GENESIS Connected Solutions

PRODUCT SPECIFICATION

Genesis connected solutions

SPECIFICATION FOR APPROVAL

CUSTOMER:

CUSTOMER PART NO: QSFP parts

SPEC. PART NO: 320-XXXXX-XX

DESCRIPTION:

Genesis Connected Solutions

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Revision History:

GENESIS CONNECTED SOLUTIONS				
Date	Created By	Approved by	Revision	Description
9/06/19	Kyle	M Fetlon	01	Initial release
12/10/2020	M Felton	M Felton	02	Completed
2/07/2022	T Chiang		03	Add QSFPDD parts

1 SCOPE

This specification covers the performance requirements of the QSFP 30/28/26Gauge of all types, 10G / 25G / 50G cables.

These are the types of cables tested, the part numbers don't always match exactly due to different lengths made for testing or EEPROM contents varying. Coupling caps were replaced with 0 ohm resistors when testing required their use.

2 APPLICABLE DOCUMENT

These following documents form a part of this specification to this extent specified herein. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

Document	Description
Number	
UL 94	Rating V0
UL 60950	Information Technology Equipment
CSA C22.2, FT4	Vertical Flame Test No.0.3-92 Para 4.11.4
2002/95/EC	European Union Directive 2002/95/EC for the Restriction of
	Hazardous Substances (RoHS)
SFF-8436	QSFP+ 4X 10Gb/s Pluggable Transceiver
SFF-8416	Measurement and Performance Requirements for HPEI Bulk
	Cable
SFF-8472	EEPROM CONTENTS
SFF-8417	Multi-conductor Cable Flex Cycle Test Procedure
EIA-364	Enviromental Test Methodology

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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 OPERATING CONDITIONS

Table: 1

А	Current rating	0.5 A per contact
В	Voltage rating	30 V
С	Operating temperature	-5°C to 75°C
D	Humidity	20% - 80%

3.3 STORAGE CONDITIONS

Tab	ble: 2	
А	Temperature	-20°C to 75°C
В	Humidity	20% - 80%

3.4 TEST CONDITIONS

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Table 1.

3.5 ELECTRICAL PERFORMANCE

Parameter	Procedure	Requirement & Result
Insulation resistance	Measurements shall be made following application of DC 100V potential across terminals and across terminals and frame for 1 minute per EIA-364-21C	$10M\Omega$ minimum
Dielectric withstanding voltage	EIA 364-20 Test between adjacent contacts unmated cable assemblies.100 VDC for 1 minute.	No breakdown or flashover
Cable Impedance	100Ω	±10Ω
SI	Per applicable industrial standard	Customer demand

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3.6 MECHANICAL PERFORMANCE

Parameter	Procedure	Requirement & Result
Module Insertion Force	Measure without the force from any cage kick-out springs. Module to be inserted into nominal cage Max. rate of 12.7mm/min. Per EIA-13	40 Newtons (Max)
Module Extraction Force	Measure without the aid of any cage kick-out springs. Module to be inserted into a nominal cage. Max. rate of 12.7mm/min. Per EIA-13	30 Newtons (Max)
Insertion/removal cycles into cage/connector	EIA-364-09 50 Min module Cycles 100 min Cage/connector Cycles Per SFF-8436	No functional damage to module cage or connector
Module retention in cage	90 Newtons Min Per SFF-8436	No functional damage to module below 90N
Latch axial pull tab strength 125 N min Per SFF-8436		No functional damage
Competitor Compatibility	Insertion and withdrawal with various vendors	No functional damage
Cable Flex Cycle Test	Cycles: 100 cycles min, turn 90°, 100 Cycles Frequency: 13 cycles/min Weight: 2 pounds Per SFF-8417 Refer to Table 3	No visible damage to the jacket Conductor should maintain continuity Slight damage found on 2 SR, no broken wires or opens

Table: 3

Gauge	Cable OD	Pairs	Dimension X	Mandrel Radius
26	8.9mm	8	250 mm	43mm
28	7.9mm	8	250 mm	37mm
30	6.7mm	8	250 mm	31mm

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3.7 ENVIRONMENTAL PERFORMANCE

Parameter	Procedure	Requirement & Result
Physical shock	EIA 364-27 Subject mated connectors to 30 g's half-sine shock pulses of 11 msec duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks.	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.
Vibration	EIA 364-28 Condition VII Test Letter D Subject mated connectors to 3.10 g's RMS. 30 minutes in each of three mutually perpendicular planes.	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.
Humidity	EIA 364-31 Method III Test Condition A. Subject mated connectors to 96 hours at 40°C with 90% RH to 95% RH. and dwell should be 1.0 hour	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.
Temperature life	EIA-364-17 Test Condition III Method A. Subject mated connectors to temperature life based on cable rate for 96 hours.	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.
Thermal shock	EIA 364-32 Test Condition 1. Subject mated connectors to 10 cycles between –55°C and +85°C	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.
Mixed Flowing Gas	EIA-364-65 Class II 7 days Mated 7 days with dust cap	Meets SI on differential pairs, side band and EEPROM continuity checked. No physical damage.

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4.0 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE Table 4

Test Group 📥	A ⁽³⁾	В	С	D	Е	F
Test or Examination 🤳						
Sample Size	5	5	5	5	5	5
Examination of product ⁽¹⁾	1,9	1,5,9	1,13	1,7	1,7	1,7
Insulation Resistance	2					
Dielectric Withstanding Voltage	3					
Module insertion force		2				
Module extraction		3				
Insertion/removal cycles		6				
Module retention in cage	4					
Latch axial pull tab strength		7				
Competitor compatibility	5					
Physical shock			4			
Vibration ⁽²⁾			7			
Humidity			10			
Temperature life						4
Thermal shock				4		
Mix Flowing Gas					4	
SI performance	6,8	4,8	2,5,8,11	2,5	2,5	2,5
Continuity/ EEPROM			3,6,9,12	3,6	3,6	3,6
Flexibility	7					

NOTES:-

1. Shall meet EIA 364-18 Visual Examination requirements, show no physical damage, and shall meet requirements of additional tests as specified in the test sequence.

2. Vibration test fixture is to be determined by each user with connector vendors.

3. Capacitors on PCB replaced with zero Ohm resistors

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