


10G SFP+ Active Optical Cables P/N: GSS-MDO100-xxxC (xxx: 001 to 300)

Features

- ◆ Electrical interface compliant to SFF-8431
- ◆ Hot-pluggable SFP+ form-factor
- ◆ 850nm VCSEL transmitter
- ◆ PIN photo-detector receiver
- ◆ Up to 300m on OM3 MMF
- ◆ Operating case temperature range 0°C to 70°C
- ◆ All-metal housing for superior EMI performance
- ◆ RoHS compliant (lead free) 



Applications

- ◆ 10-Gigabit Ethernet
- ◆ 4G/8G Fibre Channel
- ◆ InfiniBand QDR/DDR/SDR
- ◆ High-Performance Computing (HPC)
- ◆ Servers, switches, storage and host card adapters

Description

The Gigalight 10G SFP+ Active Optical Cables (AOCs) are direct-attach fiber assemblies with SFP+ connectors. They are suitable for short distances and offer a cost-effective solution to connect within racks and across adjacent racks. The length is up to 300 meters using OM3 MMF.

Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	0	3.6	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

SFP+ AOC Specifications

Parameter	Description
Module Form Factor	SFP+ (Supports SFF8431/SFF8432/SFF8472)
Protocols Supported	InfiniBand, Ethernet, Fiber Channel
Channel Data Rate	Rate 1 to 10.3125Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70°C
Storage Temperature	-20 to + 85°C
Supply Voltage	3.3V
Supply current	230mA per end typical
Management Interface Serial	I ² C (Supports SFF8472)

Optical characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ_t	840	850	860	nm	
RMS spectral width	P _m	-	-	Note 1	nm	
Average Optical Power	P _{avg}	-6.5	-	-1	dBm	2
Extinction Ratio	ER	3.5	-	-	dB	3
Transmitter Dispersion Penalty	TDP	-	-	3.9	dB	
Relative Intensity Noise	R _{in}	-	-	-128	dB/Hz	12dB reflection
Optical Return Loss Tolerance		-	-	12	dB	
Receiver						
Center Wavelength	λ_r	840	850	860	nm	
Receiver Sensitivity	P _{sens}	-	-	-11.1	dBm	4
Stressed Sensitivity in OMA		-	-	-7.5	dBm	4
Los function	Los	-30	-	-12	dBm	
Overload	P _{in}	-	-	-1.0	dBm	4
Receiver Reflectance		-	-	-12	dB	

Note:

1. Trade-offs are available between spectral width, center wavelength and minimum OMA, as shown in table 6.
2. The optical power is launched into MMF
3. Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps
4. Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps, BER ≤ 10⁻¹².

