3M™ Molded Assembly, 1M Series

.100" x .100" (2.54mm x 2.54mm) pitch

Product Specification: 78-5102-0026-0

Revised: 6-01-2022

3M Electronics Materials Solutions Division
13011 McCallen Pass Bldg. C
Austin, TX 78753-5380
1-800-225-5373
www.3M.com/interconnect

1. Scope

This document summarizes test methods, test conditions and product performance requirements for the 3M™ Molded Assembly, 1M Series. Listings of materials, finishes, test conditions, and test standards are included. In the event of conflict between this specification and any documents listed below, the listed documentation supersedes this specification.

2. 3M Documents

78-5100-2754-9	TS-2754, 3M™ Molded Assembly, 1M Series
78-5100-0063-7	TS-0063, 3M™ Round Conductor Flat Cable, 3801 Series
78-5100-0122-1	TS-0122, 3M™ Round Conductor Flat Cable, 3811 Series
78-5100-0080-1	TS-0080, 3M™ Round Conductor Falt Cable, 3365 Series
78-5100-2334-0	TS-2334, 3M™ Round Conductor Flat Cable, HF365 Series
78-5100-0317-7	TS-0317, 3M™ Round Conductor Flat Cable, 3355 Series
78-5100-0553-7	TS-0553, 3M™ Round Conductor Flat Cable, 3601 Series
78-5100-0058-7	TS-0058, 3M™ Medium Flex Life Cable, 3539 Series
78-5100-0059-5	TS-0059, 3M™ High Flex Life Cable, 3319 Series
78-5100-0123-9	TS-0123, 3M™ Round Conductor Flat Cable, 3302 Series
78-5100-2565-9	TS-2565, 3M™ Medium Flex Life Cable, HF539 Series
78-5100-2342-2	TS-2342, 3M™ High Flex Life Cable, HF319 Series

3. Performance and Test Description

For 1M Assembly all tests were performed on 3M™ Molded PCB 0.100" X 0.100" Cable Assembly Connector, 2 row series 878 with retention feature, 60 position mated to 3M™ Wiremount Socket 0.100" X 0.100" Series 3000, 60 positions using 3M™ Round Conductor Flat Cable 3365, HF319 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

Diel. Withstanding Voltage:	1000VAC$_{RMS}$ at sea level
Temperature:	-55°C to +105°C (may be limited by choosen cable)
Insulation Resistance:	>1 x10^{9}Ω at 500 V$_{DC}$
Current Rating:	1A

Agency Listings:

Underwriters Laborytory (UL): File No. E68080

UL Ratings:

Temperature:	120°C
Voltage:	30V

CUL Ratings:

Temperature:	120°C
Voltage:	30V

4.2 Materials

Insulation:	Glass Filled Polyester (PBT)
Flammability:	UL 94-V0
Contact material:	Copper Alloy
Underplating & U Slot:	50 - 150µ" [1.27 - 3.81µm] Nickel

4.3 Finishes

Wiping Area (Socket):	30µ" [0.76µm] AVG. Gold
Contact Tails (PCB):	300 - 400µ" [7.62 - 10.16µm] Matte Tin

4.4 Regulatory Compliance

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

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5. Electrical Testing

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-364-20 Method B
Dielectric Breakdown voltage	500	VAC/sec	Ramp assembled pair at 500V/s until electrical arc. Sea level with 70% relative humidity. Excludes cable.	EIA-364-20 Method A Test Condition I
Insulation resistance	>1 x 10^9	Ohms	Measured between adjacent and opposing contacts. 500 VDC for 1 minute duration.	EIA-364-21
Low Level Connection Resistance (LLCR)	<10 Δ	Milliohms	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-23

6. Mechanical Testing

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-364-28D Condition III
Mating Force / Contact	450 max	Grams	Mated to a 0.025" square pin.	EIA-364-13 Method B
Durability (Preconditioning)	50	Mating cycles	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-13
Cover Retention Force	5	N	minimum Retention Force per contact	Staight pull until mechanical failure

7. Physical Testing

Description or parameter	Values & limits	Units	Requirement or conditions	Test standard or method
Visual			No defects such as deformation, blister, damage, crack, etc.	EIA-364-18
Plating Thickness Nickel	1.27-3.81 (50-150)	Micro-meter (Micro-inch)	Random measurements from any 3 lots shall not be outside of specification.	EIA-364-48 Method C
Plating Thickness Gold	0.76 min (30)	Micro-meter (Micro-inch)	Minimum of random measurements from any 3 lots shall not be less than specified.	

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8. Environmental Testing

Description or parameter	Values & limits	Units	Requirement or conditions	Test standard or method
Temperature Life (Full)	1008 125	hours °C	No physical abnormalities. 10 milliohm maximum ΔR contact resistance throughout testing.*	EIA-364-17 Method A Condition 5D
Thermal Shock	5	Cycles	No physical abnormalities. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.*	EIA-364-32C Test Cond. VII
Humidity	10	24 hr cycles	25-65 C / 90-98%RH with -10 degree C subcycles. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-31B Method 3 Condition 7a
Solderability (Header)	As-received 8	hours	95 percent coverage of solderable area	EIA-364-52
Salt Spray	5	% NaCl	48 hours. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-26B Test Cond. B

9. Test Sequence

TEST	Sequenced Numbers for Test Group					
	A	B	C	D	E	F
Visual				1	1	1, 7
Low Level Connection Resistance (LLCR)	1,3,5	1,3,5,7	1,3	2,4,6	2,4,6	
Vibration				3		
Physical Shock				5	3	
Durability (with Environmental)		2				4
Temperature Life (Thermal Aging)			2			
Humidity	4	6				
Thermal Shock	2	4				
Salt Spray					5	
Dielectric Withstanding Voltage						2, 5
Dielectric Breakdown Voltage						8
Insulation Resistance						3, 6

Independent Tests

1 Mating Force
2 Plating Thickness
3 Solderability
4 Dimensions
5 Cover/Strain Relief Retention

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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

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

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