

PRODUCT SPECIFICATION

PS-7712 Rev. AX5

Title: Extremport Flash Connectors

Part Number: G13 and RFDXX series

Description: Receptacle- Right Angle SMT and Plug-Cable End Type

Revisions Control

Rev.	ECN Number	Originator	Approval	Issue Date
AX1	Initial Revision	Sondra Sang		2018.09.14
AX2		Sondra Sang		2019.03.11
AX3		Sondra Sang		2019.04.30
AX4		Sondra Sang		2019.07.22
AX5		Sondra Sang		2019.08.02

Product Specification Origination

Originator:	Date:	Checked by:	Date:	Approved by:	Date:

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1. Scope

This document defines the detailed requirements for the Amphenol [Extremport Flash G13A](#) series receptacle and RFDXX series plug cable end 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-TA-1002	Protocol Agnostic Multi-Lane High Speed Connector
2.4	UL-Subject-444	Communication Cables

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 Receptacle (G13 series) 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
- Solder area: Matte Tin plating
- Under-plating: Nickel plating overall

3.2.3 Shell

- Stainless steel
- Under-plating: Electroless Nickel plating overall

3.3 Plug (RFDXX series) Material and Finish

3.3.1 Raw Cable

- 30~34 AWG dual drains, 95 \pm 5 ohm, SAS cable or shield differential pair
- 30~34 AWG drain-less, SAS cable or shield differential pair

3.3.2 Plug

- Rear cover: PA66, black color, UL 94V-0

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- Front cover: Zn alloy, Nickel plating $50\ \mu'' \sim 100\ \mu''$;
painting 0.1mm thickness on the bottom
- Latch: Stainless steel (SUS301-3/4H)
- Pull tab: PP, color- blue or white (Other specification can be made on custom request)

3.4 Environment- related substances control requirements

The product is for RoHS 2.0 or Halogen Free compliant

3.5 Rating**3.3.1 Voltage: 30 Volts AC(RMS)/DC****3.3.2 Current: 0.5 Amps per contact****3.3.3 Operating Temperature: -40°C ~ 85°C****3.3.4 Shipping and Storage Temperature: -40°C ~ 85°C****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	Initial: 30 milliohms maximum After test: $\Delta R=20$ milliohms maximum
Dielectric Withstanding Voltage	EIA-364-20 Apply a voltage between adjacent terminals. Voltage: 250 VDC Duration: 1 minute	No defect or breakdown No disruptive discharge No leakage current in excess of 0.5mA
Insulation resistance	EIA-364-21 Apply a voltage between adjacent terminals. Voltage: 100 VDC	100 Megaohm minimum

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Contact Current Rating	EIA-364-70 Measure the temperature rise at the rated current. Ambient temperature: 25°C	30°C maximum change from initial
Mechanical:		
Mating Force (W/O Latch)	EIA-364-13 Rate: 12.5 mm/minute	2 N~20N
Un-mating Force (W/O Latch)	EIA-364-13 Rate: 12.5 mm/minute	1N~16N
Mating Force (W/ Latch)	EIA-364-13 Rate: 12.5 mm/minute	40N maximum
Un-mating Force (W/ Latch)	EIA-364-13 Rate: 12.5 mm/minute	5N minimum.
Releasing Latch Force	Testing releasing latch with pull tab, at a max. rate of 12.5mm/ minute.	Initial: 10N maximum After 50 cycles: 8N maximum
Latch Retention Force	EIA-364-13 Rate: 12.5 mm/minute	45N minimum.
Durability	EIA-364-09 Cycle rate: 25.4mm/ minute mating/ unmating cycle Number of cycles: 250 cycles	No evidence of physical damage. LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
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. LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
Mechanical Shock	EIA-364-27, Test Condition H Subject mated specimens to 50 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 LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
4-Axis Continuity Test	Receptacle shall be mounted on a PCB Load: pull cable of 15 N perpendicular to connection at 0, 90, 180 and 270 degrees Duration: one minute at each axis	No discontinuities > 1 microsecond duration in any of the four orientations
Wrenching strength	The test to simulate rotating the cable by user during the actual usage. Test equipment: BAOYT BY-360S cable rotation tester and NAC continuity tester. Connect the cable for monitoring of continuity, Test board of receptacle	No wear on cable or strain relief, no damage to strain relief, cracks or tearing of the cable No discontinuities > 1 microsecond duration in any of the four orientations Load weight: 15N minimum

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	mounting shall fix on the equipment, should be applied by the weight cable to the clamp fixture at a 45 degree angle from the vertical centerline. Rotate 360° load weight at 45 degree angle test total 1 cycle at rate of 5 cycles/ minute.	
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 °C to 85 °C, perform 5 cycles in mating condition	No Damage LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
Cyclic Temperature and Humidity	EIA-364-31, Method III Subject unmated specimens to 24 cycles between 25°C/ 80%RH and 65°C/ 50%RH Ramp times should be 0.5 hour and dwell times should be 1.0 hour	No Damage LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
Temperature Life (preconditioning)	EIA-364-17, Method A Subject mated specimens to 105°C for 72 hours	
Temperature Life	EIA-364-17, Method A Test Condition 2, Test Time Condition C Subject mated specimens to 105°C for 120 hours	No Damage LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
Thermal Disturbance	EIA-364-1000, Subject mated specimens to cycle the connector between 15±3°C and 85±3°C, as measured on the part. Ramp should be a minimum of 2°C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes). Humidity is not controlled. Perform 10 such cycles.	No Damage LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum
Mixed flowing gas (MFG)	EIA-364-65, class IIA Test condition: mated connector. RH: 70±2% Temperature: 30±1°C Cl ₂ : 10±3 ppb NO ₂ : 200±50 ppb H ₂ S : 10±5 ppb SO ₂ : 100±20 ppb Duration: 7 days	No evidence of physical damage LLCR Initial: 30 milliohms maximum After test: ΔR=20 milliohms maximum