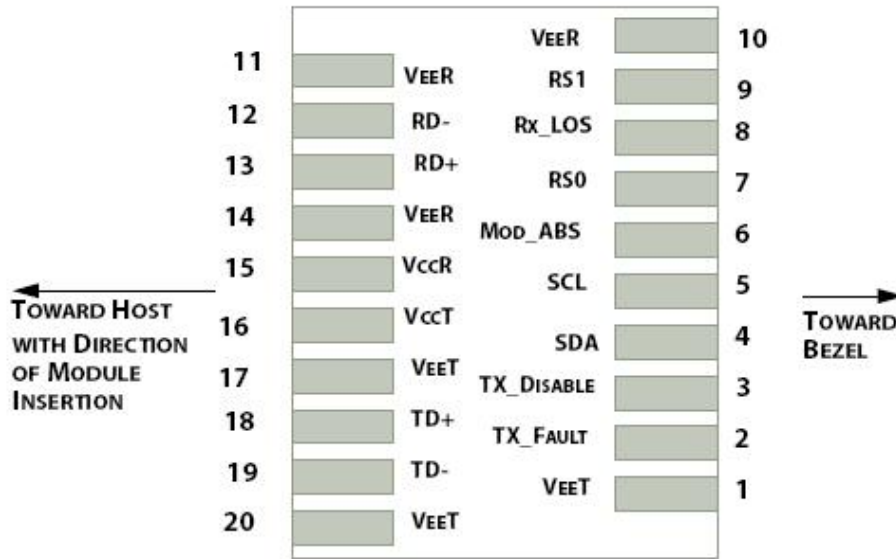


Figure 1: Interface to Host PCB

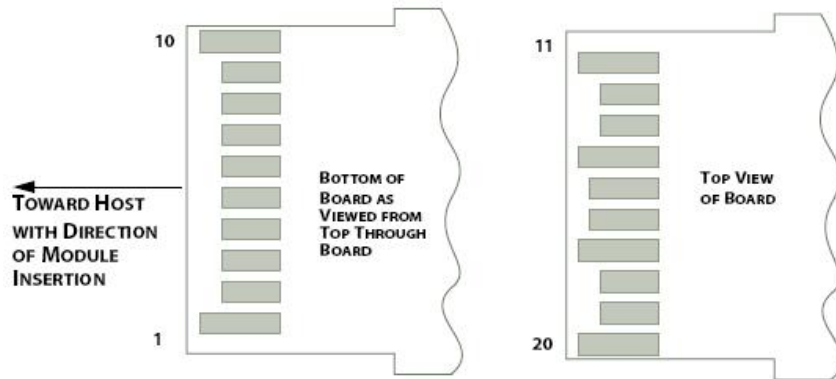


Figure 2: Module Contact Assignment

Pin definition

Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	Rate Select 0

8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Rate Select 1
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

Notes:

[1] Module circuit ground is isolated from module chassis ground within the module.

[2].should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.

[3]Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.

[4]Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull this contact up to Vcc_Host with a resistor in the range 4.7 kΩ to 10 kΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.

[5] RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.

