

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)



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

Applications

- 40 Gigabit Ethernet

1. QSFP Interface Specifications

Parameter	Description
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
Supply current	180mA per end typical
Management Interface	Serial I2C (Supports SFF8472)

2. Optical Characteristics

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

Parameter	Symbol	Min	Typ	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	Pout	-7.5	-	2.5	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	dB	-
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	-

Notes:

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

3. 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)

4. Optical Characteristics

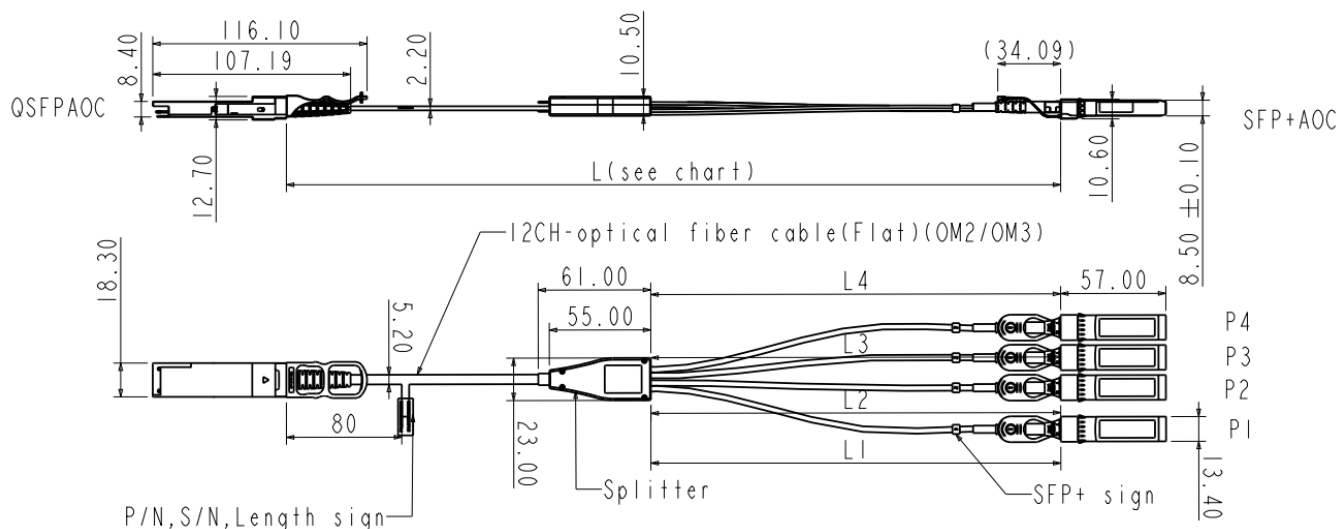
The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ_t	840	850	860	nm	
RMS spectral width	P_m	-	-	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	1
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		

Notes:

- 12dB reflection
- The optical power is launched into MMF
- Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps
- Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps, BER ≤ 10⁻¹².

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

OEM	Part Number	OEM	Part Number
Arista	AOC-40G-Q-S-1M-A	Extreme	10GB-4-F05-QSFP-A
Arista	AOC-40G-Q-S-3M-A	Extreme	10GB-4-F10-QSFP-A
Arista	AOC-40G-Q-S-5M-A	Extreme	10GB-4-F15-QSFP-A
Arista	AOC-40G-Q-S-10M-A	Extreme	10GB-4-F25-QSFP-A
Arista	AOC-40G-Q-S-15M-A	Extreme	10GB-4-F02-QSFP-A
Arista	AOC-40G-Q-S-25M-A	Extreme	10GB-4-F04-QSFP-A
Arista	AOC-40G-Q-S-2M-A	Extreme	10GB-4-F07-QSFP-A
Arista	AOC-40G-Q-S-4M-A	Extreme	10GB-4-F12-QSFP-A
Arista	AOC-40G-Q-S-7M-A	Extreme	10GB-4-F20-QSFP-A
Arista	AOC-40G-Q-S-12M-A	Extreme	10GB-4-F30-QSFP-A
Arista	AOC-40G-Q-S-20M-A	Finisar	FCBN510QE2C01-A
Arista	AOC-40G-Q-S-30M-A	Finisar	FCBN510QE2C03-A
Avago/Broadcom	AFBR-71ER01Z-A	Finisar	FCBN510QE2C05-A
Avago/Broadcom	AFBR-71ER03Z-A	Finisar	FCBN510QE2C10-A
Avago/Broadcom	AFBR-71ER05Z-A	Finisar	FCBN510QE2C15-A
Avago/Broadcom	AFBR-71ER10Z-A	Finisar	FCBN510QE2C25-A

