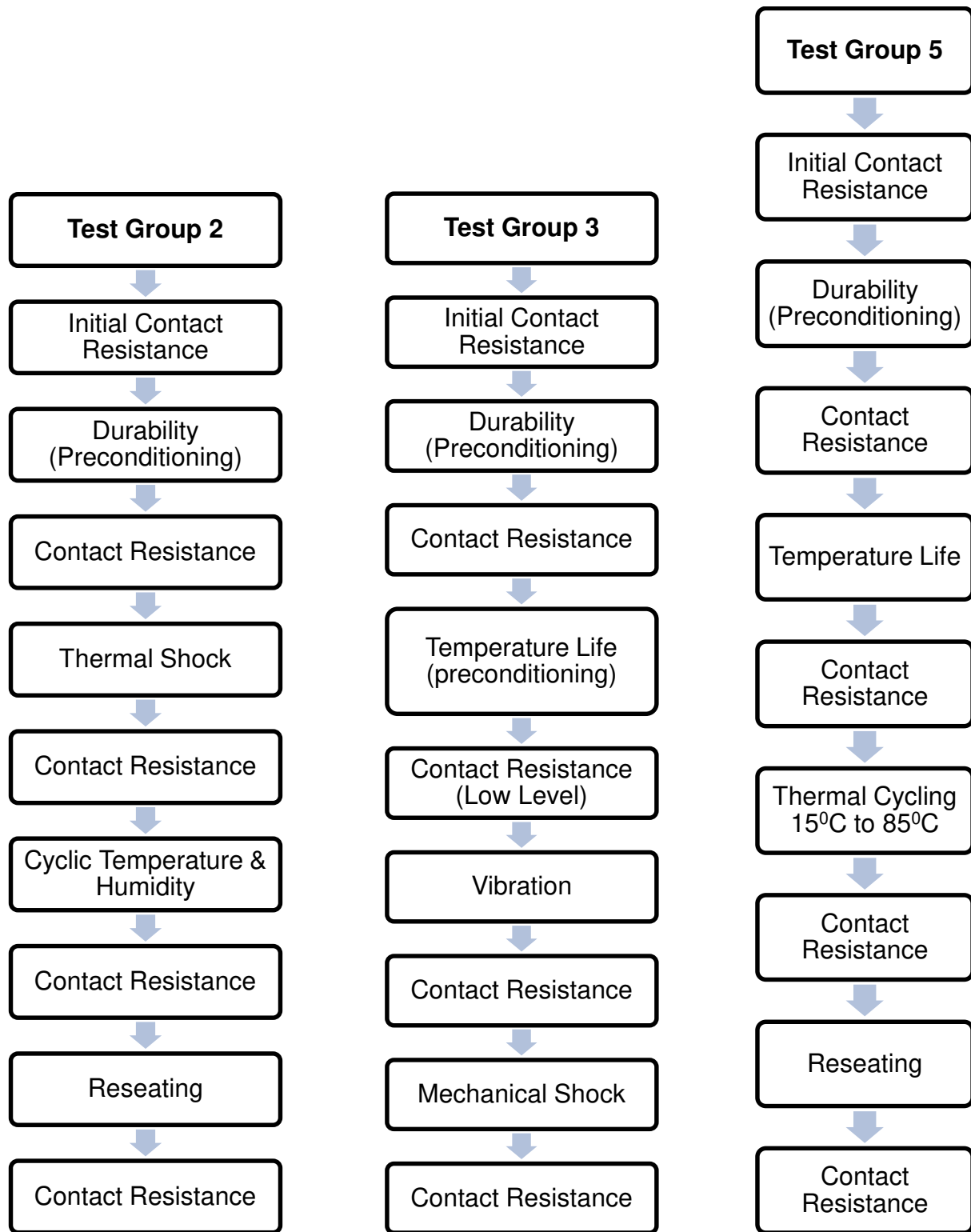
7.0 TESTS SEQUENCE GROUPS

Reliability Test Sequences Per 364-1000.01

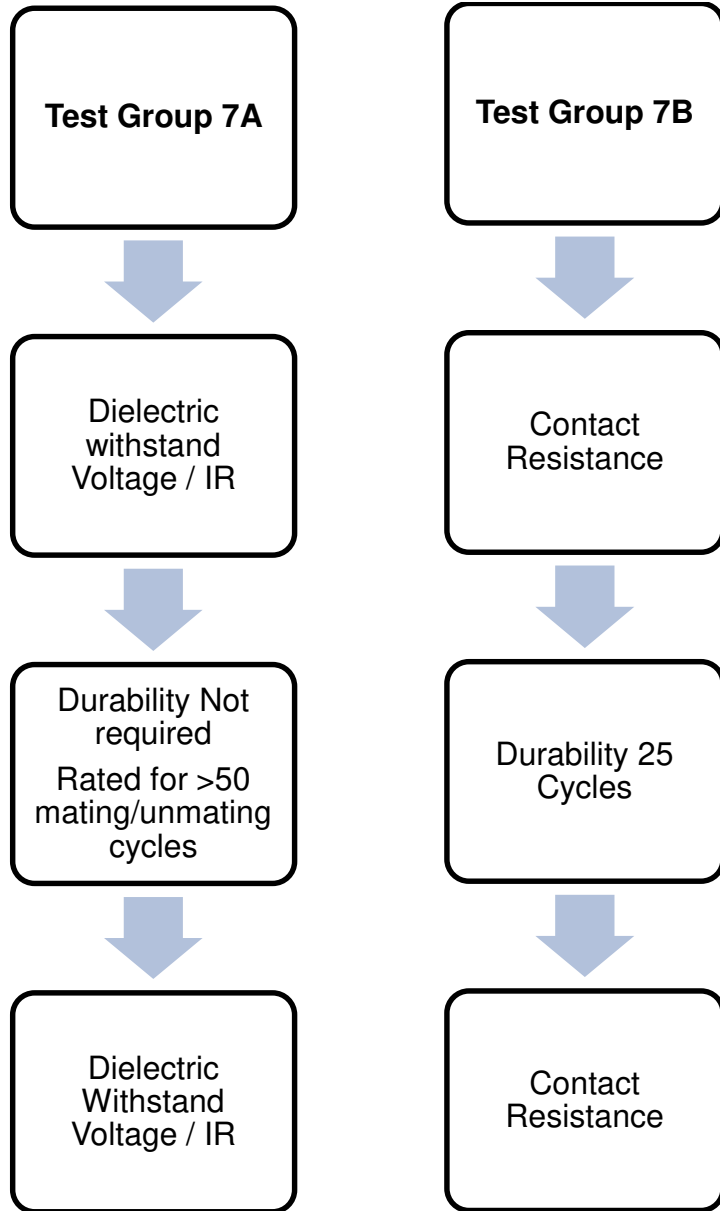


*- Test sequence group 1A is not as per EIA -364-1000.01

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