Electronic Solutions Division
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Document No. : **PS-0082**
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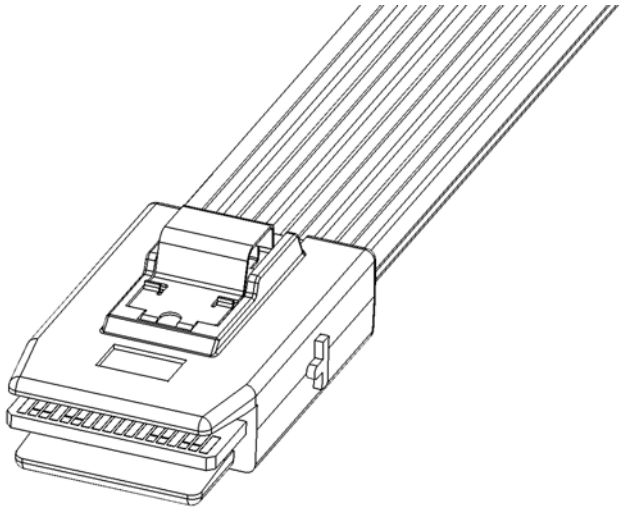
PRODUCT SPECIFICATION

3M High Routability Internal MiniSAS Cable Assembly, Series 8F36



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1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the 3M High-Routability MiniSAS Cable Assemblies, Series 8F36.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the specification applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence.

2.1. Commercial standards, specifications and report

2.1.1. EIA-364
2.1.2. SAS2
2.1.3. SFF-8086
2.1.4. SFF-8087

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

3.2. Materials

3.2.1. Plug overmold
Material: High Temperature Thermoplastic
Flammability: UL94V-0

3.2.2. Paddlecard
Material: FR4
Mating pad underplating: Min 100u" Ni
Mating pad finish: Min 30u" Au

3.2.3. High-speed Ribbon Twin Ax Cable
See related specification PS-0079 for ribbon twin ax cable material information

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3.3. Ratings

3.3.1. Current rating: 0.5 A/contact
3.3.2. Operating temperature: -20 to +80 deg C

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in section 3.5. All tests are performed at ambient environmental conditions per EIA-364 unless otherwise specified.

The mated boardmount connector used in these tests was the 3M MiniSAS internal right-angle connector, series 8AB36 (found on tech sheet TS-2208).

3.5. Test Requirements and Procedures Summary

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Test Description	Test Condition	Requirement
ELECTRICAL		
Withstanding voltage	300 V DC applied for 1 minute between adjacent signal wires, between signal wire and shield, and between sideband and shield per EIA-364-20	No breakdown; Current leakage < 1 mA
Insulation resistance	100V applied for 1 minute between adjacent signal wires, between signal wire and shield, and between sideband and shield per EIA-364-21	< 1000 Megohms
Propagation delay	Measured with 3 meter sample per SFF-8416 sect 8.2.7.3	4.95 ns/m (typical)
Intrapair skew (within pair)	Measured with TDR method using 3 meter samples. Risetime of 40 ps (10-90%). Skew measured at 70 ohm crossing point..	< 10 ps/meter

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SIGNAL INTEGRITY		
Impedance, mated cable assembly	Risetime of 70 ps (20/80%)	100 +/- 10 ohms
Differential insertion loss, SDD21	1 meter assembly measured over frequency range 50 MHz to 4.5 GHz	Meets SAS2 limit line: -6dB up to 4.5 GHz
Differential reflection loss, SDD22	Half and one meter assemblies measured from 50 MHz to 6 GHz	Meets SAS2 limit line: < -10 dB up to 2.075 GHz < -7.9+13.3 x log(f / 3 GHz) between 2.075 and 6 GHz
Differential-to-common mode conversion, SCD21	Half and one meter assemblies measured from 50 MHz to 6 GHz	Meets SAS2.1 limit line: < -18 dB up to 6 GHz
Differential to common mode reflection, SCD22	Half and one meter assemblies measured from 50 MHz to 6 GHz	Meets SAS2 limit line: < -26 dB up to 300 MHz < -12.7+13.3 x log(f / 3 GHz) between 300 MHz and 6 GHz < -10 dB between 4.8 and 6 GHz
Near End Crosstalk	Half and one meter assemblies measured from 50 MHz to 6 GHz . Total NEXT calculated as described in table 52 of SAS2 standard (rev 16)	Meets SAS2 limit line: < -26 dB up to 6 GHz

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MECHANICAL		
Static (one-time) fold	Bend Radius: 1.0 mm Bend Types: 45°, 90°,180° (flat fold)	Meets signal integrity specifications (impedance, s- parameters) after a one-time 1 mm minimum bend radius fold
Critical Dimension Measurement	Measure dimensions specified in applicable product drawing.	Product shall meet requirements of applicable product drawing.
Durability	250 cycles Measured according to EIA-364-09	Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Mechanical Shock	Mated connectors tested according to EIA-364-27, Test Condition “H”. Normal duration 11 ms, 30g peak acceleration, ½ sine wave, 3 times each in +/- X, Y, & Z (18 shocks total)	No physical abnormalities after test. No electrical discontinuity > 1 us. Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Random Vibration	Mated connectors tested according to EIA-364-28, Test Condition VII, letter D. Frequency 20 – 500 Hz, 3.10 g RMS, 15 min duration	Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Removal Force	Measured according to EIA-364-13	49 N Maximum
Insertion Force	Measured according to EIA-364-13	55.5 N Maximum

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ENVIRONMENTAL		
Aging (flat)	70°C for 500 hours per EIA-364-17 method II, test condition A	No visual changes and meets signal integrity specifications (impedance, s- parameters). Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Aging (folded)	85°C for 1000 hours per EIA-364-17 method A condition 2 with 1 mm radius 180° fold.	No visual changes and meets signal integrity specifications (impedance, s- parameters). Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Humidity	10 cycles (10 days) between 25°C and 65°C at 80% to 100% RH, per EIA-364-31, table 1, test condition B, method III, figure 1. No bias and no sub-cycle.	No visual changes and meets signal integrity specifications (impedance, s- parameters). Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms
Thermal shock	-55°C to +85°C, 10 cycles, 1/2 hour at each temperature extreme, per EIA-364-32, Table 2, Test Condition I	No visual changes and meets signal integrity specifications (impedance, s- parameters). Maximum initial R of 80 milliohms and maximum delta R of 20 milliohms

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Important Notice

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

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