

DAC-SFP1G-I-xM

1GBase SFP+ Direct Attach Cable

Copper, Passive, 1m to 10m Lengths, Industrial Temperature

FEATURES

- Compliant with MSA SFF-8431 / SFF-8432
- Compliant with IEEE 802.3ae
- Optimized NEXT & Return Loss
- Enhanced EMI / EMC performance
- Supports serial ID functionality through EEPROM
- Passive cable assembly supports distances up to 10 metres
- 30AWG to 24AWG cable sizes available
- RoHS compliant and Halogen-Free option available
- Industrial operating temperature range: -40°C to 85°C

APPLICATIONS

- 1G Gigabit Ethernet
- Hub, Switches, Routers, Servers, Network Interface Card (NICs)
- Data centre cabling infrastructure
- Networking, Storage, Telecommunications

WIRING DIAGRAM

Starting	End	Remark
X1. 12	X2. 19	Pair
X1. 13	X2. 18	
X1. 18	X2. 13	Pair
X1. 19	X2. 12	
X1:1, 2, 6 8, 10, 11, 14, 17, 20	X2:1, 2, 6 8, 10, 11, 14, 17, 20	Drain wire
X1:1, 4, 5 15, 16	X2:1, 4, 5 15, 16	EEPROM point at both ends

ELECTRICAL CHARACTERISTICS

ITEM		REQUIREMENT					TEST CONDITION
Differential Impedance	Cable Impedance	105+5/-5Ω					Rise time of 35ps (20% - 80%)
	Paddle Card Impedance	100±10Ω					
	Cable Termination Impedance	100±15Ω					
Differential (Input/Output) Return loss S _{DD11} /S _{DD22}		$Return\ loss(f) \geq \left\{ \begin{array}{ll} 10 & 0.01 \leq f < 4.1 \\ 6.3-13\log_{10}(f/5.5) & 4.1 \leq f \leq 11.1 \end{array} \right\}$ Where <i>f</i> is the frequency in GHz Return loss(<i>f</i>) is the return loss at frequency <i>f</i>					0.01GHz≤ <i>f</i> ≤11.1GHz SFF-8431 Rev.4.1
Differential Insertion Loss (S _{DD21} Max.)		(Differential Insertion Loss Max.)					0.01GHz≤ <i>f</i> ≤11.1GHz
		F AWG	600MHz	1.25G Hz	2.5GHz	5.0GHz	
		30 (1m) Max	2.5dB	3.5dB	4.5dB	6.5dB	
		30 (2m) Max	3.8dB	5.3dB	6.8dB	9.8dB	
		30 (3m) Max	5.0dB	7.0dB	9.0dB	13.0dB	
		26 (5m) Max	5.5dB	7.0dB	10.5dB	15.0dB	
		24 (10m) Max	7.0dB	10.0dB	14.0dB	20.0dB	
MDNEXT (multiple disturber near-end crosstalk)		≥26dB @5GHz					0.01GHz≤ <i>f</i> ≤11.1GHz

CONTINUED

Insertion Loss Deviation	$-0.7-0.2 \cdot 10^{-3}f \leq \text{ILD} \leq 0.7+0.2 \cdot 10^{-3}f$ (f is the frequency in MHz)	$0.01\text{GHz} \leq f \leq 5.0\text{GHz}$
Low Level Contact Resistance	70 Mohm Max. From initial.	EIA-364-23: Apply a maximum voltage of 20mV And a current of 100 mA.
Insulation Resistance	10 Mohm (Min.)	EIA364-21:AC 300V 1minute
Dielectric Withstanding Voltage	DC 500V 1 minute disruptive discharge.	EIA-364-20: Apply a voltage of 500 VDC for 1minute between adjacent terminals And between adjacent terminals and ground.

ENVIRONMENTAL PERFORMANCE

ITEM	REQUIREMENT	TEST CONDITON
Operating Temperature Range	-40°C to +85°C	Cable operating temperature range.
Storage Temperature Range (in packed condition)	-40°C to +85°C	Cable storage temperature range in packed condition.
Thermal Cycling Non-Powered	No evidence of physical damage	EIA-364-32D, Method A, -25 to 90°C, 100 cycles, 15 min. dwells
Salt Spraying	48 hours salt spraying after shell corrosive area less than 5%	EIA-364-26
Mixed Flowing Gas	Pass electrical tests per 3.1 after stressing. (For connector only)	EIA-364-35 Class II, 14 days.
Temperature Life	No evidence of physical damage	EIA-364-17C w/ RH, Damp heat 90°C at 85% RH for 500 hours then return to ambient
Cable Cold Bend	4H, No evidence of physical damage	Condition: -20°C±2°C, mandrel diameter is 6 times the cable diameter.

MECHANICAL & PHYSICAL CHARACTERISTICS

ITEM	REQUIREMENT	TEST CONDITON
Vibration	Pass electrical tests per 3.1 after stressing.	Clamp & vibrate per EIA-364-28E, TC-VII, test condition letter – D, 15 minutes in X, Y & Z axis.
Cable Flex	No evidence of physical damage	Flex cable 180° for 20 cycles ($\pm 90^\circ$ from nominal position) at 12 cycles per minute with a 1.0kg load applied to the cable jacket. Flex in the boot area 90° in each direction from vertical. Per EIA-364-41C
Cable Plug Retention in Cage	90N Min. No evidence of physical damage	Pull on cable jacket approximately 1 ft behind cable plug. No functional damage to cable plug below 90N. Per SFF-8432 Rev 5.0
Cable Retention in Plug	90N Min. No evidence of physical damage	Cable plug is a fixture with the bulk cable hanging vertically. A 90N axial load is applied (gradually) to the cable jacket and held for 1 minute. Per EIA-364-38B
Mechanical Shock	Pass electrical tests Per 3.1 after stressing.	Clamp and shock per EIA-364-27B, TC-G, 3 times in 6 directions, 100g, 6ms.
Cable Plug Insertion	18N Max. (SFP28)	Per SFF-8432 Rev 5.0
Cable plug Extraction	12.5N Max. (SFP28)	Measure without the aid of any cage kick-out springs. Place axial load on de-latch to de-latch plug. Per SFF-8432 Rev 5.0
Durability	50 cycles, No evidence of physical damage	EIA-364-09, perform plug & unplug cycles: Plug and receptacle mate rate: 250times/hour. 50times for module (CONNECTOR TO PCB)

MECHANICAL DIMENSIONS (UNITS: mm)

