DITTO™ WIRE TO WIRE INTERCONNECTS

1.0 SCOPE

This Product Specification covers the 3.0 mm (.118 inch) centerline (pitch) connector series terminated with 20 to 26 AWG wire using Crimp technology with Tin plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

DITTO GENDERLESS CRP TER TINBRS 20-22AWG	150200
DITTO GENDERLESS CRP TER TINBRS 24-26AWG	
DITTO GENDERLESS CRP HSG POSLOCK 1X2 V-0	150170
DITTO GENDERLESS CRP HSG POSLOCK 1X3 V-0	
DITTO GENDERLESS CRP HSG POSLOCK 1X4 V-0	
DITTO GENDERLESS CRP HSG POSLOCK 1X5 V-0	
DITTO GENDERLESS CRP HSG POSLOCK 1X6 V-0	
DITTO GENDERLESS CRP HSG POSLOCK 1X7 V-0	
DITTO GENDERLESS CRP HSG POSLOCK 1X8 V-0	
DITTO GENDERLESS CRP HSG POS LOCK 1X2 GW	150201
DITTO GENDERLESS CRP HSG POS LOCK 1X3 GW	
DITTO GENDERLESS CRP HSG POS LOCK 1X4 GW	
DITTO GENDERLESS CRP HSG POS LOCK 1X5 GW	
DITTO GENDERLESS CRP HSG POS LOCK 1X6 GW	
DITTO GENDERLESS CRP HSG POS LOCK 1X7 GW	
DITTO GENDERLESS CRP HSG POS LOCK 1X8 GW	

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

REFER SD-150200-0000, SD-150170-0000, SD-150201-0000

2.3 SAFETY AGENCY APPROVALS

UL FILE NUMBER: E29179
VDE FILE REFERENCE: 219127

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Application Tooling Specification Sheet 20-22 AWG: ATS-639038400
Application Tooling Specification Sheet 24-26 AWG: ATS-639038500
Refer section 6.0 for Environmental Test Sequences

4.0 RATINGS

4.1 VOLTAGE
350 Volts AC/DC

4.2 APPLICABLE WIRES
Refer Application Tooling Specification Sheets (see section 3.0) for details.

AWG	Insulation Diameter
20	1.35-1.70 mm (.053-.067 inch)
22	
24	1.05-1.50 mm (.041-.059 inch)
26	

4.3 CURRENT
Ratings shown below represent maximum current carrying capacity of a fully loaded connector with all circuits powered using UL1061 stranded wire. Ratings are based on a 30 °C maximum temperature rise limit over ambient (see section 5.1.4 for specification) with 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.

	2 CIRCUIT	3 CIRCUIT	4 CIRCUIT	5 CIRCUIT	6 CIRCUIT	7 CIRCUIT	8 CIRCUIT
20 AWG	5.0 A	4.8 A	4.6 A	4.5 A*	4.5 A	4.3 A*	4.2 A
22 AWG	4.0 A	3.8 A*	3.6 A*	3.5 A*	3.4 A*	3.2 A*	3.2 A*
24 AWG	3.6 A	3.4 A*	3.3 A*	3.2 A*	3.1 A*	2.6 A*	2.4 A*
26 AWG	3.0 A	2.9 A	2.8 A	2.6 A	2.5 A	2.3 A	2.3 A

* Estimated

4.4 TEMPERATURE
Operating: - 40 °C to + 105 °C (150200 Series)

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	**10.0** 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 **1700** VAC for **1** minute between adjacent terminals and between terminals to ground. EIA-364-20D	No breakdown; current leakage < **5** mA
5.1.4	**Temperature Rise**	Mate connectors: measure the temperature rise at the rated current. EIA-364-70, Method 2	Temperature rise: **+30**°C MAXIMUM (above ambient)

