3M™ Latch/Eject Header, 1552 Series

Product Specification 78-5102-0073-2

Revised 05-24-21

3M Electronic Materials Solutions Division
Interconnect Products
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1.0 Scope

This document summarizes test methods, test conditions, and product performance requirements for 3M™ Wiremount Socket 1522 Series mated to 3M™ Latch/Eject Headers 1552 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

78-5100-0523-0 Technical data sheet for 3M Wiremount Socket 1522 Series
78-5100-2199-0 Techical data sheet for 3M Latch/Eject Header 1552 Series
34-7042-7467-8 3443-118 3M™ Locator Plate Instructions

3.0 Performance Testing

Unless otherwise specified, all tests shall be performed on 152250-0113-GB sockets mated to 155250-6302-RB headers using 3625 cable 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 VACrms at sea level

Current (AC or DC):

4.75 A 1 line energized
2.00 A 6 lines* energized
1.25 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 500 VDC

4.2 Materials

Header:

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

4.3 Finishes

Plating:

Nickel: 50 - 150 µ inches (1.27 - 3.81 µm), QQ-N-290, Class 2
Tin: Minimum 200 µ inches
Gold options: 30 µ inches (0.76 µm) Avg, ASTM B488-01, Class C
10 µ inches (0.25 µm) Avg, ASTM B488-01, Class C

4.4 Regulatory Compliance

For regulatory information about this product, visit 3M.com/regs or contact your 3M representative.

5.0 Electrical

Description or Parameter	Values & Limits	Units	Requirement or Conditions		Test Standard or Method
Dielectric Withstanding Voltage	500	VACrms	Measured between adjacent and opposing contacts. No disruptive discharge during 1 minute duration. Sea level with 50% relative humidity.		EIA-364-20F Method A Test Condition I
Current Rating per Line	4.75	Amperes	1 line energized.	30ºC temperature rise, 20% derated.	EIA-364-70A Method 2
	2.00		6 lines energized.		
	1.25		All lines energized.		
Low Level Contact Resistance	≤10	Milliohms	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.		EIA-364-23C
Insulation Resistance	>1000	Megohms	Measured between adjacent and opposing contacts with 500 VDC applied for 1 minute.		EIA-364-21F

6.0 Mechanical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Physical Shock	≤10	Nano-seconds	Mated connectors shall exhibit no discontinuities greater than specified. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-27B Test Cond. C
Vibration	≤10	Nano-seconds	Mated connectors shall exhibit no discontinuities greater than specified. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-28F Condition V, Table 2, Cond A, 1.5 hrs
Insertion Force	1.10	Newtons per contact	Average for connector, based on 50 pin connector. No friction latch.	EIA-364-37B Method B
Withdrawal Force	0.33	Newtons per contact	Average for connector, based on 50 pin connector. No friction latch.	EIA-364-37B Method B
Durability (Full)	100 (30µ" Au)	Mating cycles	10 milliohm maximum ΔR contact resistance per mated interface throughout testing. (Only header has 10u" Au)	EIA-364-09C
	20 (10u" Au)			
Durability (Preconditioning)	50	Mating cycles	10 milliohm maximum ΔR contact resistance per mated interface throughout testing. (30µ"Au only)	EIA-364-09C
Header Pin Retention	> 17N	N	minimum average for a connector	EIA-364-29B
Latch Retention	> 15	lbs	Force to remove latch from header	3M Instron Test

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
Nickel Plating Thickness	50 - 150 (1.27-3.81)	Micro-inches Micro-meters	Average of random measurements from any 3 lots shall not be less than specified.	EIA-364-48
Tin Thickness	Min 200 (min 5.08)	Micro-inches Micro-meters	Minimum 200 µ inches	EIA-364-48
Gold Thickness	30 Avg 10 Avg.	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	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-17C Method A Condition 4
	1000	Hours		
Durability	100	Mating cycles	10 milliohm maximum △R contact resistance throughout testing.	EIA-364-09C
Thermal Shock	-55 & 105	Degrees C	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-32G Method A, Test Cond. VII
	5	Cycles		
Humidity-Temperature Cycling	-10 to 65	Degrees C	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-31F Method IV Fig 1
	90 to 98	% Relative humidity		
	240	Hours		
Salt Spray	5	% NaCl	48 hours. 25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-26C Test Cond. B
Header Solderability, Lead-Free Dip Test	>95	Percent	Coverage of solderable area	EIA-364-52 Category 3
Moisture Sensitivity (Lead-Free Solder Process)	260	Degrees C	No defects such as deformation, blisters, cracks or other damage. Must maintain dimensional stability.	J-STD-020C Level 1
	3 Times	Rework capability		

