DITTO™ WIRE TO WIRE INTERCONNECTS

DITTO GENDERLESS CRP TER TINBRS	DITTO GENDERLESS CRP HSG POSLOCK
	
Series: 150200	Series: 150170

DITTO GENDERLESS CRP HSG POSLOCK GW

Series: 150201

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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)

Description	Series Number
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, PLATING AND MARKINGS

REFER SD-150200-0000, SD-150170-0000, SD-150201-0000.
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 FILE NUMBER: E29179
VDE FILE REFERENCE: 219127

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3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

Ditto Interconnects Test summary TS-150170-0000-001
Ditto Application Specification 1501700000-AS
Molex Quality Crimping Handbook Order No. 63800-0029
Molex Heat Resistance Specification AS-40000-5013
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 60695-2-11
IEC 60335-1

4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 VOLTAGE

350 Volts AC/DC

4.2 APPLICABLE WIRES

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

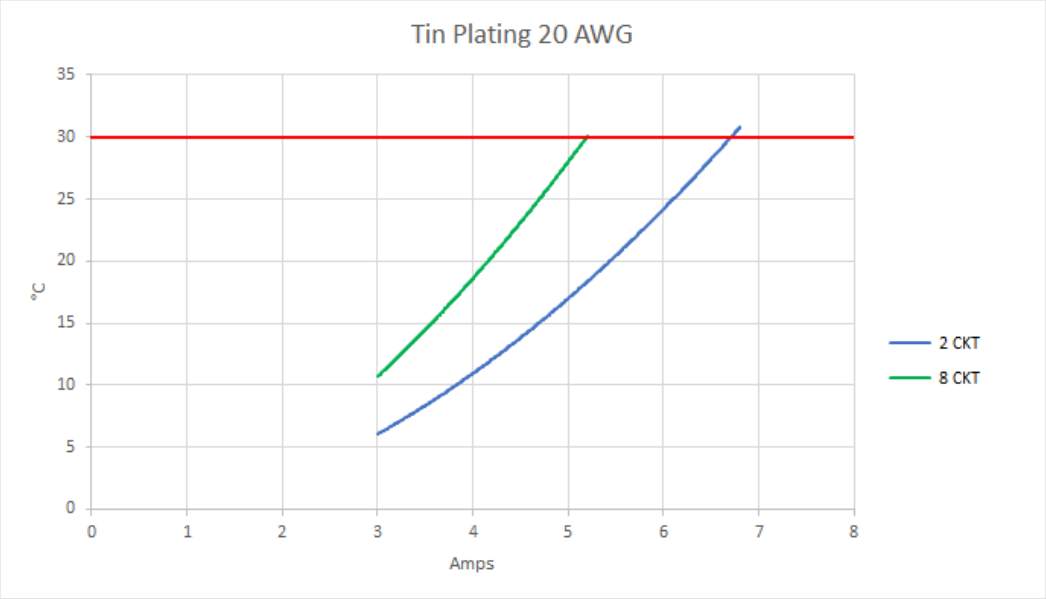
AWG	Insulation Diameter
20	1.35-1.70 mm (.053-.067 inch)
22	
24	1.05-1.50 mm (.041-.059 inch)
26	

4.3 MAXIMUM CURRENT RATING

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 6.1.4 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



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4.4 TEMPERATURE

Operating: - 40 °C to + 105 °C

4.5 DURABILITY

Tin Plated: 25 mating cycles

As tested in accordance with EIA-364-1000 test method (see sec 6.2.9 of this specification). Durability per EIA-364-09

5.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with EIA-364-1000

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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
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]
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
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
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)

6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**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
6	**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
7	**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
8	**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 MINIMUM (**5.62** lb_f) MINIMUM
9	**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)
10	**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

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6.2 MECHANICAL PERFORMANCE (Continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
11	**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	
12	**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)
13	**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	
14	**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)	
15	**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)	

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6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
16	**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
17	**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
18	**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
19	**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

