

Features

- Full duplex 4 channel 850nm parallel active optical cable
- Transmission data rate up to 10.3125Gbit/s per channel
- SFF-8436 QSFP+ compliant
- Hot pluggable electrical interface
- Differential AC-coupled high speed data interface
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- Maximum link length of 300m on OM3 Multimode Fiber (MMF) and 400m on OM4 MMF
- Low power consumption <1.5W
- Operating case temperature 0°C to +70°C
- 3.3V power supply voltage
- RoHS 6 compliant



Applications

- Infiniband transmission at 4ch SDR, DDR and QDR
- 40GBASE-SR4 40G Ethernet
- Data Centers

1. Absolute Maximum Ratings

*Exceeding the limits below may damage the active optical cable permanently.

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-20	85	°C
Case Operating Temperature	Top	0	70	°C
Humidity (non-condensing)	Rh	5	95	%

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case temperature	Tca	0		70	°C
Data Rate Per Lane	fd	2.5	10.3	11.1	Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm			1.5	W
Fiber Bend Radius	Rb	3			cm

3. QSFP+ AOC Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	100	110	ohm
Differential Output impedance	Zout	90	100	110	ohm
Differential input voltage amplitude	ΔV_{in}	300		1100	mVp-p
Differential output voltage amplitude	ΔV_{out}	500		800	mVp-p
Skew	Sw			300	ps
Bit Error Rate	BR			E-12	
Input Logic Level High	VIH	2.0		VCC	V
Input Logic Level Low	VIL	0		0.8	V
Output Logic Level High	VOH	VCC-0.5		VCC	V
Output Logic Level Low	VOL	0		0.4	V

Notes:

1. BER=10⁻¹²; PRBS 2³¹-1@10.3125Gbps.
2. Differential input voltage amplitude is measured between TxnP and TxnN
3. Differential output voltage amplitude is measured between RxNP and RxnN

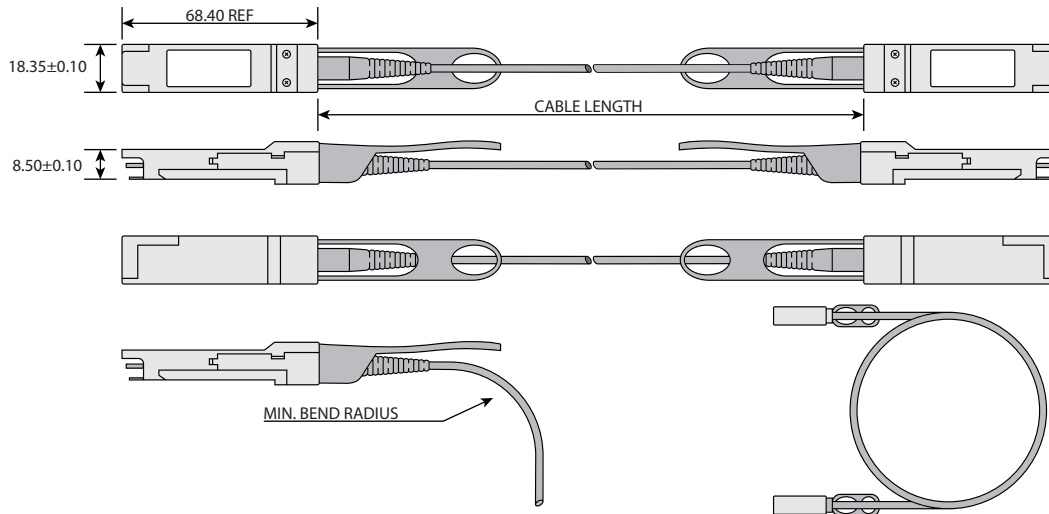
4. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Center 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)	$P_{tx,diff}$			4	dB	
Launch Power in OMA minus Transmitter and Dispersion Penalty (TDP), each Lane	OMA-TDP	-1.5			dBm	
Extinction Ratio	ER	3	-	-	dB	
Peak pwer, each lane				4	dBm	
TDP, each Lane	TDP			3.5	dB	
Average Launch Power OFF Transmitter, each Lane	P_{off}			-30	dB	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		SPECIFICATION VALUES 0.23, 0.34, 0.43, 0.27, 0.35, 0.4				Hit Ratio = 5×10^{-5}
Receiver						
Center Wavelength	λ_c	840	850	860	nm	
Stressed Receiver Sensitivity (OMA), each Lane				-5.4	dBm	1
Average Power at Receiver Input, each Lane				2.4	dBm	
Receiver Reflectance	RR			-12	dB	
Peak power, each lane				4	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-7.5	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

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

5. Mechanical Diagram



Note: External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

6. Ordering Information

Our 40GBase QSFP+ Multi-vendor active optical cables come in varying lengths and OEM connection options. To build the perfect fit for you, please view how to create your part number below.

Example:

For a **Brocade** to **Cisco** AOC measuring the length of **1m**, the part number would be as follows: QSFP40G-**BRCS**-AOC-1M.

Please note that OEM abbreviations should be listed in alphabetical order.

Sample	OEM	OEM Abbreviations	Length <L>
QSFP40G-XXXX-AOC-<L>M	Arista	AN	1m
	Brocade	BR	3m
	Cisco	CS	5m
	Dell	DF	7m
	Intel	IN	10m
	Juniper	JN	12m
	Mellanox	MX	15m
	MSA	MS	20m
	-	-	25m

7. Contact Information

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