
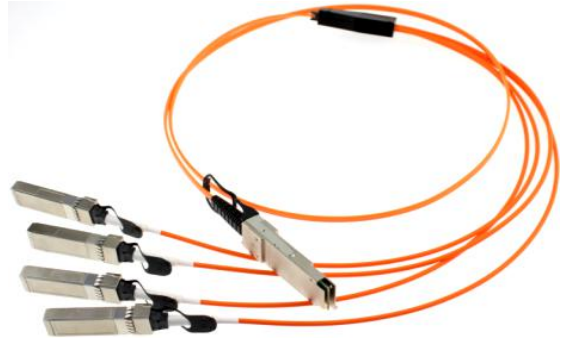


40G QSFP+ to 4x 10G SFP+ AOC

Features

- ◆ Electrical interface compliant to QSFP+ connector (SFF-8436) and SFP+ connectors (SFF-8431)
- ◆ Hot Pluggable
- ◆ 850nm VCSEL transmitter, PIN photo-detector receiver
- ◆ Up to 100m on OM3 MMF
- ◆ Operating case temperature: 0 to 70°C
- ◆ All-metal housing for superior EMI performance
- ◆ RoHS compliant (lead free) 



Applications

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

Description

femrice QSFP to 4x SFP+ breakout Active Optical Cable offers IT professionals a cost-effective interconnect solution for merging 40G QSFP and 10G SFP+ enabled host adapters, switches and servers.

For typical applications, users can install this splitter Active Optical cable between an available QSFP port on their 40Gbps rated switch and feed up to four upstream 10GbE-SFP+ enabled switches. Each QSFP-SFP+ splitter Active Optical cable features a single QSFP connector (SFF-8436) rated for 40Gbps on one end and (4) SFP+ connectors (SFF-8431), each rated for 10-Gb/s, on the other.

QSFP interface Specifications

Parameter	Description
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Module Form Factor	QSFP+ (Supports SFF8436/SFF8472)
Channel Data Rate	Rate 40Gbps
BER	$<10^{-12}$
Operating Case Temperature	0 to + 70°C
Storage Temperature	-20 to + 85°C
Supply Voltage	3.3V
Maximum supply current	180mA 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						
Centre Wavelength	λ_c	840	850	860	nm	-
RMS spectral width	$\Delta\lambda$	-	-	0.65	nm	-
Average launch power, each lane	P _{out}	-7.6	-	2.4	dBm	-
Difference in launch power between any two lanes (OMA)				4	dB	-
Extinction Ratio	ER	3	-	-	dB	-
Peak power, each lane				4	dBm	-
Transmitter and dispersion penalty (TDP), each lane	TDP			3.5	dB	-
Average launch power of OFF transmitter, each lane				-30	dBm	-
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3		SPECIFICATION VALUES 0.23, 0.34, 0.43, 0.27, 0.35, 0.4				Hit Ratio = 5x10 ⁻⁵
Receiver						
Centre Wavelength	λ_c	840	850	860	nm	-
Stressed receiver sensitivity in OMA, each lane				-5.4	dBm	1
Maximum Average power at receiver input, each lane				2.4	dBm	-
Receiver Reflectance				-12	dB	-
Peak power, each lane				4	dBm	-
LOS Assert		-30			dBm	-

LOS De-Assert – OMA				-7.5	dBm	-
LOS Hysteresis		0.5			dB	-

Note:

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

SFP+ interface Specifications

Parameter	Description
Module Form Factor	SFP+ (Supports SFF8431/SFF8432/SFF8472)
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	455mA maximum
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.

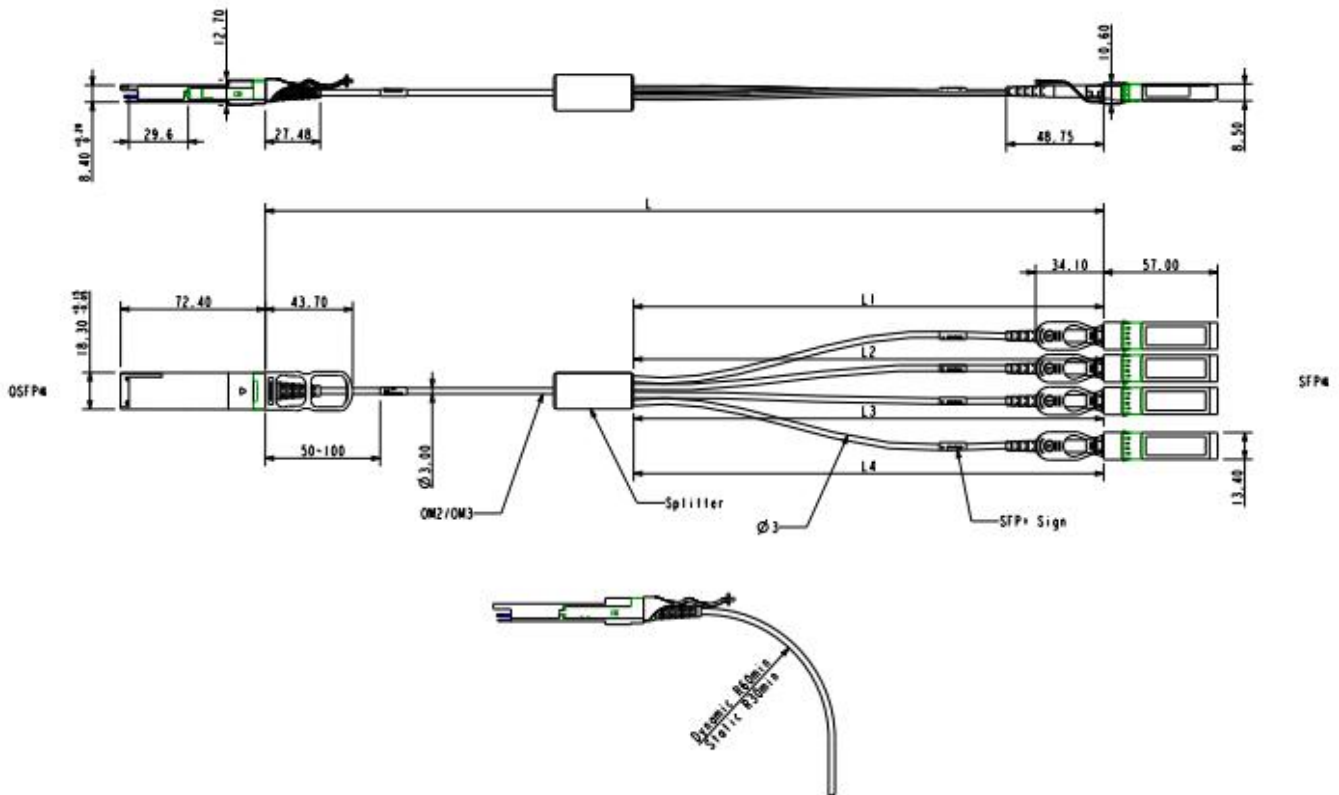


Figure1. Mechanical Specifications

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Ordering information

Part Number	Product Description
GQP-MDO400-xxxC	40G QSFP to 4x 10G SFP+ Active Optical Cable
xxx :001~100, 1~100 Length in meters. (OM3 fiber is available)	
Further details are available from any femrice sales representative.	