PRODUCT SPECIFICATION PS-7460 Rev. B

ORIGINAL

Title: Mini SAS HD Integrated Connector Product Specification

Part Number: G40H series

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

Revisions Control

Rev.	ECN Number	Originator	Approval	Issue Date
A	NE-13131	Hank Hsu		08.12.2013
B	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

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 Housing

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

3.2.2 Contact

- Copper Alloy
- Contact area: Selected Gold plating
- EON 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
Visual & Dimensional inspection	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 maximum Voltage: 20 mV maximum	Baseline
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 Impedance (connector area)	EIA-364-108 Rise time: 50ps (20-80%) Includes connector cable to connector interface and board termination pads and vias.	90-110 ohms (distribution) 100±5 ohms (distribution of average value)
Near End Isolation	EIA-364-90 50 MHz to 12.5 GHz	-40 dB minimum (Frequencies up to 6.25 GHz)
Insertion Loss	EIA-364-101 50 MHz to 12.5 GHz	1.0 dB maximum (Frequencies up to 6.25 GHz)
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.
Mating Force (Module only)	EIA-364-13 Rate: 25.4 mm/minute	50 N maximum
Un-mating Force (Module only)	EIA-364-13 Rate: 25.4 mm/minute	10 N maximum
Plug Mating Force (Active Latch)	EIA-364-13 Rate: 25.4 mm/minute	4X - 50 N maximum 8X - 100 N maximum
Plug Un-mating Force (Active Latch)	EIA-364-13 Rate: 25.4 mm/minute	4X - 30 N maximum 8X - 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 mOhms 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 mOhms maximum change from initial (baseline) contact resistance
Reseating	Manually unmate/mate the connector 3 cycles.	No evidence of physical damage.
Environmental:		
Thermal Shock	EIA-364-32, Method A Test condition 1 -55 ℃ to 85 ℃ (10 cycles)	No Damage 10 mOhms 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 mOhms 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 mOhms maximum change from initial (baseline) contact resistance

4.2 Test Sequence

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

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-D need to implement individual test.

List of Appendix

☑ Product Drawing : G40H1XXXXHR

☑ Qualification Test Report : 11-11-EAT-027-E00