4L-Q100ER4-40

QSFP28 100GBASE-ER4, 1310nm, SM, DDM, LC, 40Km with FEC

Applications

- Compliant with 100GBASE-ER4 Ethernet
- Infiniband QDR
- Up to 103.1 Gbps Bit Rate
- Datacenter backbones
- High-speed servers
- 4 x 25GBASE Ethernet
- SAN, Routers, Hubs, Load Balancer
- High-performance Computing Clusters
- Other optical links

Features

- QSFP28 100G Optical Transceiver
- QSFP28 MSA Compliant
- Up to 30Km links on SMF, without FEC
- Up to 40Km links on SMF, with FEC enabled
- DFB laser transmitter
- Duplex LC receptacles
- 4x 25Gb/s LAN-WDM
- Digital Diagnostic Monitoring
- RoHS-6 and Lead Free
- Operating temperature: 0°C ~ +70°C

Description

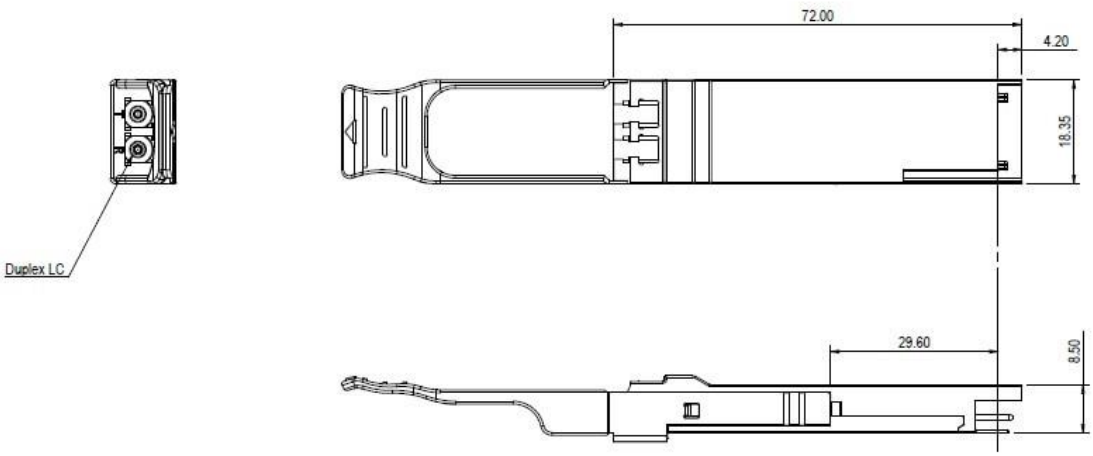
The 4L-Q100ER4-40 is a QSFP28 four channel full duplex transceiver module for singlemode (SMF) 100GBASE-ER4 / 100 Gigabit optical data communications.

This modules are compatible with most switch/router/server brands and designed to operate with single mode fiber (SMF) and Duplex LC connectors, using 4 channels of 25Gb/s LAN-WDM with up to 30km reach, without FEC enabled and up to 40km with FEC enabled.

General Specifications – Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Max Link Length	Lmax			FEC disabled 30Km on SMF FEC enabled 40Km on SMF
Supply Voltage	Vcc	-0.5		3.6
Power Consumption				4.5W
Storage Temperature	T_S	-40		85
Case Operating Temperature	TOP	-5		70
Relative Humidity	RH	15		85
Receiver Damage Threshold, per Lane	PRdmg	-3.0		dBm
Bit Rate (all wavengths)	BR			103.1Gb/s
Bit Error Ratio – pre FEC	BER			10^{-12}

Mechanical Specifications



Optical Specifications - Transmitter

Parameter	Symbol	Min	Typical	Max	Unit
Lane Wavelength	L0	1294.53	1295.56	1296.59	nm
	L1	1299.02	1300.05	1301.09	nm
	L2	1303.54	1304.58	1305.63	nm
	L3	1308.09	1309.14	1310.19	nm
Transmitter					
SMSR	SMSR	30			dB
Total Average Launch Power	P_T			10.5	dBm
Average Launch Power, each Lane	P_{AVG}	-2.9		4.5	dBm
OMA, each Lane	P_{OMA}	0.5		6.5	dBm
Difference in Launch Power	Ptx,diff			3.6	dB
Launch Power in OMA		0.1		4.5	dBm
TDP, each Lane	TDP			2.5	dB
Extinction Ratio	ER	4			dB
RIN_{20OMA}	RIN			-130	dB/H
Optical Return Loss	TOL			20	dB
Transmitter Reflectance	R_T			-12	dB
Eye Mask coordinates: X1, X2, X3, Y1, Y2, Y3		{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}			
Average Launch Power OFF	Poff			-30	dBm

Optical Specifications – Receiver

Receiver				
Damage Threshold	THd	-3		dBm
Average Receive Power		-20	-4.9	dBm
Receive Power (OMA), each Lane			-1.9	dBm
Receiver Sensitivity (OMA), each Lane （BER = $5x10^{-5}$）	SEN1		-14.65	dBm
Receiver Sensitivity (OMA), each Lane （BER = $1x10^{-12}$）	SEN2		-18.65	dBm
StressedReceiver Sensitivity (OMA), each Lane （BER = $5x10^{-5}$）	SEN3		-16	dBm
Receiver Sensitivity (OMA), each Lane （BER = $5x10^{-5}$）	SEN4		-18	dBm
Difference in Receive Power between any Two Lanes (OMA)	Prx,diff		3.6	dB
LOS Assert	LOSA	-26		dBm
LOS Deassert	LOSD	-24		dBm
LOS Hysteresis	LOSH	0.5		dB
Receiver Electrical 3 dB upper Cutoff Frequency, each Lane	Fc		31	GHz

Optical Specifications – Receiver

Conditions of Stress Receiver Sensitivity Test		
Vertical Eye Closure Penalty, each Lane	1.5	dB
Stressed Eye J2 Jitter, each Lane	0.3	UI
Stressed Eye J9 Jitter, each Lane	0.47	UI

Electrical Specifications

Parameter	Symbol	Min	Typical	Max
Power Consumption	P			4.5 W
Supply Current	Icc			1.36 A
Transceiver Power-on Initialization Time				2000 ms
Transmitter				
Common Mode V		-0.35		2.85V
AC Common Mode Input Voltage Tolerance		15 mV		
Differential Input Voltage		50 mVpp		
Differential Input Voltage Swing	Vin			900 mVpp
Differential Input Impedance	Zin	90	100	110 Ohm
Receiver				
Single-ended Output Voltage		-0.35		2.85V
AC Common Mode Output Voltage				7.5 mV
Differential Output Voltage Swing	Vout	300		850 mVpp
Differential Output Impedance	Zout	90	100	110 Ohm

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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