3M™ Wiremount Plug
.100" x .100" Connector for .050" Pitch Cable
4600 Series

Product Specification 78-5102-0093-0

Released: 11-01-2020

Table of Contents

1. Scope

This document summarizes test methods, test conditions and product performance requirements for the 3M Wiremount Plug, 4600 Series. 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

78-5100-0086-8 TS-0086, Technical Data Sheet for 3M Wiremount Plug, 4600 Series
78-9100-5422-6 3M™ Locator Plate 3443-96 Instructions

3. Performance and Test Description

Unless otherwise specified, all tests shall be performed on 3M Wiremount Plug, 4600 Series with 30 µ" of gold mated to 3M™ Wiremount Socket, 3000 Series using 3M™ Round Conductor Flat Cable, 3365 Series and 3M™ Round Conductor Flat Cable, 3801 Series at ambient environmental conditions per EIA-364. 50 to 64 postion connectors. 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 3M Ratings

Voltage: $125V_{AC}$

Current:

1.50 A, All contacts powered
2.25 A, 6 contacts powered
5.50 A, 1 contact powered
(Rating Conditions: EIA-364-070 method 2, 30°C maximum temperature rise.

Temperature: -55°C to +105°C

Insulation Resistance: >1 $x10^9\Omega$ at 500 VDC

Dielectric Withstanding Voltage: 1000 VAC_{RMS} at sea level

4.2 Agency Listings

Underwriters Laboratories (UL): File No. E68080

UL Ratings		CUL Ratings	
Temperature:	130˚ C	Temperature:	130˚ C
Voltage:	125 V	Voltage:	125 V
Current:	1.0 A	Current:	1.0 A

4.2 Materials

Socket Insulation: Glass Filled PBT, 94V-0
Cover Insulation: Glass Filled PBT, 94V-0
Strain Relief: Stainless Steel
Contact: BeCu

4.3 Finishes

Plating:

Nickel: 50 - 150 µ inches, ASTM B689-97, SAE AMS-QQ-N-290
Gold - Contact: 30 µ inches, MIL-G-45204 Type II, Grade C

4.4 Regulatory Compliance

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

5. Electrical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Dielectric Withstanding Voltage	1000	VAC_{RMS}	Measured between adjacent and opposing contacts. No disruptive discharge during 1 minute duration. Sea level with 70% relative humidity.	EIA-364-20B
Current Rating	1.50	Ampere	30˚C T rise above ambient, mated pair terminated to cable, all lines powered	EIA-364-70A
	2.00		30˚C T rise above ambient, mated pair terminated to cable, 6 lines powered	
	5.00		30˚C T rise above ambient, mated pair terminated to cable, 1 line powered	
Low Level Connection Resistance	<10	Milliohms	25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-23A
Insulation Resistance	$>1x10^9$	Ohms	Measured between adjacent and opposing contacts. 500 VDC for 1 minute duration.	EIA-364-21B

6. Mechanical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Connector Contact Retention	>900	grams	Force / contact required to remove pin from header body.	EIA-364-29B
Vibration	10 - 2000	Hz	20 min/cycle frequency sweep, 12 cycles. Mated connectors shall exhibit no discontinuities greater than 10ns during test or 25 milliohm max. ΔR contact resistance per mated interface througout test.	EIA-364-28D Condition III
Physical Shock	50	g's	3 Shocks each direction. X, Y, Z. 18 total. Mated connectors shall exhibit no discontinuities greater than 10ns during test or 25 milliohm max. ΔR contact resistance per mated interface througout test.	EIA-364-27B Test Cond. A
Durability (with Environmental)	50 (30 µ")	Mating cycles	25 milliohm maximum △R contact resistance per mated interface throughout testing.	EIA-364-09C

7. Physical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Visual	NA	NA	No defects such as deformation, blister, damage, crack, etc.	EIA-364-18A
(Metallic Coating) Adhesion	NA	NA	No cracking, flaking.	MIL-G-45204 Section 4.5.2
Plating thickness Nickel Gold Tin	50-150 30 Avg	µ"	Average of random measurements from any 3 lots.	EIA-364-48

8. Environmental

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Temperature Life (Thermal Aging)	105	degrees C	1000 hours. No physical abnormalities. 25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-17A Method A Condition 4
Humidity	10	24 hr cycles	25-65 C / 90-98%RH with -10 degree C subcycles. 25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-31B Method 3 Condition 7a
Thermal Shock	5	cycles	-55 to +105 degrees C. No evidence of mechanical damage. 25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-32C Test Cond. VII
Salt Spray	5	% NaCl	48 hours. 25 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-26B Test Cond. B

