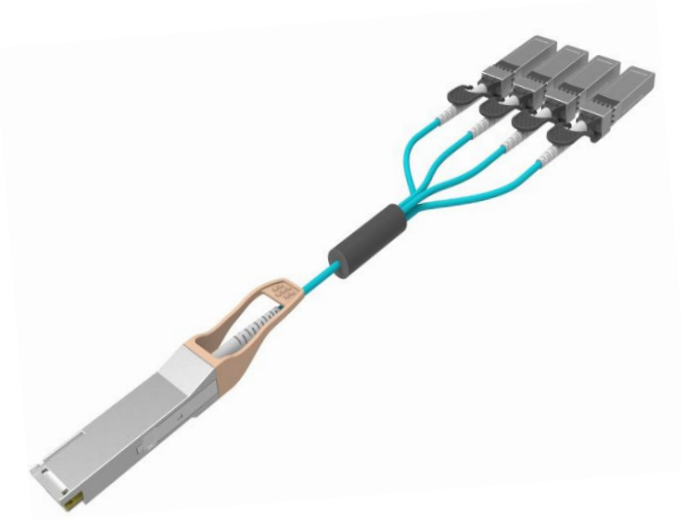
100G QSFP28 to 4X 25G SFP28 breakout Active Optical Cables

P/N: GQP-MDO101-xxxC

Features



- Electrical interface compliant to SFF-8436 and SFF-8431
- Hot Pluggable
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- Operating case temperature: 0 to 70℃
- Internal CDR on both Transmitter and Receiver channels
- Digital diagnostics functions are available via the I2C interface (Optional)
- All-metal housing for superior EMI performance
- RoHS compliant (lead-free)

Applications

- 40 Gigabit Ethernet
- 25GBASE-SR Ethernet
- Fibre Channel Applications
- InfiniBand QDR, SDR, DDR
- High-performance computing clusters
- Servers, switches, storage and host card adapters

Description

Gigalight QSFP28 to 4x SFP28 breakout Active Optical Cable offers IT professionals a cost-effective interconnect solution for merging 100G QSFP28 and 25G SFP28 enabled host adapters, switches and servers.

For typical applications, users can install this splitter Active Optical cable between an available QSFP28 port on their 100Gbps rated switch and feed up to four upstream 25GbE-SFP28 enabled switches. Each QSFP28-SFP28 splitter Active Optical cable features a single QSFP28 connector (SFF-8436) rated for 100Gbps on one end and (4) SFP28 connectors (SFF-8431), each rated for 25Gb/s, on the other.

QSFP28 interface Specifications

Parameter	Description
Module Form Factor	QSFP28 (Supports SFF8436)
Data Rate, Each lane	25.78125Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70ºC
Storage Temperature	-20 to + 85ºC
Supply Voltage	3.3V
Supply Current	Typical 560mA
Power Dissipation	<2W, Level 2
Management Interface Serial	I^2C (Supports SFF8436)

Optical and Electrical Characteristics

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

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λc	840	850	860	nm	-
RMS spectral width	Δλ	-	-	0.60	nm	-
Average launch power, each lane	Pout	-8.4	-	2.4	dBm	-
Optical Modulation Amplitude(OMA),each lane	OMA	-6.4		3	dBm	-
Transmitter and dispersion eye closure(TDEC),each lane	TDEC			4.3	dB	
Extinction Ratio	ER	3	-	-	dB	-
Average launch power of OFF transmitter, each lane				-30	dBm	-
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3	SPECIFICATION VALUES 0.3,0.38,0.45,0.35,0.41.0.5					Hit Ratio = 5x10-5
Differential data input swing	VIN,PP	40		1000	mV	
Receiver						
Centre Wavelength	λc	840	850	860	nm	-

Stressed receiver sensitivity in OMA, each lane				-5.2	dBm	1
Maximum Average power at receiver input, each lane				2.4	dBm	-
Minimum Average power at receiver , each lane		-10.3			dBm	
Receiver Reflectance				-12	dB	-
LOS Assert		-30			dBm	-
LOS Deassert				-7.5	dBm	-
LOS Hysteresis		0.5			dB	-
Receive Eye Amplitude		300		800	mV	
Receive Eye Width		25			Ps	
Receive Eye Height		250			mV	

Note：

1. Measured with conformance test signal at TP3 for BER = 10e-12

SFP28 interface Specifications

Parameter	Description
Module Form Factor	SFP28 (Supports SFF8431/SFF8432/SFF8472)
Channel Data Rate	25.78125Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70ºC
Storage Temperature	-20 to + 85ºC
Supply Voltage	3.3V
Supply current	Typical 180mA
Power Dissipation	<1W,Level I
Management Interface Serial	I^2C (Supports SFF8472)

