TRA-QSFP-40G-LR4

1310nm / 40km / 40 Gigabit Ethernet / ER-4

Features

- Hot pluggable QSFP+ footprint
- Serial ID functionality supported according to [SFF-8436]
- Dual LC connector
- 4x CWDM DFB transmitters (1271/1291/1311/1331nm)
- 40km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C
- Up to 11.2Gbps per Lane
- Low power dissipation (<3.5W)
- Digital Diagnostics Monitoring (DDM)

Applications

- 40GBASE-ER4
- Rack to Rack
- Client-side 40G Telecom Connections

Description

TRansceiver.Asia is a high performance QSFP+ transceiver module for 40 Gigabit Ethernet data links over two single mode fibres. The maximum reach1 is 40km, with 16.5dB end of life (EOL) power budget. The transmitters (4×) are CWDM DFB (Distributed Feedback) lasers, the receivers (4×) are PIN photodiodes. This transceiver module is compliant with the QSFP28 Multisource Agreement (MSA) and hot pluggable. Always contact **TRansceiver.Asia** commercial agents for compatibility with different equipment platforms

Optical Interfaces

P/N	Nominal Wavelength [nm]	Optical Output Power, per Lane [dBm]	Optical Receiver Sensitivity, per Lane [dBm]	Optical Path Penalt[3], per Lane [dB]	Optical Receiver Overload, per Lane [dBm]	Power Budget, per Lane [dB]
TRA-SFP-40G-ER4	1271/1291/1311/1331nm	3.3 to 10.5	≤ -13.5	≤ 2.6	-1	≥ 16.5

Recommended Operating Conditions

5.1. Recommended Operating Conditions					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	
Relative Humidity	0		85	%	Non-Condensing
Power Supply Voltage	3.135	3.3	3.465	V	
Power Supply Current			1100	mA	
Power Dissipation			3.5	W	

Transmitter Optical Specifications

5.2. Transmitter Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Data Rate, each Lane		10.3125	11.2	Gbps	
Aggregated Data Rate		41.25		Gbps	5
Average Output Power			10.5	dBm	6
Average Output Power, each Lane	-2.7		4.5		6, 7
Output Power Difference between any two Lanes			4.7	dB	
Centre Wavelength, Optical Lanes 0 to 3	1264.5	1271	1277.5	nm	
	1284.5	1291	1297.5		
	1304.5	1311	1317.5		
	1324.5	1331	1337.5		
Transmitter and Dispersion Penalty (TDP), each Lane			2.6	dB	9
Extinction Ratio	5.5			dB	

Receiver Optical Specification

5.3. Receiver Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Operating Wavelength, Optical Lanes 0 to 3	1264.5	1271	1277.5	nm	
	1284.5	1291	1297.5		
	1304.5	1311	1317.5		
	1324.5	1331	1337.5		
Receiver Overload	-1			dBm	
Receiver Overload, each Lane	-7			dBm	9
Receiver Sensitivity			-13.2	dBm	
Receiver Sensitivity, each Lane			-19.2	dBm	8, 9
Input Power Difference between any two Lanes			7	dB	

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-40G-ER4	QSFP+ ER4 40G 1310nm window, Tx DFB , Rx PIN, maximum distance 40km, power budget 16.5dB, 40x Gigabit Ethernet & Infiniband QDR, LC connector, 0°C to 75°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