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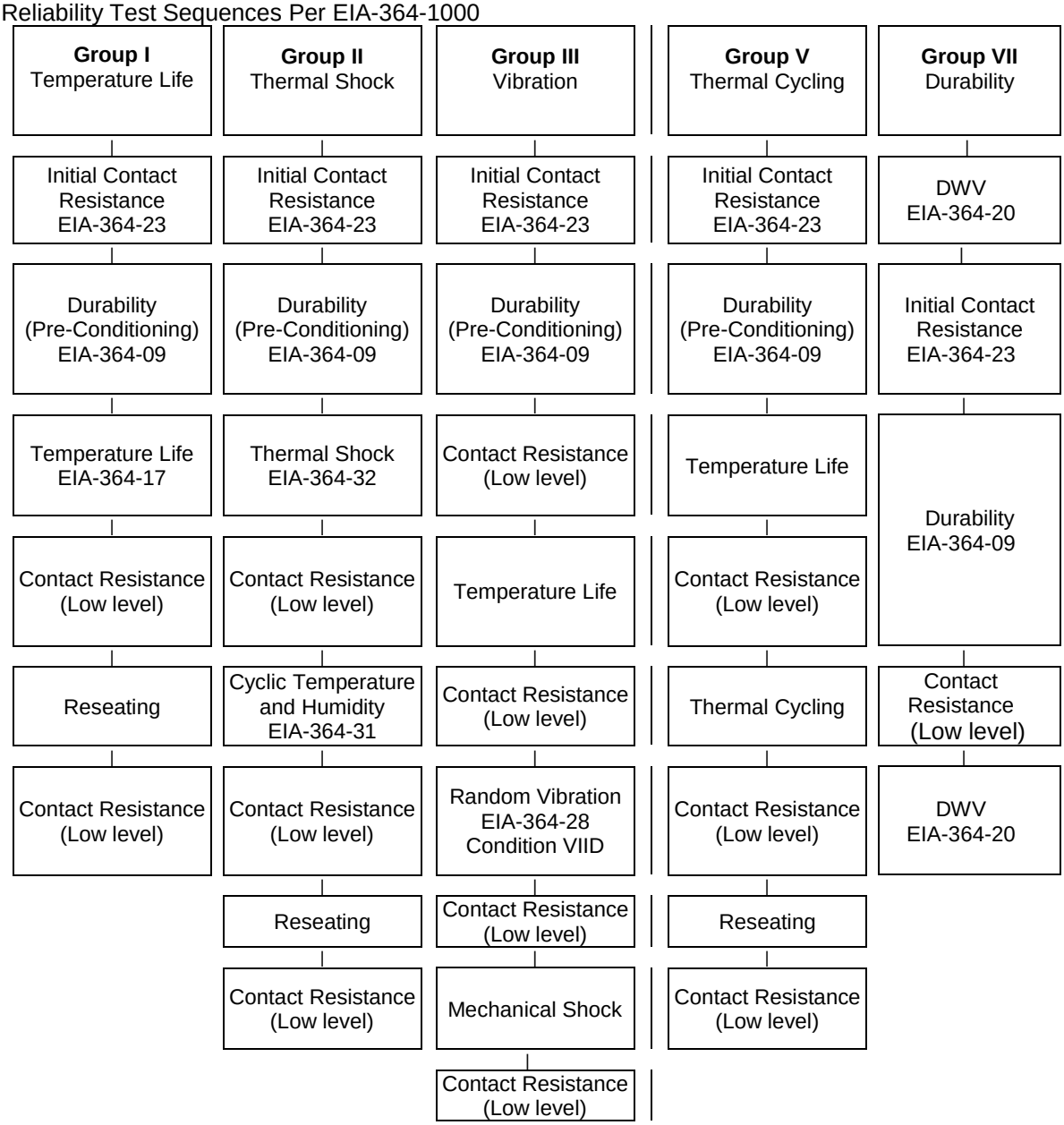
7.0 TEST SEQUENCE GROUPS

Reliability Test Sequences Per EIA-364-1000



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Individual Tests

Connector
Mating / Unmating Force

Terminal Insertion force

Terminal Retention force

Wire Pullout force

Housing Latch
Mechanism Strength

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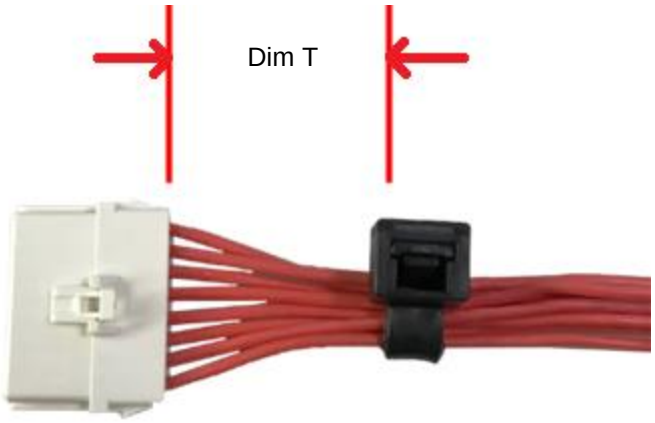
8.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. Palletized shipment is the recommended method over single box/ single reel shipment. Refer Molex.com specific part number webpage to get the exact packaging document for that item

9.0 CABLE TIE AND/ OR TWIST LOCATION

Circuit Sizes	Dimension T Minimum
2 to 4	0.50” (12.7mm)
5 to 8	0.75” (19.1mm)



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.

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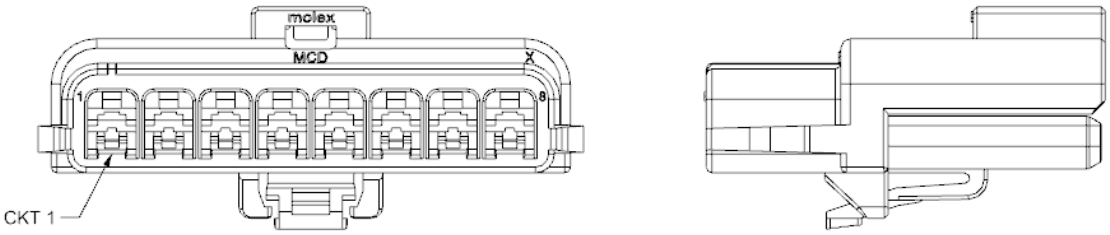
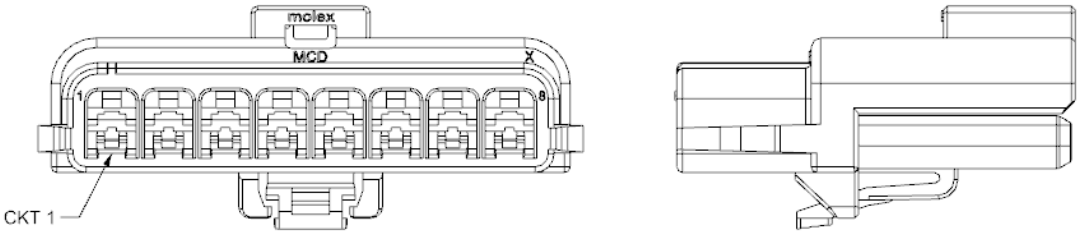
10.0 POLARIZATION AND KEYING OPTIONS

10.1 DITTO GENDERLESS CRP HSG POSLOCK (Series: 150170)



10.2 DITTO GENDERLESS CRP HSG POSLOCK GW (Series: 150201)



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