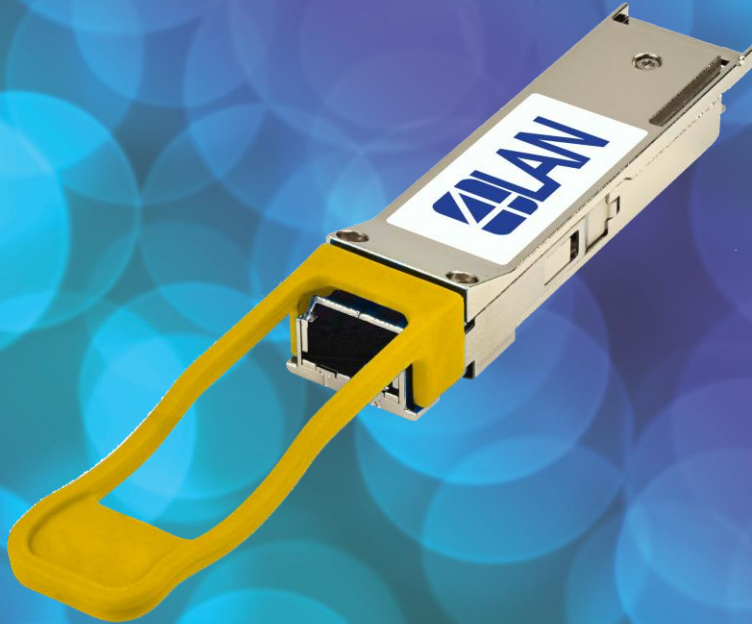


4L-Q200SR4-M001

QSFP56 200GBASE-SR4, 850nm, MM, DDM, MTP/MPO, 100m



Applications

- Compliant with 200GBASE-SR4 Ethernet
- Up to 212.5 Gbps Bit Rate
- Datacenter backbones
- High-speed servers
- SAN, Routers, Hubs, Load Balancer
- High-performance Computing Clusters
- Other optical links

Features

- QSFP56 200G Optical Transceiver
- QSFP56 MSA Compliant
- CMIS4.0 Management interface Compliant
- Up to 70m links on MMF OM3
- Up to 100m links on MMF OM4
- VSCSEL/PD laser transmitter
- MPO-12/UPC receptacle
- Digital Diagnostic Monitoring
- RoHS-6 and Lead Free
- Operating temperature: 0°C ~ +70°C

Description

The 4L-Q200SR4-M001 is a QSFP56 four channel full duplex transceiver module for singlemode (SMF) 200GBASE-SR4 / 200 Gigabit optical data communications.

This modules are compatible with most switch/router/server brands and designed to operate with multimode mode fiber (MMF) and MPO-12 connectors, using 4 full duplex channels of 50Gb/s with up to 100m reach.

Quick access to other products:

[SFP 1G](#) [SFP 10G](#) [XFP 10G](#) [QSFP40G](#) [SFP28 25G](#) [QSFP28 100G](#) [DWDM](#)

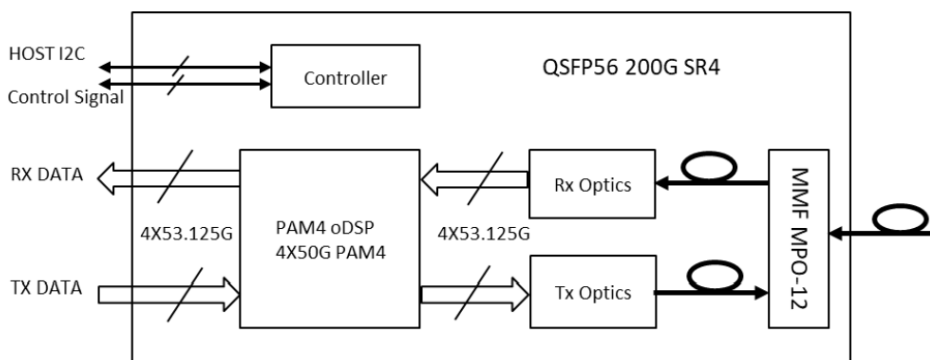
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Functional Description

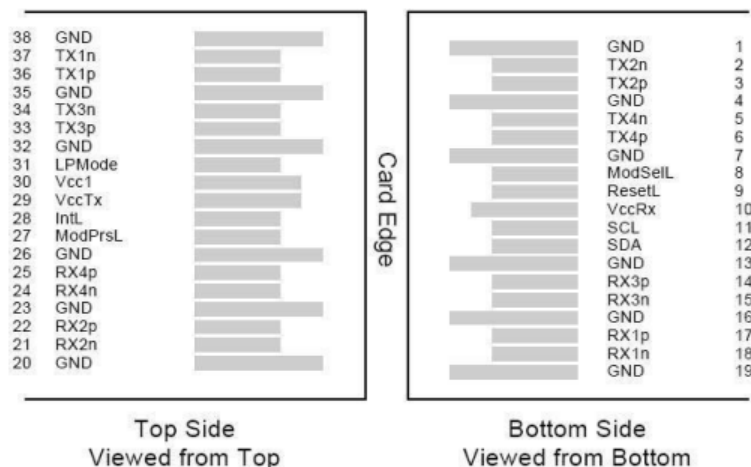
The 4L-Q562GFR4-L02 is a parallel full-duplex 200GE Quad Small Form Factor Pluggable (QSFP56) optical module designed for short-range multi-lane data communication. The optical module uses a 4-level pulse amplitude modulation (PAM4) format. It offers four data lanes based on 850 nm VCSEL/PD array technology, and is capable of an aggregate data rate of 200GE over 100 m OM4 MMF or 70 m OM3 MMF.

