TRA-QSFP-100G-LR4

100G-1310nm / 10km / Gigabit Ethernet 100GBASE-LR4

Features

- IEEE 802.3ba, IEEE 802.3bm, QSFP28 Multi-Source Agreement compliant (MSA)
- Hot pluggable QSFP28 footprint
- Supports 103.125 Gbps Data Rate
- 4x 25.781Gbps Serial Electrical Interface (CEI-28G-VSR)
- Dual LC connector
- 4x cooled 1310nm LAN-WDM EML Transmitters
- 4´ PIN Receivers
- Up to 10km Point-to-Point Transmission on Single Mode Fibre
- Operating temperature range 0°C to 70°C
- Power Dissipation <4W
- Single +3.3V Power Supply

Applications

- 100GBASE-LR4

Description

TRansceiver.Asia is a high performance QSFP28 transceiver module for 100 Gigabit Ethernet data links over a single mode fibre pair. The maximum reach is 10km. The four transmitters are cooled 1310nm LAN-WDM Electro-Absorption Modulated Lasers (EML) generating four optical 25Gbps output signals, which are multiplexed together at the optical output port. The four receivers are PIN photodiodes which detect (after optical de-multiplexing) 4x 25Gbps optical input signals. This transceiver module is compliant with the Small Form-factor Pluggable (SFP+) Multisource Agreement (MSA) and hot pluggable. Always contact **TRansceiver.Asia** commercial agents for compatibility with different equipment platforms.

Optical Interfaces

P/N	Wavelength	Output Optical Power[2]	Optical receiver Sensitivity3	Optical Receiver Overload[4]	Power Budget
	[nm]	[dBm]	[dBm]	[dBm]	[dB]
TRA-SFP-100G-LR4	1310nm LAN – WDM 800GHZ	1.7 to 10.5	≤ -6.8	4.5	≥ 10

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	Icc			1210	mA	
Case Operating Temperature	Tc	0		70	°C	Standard
		-40		85	°C	Extended
Relative Humidity		0		85	%	
Storage Temperature		-40		85	°C	

Transmitter Optical Specifications

Parameter	MIN	TYP	MAX	UNITS	NOTES
Data Rate, each Lane		25.78125		Gbps	5
Aggregated Data Rate		103.125		Gbps	5
Total Average Output Power			10.5	dBm	6
Average Output Power, each Lane	-4.3		4.5	dBm	6.7
Launched OMA, each Lane	-1.3		4.5		6.8
Launched OMA minus TDP, each lane	-2.3			dBm	6
Difference in launched OMA between any two Lanes			5	dB	
Difference in launched OMA between any two Lanes	1294.54	1295.56	1296.59	Nm	
	1299.02	1300.05	1301.09	Nm	
	1303.54	1304.58	1305.64	Nm	
	1308.09	1309.14	1310.19	Nm	
Transmitter and Dispersion Penalty (TDP), each Lane			2.2	dB	
Extinction Ratio, each Lane	4			dB	

Receiver Optical Specification

Parametter	min	Typ	max	unit	note
Difference in receive power between any two lanes (OMA)			5.5	dB	
Receiver Sensitivity (OMA), each Lane			-8.6	dBm	10
Stressed Receiver Sensitivity (OMA), each Lane			-6.8	nm	11

	1294.53	1294.53	1294.53		
	1299.02	1299.02	1299.02		
	1303.54	1303.54	1303.54		
	1308.09	1308.09	1308.09		
Operating Wavelength, Optical Lanes 0 to 3					
Average Receive Power, each Lane	-10.6		4.5		9

Pin Function Definition

Pin	Symbol	Description	Pin	Symbol	Description
1	GND	Ground	20	GND	Ground
2	TX2n	Transmitter Inverted Data Input	21	RX2n	Receiver Inverted Data Output
3	TX2p	Transmitter Non-Inverted Data Input	22	RX2p	Receiver Non-Inverted Data Output
4	GND	Ground	23	GND	Ground
5	TX4n	Transmitter Inverted Data Input	24	RX4n	Receiver Inverted Data Output
6	TX4p	Transmitter Non-Inverted Data Input	25	RX4p	Receiver Non-Inverted Data Output
7	GND	Ground	26	GND	Ground
8	ModSelL	Module Select	27	ModPrsL	Module Present
9	ResetL	Module Reset	28	IntL	Interrupt
10	VccRx	+3.3V Power Supply Receiver	29	VccTx	+3.3V Power supply transmitter
11	SCL	2-wire serial interface clock	30	Vcc1	+3.3V Power supply
12	SDA	2-wire serial interface data	31	LPMode	Low Power Mode
13	GND	Ground	32	GND	Ground
14	RX3p	Receiver Non-Inverted Data Output	33	TX3p	Transmitter Non-Inverted Data Input
15	RX3n	Receiver Inverted Data Output	34	TX3n	Transmitter Inverted Data Input
16	GND	Ground	35	GND	Ground
17	RX1p	Receiver Non-Inverted Data Output	36	TX1p	Transmitter Non-Inverted Data Input
18	RX1n	Receiver Inverted Data Output	37	TX1n	Transmitter Inverted Data Input
19	GND	Ground	38	GND	Ground

Ordering information

Part Number	Description
TRA-SFP-100G-LR4	QSFP28 LR-4, 1310nm LAN-WDM, Tx (EML), Rx (PIN), maximum distance 10km on SMF,100 Gigabit Ethernet, dual LC connector, 0°C to 70°C, DDM

Warnings

Process plug

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

Handling Precautions

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser