3M™ Thru-Board Socket 1532 Series

Product Specification 78-5102-0140-9

Revised 7-25-12

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1.0 Scope

This document summarizes test methods, test conditions, and product performance requirements for 3M™ Thru-Board Socket 1532 Series mated to 3M™ Pin Strip Header 1512 Series. In the event of performance data conflicts between this specification and any documents listed below, this specification supersedes those documents. Materials and finishes listed in the documents below apply and are included in this specification for reference only.

2.0 3M Customer Documents

78-5100-0521-4 Technical data sheet for Thru-Board Socket 1532 Series
78-5100-0808-5 Technical data sheet for Pin Strip Header 1512 Series

3.0 Performance Testing

Unless otherwise specified, all tests shall be performed on 153244-2000-RB sockets mated to 151244-7422-RB headers at ambient environmental conditions per EIA-364. Unless otherwise specified, all values and limits are typical of those obtained by qualification testing of the subject product. All specifications are subject to revision and change without notice from 3M.

4.0 Performance and Characteristics Overview

4.1 Ratings

Dielectric Withstanding Voltage: 500 V_{DC} at sea level

Current (AC or DC):

3.50 A 1 line energized
1.75 A 6 lines* energized
1.00 A All lines energized

*Lines are adjacent in 2x3 configuration

Current rating conditions: 30°C temperature rise, 20% derated

Temperature: -55°C to +105°C

Insulation resistance: >1 x10^9 Ω at 250 VDC

4.2 Materials

Socket:

Housing insulation: Glass filled LCP, black, 94V-0
Contact: Copper alloy

Header:

Insulation: Glass filled LCP, black, 94V-0
Contact: Copper alloy

4.3 Finishes

Plating:

Nickel: Underplating: 50 - 150 µ inches (1.27 - 3.81 µm), QQ-N-290, Class 2
Solder Tails: 200-300 µ inches (5.08-7.62µm), Matte or Tin Lead
Gold options: 30 µ inches (0.76 µm) Average, ASTM B488-01, Class C

4.4 Regulatory Compliance

See Regulatory Information Appendix (RIA) in the "RoHS compliance" section of **www.3Mconnector.com** for compliance information. See customer drawings for regulatory specifics on each connector.

5.0 Electrical

Description or Parameter	Values & Limits	Units	Requirement or Conditions		Test Standard or Method
Dielectric withstanding voltage	500	$Volts_{DC}$	Measured between adjacent and opposing contacts. No disruptive discharge during 1 minute duration. Sea level with 70% relative humidity.		EIA-364-20B Method B Condition I
Current rating per line	3.50	Amperes	1 line energized.	30° C temperature rise, 20% derated.	EIA-364-70A Method 2
	1.75		6 lines energized.		
	1.00		All lines energized.		
Low level contact resistance	≤10	Milliohms	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.		EIA-364-23A
Insulation resistance	>1000	Megohms	Measured between adjacent and opposing contacts with 500 VDC applied for 1 minute.		EIA-364-21C

6.0 Mechanical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Vibration	≤10	ns	Mated connectors shall exhibit no discontinuities greater than specified. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-28A Condition V Letter A, 1.5 hours each plane
Mechanical Shock	≤10	ns	Mated connectors shall exhibit no discontinuities greater than specified. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-27B Condition A
Durability	50	Mating cycles	10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-09C

7.0 Physical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Visual	N/A	N/A	No defects such as deformation, blisters, cracks or other damage.	EIA-364-18A
Tin Plating Thickness	5.08-7.62 (200-300)	Micro-meters (Micro-inches)	Average of random measurements from any 3 lots shall not be less than specified.	EIA-364-48
Nickel Plating Thickness	1.27 - 3.81 (50-150)	Micro-meters (Micro-inches)	Average of random measurements from any 3 lots shall not be less than specified.	EIA-364-48
Gold Thickness	0.63-0.89 (25-35)	Micro-meters (Micro-inches)	Average of random measurements from any 3 lots shall not be less than specified.	EIA-364-48

8.0 Environmental

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Temperature Life (Thermal Aging)	105	Degrees C	Measurements taken out for contact resistance measurements at 96,240,504,and 1000 Hrs. No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-17B Method A Condition 4
	1000	Hours		
Thermal Shock	-55 to 105	Degrees C	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-32C Condition VII
	5	Cycles		
Humidity-Temperature Cycling	65 to -10	Degrees C	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-31B Condition B Method III
	90 to 98	% Relative humidity		
	240	Hours		
Nitric Acid Vapor Test (Gold)	1	Hours	1 spot per sample lot. Porosity of gold contacts tested. No durability testing.	EIA-364-52 Category 3

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9.0 Qualification Test Groups and Sequences

