

Features

- 4 Parallel lanes design
- Compliant with QSFP+MSA
- Management interface specifications per SFF-8436
- 4 channels PIN photo detector
- Up to 11.2Gb/s per channel data links
- Single +3.3V power supply
- Class 1 laser safety certified
- Commercial operating temperature: 0°C to +70°C
- Up to 10km on SMF
- RoHS Compliant



Applications

- 40GBASE-IR4 Ethernet
- Infiniband QDR,DDR and SDR
- Data center

1. Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	TS	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	VCC	-0.5	4.0	V

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	TC	0	25	70	°C
Supply Voltage	VCC	3.135	3.3	3.465	V
Data Rate PER Channel	-	-	10.3125	11.2	Gb/s

3. Transceiver Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit	Notes
Module Supply Current		Icc	-	-	1100	mA	-
Power Dissipation		PD	-	-	3500	mW	-
Transmitter							
Input Differential Impedance		ZIN	-	100	-	Ω	-
Differential Data Input Swing		VIN, P-P	180	-	900	mVP-P	-
TX_FAULT	Transmitter Fault	VOH	2.0	-	VCCHOST	V	-
	Normal Operation	VOL	0	-	0.8	V	-
TX_DIS	Transmitter Disable	VIH	2.0	-	VCCHOST	V	-
	Transmitter Enable	VIL	0	-	0.8	V	-
Receiver							
Output Differential Impedance		ZO	-	100	-	Ω	-
Differential Data Output Swing		VOUT, P-P	300	-	850	mVP-P	1
Data Output Rise Time, Fall Time		tr, tf	28	-	-	ps	2
RX_LOS	Loss of signal (LOS)	VOH	2.0	-	VCCHOST	V	3

Notes:

- Internally AC coupled, but requires a external 100Ω differential load termination.
- 20 – 80 %.
- LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

4. Transmitter Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Launch Optical Power per lane	Po	-6	-	+1.5	dBm	1
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Center Wavelength Range	λ0	1260	1310	1355	nm	-
Extinction Ratio	EX	3.5	-	-	dB	2
Optical Return Loss Tolerance	ORLT	-	-	12	dB	-
Pout @TX-Disable Asserted	Poff	-	-	-30	dBm	1
Eye Diagram	IEEE Std 802.3ba compatible					

Notes:

- The optical power is launched into SMF.
- Measured with a PRBS 231-1 test pattern @10.3125Gbps.

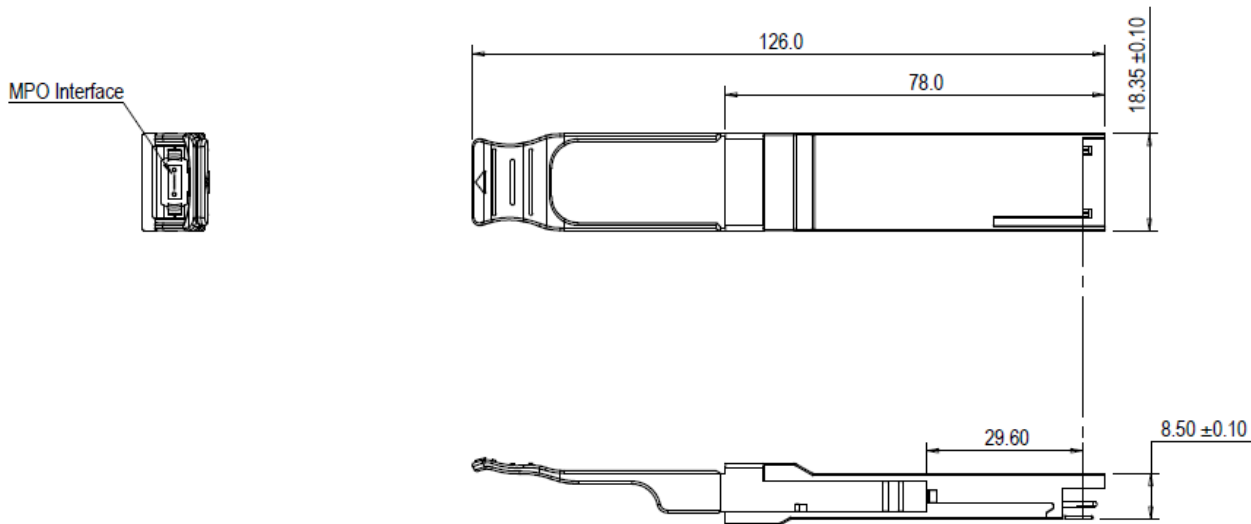
5. Receiver Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Center Wavelength	λ_c	1260	-	1355	nm	-
Receiver Sensitivity (OMA)	S	-	-	-12.6	dBm	1
Damage Threshold	POL	2.3	-	-	dBm	1
LOS De-Assert	LOSD	-	-	-15	dBm	-
LOS Assert	LOSA	-30	-	-	dBm	-
LOS Hysteresis	-	0.5	-	-	dB	-

Notes:

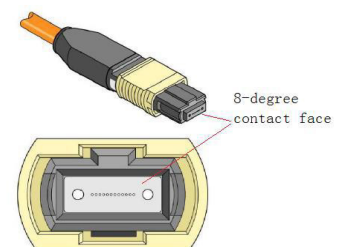
1. Measured with PRBS 2³¹-1 test pattern, 10.3125Gb/s, BER<10⁻¹².

6. 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.

To minimize MPO connection induced reflections, an MPO receptacle with 8-degree angled end-face is utilized for this product. A female MPO connector with 8-degree end-face should be used with this product as illustrated here.



7. Ordering Information

OEM	Part Number	OEM	Part Number
Alcatel	QSFP-40G-LRM4-A	Infinera	TOM-40G-Q-LRL-A
Allied Telesis	AT-QSFPLRM-A	Juniper	QSFPP-40GBASE-IR4-A
Arista	QSFP-PLR4-A	Juniper	QFX-QSFP-40G-LRM4-A
Arista	QSFP-40G-PLRL4-A	Juniper	JNP-QSFP-4X10GE-IR-A
Arista	QSFP-40G-PLR4-A	Juniper	QSFPP-4X10GE-LR-A
Brocade-Foundry	40G-QSFP-IR4-A	Juniper	JNP-QSFP-4X10GE-LR-A
Ciena	160-9504-900-A	Juniper	QSFPP-4X10GE-LR-C1
Cisco	QSFP-IR4-MPO-GDY-A	Juniper	JNP-QSFP-4X10GE-LR-C1
Cisco	QSFP-4X10G-LR-S-A	Juniper	JNP-QSFP-4X10GE-LR-C1-TAA
Dell	407-BBQV-A	MSA	AN-QSFP-PLR4
Edgecore	ET6401-PSM4-A	MSA Champion ONE	40GQSFP+E-PSMLR4
Extreme	10326-A	MSA OnePort	OP-QSFP-PLR4
Force10	GP-QSFP-40GE-1IR-A	Plexxi	PX-CBL-IR4-40G-QSFP-2KM-A
Gigamon	QSF-506-A	Plexxi	PX-CBL-LR4P-40G-QSFP-10KM-A

8. Contact Information

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