

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

Section	Page
1. Scope	3
2. 3M Documents	3
3. Performance and Test Descriptions	3
4. Requirements Overview	3
5. Electrical	4
6. Mechanical	4
7. Physical	4
8. Environmental	5
9. Test Sequence	5
10. Figures	5
Important Notice	6

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 μm 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 position 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 x10⁹Ω 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 throughout 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 throughout test.	EIA-364-27B Test Cond. A
Durability (with Environmental)	50 (30 μ")	Mating cycles	25 milliohm maximum ΔR 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

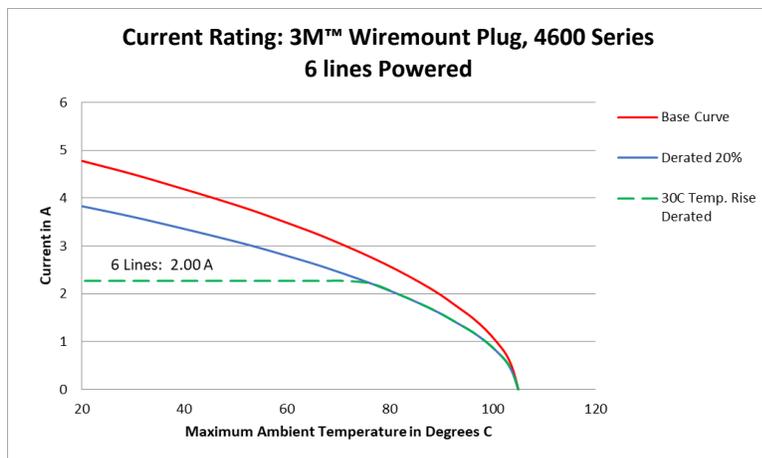
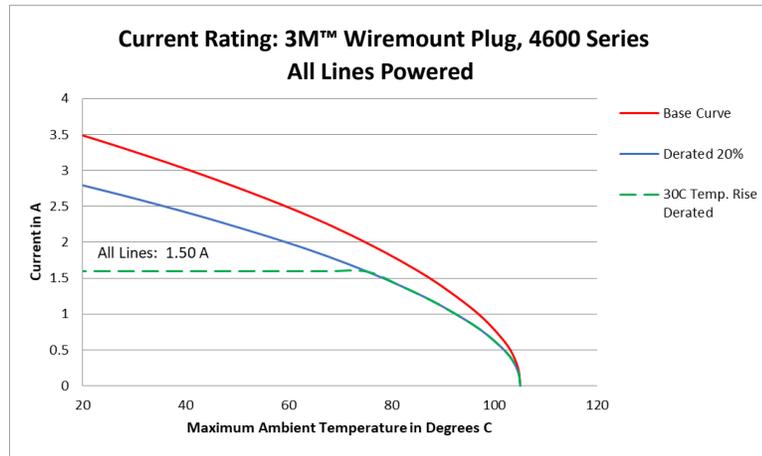
TEST FLOW

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

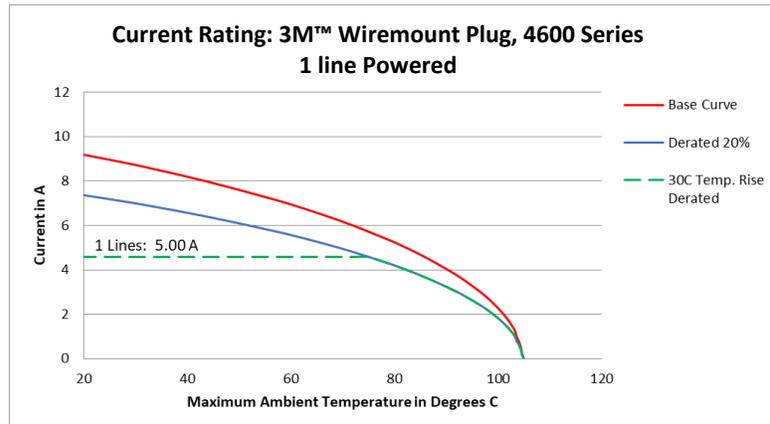
9.2 Independent Tests

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)



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.

“RoHS 2015/863” means that the product or part does not contain any of the substances in excess of the maximum concentration values (“MCVs”) in EU RoHS Directive 2011/65/EU, as amended by EU 2015/863. The MCVs are by weight in homogeneous materials. This information represents 3M’s knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

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

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M’s control and uniquely within user’s knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user’s method of application.

Warranty, Limited Remedy, and Disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. **3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE.** If the 3M Product does not conform to this warranty, then the sole and exclusive remedy is, at 3M’s option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



3M Electronics Materials Solutions Division
Interconnect Products
13011 McCallen Pass, Bldg. C
Austin, TX 78753
www.3Mconnectors.com

3M is a trademark of 3M Company.
Please recycle.
©3M 2020. All rights reserved.
78-5102-0093-0 Rev B