PRODUCT SPECIFICATION PS-7535 Rev. A

ORIGINAL

Title: Mini SAS HD Integrated Connector Product Specification

Part Number: G40H series

Description: Mini SAS HD Integrated Connector, 0.75 Pitch, R/A, Press-Fit Type

ISSUED BY AMPHENOL TAIWAN PDF Format D.C.

Revisions Control

Rev.	ECN Number	Originator	Approval	Issue Date
A	NE-15128	Joan Lu	Hank Hsu	10.28.2015

Product Specification Origination

Originator:	Date:	Checked by:	Date:	Approved by:	Date:
Joan Lu	10/29/2015	Sondra Sang	10/29/2015	Hank Hsu	10/29/2015

1. Scope

This document defines the detailed requirements for the Amphenol G40H Series Mini SAS HD integrated connector to insure functionality and reliability.

2. Applicable documents

2.1	EIA-364 Standard	Test methods for electrical connectors
2.2	UL-STD-94	Tests for flammability of plastic materials for parts in devices and appliances.
2.3	SFF-8643	SFF specification
2.4	SAS-3	Serial Attached SCSI-3 standard

3. Requirements

3.1 Design and construction

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

3.2 Material and finish

3.2.1 Insulator

- High temperature thermoplastic, UL94V-0
- Color: Option

3.2.2 Contact

- Copper Alloy
- Contact area: Selected Gold plating
- SMT tail: Matte Tin plating
- Under-plating: Nickel plating overall

3.2.4 Shell

- Stainless steel

3.3 Rating

- Current: 0.5 A per contact
- Voltage: 30 VDC per contact
- Temperature:

  Operating: -40°C~ 85°C

  Non-operating: -55°C~ 85°C
- Durability

  30u” Au: 250 cycles

4. Performance and testing

4.1 Test requirements and procedures summary

Test	Test procedure	Test criteria
Examination of product	EIA-364-18 Visual, dimensional and functional inspection.	Must meet the minimum requirements specified by product drawing.
Electrical:		
Low level Contact Resistance	EIA-364-23 Current: 100 mA Voltage: 20 mVDC	Baseline
Insulation Resistance	EIA-364-21 Apply a voltage between adjacent terminals. Voltage: 100 VDC	1000 megohm minimum
Dielectric Withstanding Voltage	EIA-364-20 Apply a voltage between adjacent terminals. Voltage: 300 VDC Duration: 1 minute	No defect or breakdown No disruptive discharge No leakage current in excess of 5mA
Temperature Rise (via current cycling)	EIA-364-70 Measure the temperature rise at the rated current after 96 hours. (45 minutes ON and 15 minutes OFF)	30℃ maximum change from initial
Differential characteristic impedance	The equivalent maximum TDR rise time from 20% to 80% shall be 70 ps.	85±10% ohms
Minimum S_{DD21}	100 MHz to 6000 MHz	-1.0 dB
Maximum S_{DD22}	100 MHz to 6000 MHz	-12 dB

Maximum S_{CC22}	100 MHz to 6000 MHz	-3.0 dB
Maximum near-end crosstalk (NEXT) for each signal pair		-35 dB
Maximum far-end crosstalk (FEXT) for each signal pair		-35 dB
Mechanical:		
Durability (preconditioning)	EIA-364-09 50 unmate/mate cycles No lubrication to be used during cycling. Cycling to be performed manually unless otherwise specified.	No evidence of physical damage.
Durability	EIA-364-09 Cycle rate: 500±50 per hour Number of cycles: 250 cycles	No evidence of physical damage.
Plug Mating Force (Active Latch)	EIA-364-13 Rate: 25.4 mm/minute	150 N maximum
Plug Un-mating Force (Active Latch)	EIA-364-13 Rate: 25.4 mm/minute	50 N maximum
Contact Normal Force	EIA-364-04 Rate: 25.4 mm/minute	0.49 N (50 grams) minimum
Screw Torque	Screw driver diameter: 2 mm	The recommended screw torque is 1.6~2.0 kgf-cm, it can be adjusted by real application.
Vibration	EIA-364-28, Test Condition VII, Condition D Subject mated specimens to 3.10 G's rms between 20-500 Hz for 15 minutes in each of 3 mutually perpendicular planes.	No Damage No discontinuity longer than 1usec allowed. 10 milliohm maximum change from initial (baseline) contact resistance
Mechanical Shock	EIA-364-27, Test Condition H Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.	No Damage 10 milliohm maximum change from initial (baseline) contact resistance

Reseating	Manually un-mate/mate the connector 3 cycles.	No evidence of physical damage.
Plug Pull out Force	Subject mated connectors to apply an axial pull out force on the wire at a rate of 25 mm per minute.	50 N minimum Force to overcome latch
Environmental:		
Thermal Shock	EIA-364-32, Method A Test condition 1 -55 ℃ to 85 ℃ (10 cycles)	No Damage 10 milliohm maximum change from initial (baseline) contact resistance
Humidity-Temperature Cycling	EIA-364-31, Method III Subject unmated specimens to 24 cycles between 25℃/ 80%RH and 65℃/ 50%RH Ramp times should be 0.5 hour and dwell times should be 1.0 hour	No Damage 10 milliohm maximum change from initial (baseline) contact resistance
Temperature Life (preconditioning)	EIA-364-17, Method A Subject mated specimens to 105 ℃ for 336 hours	No Damage
Temperature Life	EIA-364-17, Method A Test Condition 2, Test Time Condition C Subject mated specimens to 105 ℃ for 840 hours	No Damage 10 milliohm maximum change from initial (baseline) contact resistance

4.2 Test Sequence

Test or Examination	Test Groups									
	1	2	3	7	A	B	C	D	E	F
Examination of product	1,8	1,10	1,10	1,10						
Low Level Contact Resistance	2,5,7	2,5,7,9	2,5,7,9	2,5,7						
Insulation Resistance				**3,8**						
Dielectric Withstanding Voltage				**4,9**						
Temperature Rise					V					
Differential Impedance (connector area)								V		
Near End Isolation								V		
Insertion Loss								V		
Durability (preconditioning)	3	3	3							
Durability				6						
Plug Mating Force (Active Latch)						V				
Plug Un-mating Force (Active Latch)						V				
Contact Normal Force							V			
Vibration			**6**							
Mechanical Shock			**8**							
Reseating	6	8								
Plug Pull out Force										V
Thermal Shock		4								
Humidity-Temperature Cycling		6								
Temperature life (preconditioning)			4							
Temperature life	**4**									

Note:

1. Test specimen: 5 PCS/ group unless otherwise specified.
2. Test specimen shall be sure to meet the drawing before the testing.
3. Test group A-E need to implement individual test.

List of Appendix

☑ Product Drawing : G40HAXXXXXX-X

☐ Qualification Test Report :