



## **Product Specifications**

### **3M™ Low-Profile Headers Series 25XX**

**78-5102-0002-1 Rev D**

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## 1. Scope

This document summarizes test methods, test conditions and product performance requirements for the 3M™ Low Profile Headers. Listings of materials, finishes, test conditions, and test standards are included in this specification. In the event of conflict between this specification and any documents listed below, the listed documentation supersedes this specification.

## 2. 3M Customer Documents

78-5100-0770-7 TS-0770, Technical Data Sheet for 25XX Series Four-Wall Header  
78-9100-7795-3 Instruction Sheet for 3M™ Polarizing Key 3518

## 3. Performance and Test Description

Unless otherwise specified, all tests shall be mated to 3M Wiremount Sockets 3425, .100 pitch with 3M Cable 3365 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. Requirements Overview

### 4.1 Ratings

Dielectric withstanding voltage: 1000  $V_{RMS}$  @ Sea Level  
Temperature: -65°C to +105°C  
Insulation resistance:  $>1 \times 10^9 \Omega$  at 500  $V_{DC}$   
Current: ( EIA-364-070 method 2, 30°C maximum temperature rise. )  
1.75 Amperes, All contacts powered  
3.00 Amperes, 6 contacts powered  
5.00 Amperes, 1 contact powered

### 4.2 Materials

Header  
Insulation: Glass Filled PCT  
Latch Insulation: Nylon  
Cover Clip: Stainless Steel with Gray Polyurethane Coating  
Pin Contact: Copper Alloy

### 4.3 Finishes

Plating:  
TS-0770 25XX Series Four-Wall Header  
Nickel: 50-150  $\mu$  inches, ASTM B689-97, SAE AMS-QQ-N-290  
Gold: 30  $\mu$  inches, MIL-G-45204 Type II, Grade C, ASTM B488-01  
Sn: 200-300  $\mu$ " Matte Tin  
D25XX Series Four-Wall Header  
Nickel: 50 - 150  $\mu$  inches, ASTM B689-97, SAE AMS-QQ-N-290  
Gold: 10  $\mu$  inches, MIL-G-45204 Type II, Grade C, ASTM B488-01  
Sn: 40-120  $\mu$ " Matte Tin

**4.5 Regulatory Compliance**

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

**5.0 Test Results Summary**

**5.1 General**

**5.2 Environmental**

Items		Specification	Test Method
Environmental	Durability (30µ" Au)	• 50 Insertions/Withdrawals •Max. ΔR: <10 mΩ	EIA-364-09
	Durability (10µ" Au)	• 10 Insertions/Withdrawals •Max. ΔR: <10 mΩ	EIA-364-09
	Salt Spray	• No physical abnormalities after test •Max. ΔR: <10 mΩ	EIA-364-26
	Thermal Shock	• No physical abnormalities after test •Max. ΔR: <10 mΩ	EIA-364-32, Table 2, Condition II, -65 to +105 °C, 5 Cycles
	Temperature Life (Thermal Aging)	• No physical abnormalities after test •Max. ΔR: <10 mΩ	EIA-364-17, Method A, Condition 3D, 105 °C, 1000 hours
	Humidity	Max. ΔR: <10 mΩ	EIA-364-31, Method IV, 25-65 °C, -10 °C subcycle, 80-100%RH, 10 cycles

**5.3 Mechanical**

Items		Specification	Test Method
Mechanical	Vibration	• No physical abnormalities after test • Max. ΔR: <10 mΩ • No electrical discontinuity > 10 n sec	EIA-364-28, Method V, Condition A, Table II
	Mechanical Shock	• No physical abnormalities after test •Max. ΔR: <10 mΩ • No electrical discontinuity > 10 n sec	EIA-364-27, Test Condition A, Table 1
	Contact Retention	3.5 lb. min	EIA-364-29

**5.4 Electrical**

Items		Specification	Test Method
Electrical	Low Level Contact Resistance	Max. ΔR: <10 mΩ	EIA-364-23
	Dielectric Withstanding Voltage	1000 Vrms @ Sea Level, 1 min	EIA-364-20
	Insulation Resistance	1 x 10 <sup>9</sup> @ 500 V <sub>dc</sub>	EIA-364-21
	Current Rating	1.75 Amp, All Lines Powered 3.00 Amp, 6 Lines Powered 5.00 Amp, 1 Line Powered	EIA-364-70A, Method 2, 30°C Temperature Rise Limit.

