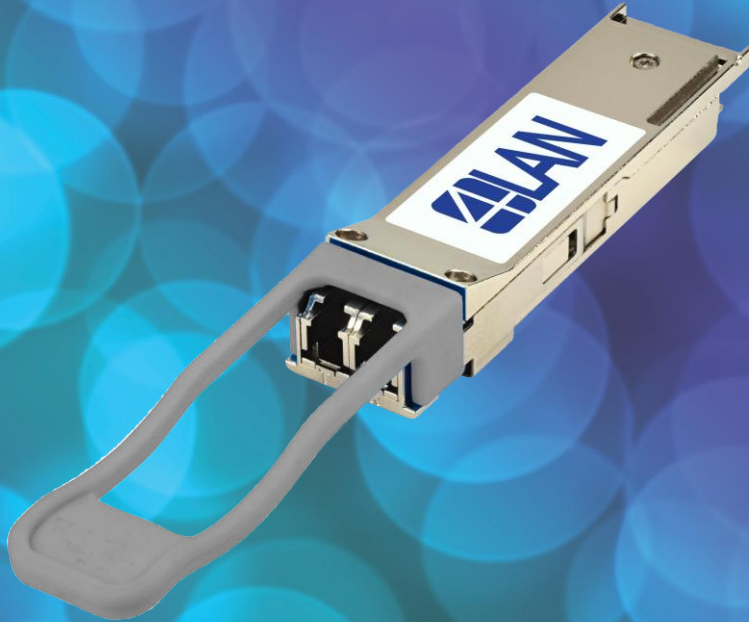


4L-Q40BSR4-001

QSFP+ 40GBASE Bi-Directional, LC Duplex, MM, DDM, 100m



Applications

- Compliant with 40GBASE Ethernet
- Compliant to the 40GbE XLPII
- Up to 40 Gbps Bit Rate
- Datacenter backbones
- High-speed servers
- SAN, Routers, Hubs, Load Balancer
- High-performance Computing Clusters
- Other optical links

Features

- QSFP+ 40G Optical Transceiver
- QSFP+ MSA Compliant SFF-8636
- Up to 100m links on MMF OM3 fiber
- Up to 150m links on MMF OM4 fiber
- Dual wavelength VCSEL bi-directional
- 2 × 20-Gb/s 850nm/900 nm
- Digital Diagnostic Monitoring
- RoHS-6 and Lead Free
- Operating temperature: 0°C ~ +70°C

Description

The 4L-Q40BSR4-001 is a QSFP+ full duplex transceiver module, with LC Duplex connectors for multimode (MMF) 40 Gigabit optical data communications.

This modules are compatible with most switch/router/server brands and designed to operate with multi mode fiber (MMF) OM3/OM4, using the wavelengths 850/900nm from 0 to 150m over OM4 fiber.

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General Specifications – Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Max Link Length	L _{max}			100m (OM3 fiber) 150m (OM4 fiber)
Supply Voltage	V _{cc}	-0.5		4.0
Storage Temperature	T _s	-40		85
Case Operating Temperature	T _{OP}	-5		75
Relative Humidity	RH	15		85
Receiver Damage Threshold, per Lane	pR _{dmg}	3.4		
Bit Rate (all wavelngths)	BR			40Gb/s
Bit Error Ratio – pre FEC	BER			5x10 ⁻⁵

Electrical Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	V _{cc}	3.135		3.465	V	
Supply Current	I _{cc}			1.5	A	
Module total power	P			3.5	W	1
Transmitter						
Signaling rate per lane			10.3125 ± 100ppm		Gb/s	
Differential pk-pk input voltage tolerance	V _{in,pp,diff}			900	mV	
Single-ended voltage tolerance	V _{in,pp}	-0.35		+3.3	V	
Module stress input test			Per Section 83E.3.4.1, IEEE 802.3bm			

Quick access to other products:

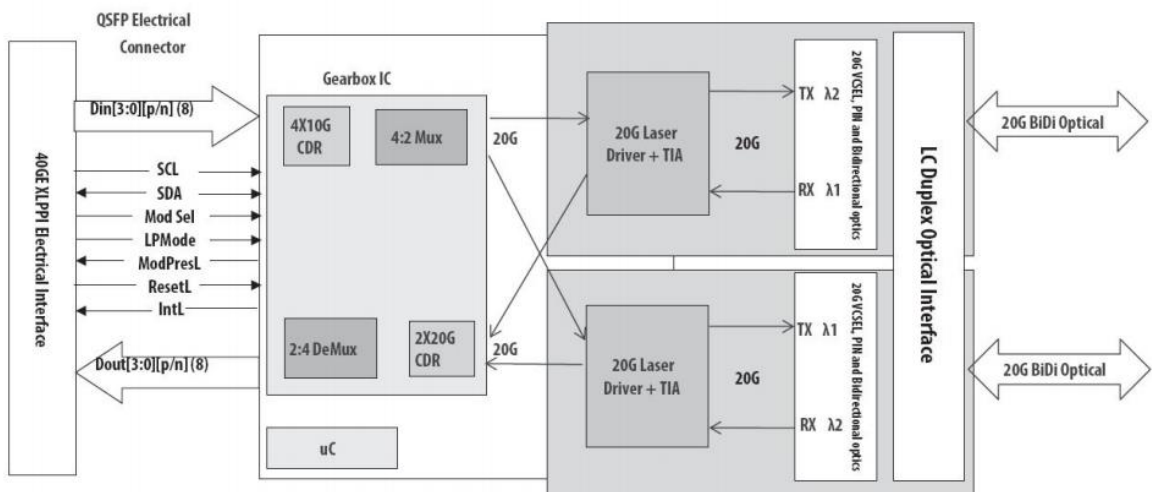
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Electrical Specifications