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1 A	**Connector Mate and Unmate Forces** (Latch deactivated) [For largest size - 8 Circuit connector]	Mate and unmate connector (male to female) at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute. EIA-364-13E	**27.0** N (**6.06** lbf) MAXIMUM Mate force & **5** N (**1.12** lbf) MINIMUM Unmate force
5.2.1 B	**Connector Mate and Unmate Forces** (For 150201) (Latch activated) [For largest size - 8 Circuit connector]	Mate and unmate connector (male to female) at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute. EIA-364-13E	**27.0** N (**6.06** lbf) MAXIMUM Mate force & **38.6** N (**8.7** lbf) MINIMUM Unmate force
5.2.1 C	**Connector Mate and Unmate Forces** (For 150170) (Latch activated) [For largest size - 8 Circuit connector]	Mate and unmate connector (male to female) at a rate of **25 ± 6** mm (**1 ± ¼** inch) per minute. EIA-364-13E	**27.0** N (**6.06** lbf) MAXIMUM Mate force & **55.4** N (**12.5** lbf) MINIMUM Unmate force
5.2.2	**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.	**25** N MAXIMUM (**5.62** lb_f) MINIMUM
5.2.3	**Durability**	Mate and unmate connectors up to **5** cycles (to meet application requirement of up to 25 cycles over the life of the connector) at a maximum rate of **10** cycles per minute prior to Environmental Tests. EIA-364-09C	**10** milliohms MAXIMUM (change from initial)
5.2.4	**Vibration (Random)** EIA-364-1000 Test Group 3	Mate connectors and vibrate per EIA 364-28, test condition VII. Letter D. (Acceleration 3.1 g)	**10** milliohms MAXIMUM (change from initial) & Discontinuity < **1** microsecond