Optical and Electrical 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	λt	840	850	860	nm	
RMS spectral width	Pm	-	-	0.6	nm	
Average Optical Power	Pavg	-8.4	-	2.4	dBm	
Optical Power OMA	P_{OMA}	-6.4		3	dBm	
Transmitter and dispersion eye closure(TDEC),each lane	TDEC			4.3	dB	
Extinction Ratio	ER	2	-	-	dB	3
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3	SPECIFICATION VALUES 0.3,0.38,0.45,0.35,0.41.0.5					Hit Ratio = 5x10-5
Differential data input swing	VIN,PP	40		1000	mV	
Receiver						
Center Wavelength	λr	840	850	860	nm	
Stressed receiver sensitivity in OMA, each lane				-5.2	dBm	
Maximum Average power at receiver input, each lane				2.4	dBm	
Minimum Average power at receiver , each lane		-10.3			dBm	
Receiver Reflectance		-	-	-12	dB	
LOS De-Assert	LOS_D			-7.5	dBm	
LOS Assert	LOS_A	-30			dBm	
LOS Hysteresis		0.5			dB	
Receive Eye Amplitude		500		1300	mV	
Receive Eye Width		25			Ps	
Receive Eye Height		250			mV	

Note：

1. Measured with conformance test signal at TP3 for BER = 10e-12

Mechanical Dimensions

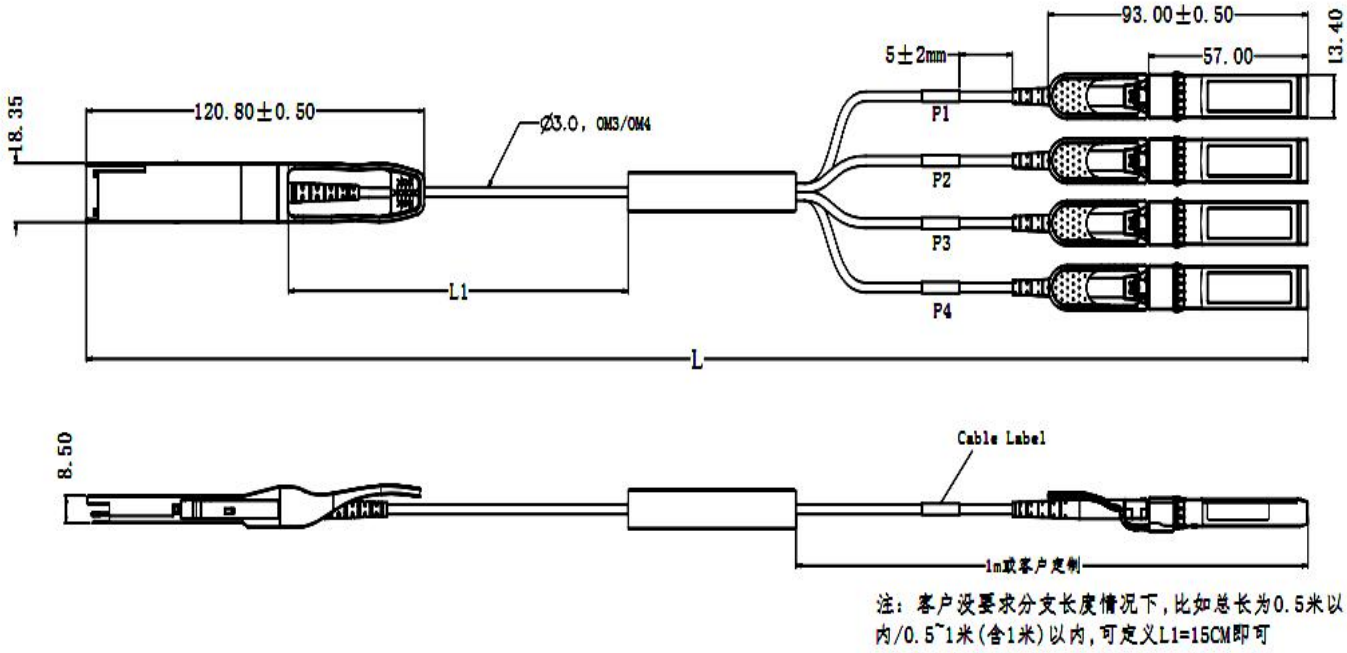


Figure1. Mechanical Specifications

Regulatory Compliance

Gigalight GQP-MDO101-xxxC Active Optical Cables are Class 1 Laser Products. They meet the requirements of the following standards.

Feature	Standard
Laser Safety	IEC 60825-1:2014 (3rd Edition) IEC 60825-2:2004/AMD2:2010 EN 60825-1-2014 EN 60825-2:2004+A1+A2
Electrical Safety	EN 62368-1: 2014 IEC 62368-1:2014 UL 62368-1:2014
Environmental protection	Directive 2011/65/EU with amendment(EU)2015/863
CE EMC	EN55032：2015 EN55035：2017 EN61000-3-2:2014 EN61000-3-3:2013
FCC	FCC Part 15, Subpart B ANSI C63.4-2014

Ordering information

Part Number	Product Description
GQP-MDO101-xxxC	100G QSFP28 to 4x 25G SFP28 Active Optical Cable
xxx :001~100,1~100 Length in meters. (OM4 fiber is available)	
Further details are available from any Gigalight sales representative.	

⚠CAUTION:

Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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.

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Revision History

Revision	Date	Description
V0	Jun-19, 2016	Advance Release.
V1	Apr-10, 2021	Modify Regulatory Compliance
V2	Jul-29, 2021	Modify the maximum power dissipation of the QSFP28 module; Change the mechanical dimensions drawing.