

# 4L-Q281GLR4-L10

QSFP28 100GBASE-LR4, 1310nm, SM, DDM, LC, 10Km



## Applications

- Compliant with 100GBASE-LR4 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 10Km links on SMF
- 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-Q281GLR4-L10 is a QSFP28 four channel full duplex transceiver module for singlemode (SMF) 100GBASE-LR4 / 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 10km reach.

Quick access to other products:

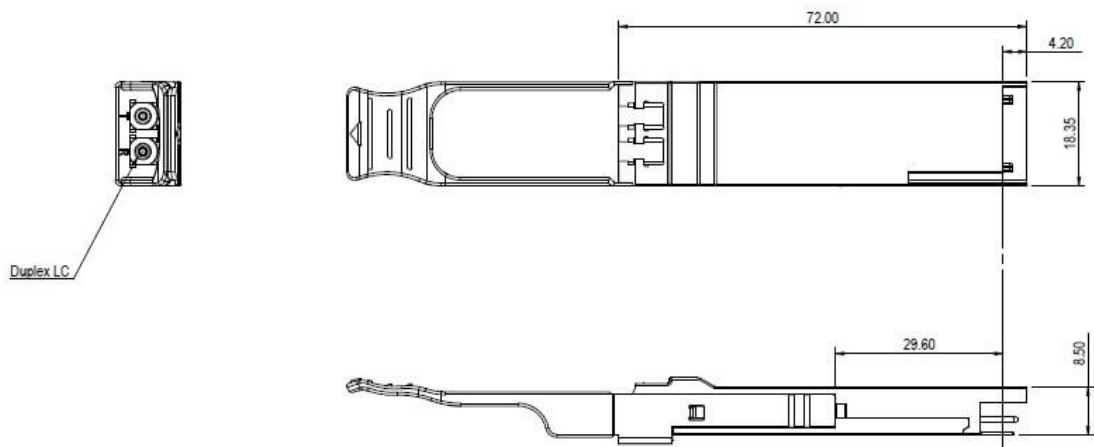
[SFP1G](#) [XFP10G](#) [XFP10G](#) [QXFP40G](#) [SFP2825G](#) [QSFP28100G](#) [DWDM](#)

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## General Specifications – Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Max Link Length	L <sub>max</sub>			10Km on SMF
Supply Voltage	V <sub>cc</sub>	-0.5		3.6
Storage Temperature	T <sub>s</sub>	-40		85
Case Operating Temperature	T <sub>OP</sub>	-5		75
Relative Humidity	RH	15		85
Receiver Damage Threshold, per Lane	pR <sub>dmg</sub>	3.4		
Bit Rate (all wavelngths)	BR			103.1Gb/s
Bit Error Ratio – pre FEC	BER			10 <sup>-12</sup>

## Mechanical Specifications



## Optical Specifications - Transmitter

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Speed per lane		25.78125±100ppm			Gb/s
Total Output Optical Power	$P_T$			8.3	dBm
Average Launch Power (Each Lane)	$P_{TX}$	-4.3		4.5	dBm
Optical Center Wavelength (L0 Lane)	$\lambda_C$	1294.53	1295.56	1296.59	nm
Optical Center Wavelength (L1 Lane)	$\lambda_C$	1299.02	1300.06	1301.09	nm
Optical Center Wavelength (L2 Lane)	$\lambda_C$	1303.54	1304.59	1305.63	nm
Optical Center Wavelength (L3 Lane)	$\lambda_C$	1308.09	1309.14	1310.19	nm
Optical Modulation Amplitude(Each Lane)	OMA	-1.3		4.5	dB
Extinction Ratio	ER	4			dB
Side Mode Suppression Ratio	SMSR	30			dB
Relative Intensity Noise	RIN			-130	dB/Hz
Transmitter Dispersion Penalty	TDP			1.8	dB
Optical Return Loss Tolerance				20	dB
Transmitter Eye Mask		Compliant with IEEE 802.3ba			

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Optical Center Wavelength (L2 Lane)	$\lambda_c$	1303.54	1304.59	1305.63	nm
Optical Center Wavelength (L3 Lane)	$\lambda_c$	1308.09	1309.14	1310.19	nm
Optical Input Power, each lane	PRX	-10.6		-4.5	dBm
Receiver Sensitivity (OMA), each Lane	RX_SEN1			-8.6	dBm
LOS Assert	LOS <sub>A</sub>		-18		dBm
LOS De-Assert	LOS <sub>D</sub>		-16		dBm
LOS Hysteresis	LOS <sub>H</sub>	1.5			dB

## Electrical Specifications - Transmitter

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Rate per lane		25.78125±100ppm			Gb/s
Differential data input swing	v <sub>IN_PP</sub>			900	mV
Transmit disable voltage	V <sub>D</sub>	V <sub>CC</sub> -1.3		v <sub>CC</sub>	V
Transmit enable voltage	v <sub>EN</sub>	v <sub>EE</sub>		V <sub>EE</sub> +0.8	V

## Electrical Specifications - Receiver

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Rate per lane		25.78125±100ppm			Gb/s
Differential data output swing	v <sub>OUT_PP</sub>	400		800	mV
Data output rise time (20%-80%)	t <sub>r</sub>		12		ps
Data output fall time (20%-80%)	t <sub>f</sub>		12		ps
LOS Fault	LOS <sub>A</sub>	V <sub>CC</sub> -1.3		v <sub>CC_HOST</sub>	V
LOS Normal	LOS <sub>D</sub>	v <sub>EE</sub>		V <sub>EE</sub> +0.5	V

## Ordering Information

Part Number	Description
4L-Q281GSR4-M100	QSFP28 100GBASE-SR4, 850nm, MM, DDM, MPO/MTP, 100m
4L-Q281GLR4-L10	QSFP28 100GBASE-LR4, 1310nm, SM, DDM, Duplex LC, 10Km
4L-Q281GER4-L40	QSFP28 100GGBASE-ER4, 1310nm, SM, DDM, Duplex LC, 40Km

### 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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