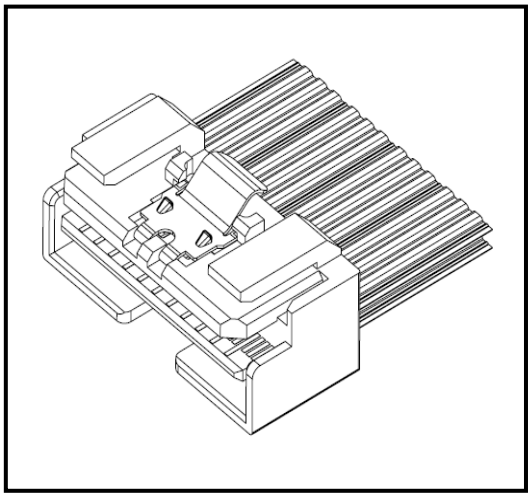
Product Specifications | January 2021

78-5102-0354-6, Rev A

3M™ Low Profile Input/Output Twin Axial Cable Assembly (LP I/O)



Scope

This document summarizes test methods, test conditions, and product performance requirements for 3M™ Low Profile Input/ Output Twin Axial Cable Assembly.

Reference Documents

Note: Unless otherwise specified, latest edition of the reference documents applies. In the event of conflict between requirements of the references and 3M specification, 3M specification shall take precedence.

Reference to commercial standards, specifications and report

EIA-364
PCIe 3.0 & PCIe 4.0/5.0
SFF-8654 & SFF-TA-1016

3M™ Low Profile Input/ Output Twin Axial Cable Assembly	
Literature Code	**Document Title**
78-5100-2723-4 Rev A	TS-2723/Customer Drawing, 85ohm, 31AWG, 8CS8 Series

Performance Testing

Unless otherwise specified, all tests shall be performed on some kind of sockets mated to some kind of headers using some cable at 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.

3M™ Low Profile Input/Output Twin Axial Cable Assembly

Ratings

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Low Profile Input/ Output Twin Axial Cable Assembly	
Feature	**Value**
Current rating	0.5A per contact
Voltage rating	30 V AC per contact
Operating temperature	0°C to +70°C
Non-operating Temperature	-20°C to +85°C
Humidity	80% RH Maximum

Materials

3M™ Low Profile Input/ Output Twin Axial Cable Assembly	
Halogen content	See applicable assembly drawing
Housing Material:	 Glass filled thermoplastic
Paddle card Material: Mating pad under plate: Mating pad finish:	 FR4 (Hal Free) 1.27 µm (50 µ0) Ni MIN 0.76 µm (30 µ0) Au MIN
High speed ribbon twin axial cable:	See applicable 3M™ Twin Axial Ribbon Cable drawing for cable specification.

Regulatory Compliance

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

Electrical

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Low Profile Input/ Output Twin Axial Cable Assembly				
Description or Parameter	**Units**	**Values / Limits**	**Requirement or Conditions**	**Test Standard or Method**
Dielectric Withstanding Voltage	V DC	300	EIA-364-20, Method B Subject a voltage of 300 VDC for 1 minute at sea level between adjacent contacts of mated connector assemblies.	EIA-364-20
Low level contact resistance (LLCR)	Milliohms	△R ≤20	Subject a voltage of 20 mV DC max at open circuit at a current not exceeding of 100 mA max on mated connector assemblies.	EIA-364-23
Insulation Resistance	Mega ohms	>1000	Measured between adjacent and opposing contacts with 100 VDC applied for 1 minute.	EIA-364-21

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Mechanical

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Low Profile Input/ Output Twin Axial Cable Assembly				
Description or Parameter	**Units**	**Values / Limits**	**Requirement or Conditions**	**Test Standard or Method**
Mating force (without latch)	Newtons	31 max for 8x	Average for connector, based on 8x connector. No friction latch.	EIA-364-13
Unmating force (without latch)	Newtons	24 max for 8x	Average for connector, based on 8x connector. No friction latch.	EIA-364-13
Latched plug retention force	Newtons	50 Min	Average for connector, based on 8x connector.	EIA-364-98
Durability (preconditioning)	No evidence of physical damage.	Nil	Perform 50 unplug/plug cycles.	EIA-364-09
Durability	No evidence of physical damage.	△R ≤20	Perform 250 unplug/plug cycles.	EIA-364-09
Reseating	Milliohms	△R ≤20	Perform 3 unplug/plug cycles.	EIA-364-1000
Vibration	Milliohms	△R ≤20	3.10G RMS between 20 and 500 Hz at 15 minutes in each of 3 mutually perpendicular directions. No damage. No discontinuity longer than 1 µsec allowed.	EIA-364-28 Condition VII D
Mechanical shock	Milliohms	△R ≤20	Mated connectors shall exhibit no damage. 20 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-27

Environmental

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Low Profile Input/ Output Twin Axial Cable Assembly				
Description or Parameter	**Units**	**Values/ Limits**	**Requirement or Conditions**	**Test Standard or Method**
Temperature Life (Thermal Aging)	Degrees C Hours	85 500	No physical abnormalities. 20 milliohm maximum ΔR contact resistance initial testing. No physical damage.	EIA-364-17 Method A
Temperature Life (preconditioning)	Degrees C Hours	90 240	As Above	EIA-364-1000
Thermal Shock	Degrees Cycles	-55/25 & 85/25 10	No physical abnormalities. 20 milliohm maximum ΔR contact resistance throughout testing. 30mins each at extreme temp.	EIA-364-32 Condition 1
Humidity-Temperature Cycling	Degrees C % RH Cycles	25 at 80% & 65 at 50% 24	25°C, 80%RH to 65°C, 50%RH to 25°C 80%. Ramp time – 0.5 hour Dwell time – 1.0 hour. (65°C) 24Cycles – 24Hrs	EIA-364-1000 & 31 Method III (without condition)

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Qualification Test Groups and Sequenced Tests

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Low Profile Input/ Output Twin Axial Cable Assembly					
Test Description	Test Group				
	1	2	3	4	5
	Test Sequence				
Visual Inspection	1,7	1,11	1,7	1,15	1
Mating Force	2	2		5	
Low Level Contact Resistance	3,5	3,6,9	2,4,6	2,7,12	
Durability (Preconditioning)		4			
Durability	4				
Unmating Force	6	10		8	
Temperature Life (Preconditioning)		5			
Temperature Life			3		
Reseating			5		
Vibration Shock		7			
Mechanical Shock		8			
Insulation Resistance				3,9,13	
Dielectric Withstanding Voltage				4,10,14	
Thermal Shock				6	
Cyclic Temperature and Humidity				11	
Latch Plug Retention Force					2

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

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