PRODUCT SPECIFICATION

.093 SERIES HIGH CURRENT END-CARRIED TERMINALS

1.0 SCOPE

This Product Specification covers the .093 Series 6.71 mm (.264 inch) centerline (pitch) 3191 Series and the 5.03 mm (.198 inch) centerline Standard .093 Series connectors using.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT SERIES NUMBER AND DESCRIPTION

42477 / 42478 - .093 SERIES HIGH CURRENT, END-CARRIED CRIMP TERMINALS

3191 - .093 SERIES TYPE PLUG AND RECEPTACLE HOUSINGS

1261, 1292, 1360, 1375, 1396, 1490, 1545, 1619, 2163, 2629 - STANDARD .093 SERIES PLUG AND RECEPTACLE HOUSINGS

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings of above series numbers for further information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL File #E29179
CSA File #LR19980
TUV License #R75107

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

MIL-STD-1344A
UL 1682

4.0 RATINGS

4.1 VOLTAGE

600 Volts AC (RMS) for 3191 Series
250 Volts AC (RMS) for Standard .093 Series

4.2 CURRENT AND APPLICABLE WIRES

AWG	Amps	Outside Insulation Diameter
14	17	3.56 mm (.140 inch)
18	12	2.79 mm (.110 inch)

4.3 TEMPERATURE

Operating: - 55°C to + 105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance (Low Level)**	Mate connectors: apply a maximum voltage of **20** mV and a current of **20** mA. (Measurement locations in Section 7.0)	**10** milliohms MAXIMUM [initial]
2	**Contact Resistance of Wire Termination (Low Level)**	Terminate the applicable wire to the terminal and measure wire using a voltage of **20** mV and a current of **100** mA. (Measurement locations in Section 7.0)	**2** milliohms MAXIMUM [initial]
3	**Dielectric Withstanding Voltage**	Mate connectors: apply a voltage of **5000** VAC for the 3191 Series, **2000** VAC for the .093 Series for **1** minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < **5** mA
4	**Temperature Rise (via Current Cycling)**	Mate connectors: measure the temperature rise at the rated current, subjecting the connector to : **96** hours of continuous current, followed by **240** hours of current cycling (**45** minutes ON and **15** minutes OFF per hour).	Temperature rise: **+30**°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Terminal Insertion Force**	Insert terminal into housing until fully locked at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute.	**22.2** N (**5** lbf) MAXIMUM insertion force
6	**Connector Mate and Unmate Forces (per Circuit)**	Mate and unmate connector (male to female) at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute.	**32.25** N (**7.3** lbf)* MAXIMUM insertion force **22.28** N (**4.5** lbf)* AVERAGE insertion force **7.12** N (**1.6** lbf) MINIMUM initial withdrawal force
	*Add an additional 19.6 N (4.4 lbf) AVERAGE force for connector latch insertion force. 1 circuit latch insertion force may be up to 66.7 N (15.0 lbf) MAX.		
7	**Terminal Retention Force (in Housing)**	Axial pullout force on the terminal in the housing at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute.	**89.0** N (**20** lbf) MINIMUM retention force

5.2 MECHANICAL REQUIREMENTS (CONTINUED)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	**Durability**	Mate connectors up to **{25** cycles for tin (non-noble) plating OR **250** cycles for gold (noble) plating**}** at a maximum rate of **5** cycles per minute prior to Environmental Tests.	**10** milliohms MAXIMUM (change from initial)
9	**Vibration (Random)**	Subject mated connectors to vibration with an amplitude of **1.52** mm (**.060** inch) peak to peak; a sweep of 10-55-10 hertz in 1.0 min.; and a duration of 2.0 hours in the ±X,±Y,±Z axes.	**10** milliohms MAXIMUM (change from initial) & Discontinuity < **1** microsecond
10	**Shock (Mechanical)**	Subject mated connectors to 3 shocks at **50** g's with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (**18** shocks total).	**10** milliohms MAXIMUM (change from initial]) & Discontinuity < **1** microsecond
11	**Wire Pullout Force (Axial)**	Apply an axial pullout force on the wire at a rate of **25 ± 6** mm (**1 ± ¼** inch).	MINIMUM pullout force: **18 AWG: 115** N (**26** lbf) **16 AWG: 178** N (**40** lbf) **14 AWG: 222** N (**50** lbf)
12	**Terminal Insertion Force (into Housing)**	Apply an axial insertion force on the terminal at a rate of **25 ± 6** mm (**1 ± ¼** inch).	**22** N (**5** lbf) MAXIMUM insertion force

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
13	**Shock (Thermal)**	Mate connectors; expose to **10** cycles of: Temperature °C — Duration (Minutes) **-40 +0/-3** — **30** **+25 ±10** — **5** MAXIMUM **+105 +3/-0** — **30** **+25 ±10** — **5** MAXIMUM	**10** milliohms MAXIMUM (change from initial) & Visual: No Damage
14	**Humidity (Cyclic)**	Expose mated connectors to a temperature cycles of **25 ± 3°**C at **95 ± 5**% relative humidity and **65 ± 3°**C at **50 ± 5**% relative humidity; dwell time of **1.0** hour; ramp time of **0.5** hours for **240** hours.	**10** milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at **500** VAC & Insulation Resistance: **1000** Megohms MINIMUM & Visual: No Damage

5.3 ENVIRONMENTAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
15	**Thermal Aging**	Mate connectors; expose to: **240** hours at **105 ± 2°**C	**10** milliohms MAXIMUM (change from initial]) & Visual: No Damage
16	**Humidity** **(Steady State)**	Mate connectors: expose to a temperature of **40 ± 2°**C with a relative humidity of **90-95**% for **240** hours.	**10** milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at **500** VAC & Insulation Resistance: **1000** Megohms MINIMUM & Visual: No Damage

5.0 PACKAGING

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