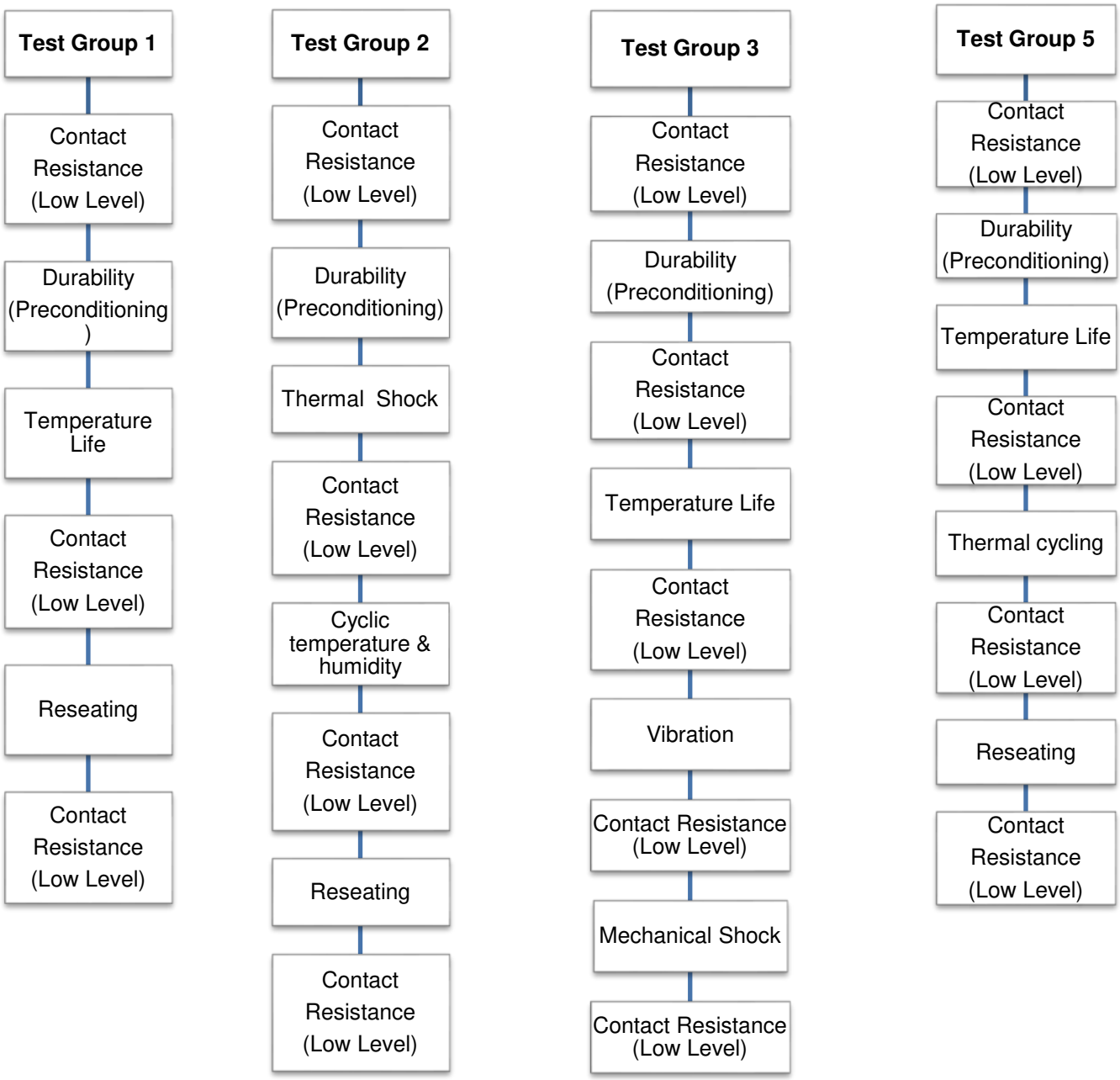
5.2 MECHANICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.2.5	**Shock (Mechanical)** EIA-364-1000 Test Group 3	Mate connectors and shock at **50** g's with ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes (**18** shocks total). EIA-364-27, Test Condition A	**10** milliohms MAXIMUM (change from initial]) & Discontinuity < **1** microsecond	
5.2.6	**Wire Pullout Force (Axial)**	Apply an axial pullout force on the wire at a rate of **25 ± 6** mm (**1 ± ¼** inch). UL1977 Edition 2	**AWG**	**MINIMUM Pullout force**
			20	**36** N (**8** lbf)
			22	**36** N (**8** lbf)
			24	**26.7** N (**6** lbf)
			26	**17.8** N (**4** lbf)
5.2.7	**Terminal Insertion Force (into Housing)**	Apply an axial insertion force on the terminal at a rate of **25 ± 6** mm (**1 ± ¼** inch).	**15** N MAXIMUM (**3.37** lb_f) insertion force	
5.2.8 A	**Housing Latch Mechanism Strength** (150170 Series)	Exert an axial force at a rate of **13** mm per minute(**0.5** inch per minute) to separate the housing halves. EIA-364-98	**46** N MINIMUM (**10.34** lb_f)	
5.2.8 B	**Housing Latch Mechanism Strength** (150201 Series)	Exert an axial force at a rate of **13** mm per minute(**0.5** inch per minute) to separate the housing halves. EIA-364-98	**31** N MINIMUM (**6.97** lb_f)	

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	**Shock (Thermal)** EIA-364-1000 Test Group 2	Mate connectors; expose to **5** cycles of: Temperature °C / Duration (Minutes) **-40 +0/-3** / **30** **+25 ±10** / **5** MAXIMUM **+105 +3/-0** / **30** **+25 ±10** / **5** MAXIMUM EIA-364-32E Test condition I	**10** milliohms MAXIMUM (change from initial) & Visual: No Damage
5.3.2	**Cyclic Temperature & Humidity** EIA-364-1000 Test Group 2	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.	**10** milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at **500** VAC & Insulation Resistance: **1000** Megohms MINIMUM & Visual: No Damage
5.3.3	**Temperature Life** EIA-364-1000 Test Group 1	Mate connectors; expose to: **240** hours at **105 ± 2**°C. Tested for field temperature of 65 °C and field life of 10 years. EIA-364-17, Method A	**10** milliohms MAXIMUM (change from initial]) & Visual: No Damage
5.3.4	**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 MAXIMUM (change from initial]) & Visual: No Damage

6.0 TEST SEQUENCES



7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. Palletized shipment is the recommended method over single box/ single reel shipment.