Receiver						
Signaling rate per lane			10.3125 ± 100ppm		Gb/s	
		100		400		
		300		600		
Differential data output swing	Vout,pp	400	600	800	mVpp	2
		600		1200		
Eye width		0.57			UI	
Eye height, differential		228			mV	
Vertical eye closure	VEC	5.5			dB	
Transition time (20% to 80%)	tr, tf	12			ps	

Transceiver Block Diagram



Optical Specifications - Transmitter

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Signaling Speed per Lane		10.3125 ± 100ppm			Gb/s	1
Center wavelength CH1		832	850	868	nm	
Center wavelength CH2		882	900	918	nm	
RMS Spectral Width	Pm		0.5	0.65	nm	
Average Launch Power per Lane	Pavg	-4.0		+5.0	dBm	
Launch Power Off Power per Channel	Poff			-30	dBm	
Optical Extinction Ratio	ER	3.0			dB	
Relative Intensity Noise	Rin			-128	dB/Hz	
Optical Return Loss Tolerance				12	dB	

Optical Specifications – Receiver

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Signaling Speed per Lane		25.78125 ± 100ppm			Gb/s	1
Center wavelength CH1		882	900	918	nm	
Center wavelength CH2		832	850	868	nm	
Relative Sensitivity Per Channel	R			-8	dBm	
Stressed Receiver Sensitivity				+0.5	dBm	
Receiver Reflectance				-12	dBm	
LOS DE-Assert	LOSD			-14	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis	LOSH	0.5			dB	

Electrical Specifications

Parameter	Symbol	Min	Typ.	Max	Unit	Ref.
Supply Voltage	V _{cc} V _{cc} Tx V _{cc} Rx	3.135		3.465	V	
Supply Current	I _{cc}			1.5	mA	
Transmit turn-on time					ms	
Transmitter (per Lane)						
Single ended input voltage tolerance	V _{inT}	0.3		4	V	
Differential data input swing	V _{in pp}				mVpp	
Differential input threshold					mV	
AC common mode input voltage tolerance (RMS)					mV	
Differential input return loss		Per IEEE P	ba Section	A	dB	
J2 Jitter Tolerance	J _t				UI	
J9 Jitter Tolerance	J _t				UI	
Data Dependent Pulse Width Shrinkage	DDPWS				UI	
Eye mask coordinates {X1, X2, Y1, Y2}					UI mV	

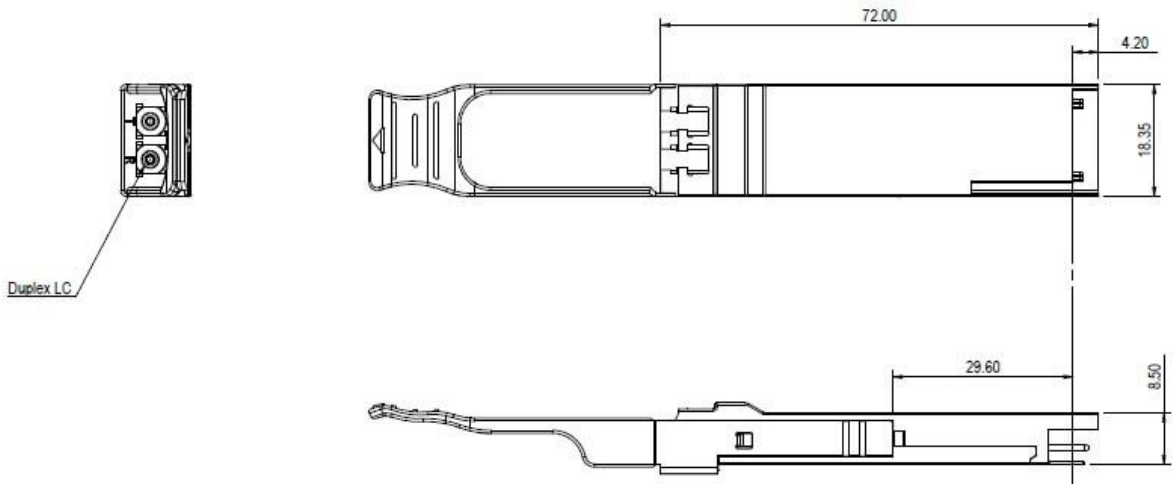
Receiver (per Lane)						
Single-ended output voltage	V _{inT}	0.3		4	V	
Differential data output swing	V _{out pp}				mVpp	

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Mechanical Specifications



Ordering Information

Part Number	Description
4L-Q40SR4-M100	QSFP+ 40GBASE-SR4, 850nm, MM, DDM, MPO/MTP, 100m
4L-Q40BSR4-001	QSFP+ 40GBASE-SR4, 850/900nm, BiDi MM, DDM, LC, 150m
4L-Q40BLX4-02	QSFP+ 40GBASE-LX4, CWDM, LC, MM 150m, SM 2km.
4L-Q40PLR4-M10	QSFP+ 40GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 10Km
4L-Q40LR4-10	QSFP+ 40GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 10Km
4L-Q40LR4-20	QSFP+ 40GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 20Km
4L-Q40ER4-40	QSFP+ 40GBASE-ER4, 1310nm, SM, DDM, Duplex LC, 40Km
4L-Q40ZR4-60	QSFP+ 40GBASE-ZR4 Lite, 1310nm, SM, DDM, Duplex LC, 60Km
4L-Q40ZR4-80	QSFP+ 40GBASE-ZR4, 1310nm, SM, DDM, Duplex LC, 80Km

Note

This modules have been tested by 4LAN on equipment like Cisco, Juniper, Dell, HP, Mikrotik, Huawei, and other brands. The equipment brand must be informed before shipping the order, so the transceivers are reprogrammed to the corresponding brand.

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