It is compliant with the IEEE 802.3cd 200GBASE SR4, IEEE 802.3bs 200GAUI-4 standards. Digital diagnostics functions are available via the I2C interface, as specified by the CMIS4.0 management interfaces

Transceiver Block Diagram



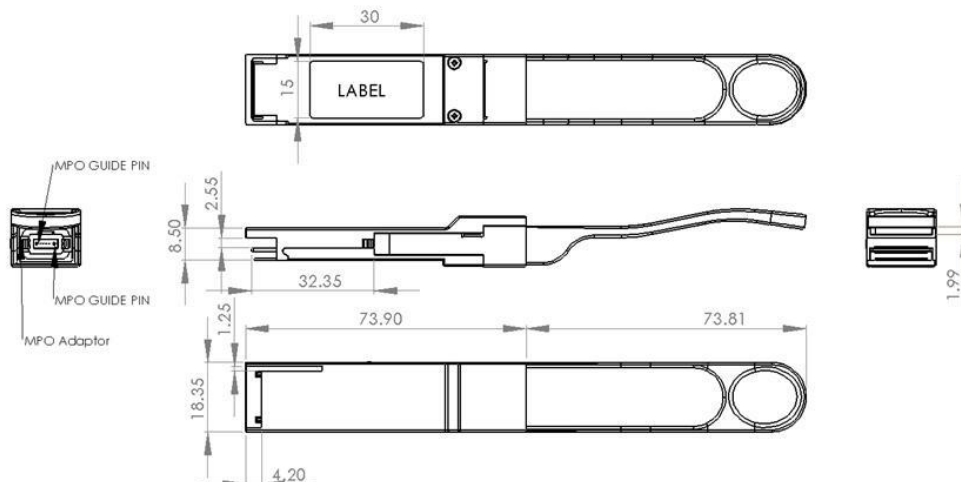
Pin Definition



General Specifications – Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max
Max Link Length	Lmax			70m on MMF OM3 100m on MMF OM4
Supply Voltage	Vcc	-0.5v		3.6v
Power Consumption			5w	
Storage Temperature	T _s	-40°C		85°C
Case Operating Temperature	T _{OP}	10°C		70°C
Relative Humidity	RH	0		85%
Receiver Damage Threshold, per Lane	pRdmg	5dBm		
Bit Rate (all lanes)	BR			212.5Gb/s

Mechanical Specifications



Quick access to other products:

[SFP 1G](#) [SFP10G](#) [XFP 10G](#) [QSFP40G](#) [SFP28 25G](#) [QSFP28 100G](#) [DWDM](#)

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Optical Specifications - Transmitter

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Speed per lane (NRZ)		53.125±100ppm			Gb/s
Center Wavelength		840	850	865	nm
Average Launch Power	P _{TX}	-6.5		4	dBm
Outer Optical Modulation Amplitude each lane	P _{OMA}	-4.5		3	dB
Transmitter and Dispersion Eye Closure for PAM4	TDECQ			4.5	dB
Extinction ratio, each lane	ER	3			dB
Relative Intensity Noise	RIN			-128	dB/Hz
Transmitter Reflectance	R _t			-26	dB
Optical Return Loss Tolerance	TOL			12	dB
Average Launch Power of OFF Transmitter	P _{off}			-30	dBm

Optical Specifications – Receiver

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Speed per lane			53.125±100ppm		Gb/s
Optical Center Wavelength	λ_c	840	850	865	nm
Average Receive Power, each lane	PRX	-8.4		4	dBm
Receiver Power (OMA), each Lane				3	dBm
Receiver Sensitivity (OMA), each Lane				Max (-6.5, SEC Q - 7.9)	dBm
Stressed Receiver Sensivity				-3.4	dBm
Damage Threshold, each Lane		5			dBm
LOS Assert	LOS _A	-23.4			dBm
LOS De-Assert	LOS _D			-9.4	dBm
LOS Hysteresis	LOS _H	0.5			dB

Electrical Specifications - Transmitter

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Rate per lane		53.125±100ppm			Gb/s
Differential data input swing	v _{IN_PP}	900			mV
Transmit disable voltage	V _D	V _{CC} -1.3		v _{CC}	V
Transmit enable voltage	v _{EN}	v _{EE}		V _{EE} +0.8	V

Electrical Specifications - Receiver

Parameter	Symbol	Min	Typ	Max	Unit
Signaling Rate per lane		53.125±100ppm			Gb/s
Differential data output swing	v _{OUT_PP}			900	mV
Data output rise time (20%-80%)	t _r		12		ps
Data output fall time (20%-80%)	t _f		12		ps
LOS Fault	LOS _A	V _{CC} -1.3		v _{CC_HOST}	V
LOS Normal	LOS _D	v _{EE}		V _{EE} +0.5	V

Ordering Information

Part Number	Description
4L-Q200SR4-M001	QSFP56 200GBASE-SR4, 850nm, MM, DDM, MPO/MTP, 100m

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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