

COL-QSFP28-100G-LR4 Optical Transceiver

QSFP28 LAN WDM 20km Transceiver, With Diagnostic Monitoring

Features

- ◆ Compliant with 100GBASE-LR4
- ◆ Support line rates from 103.125 Gb/s to 111.81 Gb/s
- ◆ Integrated LAN WDM TOSA / ROSA for up to 20 km reach over SMF
- ◆ 4x25G electrical interface (OIF CEI-28G-VSR) and 4-lane 25.78Gb/s optical interface
- ◆ Duplex LC optical receptacle
- ◆ Support Digital Diagnostic Monitoring interface
- ◆ No external reference clock
- ◆ RoHS-10 compliant and lead-free
- ◆ Compliant with QSFP28 MSA with LC connector
- ◆ Single +3.3V power supply
- ◆ Maximum power consumption 3.5W
- ◆ All-metal housing for superior EMI performance
- ◆ 0–70°C operating temp
- ◆ Power dissipation < 3.5W
- ◆ RoHS6 compliant (lead free)

Applications

- ◆ 100G LAN WDM Ethernet
- ◆ InfiniBand 4x EDR

Description

100G QSFP28 LR4 optical Transceiver integrates receiver and transmitter path on one module. In the transmit side, four lanes of serial data streams are recovered, retimed, and passed to four laser drivers. The laser drivers control 4- Distributed Feedback Laser (DFB) with center wavelength of 1296 nm, 1300nm, 1305nm and 1309 nm. The optical signals are multiplexed to a single –mode fiber through an industry standard LC connector. In the receive side, the four lanes of optical data streams are optically de-multiplexed by the integrated optical de-multiplexer. Each data stream is recovered by a PIN photo-detector and trans-impedance

amplifier, retimed. This module features a hot-pluggable electrical interface, low power consumption and MDIO management interface.

The product is designed with form factor, optical/electrical connection and digital diagnostic interface according to the QSFP28 Multi-Source Agreement (MSA) and compliant to IEEE 802.3bm.

OPTICAL TRANSMITTER PERFORMANCE

Parameter	Symbol	Min	Typical	Max	Unit	
Center Wavelength	Ch0	λ_0	1294.53	1295.56	1296.59	nm
	Ch1	λ_1	1299.02	1300.05	1301.09	nm
	Ch2	λ_2	1303.54	1304.58	1305.63	nm
	Ch3	λ_3	1308.09	1309.14	1310.09	nm
Bit Rate per Channel	B	25.78125±100ppm			Gb/s	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average launch power, each lane		-4.3		4.5	dBm	
Launch power in OMA minus TDP, each lane	OMA-TDP	-2.3			dBm	
Transmission & dispersion penalty, each lane	TDP			2.2	dB	
RIN _{20 OMA}				-130	dB/Hz	
Transmitter Reflectance				-20	dB	
Extinction Ratio	ER	4			dB	
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}		{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				
Average launch power of OFF transmitter, each lane				-30	dBm	
Optical return loss tolerance				20	dB	

OPTICAL RECEIVER PERFORMANCE

Parameter	Symbol	Min	Typical	Max	Unit	
Center Wavelength	Ch0	λ_0	1294.53	1295.56	1296.59	nm
	Ch1	λ_1	1299.02	1300.05	1301.09	nm
	Ch2	λ_2	1303.54	1304.58	1305.63	nm
	Ch3	λ_3	1308.09	1309.14	1310.09	nm
Bit Rate per Channel	B	25.78125±100ppm			Gb/s	
Damage threshold, each lane				4.5	dBm	
Average receive power, each lane		-13.0		2.5	dbm	

Unstressed Sensitivity (OMA) at 5×10^{-5} BER	OMAIN	-	-	-10.6	dBm
LOS Assert	LOSA	-30			dBm
LOS De-assert	LOSD			-12	dBm

Recommended operating environment

Recommended Operating Environment specifies parameters for which the electrical and optical characteristics hold unless otherwise noted.

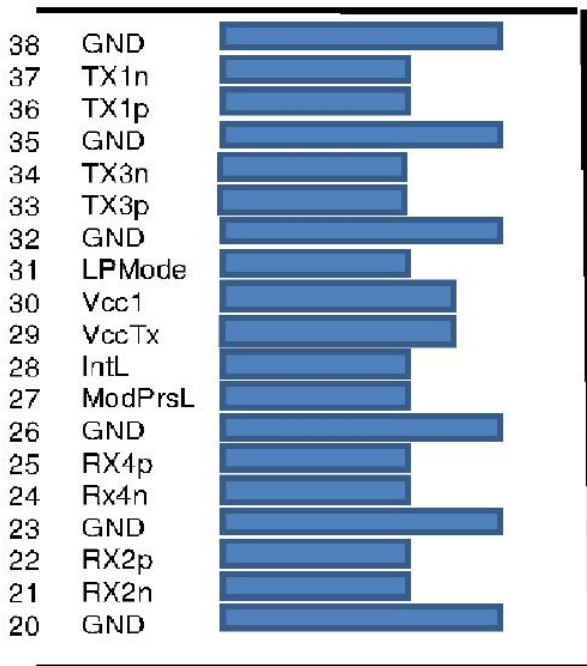
Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage	V _{CC}	3.135	3.300	3.465	V
Operating Case Temperature	T _c	0	25	70	°C

Pin definition

Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt

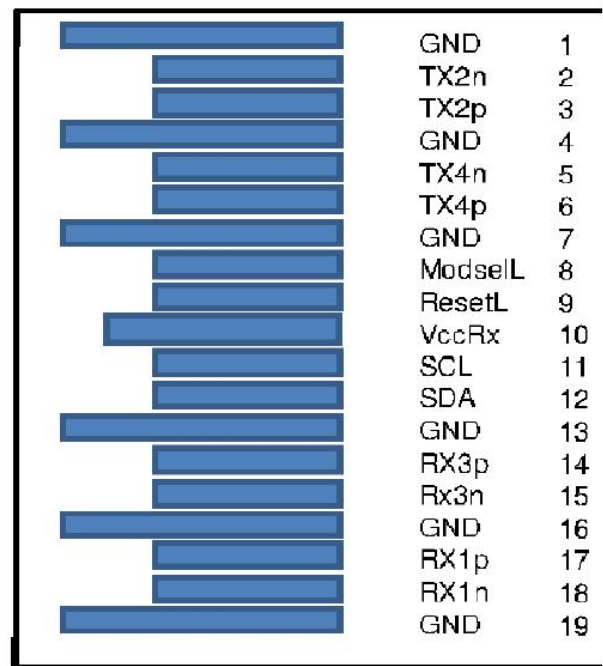
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

Pin Descriptions



Top Side
Viewed From Top

Module Card Edge



Bottom Side
Viewed From Bottom

Ordering information

Part Number	Product Description
COL-QSFP28-100G-LR4	100Gbps QSFP28 LAN WDM 20km 0°C ~ +70°C

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by coptolink before they become applicable to any particular order or contract.

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