9. Test Sequence

9.1 Sequenced Tests

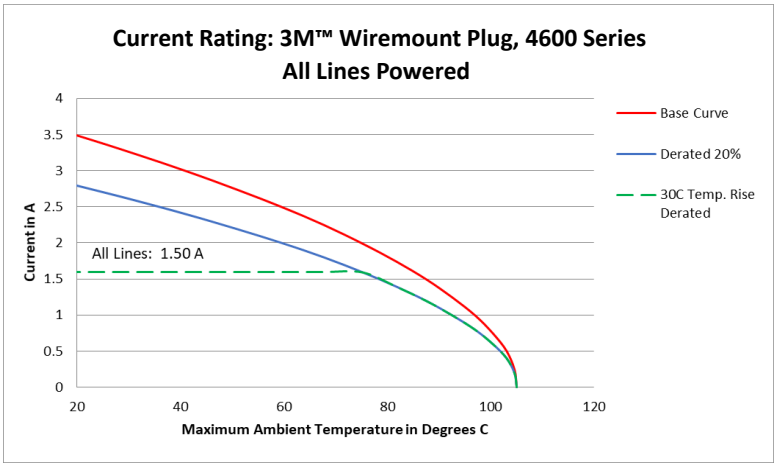
TEST FLOW

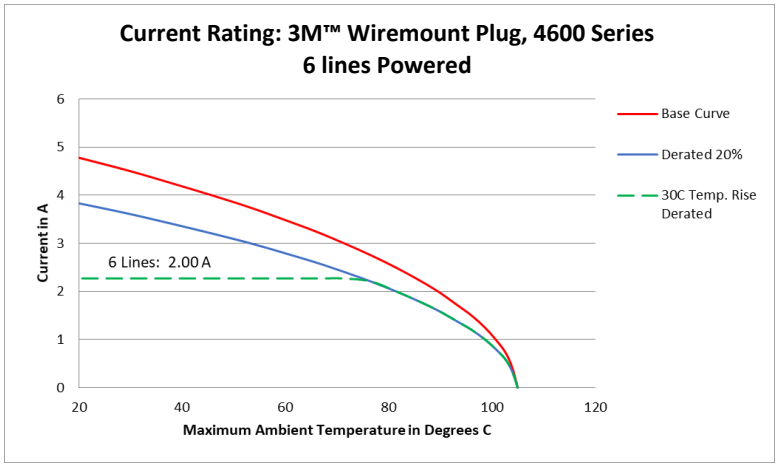
Test	Sequence Numbers for Test Group			
	A	B	C	D
Visual			1	1
Low Level Connection Resistance (LLCR)	1,3,5	1,3	2,4,6	2,4,6
Vibration			3	
Physical Shock			5	
Durability (with Environmental)				3
Temperature Life (Thermal Aging)		2		
Humidity	4			
Thermal Shock	2			
Salt Spray				5
Number of Samples (Connectors)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

9.2 Independent Tests

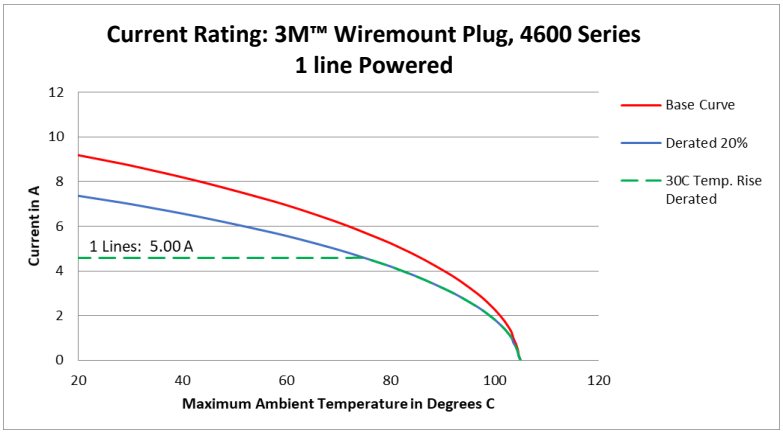
1. Contact Retention
2. Current Rating
3. Dielectric Withstanding Voltage
4. Insulation Resistance
5. Plating Thickness
6. (Metal Coating) Adhesion

10. Figures





10. Figures (Continued)



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