9.1 Sequenced Tests

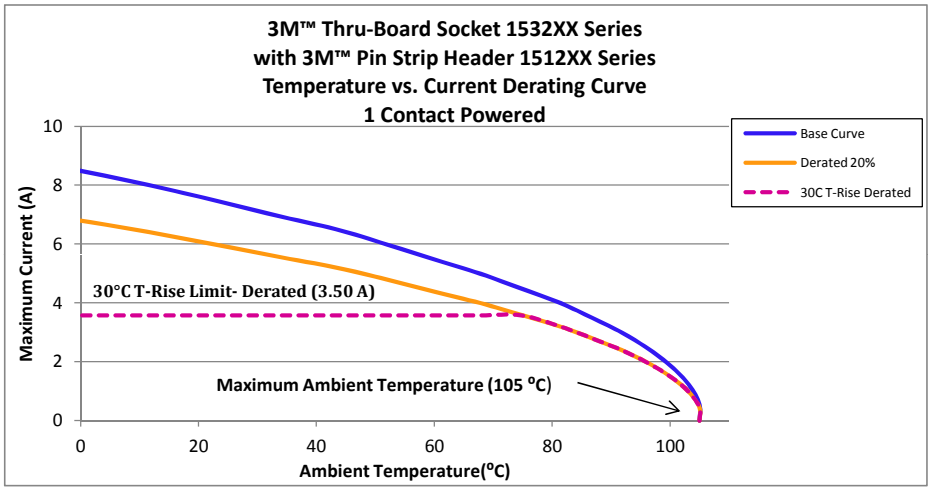
Test or Examination	Test Group			
	A	B	C	D
	Test Sequence			
Low Level Contact Resistance	1, 3, 5	1, 3, 5, 7	1, 3, 5	1, 3, 5
Vibration			2	
Mechanical Shock			4	
Thermal Shock	2	4		
Humidity-Temperature Cycling	4	6		
Nitric Acid Vapor Test				4
Durability		2		2

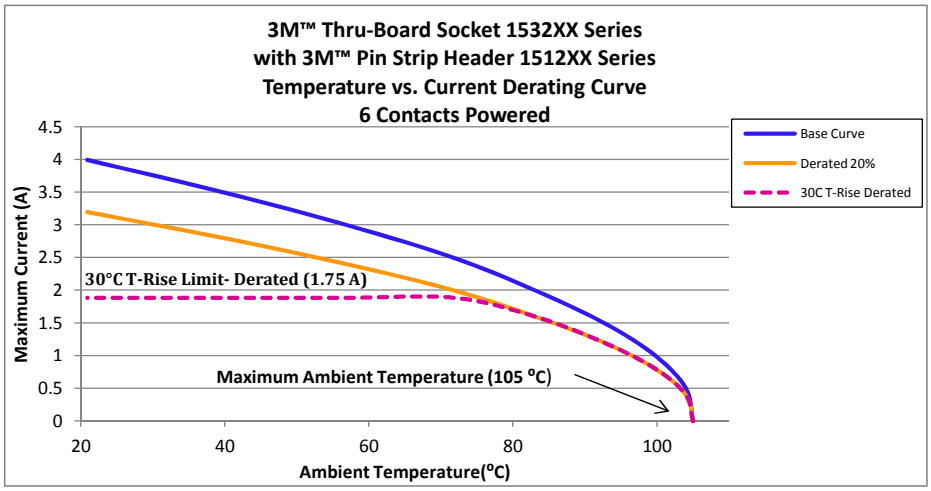
9.2 Independent Tests

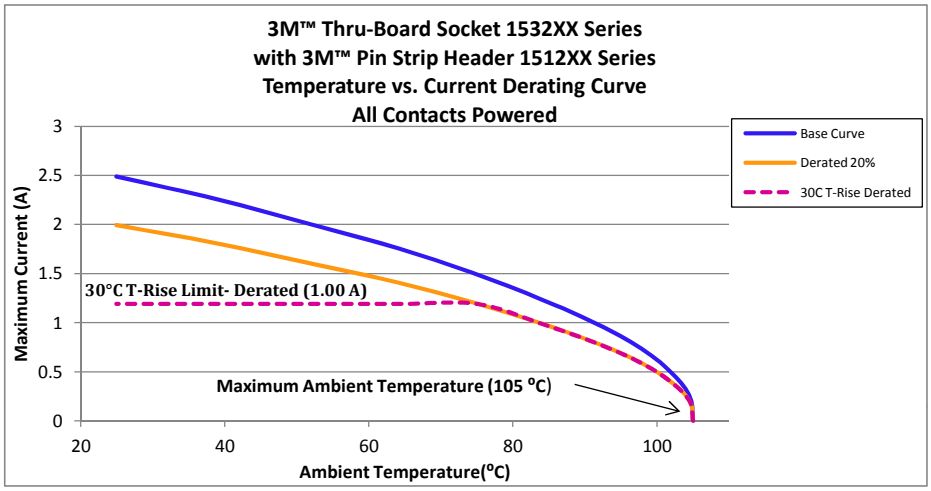
1 Dimensional
2 Dielectric Withstanding Voltage
3 Current Rating
4 Insulation Resistance
5 Plating Thickness
6 Contact Retention- EIA-364-29
7 Porosity Test- EIA-364-60
8 Temperature Life

10. Figures

10.1 Current Rating







11.0 Agency Listings

11.1 Underwriters Laboratories (UL)

Agency	File No.
UL	E68080
CUL	E68080

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