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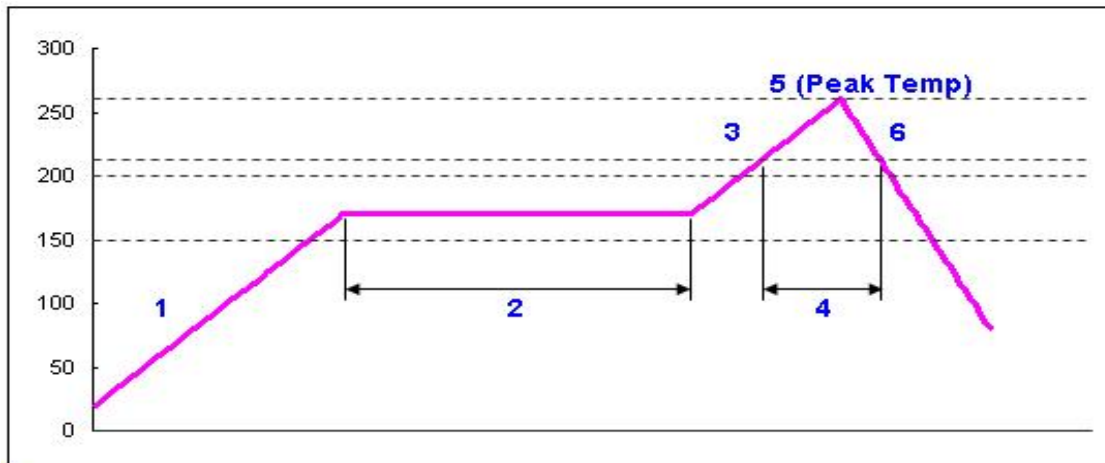
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Salt Spray	EIA-364-26B Test condition: mated connector. a.) $5\pm 1\%$ salt. b.) temperature : $35\pm 2^{\circ}\text{C}$. c.) Duration: 48 hours.	No evidence of physical damage LLCR Initial: 30 milliohms maximum After test: $\Delta R=20$ milliohms maximum
Solderability	EIA-364-52 The surfaces to be tested shall be immersed in the flux for a minimum of 5 to 10 seconds. Any droplets of flux that may form shall be removed by blotting, taking care not to remove the flux coating from the surfaces to be tested. The test samples being tested shall be allowed to dry in ambient air for 5 to 20 seconds prior to solder immersion. The test sample termination shall be immersed to a depth equal to a length from its tip to a location normally not less than 0.5 mm below the connector seating plane. Temperature: $245\pm 5^{\circ}\text{C}$ Duration: 5 seconds	95% of immersed area must show no voids or pin holes.
Resistance to soldering heat (Infrared reflow)	EIA-364-29 Average ramp rate: $1\sim 4^{\circ}\text{C}$ per second Temperature(board surface): $260\pm 0^{\circ}\text{C}/-10^{\circ}\text{C}$ Duration: $30\sim 40$ seconds	No evidence of physical damage

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4.2 Recommended IR reflow profile(Lead-free)



1	Average ramp rate	3°C per second max.
2	Pre-heat temp.(minimum)	150°C
	Pre-heat temp.(maximum)	200°C
	Pre-heat time	60 to 120 seconds
3	Ramp to peak	3°C per second max.
4	Time over liquidus(217°C)	60 to 150 seconds
5	Peak temp.	260 +0/-10°C
	Time within 5°C of peak	10 seconds max.
6	Ramp- cool down	6°C per second max.
	Time 25°C to peak	8 minutes max.

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4.3 Test Sequence

Test or Examination	Test Groups											
	A	B	C	D	E	F	G	H	I	J	K	L
Low Level Contact Resistance	1,4,6	1,4,6,8	1,4,6,8	1,4,6,8,10	2,8						1,3	
Dielectric Withstanding Voltage					1,9							
Contact Current Rating						V						
Durability (preconditioning)	2	2	2	2								
Durability					5							
Mating Force (w/o latch)					3,6							
Un-mating Force (w/o latch)					4,7							
Releasing Latch Force							V					
Latch retention force								V				
Vibration			5									
Mechanical shock			7									
4-Axis continuity test									V			
Wrenching strength										V		
Reseating	5	7		9								
Thermal shock		3										
Cyclic temperature and humidity		5										
Temperature life (preconditioning)			3	3								
Temperature life	3											
Mixed flowing gas (MFG)				5								
Thermal disturbance				7								
Salt spray											2	
Solderability												1
Resistance to soldering heat (Infrared reflow)												2

Note:

1. Test specimen: 5 PCS/ group unless otherwise specified.
2. Test specimen shall be sure to meet the drawing before the testing.