9.0 Qualification Test Groups and Sequences

9.1 Sequenced Tests

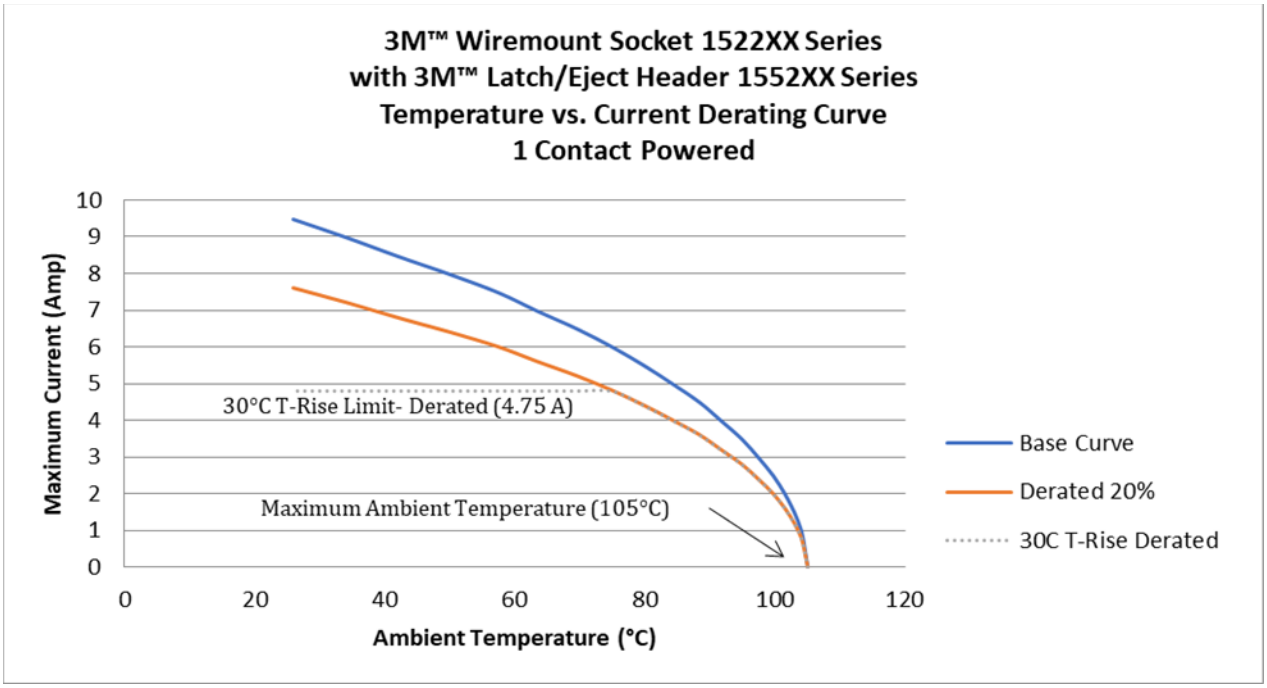
TEST	EIA 364 TP NO.	TEST GROUP					
		A	B	C	D	E	F
Visual	18	0,8	0,4	0,6	0,5	0,6	0,3
LLCR	23	1,3,5,7	1,3	1,3,5	1,4		
Durability (Pre-conditioning)	13				2		
Durability (Full)	13	2				3	
Temperature Life (Full)	17		2				
Dielectric Withstanding Voltage	20					1,4	2
Insulation Resistance	21					2,5	
Mechanical Shock	27			2			
Vibration	28			4			
Thermal Shock	32	4					
Humidity Temperature Cycling	31	6					
Salt Spray/Fog	26				3		
Temperature Rise vs. Current	70						1

