

4L-Q100SR4-M001

QSFP28 100GBASE-SR4, 850nm, MM, DDM, MTP/MPO, 100m



Applications

- Compliant with 100GBASE-SR4 Ethernet
- Infiniband QDR
- Up to 103.1 Gbps Bit Rate
- Datacenter backbones
- High-speed servers
- Breakout to 4 x 25GBASE-SR Ethernet
- SAN, Routers, Hubs, Load Balancer
- High-performance Computing Clusters
- Other optical links

Features

- QSFP28 100G Optical Transceiver
- QSFP28 MSA Compliant
- Up to 100m links on MMF OM4 fiber
- VCSEL laser transmitter
- 1X12 MPO receptacle
- 4x Tx and 4x Rx
- Digital Diagnostic Monitoring
- RoHS-6 and Lead Free
- Operating temperature: 0°C ~ +70°C

Description

The 4L-Q100SR4-M001 is a QSFP28 four channel full duplex transceiver module for multimode (MMF) 100GBASE-SR4 / 100 Gigabit optical data communications.

This modules are compatible with most switch/router/server brands and designed to operate with multi mode fiber (MMF) and MTP/MPO connectors, using the wavelengths 850nm from 0 to 100m over OM4 fiber.

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General Specifications – Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Max Link Length	L _{max}			70m (OM3 fiber) 100m (OM4 fiber)
Supply Voltage	V _{cc}	-0.3v		+3.6v
Storage Temperature	T _s	-20°C		85°C
Case Operating Temperature	T _{OP}	0°C		70°C
Relative Humidity	RH	15		85
Receiver Damage Threshold	pR _{dmg}	5.5dBm		
Bit Rate (all wavelngths)	BR	103.1		112.2Gb/s
Bit Error Ratio – pre FEC	BER			E-12

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		25.78125 ± 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				

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Electrical Specifications

Receiver							
Signaling rate per lane	25.78125 ± 100ppm					Gb/s	
Differential data output swing	Vout,pp	100	400			mVpp	2
		300	600				
		400	600	800			
		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		

Optical Specifications - Transmitter

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Signaling Speed per Lane		25.78125 ± 100ppm			Gb/s	1
Center wavelength		840	850	860	nm	
RMS Spectral Width	SW			0.6	nm	
Average Launch Power per Lane	TXP _x	-8.4		2.4	dBm	
Transmit OMA per Lane	TxOMA	-6.4		3	dBm	
Launch Power [OMA] minus TDEC per Lane	P-TDEC	-7.3			dBm	
TDEC per Lane	TDEC			5	dBm	
Optical Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance	ORL			12	dB	
Encircled Flux	FLX	>86% at 19 um <30% at 4.5 um				
Average Launch Power of OFF Transmitter, per Lane				-30	dBm	
Transmitter Eye mask definition {X1, X2, X3, Y1, Y2, Y3}		{0.3,0.38,0.45,0.35,0.41,0.5}				2

