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QSFP-LR4

40GBASE, QSFP+, LR4, SMF TRANSCEIVER
1271, 1291, 1311, 1331nm, 2km/10km REACH, DUPLEX LC CONNECTOR

Features

- Support up to 11.3Gbps per channel
- QSFP+ MAS compliant
- Compliant with QDR/DDR Infiniband data rates
- Maximum link length of 10km SMF
- Hot pluggable electrical interface
- +3.3V power supply
- Operating case temperature range 0~70°C
- RoHS 6 Compliant
- LC duplex connector
- Maximum power consumptions: 3.5W

Applications

- 40GBASE-LR4 40G Ethernet Links
- Infiniband QDR and DDR interconnects
- Client-side 40G Datacom connections

1. Absolute Maximum Ratings

These values represent the damage threshold of the module. Stress in excess of any of the individual maximum ratings can cause damage to the module even if all other parameters are within recommended operating conditions.

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Ts	-40	85	˚C
Operating Case Temperature	Top	0	70	ºC
Power supply Voltage	Vcc	0	3.6	V
Relative Humidity	RH	0	85	%
Maximum Optical Input Power	Pin	-5	0	dBm

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	TC	0		+70	˚C
Power Supply Voltage	Vcc	3.14	3.3	3.47	V
Power Supply Current	ICC			1000	mA
Power Dissipation	PD			3.5	W

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Data Rate per Lane	DR		10.3125	11.3	Gbps
Link Distance on SMF		2		10	km

3. Transmitter Specification (Optical)

Parameter	Symbol	Min	Typ.	Max	Unit
Center wavelength	λc0	1264.5		1277.5	nm
	λc1	1284.5		1297.5	
	λc2	1304.5		1317.5	
	λc3	1324.5		1337.5	
Side-mode suppression Ratio	SMSR	30			dB
Extinction Ratio	ER	3.5		4	dB
Spectral Width	Δλ			1	nm
Average launch power	PO,AVG	-7		2.3	dBm
Optical Modulation Amplitude, each lane	OMA	-4		+3.5	dBm
Relative Intensity Noise	Rin			-128	dB/Hz
Optical Return Loss Tolerance 20 dB					
Transmitter Reflectance	RT			-12	dB
Transmitter Eye Mask Definition (X1,X2,X3, Y1, Y2, Y3)		Compliant with 802.3ba Standard (0.25,0.4,0.45,0.25,0.28,0.4)			
Average Launch Power OFF	POFF			-30	dBm

4. Transmitter Specification (Electrical)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	3.14	3.3	3.47	V
Supply Current	Icc			1000	mA
Maximum Power Consumption				3.5	W
Data Rate per lane			10.3125	11.3	Gb/s
Differential Input Impedance			100		ohms

5. Receiver Specification (Optical)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength	λc0	1264.5		1277.5	nm
	λc1	1284.5		1297.5	
	λc2	1304.5		1317.5	
	λc3	1324.5		1337.5	

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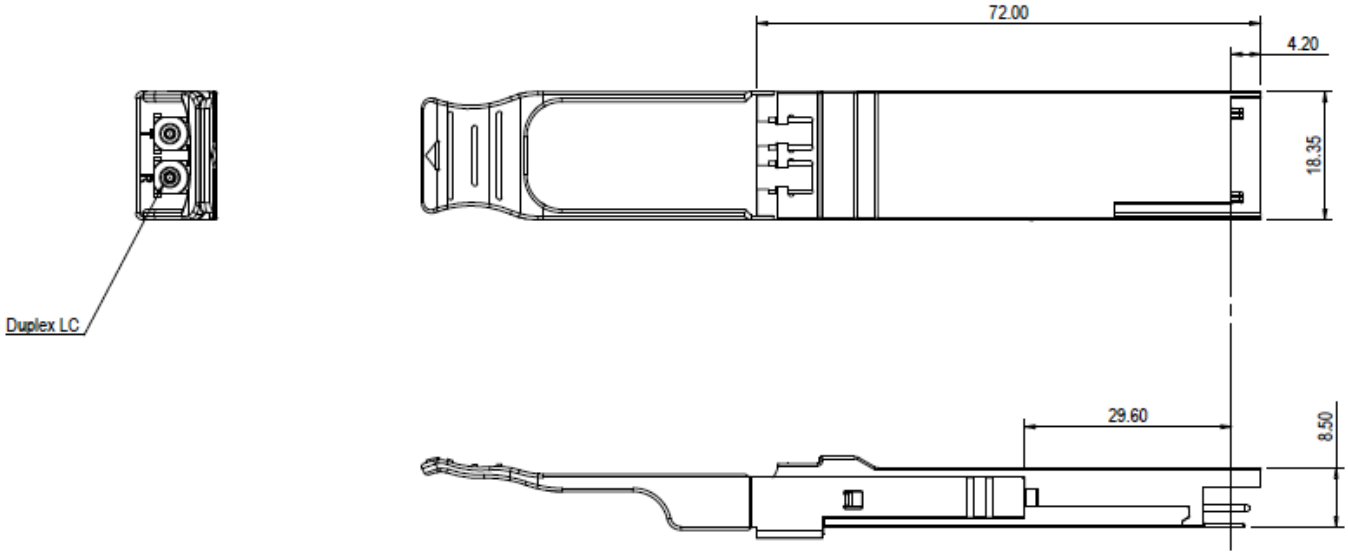
Damage Threshold				3.3	dBm
Receiver Reflectance				-26	dB
Receiver Sensitivity (OMA) per lane				-11.5	dBm
Stressed Receiver Sensitivity (OMA), each lane				-9.6	dBm
LOS Assert	LOS	-30			dBm
LOS De-assert	LOSD			-17	dBm
LOS Hysteresis	LOSH	0.5			dBm

6. Receiver Specification (Electrical)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	3.14	3.3	3.47	V
Supply Current	Icc			1000	mA
Maximum Power Consumption				5.5	W
Data Rate Per Lane			10.312	11.3	Gb/s
Differential Input Impedance			100		Ohms
Differential Data Output Voltage Swing	Vout, p-p	200		850	mV
Output Differential Impedance	Rout		100		Ω

7. Mechanical Diagram (Unit: MM)



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.

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8. Ordering Information

OEM	Part Number	OEM	Part Number
Juniper	JNP-QSFP-40G-LR4-A	Cisco	QSFP-40G-LR4-S-A
Cisco	WSP-Q40GLR4L-A		

9. Contact Information

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