**5.4 Physical**

Items		Specification	Test Method
Physical	Visual	No defects such as deformation, blister, damage, crack, etc.	EIA-364-18
	Nickel Underplating Thickness Gold Thickness	50-150 µ" 30 µ" 10 µ"	EIA-364-48, C Average of random measurements from any 3 lots
	Matte Tin Thickness	200-300µ"	
	Solderability	>95% Coverage of solderable area	EIA-364-52

**6.0 Test Sequence**

**6.1 Sequenced Tests**

**TEST FLOW**

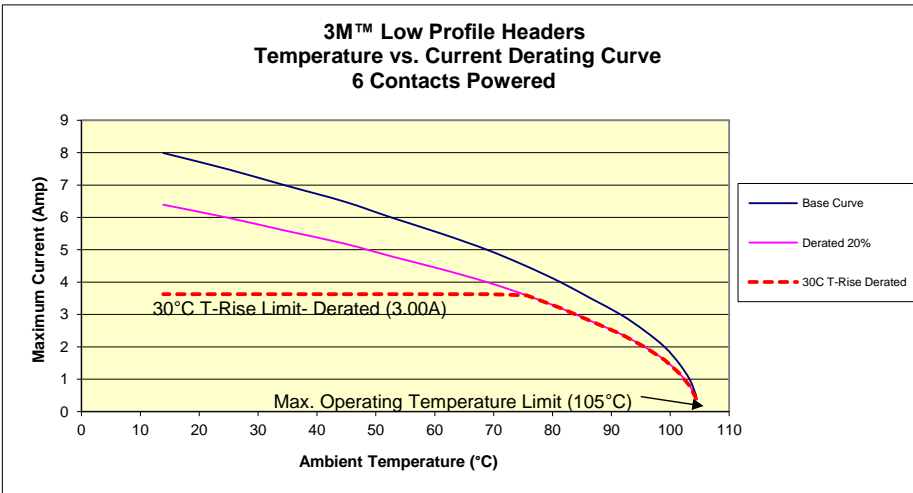
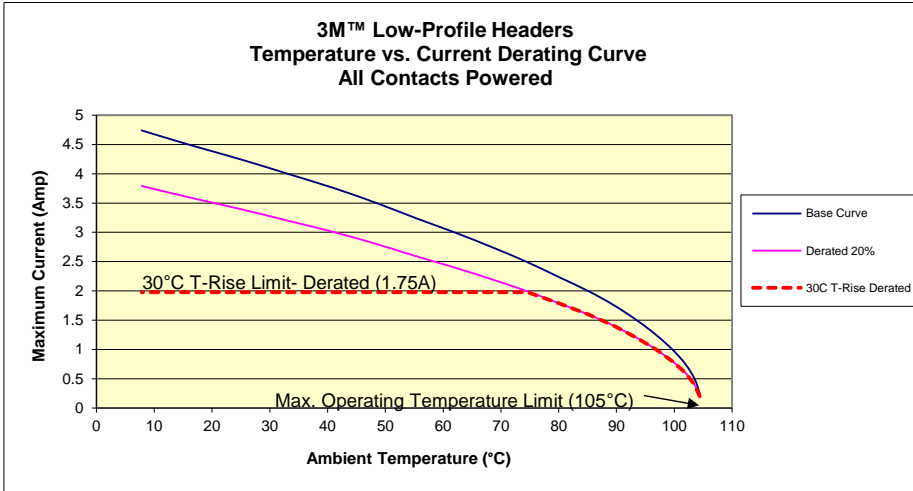
Test	Sequence Numbers for Test Group			
	A	B	C	D
Visual			1	1
Low Level Connection Resistance (LLCR)	1,3,5,7	1,3	2,4,6	2,4,6
Vibration			3	
Physical Shock			5	
Durability (with Environmental)	2			3
Temperature Life (Thermal Aging)		2		
Humidity	6			
Thermal Shock	4			
Salt Spray				5

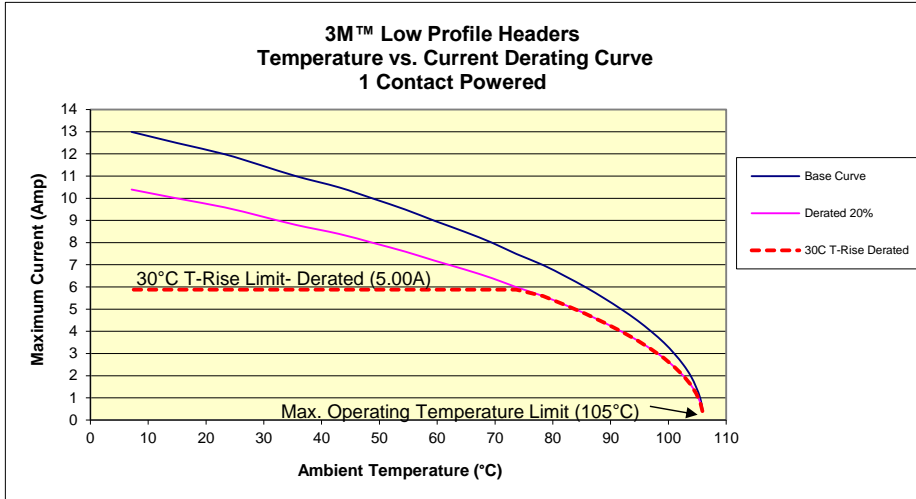
### 6.2 Independent Tests

1. Plating Thicknesses
2. Header Solderability
3. Header Pin Retention
4. Dielectric Withstanding Voltage
5. Current Rating
6. Insulation Resistance

### 7.0 Figures

#### 7.1 Temperature vs. Current





**8. Agency Listings**

**8.1 Underwriters Laboratories (UL)**

Agency	File No.
UL	E68080
CUL	E68080

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