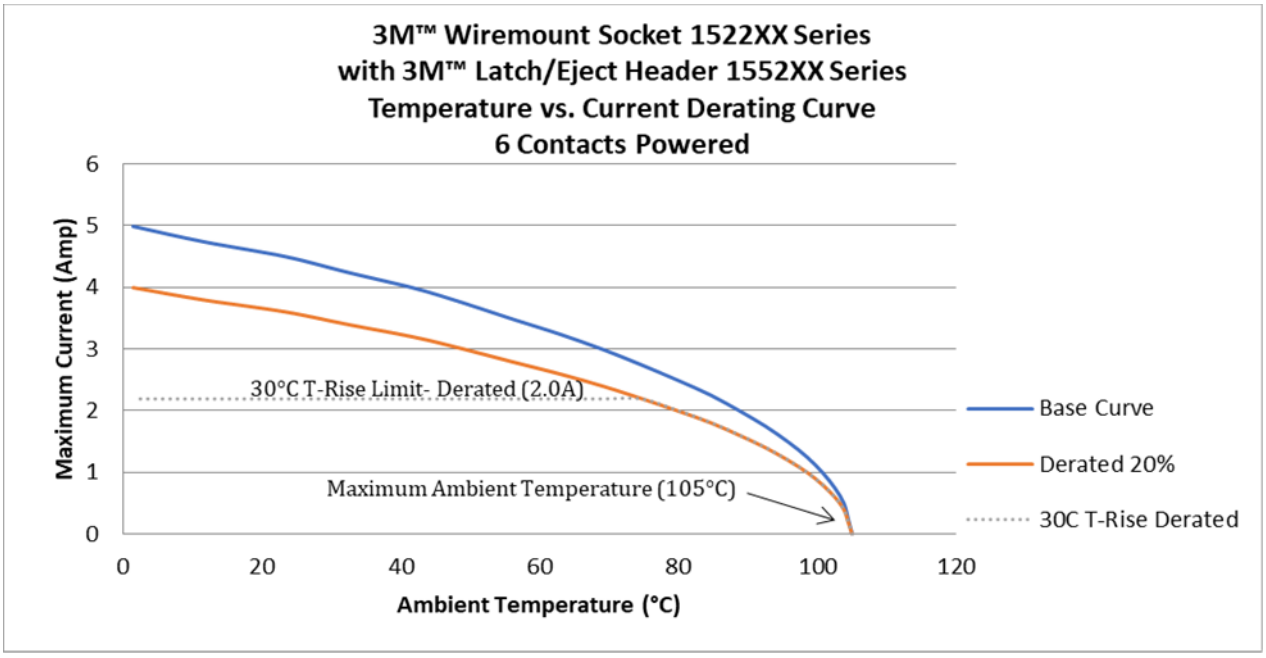
9.2 Independent Tests

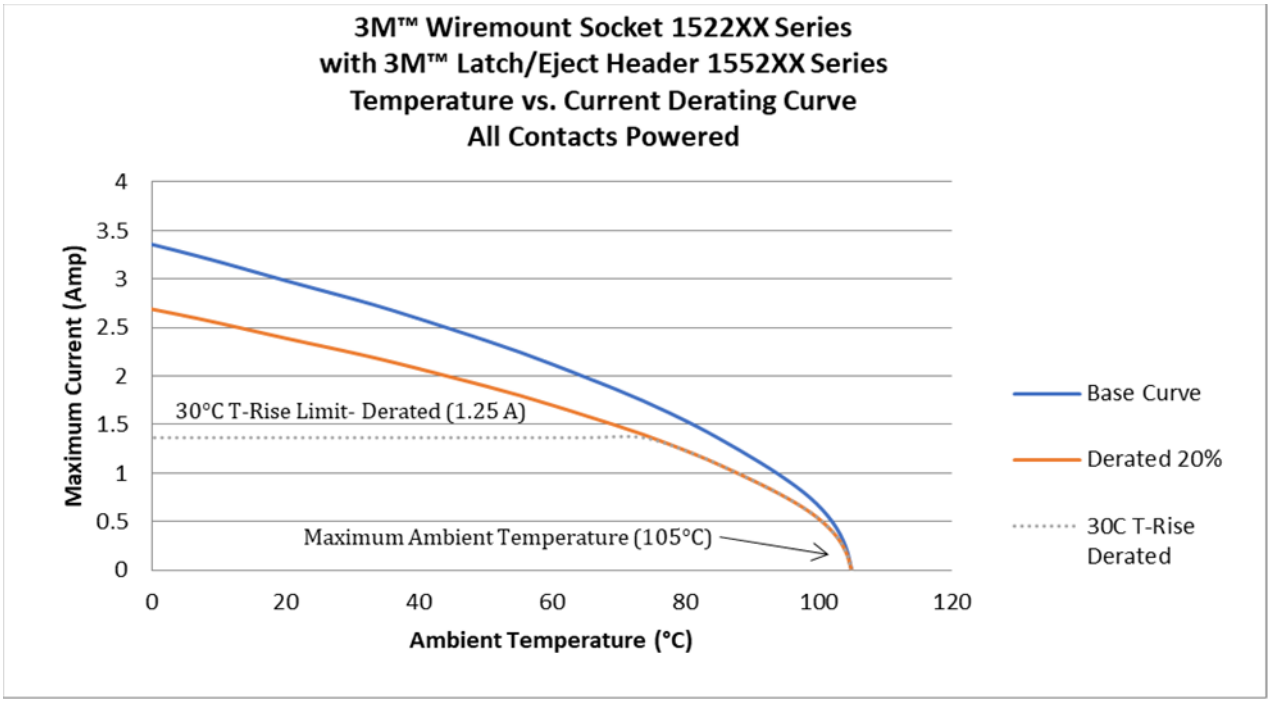
1) Moisture Sensitivity (Lead Free) - Header Only
2) Current Rating
3) Mating Force / Contact
4) Unmating Force / Contact
5) Solerability

10. Figures

10.1 Current Rating







11.0 Agency Listings

11.1 Underwriters Laboratories (UL)

Agency	File No.
UL	E68080
CUL	E68080

Unless otherwise noted, references to industry specifications are intended to indicate substantial compliance to the material elements of the specification. Such references should not be construed as a guarantee of compliance to all requirements in a given specification.

Regulatory: For regulatory information about this product, visit 3M.com/regs

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