Optical Specifications – Receiver

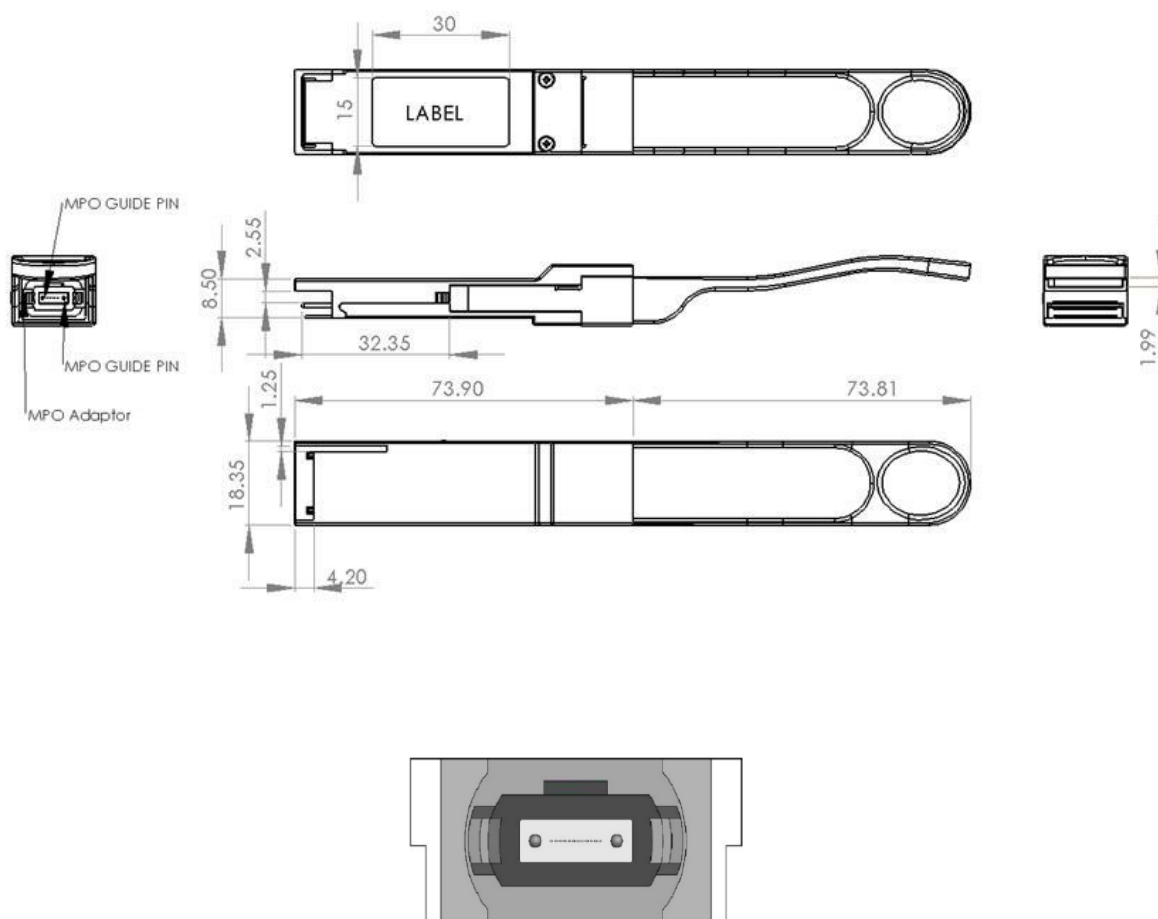
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Signaling Speed per Lane		25.78125 ± 100ppm			GBd	3
Center wavelength		840		860	nm	
Damage Threshold	DT	3.4			dBm	
Average Receive Power per Lane	RXP _x	-10.3		2.4	dBm	4
Receive Power (OMA) per Lane	RxOMA			3	dBm	
Receiver Reflectance	Rfl			-12	dB	
Stressed Receiver Sensitivity (OMA) per Lane	SRS			-5.2	dBm	
Stressed Conditions						
Stressed Eye Closure	SEC		4.3		dB	
Stressed Eye J2 Jitter	J2		0.39		UI	
Stressed Eye J4 Jitter	J4		0.53		UI	
OMA of each aggressor lane			3		dBm	
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}			{0.28,0.5,0.5,0.33,0.33,0.4}			5
LOS De-Assert	LOS _D			-12	dBm	
LOS Assert	LOS _A	-30			dBm	
LOS Hysteresis		0.5	2		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}				V	
Differential data input swing	V _{in pp}				mV _{pp}	
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	
Differential data output swing	V _{out pp}				mV _{pp}	

Mechanical Specifications



Ordering Information

Part Number	Description
4L-Q100SR4-M100	QSFP28 100GBASE-SR4, 850nm, MM, DDM, MPO/MTP, 100m
4L-Q100BSR4-100	QSFP28 100GBASE-SR4, 850/900nm, BiDi MM, DDM, LC, 150m
4L-Q100CW4-02	QSFP28 100GBASE-CWDM4, LC, DDM, SM 2km.
4L-Q100PLR4-M02	QSFP28 100GBASE-PLR4, 1310nm, SM, DDM, MPO/MTP, 2km
4L-Q100LR4-10	QSFP28 100GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 10Km
4L-Q100LR4-20	QSFP28 100GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 20Km
4L-Q100ER4-40	QSFP28 100GGBASE-ER4, 1310nm, SM, DDM, Duplex LC, 40Km
4L-Q100ZR4-70	QSFP28 100GGBASE-ZR4, 1310nm, SM, DDM, Duplex LC, 70Km
4L-Q100ZR4-80	QSFP28 100GGBASE-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.

Contact Information

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