Avago/Broadcom	AFBR-7IER15Z-A	Finisar	FCBN510QE2C02-A
Avago/Broadcom	AFBR-7IER25Z-A	Finisar	FCBN510QE2C04-A
Avago/Broadcom	AFBR-7IER02Z-A	Finisar	FCBN510QE2C07-A
Avago/Broadcom	AFBR-7IER04Z-A	Finisar	FCBN510QE2C12-A
Avago/Broadcom	AFBR-7IER07Z-A	Finisar	FCBN510QE2C20-A
Avago/Broadcom	AFBR-7IER12Z-A	Finisar	FCBN510QE2C30-A
Avago/Broadcom	AFBR-7IER20Z-A	Intel	X4AOCBL-2M-C1
Avago/Broadcom	AFBR-7IER30Z-A	Intel	X4AOCBL-3M-C1
Brocade	40G-QSFP-4SFP-AOC-0101-A	Intel	X4AOCBL-5M-C1
Brocade	40G-QSFP-4SFP-AOC-0301-A	Intel	X4AOCBL-8M-C1
Brocade	40G-QSFP-4SFP-AOC-0501-A	Intel	X4AOCBL-10M-C1
Brocade	40G-QSFP-4SFP-AOC-1001-A	Juniper	JNP-QSFP-AOCBO-1M-A
Brocade	40G-QSFP-4SFP-AOC-1501-A	Juniper	JNP-QSFP-AOCBO-3M-A
Brocade	40G-QSFP-4SFP-AOC-2501-A	Juniper	JNP-QSFP-AOCBO-5M-A
Brocade	40G-QSFP-4SFP-AOC-0201-A	Juniper	JNP-QSFP-AOCBO-10M-A
Brocade	40G-QSFP-4SFP-AOC-0401-A	Juniper	JNP-QSFP-AOCBO-15M-A
Brocade	40G-QSFP-4SFP-AOC-0701-A	Juniper	JNP-QSFP-AOCBO-25M-A
Brocade	40G-QSFP-4SFP-AOC-1201-A	Juniper	JNP-QSFP-AOCBO-2M-A
Brocade	40G-QSFP-4SFP-AOC-2001-A	Juniper	JNP-QSFP-AOCBO-4M-A
Brocade	40G-QSFP-4SFP-AOC-3001-A	Juniper	JNP-QSFP-AOCBO-7M-A
Brocade	40G-QSFP-4SFP-AOC-1001-C1	Juniper	JNP-QSFP-AOCBO-12M-A
Cisco	QSFP-4X10G-AOC1M-A	Juniper	JNP-QSFP-AOCBO-20M-A
Cisco	QSFP-4X10G-AOC3M-A	Juniper	JNP-QSFP-AOCBO-30M-A
Cisco	QSFP-4X10G-AOC5M-A	MSA	CAB-QSFP-4XSFP-AOC-1M-A
Cisco	QSFP-4X10G-AOC10M-A	MSA	CAB-QSFP-4XSFP-AOC-3M-A
Cisco	QSFP-4X10G-AOC15M-A	MSA	CAB-QSFP-4XSFP-AOC-5M-A
Cisco	QSFP-4X10G-AOC25M-A	MSA	CAB-QSFP-4XSFP-AOC-10M-A
Cisco	QSFP-4X10G-AOC2M-A	MSA	CAB-QSFP-4XSFP-AOC-15M-A
Cisco	QSFP-4X10G-AOC4M-A	MSA	CAB-QSFP-4XSFP-AOC-25M-A
Cisco	QSFP-4X10G-AOC7M-A	MSA	CAB-QSFP-4XSFP-AOC-2M-A
Cisco	QSFP-4X10G-AOC12M-A	MSA	CAB-QSFP-4XSFP-AOC-4M-A
Cisco	QSFP-4X10G-AOC20M-A	MSA	CAB-QSFP-4XSFP-AOC-7M-A
Cisco	QSFP-4X10G-AOC30M-A	MSA	CAB-QSFP-4XSFP-AOC-12M-A
Cisco/HP	Q40X10G-CSHP-AOC-10M-C1	MSA	CAB-QSFP-4XSFP-AOC-20M-A
Dell	AOC-QSFP-4SFP-10G-1M-A	MSA	CAB-QSFP-4XSFP-AOC-30M-A
Dell	AOC-QSFP-4SFP-10G-3M-A	MSA Champion ONE	QSFP-4X10G-AOC2M-C1
Dell	AOC-QSFP-4SFP-10G-5M-A	Siemon	Q4S10F-V01.0M13-A

Dell	AOC-QSFP-4SFP-10G-10M-A	Siemon	Q4S10F-V03.0M13-A
Dell	AOC-QSFP-4SFP-10G-15M-A	Siemon	Q4S10F-V05.0M13-A
Dell	AOC-QSFP-4SFP-10G-25M-A	Siemon	Q4S10F-V10.0M13-A
Dell	AOC-QSFP-4SFP-10G-2M-A	Siemon	Q4S10F-V15.0M13-A
Dell	AOC-QSFP-4SFP-10G-4M-A	Siemon	Q4S10F-V25.0M13-A
Dell	AOC-QSFP-4SFP-10G-7M-A	Siemon	Q4S10F-V02.0M13-A
Dell	AOC-QSFP-4SFP-10G-12M-A	Siemon	Q4S10F-V04.0M13-A
Dell	AOC-QSFP-4SFP-10G-20M-A	Siemon	Q4S10F-V07.0M13-A
Dell	AOC-QSFP-4SFP-10G-30M-A	Siemon	Q4S10F-V12.0M13-A
Extreme	10GB-4-F01-QSFP-A	Siemon	Q4S10F-V20.0M13-A
Extreme	10GB-4-F03-QSFP-A	Siemon	Q4S10F-V30.0M13-A

7. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>