



HC-10G-DAC

10G SFP+ Passive Direct Attach Copper Cable

Product Features

- Support for multi-gigabit data rates up to 10.3125Gbps
- Wire AWG: AWG30, AWG24
- Low power consumption < 0.5W
- Power supply :+3.3V
- Small diameter cable design
- Compatible to SFP+ MSA
- RoHS 2.0 complaint
- Commercial temperature range (COM): 0~ 70 °C•
- Cable type: Passive Copper Twinax Cable
- Available length (in meters): 1, 2, 3... 7
- Electrical interface compliant to SFF-8431
- Improved Pluggable Form Factor (IPF) compliant for enhancedEMI/EMC performance
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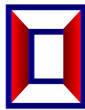


Applications

- 10G BASE Ethernet
- Switches / Routers
- Home small network

Description

The SFP+ passive cable assemblies are high performance, cost effective I/O solutions for 10G Ethernet and 10GFiber Channelapplications. SFP+ copper modules allow hardware manufactures to achieve high port density, configurability and utilizationataverylow cast and reduced power budget. The high speed cable assemblies meet and exceed Gigabit Ethernet and Fiber Channel industrystandard requirements for performance and reliability.



Order Information

Table 1- order information

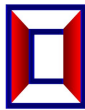
Part No.	Data Rate	Fiber Type	Distance	Temp	DDM
HC-10G-D1	10.3125Gbps	Copper	0.5-7M	0-70℃	N

Absolute Maximum Ratings

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Table 2-Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TS	-40	85	℃	
Operating Case Temperature	TOP	0	70	℃	
Power Supply Voltage	VCC	-0.5	3.6	V	
Relative Humidity (non-condensation)	RH	0	85	%	



Recommended Operating Conditions

Table 3-Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Note
Operating Case Temperature	TOP	0		70	°C	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Power Consumption				0.1	W	
Supply Current	Icc			100	mA	
Aggregate Bit Rate	BRAVE	-	10.3125	-	Gb/s	
Transmission Distance	TD	0.5	-	7	M	

High Speed Characteristics

Table 4-High Speed Characteristics

High Speed Characteristics						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Differential Impedance	Zd	90	100	110	Ω	
Differential Input Return Loss	SDDXX	$<-12+2*\text{SQRT}(f)$ with f in GHz			dB	0.01~4.1GHz
		$<-6.3+13*\text{Log}10/(f/5.5)$ with f in GHz			dB	4.1~11.1GHz
Common Mode Output Return Loss	SCCXX	$<-7+1.6*f$ with f inGHz			dB	0.01~2.5GHz
				-3	dB	2.5~11.1GHz
Difference Waveform Distortion Penalty	dWDPc			6.75	dB	
VMA Loss	L			4.4	dB	
VMA Loss to Crosstalk Ratio	VCR	32.5			dB	

Environment Performance

Table 6-Environment Performance

Item	Requirement	Test Condition
Operating Temp. Range	-20°C to +75°C	Cable operating temperature range.
Storage Temp. Range (in packed condition)	-40°C to +80°C	Cable storage temperature range in packed condition.
Thermal Cycling Non-Powered	No evidence of physical damage	EIA-364-32D, Method A, -25 to 90C, 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.
Temp. 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.

Edge connector and pinout description

The electrical pinout of the OSFP module is shown in Figure 1 below.

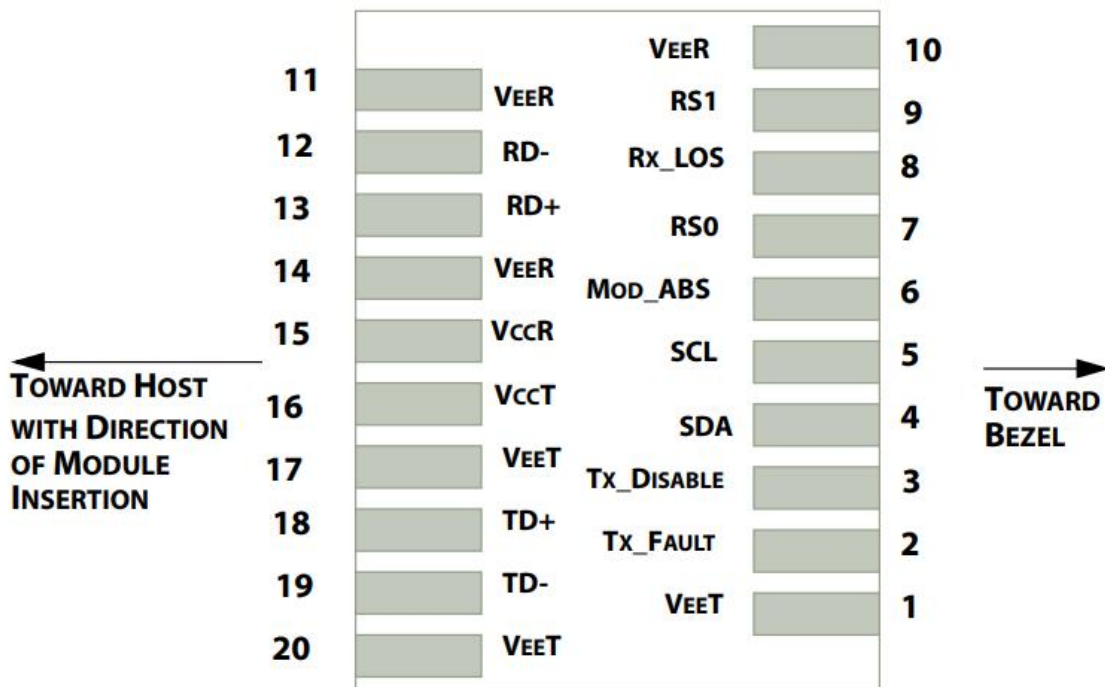
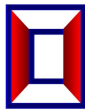


Figure 1. MSA compliant connector.



PIN	Symbol	Description	Logic	Note
1	VeeT	Transmitter Ground		
2	TX_Fault	N/A	LV-TTL-O	
3	TX_DIS	Transmitter Disable	LV-TTL-I	
4	SDA	Tow Wire Serial Data 5 LV	LV-TTL-I/O	
5	SCL	Tow Wire Serial Clock	LV-TTL-I	
6	MOD_DEF0	Module present, connect to VeeT		
7	RS0	N/A	LV-TTL-I	
8	LOS	LOS of Signal	LV-TTL-O	
9	RS1	N/A	LV-TTL-I	
10	VeeR	Receiver Ground		
11	VeeR	Receiver Ground		
12	RD-	Receiver Data Inverted	CML-O	
13	RD+	Receiver Data Non-Inverted	CML-O	
14	VeeR	Receiver Ground		
15	VccR	Receiver Supply 3.3V		
16	VccT	Transmitter Supply 3.3V		
17	VeeT	Transmitter Ground		
18	TD+	Transmitter Data Non-Inverted	CML-I	
19	TD-	Transmitter Data Inverted	CML-I	
20	VeeT	Transmitter Ground		



Mechanical Dimension

