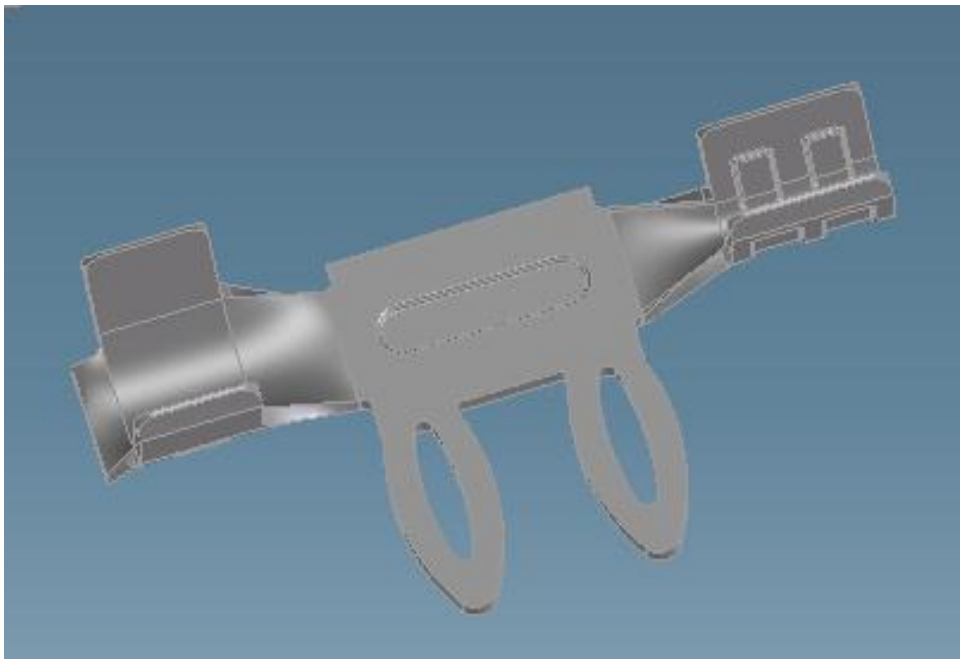
molex®

PRODUCT SPECIFICATION

SOLDERRIGHT TERMINAL

1.0 SCOPE

This Product Specification covers the SolderRight right-angle, board-in printed circuit board (PCB) terminal with tin plating terminated to stranded copper wire using crimp & solder technology.



2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

SolderRight 14-28 AWG Board-In Terminal, Series number: 172249 & 172677

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Refer to applicable sales drawing.

2.3 SAFETY AGENCY APPROVALS

TBD

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Test Summary: TS-172249-001
Sales Drawing: SD-172249-001 for 14-16 & 18-20 AWG terminals
SD-172677-001 for 22-24 & 26-28 AWG terminals

4.0 RATINGS

4.1 VOLTAGE

Not Applicable (dependent on PCB layout)

4.2 CURRENT RATING AND APPLICABLE WIRES*

AWG	Amps**	Test Condition
14	21.5	Terminal in Air (No PCB)
16	17.0	
18	13.5	
20	9.0	
22	7.0	
24	6.3	
26	5.0	
28	4.0	

AWG	Amps**	Test Condition - PCB with External traces
14	14.5	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 04 OZ Cu traces of 1.99mm width.
16	13.5	
18	11.0	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 04 OZ Cu traces of 1.40mm width.
20	10.3	
22	7.0	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 02 OZ Cu traces of 1.23mm width.
24	7.0	
26	5.3	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 02 OZ Cu traces of 0.52mm width.
28	5.0	

AWG	Amps**	Test Condition - PCB with Internal traces
14	14	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 04 OZ Cu traces of 8.29mm width.
16	14	
18	11	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 04 OZ Cu traces of 5.08mm width.
20	11	
22	7.5	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 02 OZ Cu traces of 3.47mm width.
24	5.5	
26	4.2	This current rating is obtained with the terminal soldered to 1.57mm thick PCB of 152mm length, 02 OZ Cu traces of 1.58mm width.
28	4.2	

*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. PCB trace design may greatly affect temperature rise results.

4.3 TEMPERATURE

Operating: - 40°C to + 105°C (including t-rise)
Non-operating: - 40°C to + 105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance of Wire Termination (Low Level)**	Terminate the applicable wire to the terminal and measure using a maximum voltage of **20** mV and a current of **100** mA.	**5** milliohms MAXIMUM [initial]
2	**Temperature Rise**	Measure the temperature rise at the rated current.	Temperature rise: **+30**°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Wire crimp Pullout Force (Axial) As per UL 486E standard**	Apply an axial pullout force on the wire at a rate of **25 ± 6** mm (**1 ± ¼** inch).	MINIMUM pullout forces 14 AWG - 50 N 16 AWG - 40 N 18 AWG - 30 N 20 AWG - 30 N 22 AWG - 20 N 24 AWG - 13.4 N 26 AWG – 8.9 N 28 AWG - 4.5 N

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Thermal Aging**	Per EIA-364, TS 1000.01 , Rev 0, Temperature Life - Terminate wire, expose to **240** hours at **105 ± 2°**C	**5** milliohms MAXIMUM (change from initial) & Visual: No Damage
2	**Solderability**	Per **SMES-152 Category 3**	Solder coverage: **95**% MINIMUM (per **SMES-152**)

3	**Solder Resistance**	Dip terminal tails in solder: Solder Duration: **5 ± 0.5** seconds; Solder Temperature: **260 ± 5°**C	Visual: No Damage
4	**Humidity (Cyclic)**	Cycle per EIA-364-31 and EIA-364-1000.01: 24 cycles at temperature **25 ± 3°**C at **80 ± 3%** relative humidity and **65 ± 3°**C at **50 ± 3%** relative humidity; dwell time of **1.0** hour; ramp time of **0.5** hours.	**5** milliohms MAXIMUM (change from initial) & Visual: No Damage

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. Packaging is suitable for reasonable handling operations, but is no guarantee against damage. The palletized packaging provides the greatest protection and is preferred.

Packaging specification: PK-172249-001 for 14-16 and 18-20 AWG and PK-172677-001 for 22-24 and 26-28 AWG terminals.