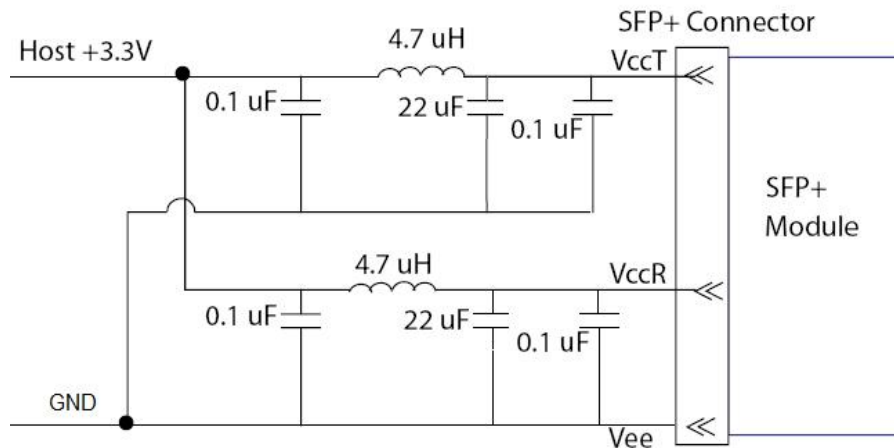


Figure3. Host Board Power Supply Filters Circuit

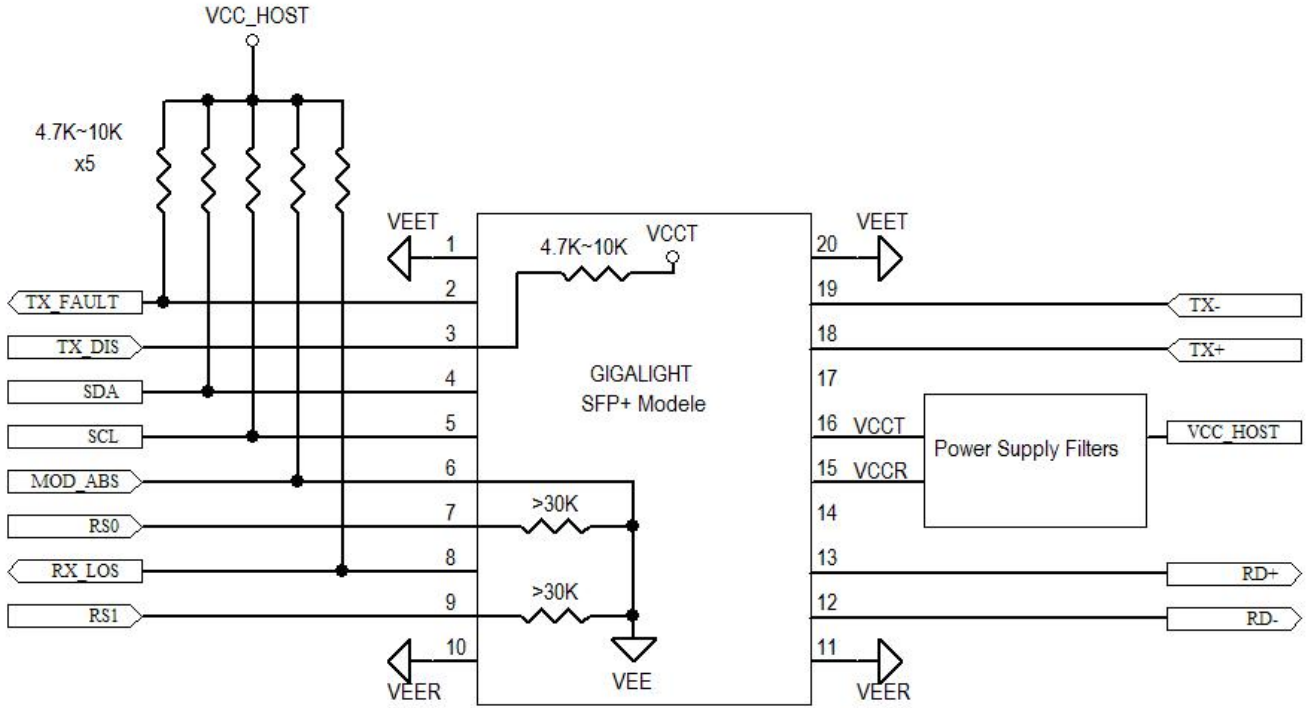
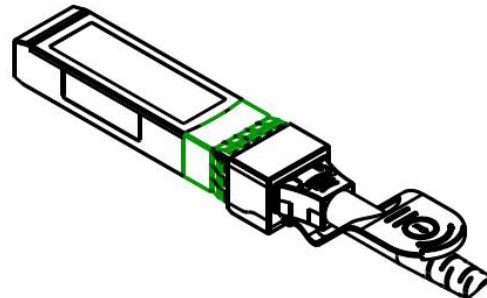
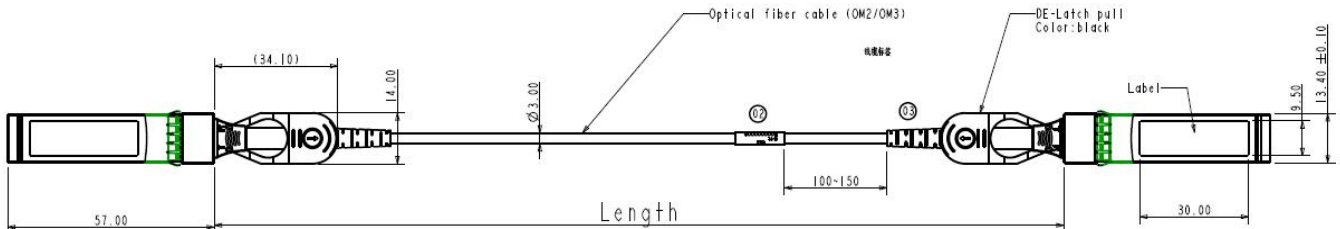


Figure4. Host-Module Interface



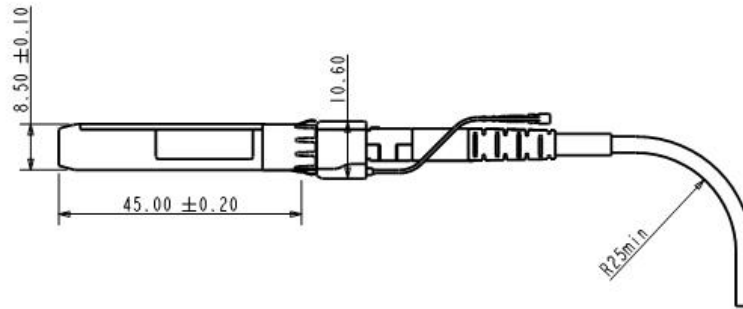


Figure1. Mechanical Specifications

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by GIGALIGHT before they become applicable to any particular order or contract. In accordance with the GIGALIGHT policy of continuous improvement specifications may change without notice.

The publication of information in this data sheet does not imply freedom from patent or other protective rights of GIGALIGHT or others. Further details are available from any GIGALIGHT sales representative.

Ordering information

Part Number	Product Description
GSS-MDO100-001C	1m SFP+ Active Optical Cable
GSS-MDO100-002C	2m SFP+ Active Optical Cable
GSS-MDO100-003C	3m SFP+ Active Optical Cable
GSS-MDO100-005C	5m SFP+ Active Optical Cable
GSS-MDO100-007C	7m SFP+ Active Optical Cable
GSS-MDO100-010C	10m SFP+ Active Optical Cable
GSS-MDO100-xxxC	10G SFP+ Active Optical Cable up to 300m on OM3 MMF
xxx: 001~100, 1~300 length in meters (OM3 fiber is available)	

E-mail: sales@gigalight.com

Web : <https://www.gigalight.com/>