

LQP100-ER4L

QSFP28 100Gbps ER4 Lite DDM Transceiver

PRODUCT FEATURES

- Supports 103.1Gbps aggregate bit rate
- 4x25Gbps electrical interface
- 4X25Gbps LAN-WDM EML transmitter and APD/TIA receiver
- Maximum link length of 30km on SMF without FEC
- Hot pluggable QSFP28 footprint
- Duplex LC receptacles
- Single 3.3V power supply
- Maximum power dissipation < 4.5W
- RoHS-6 compliant and lead-free
- I²C management interface
- 0°C to +70°C case operating temperature



APPLICATIONS

- 100GBASE-ER4 100G Ethernet
- OTN OTU4
- Client-side 100G interconnects

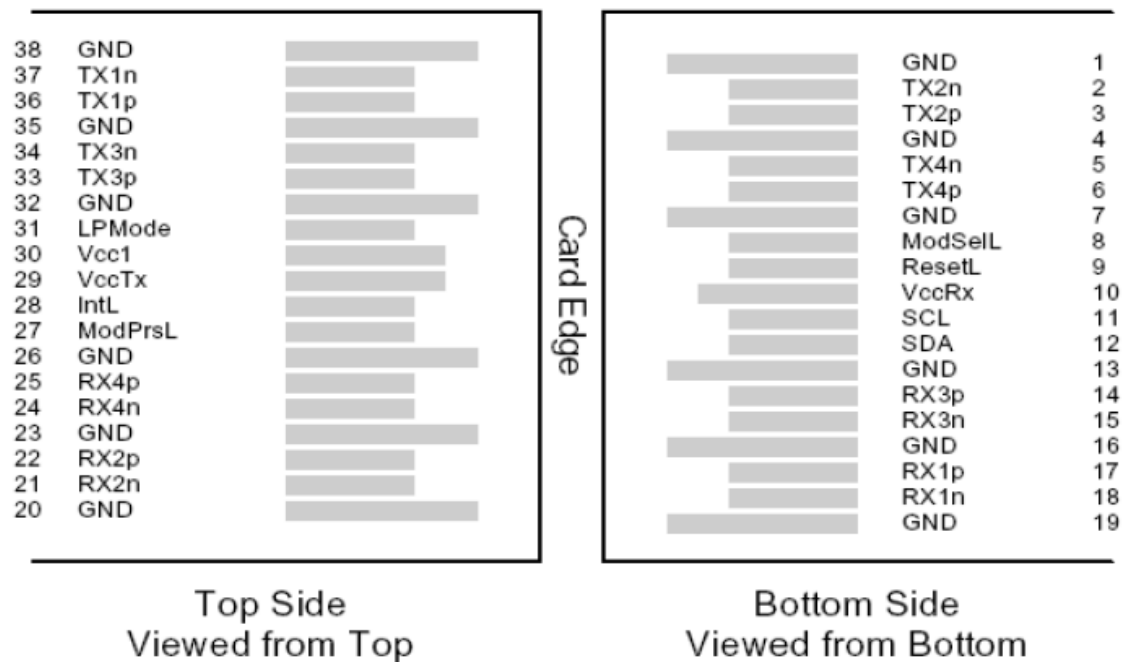
COMPLIANCE

- QSFP28 MSA SFF-8665
- IEEE802.3ba 100GBASE-ER4
- ROHS

Ordering Information

Package	Product part NO.	Description
QSFP28	LQP100-ER4L	4X25Gbps,Single-mode fiber, 30Km, 0-70℃

I. Pin Diagram



QSFP28 38pin connector (SFF 8679)

II. Pin Descriptions

Pin	Symbol	Name/Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSe1L	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power supply receiver	
11	SCL	2-wire serial interface clock	

Pin	Symbol	Name/Description	Note
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrSL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Note : 1. Circuit ground is internally isolated from chassis ground.

III. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Storage Temperature	T _S	-40		85	°C	
Storage Ambient Relative Humidity	H _A	0		85	%	
Case Operation Temperature	°C	0		70	°C	
Maximum Supply Voltage	V _{CC}	-0.5		4.0	V	
Signal Input Voltage		-0.3		V _{CC} +0.3	V	
Receiver Damage Threshold		5.5			dBm	

IV. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Transmitter						
Total Average Output Power	P _{OUT}			10.5	dBm	
Average Output Power, each lane		-2.9		4.5	dBm	
Optical Modulation Amplitude (OMA), each lane		0.1		4.5	dBm	
Extinction Ratio	ER	4.5			dB	
Center Wavelength	λ _c	1294.53 1299.02 1303.54 1308.09	1295.56 1300.05 1304.58 1309.14	1296.59 1301.09 1305.63 1310.19	nm	
SMSR	SMSR	30			dB	
Spectral Width				1	nm	
Transmitter OFF Output Power	P _{Off}			-30	dBm	
Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		{0.25,0.4,0.45,0.25,0.28,0.4}				Hit ratio 5x10 ⁻⁵
Receiver						
Input Optical Wavelength	λ _{IN}	1294.53 1299.02 1303.54 1308.09	1295.56 1300.05 1304.58 1309.14	1296.59 1301.09 1305.63 1310.19	nm	
Receive power, each lane (OMA)				-1.9	dBm	
Receiver Sensitivity(OMA) , each lane				-14.65	dBm	For BER= 1x10 ⁻¹²
Receiver Reflectance	R _{fl}			-26	dBm	
Loss of Signal Assert	P _A		-26		dBm	
Loss of Signal De-assert	P _D		-24		dBm	
LOS Hysteresis	P _D - P _A	0.5			dB	

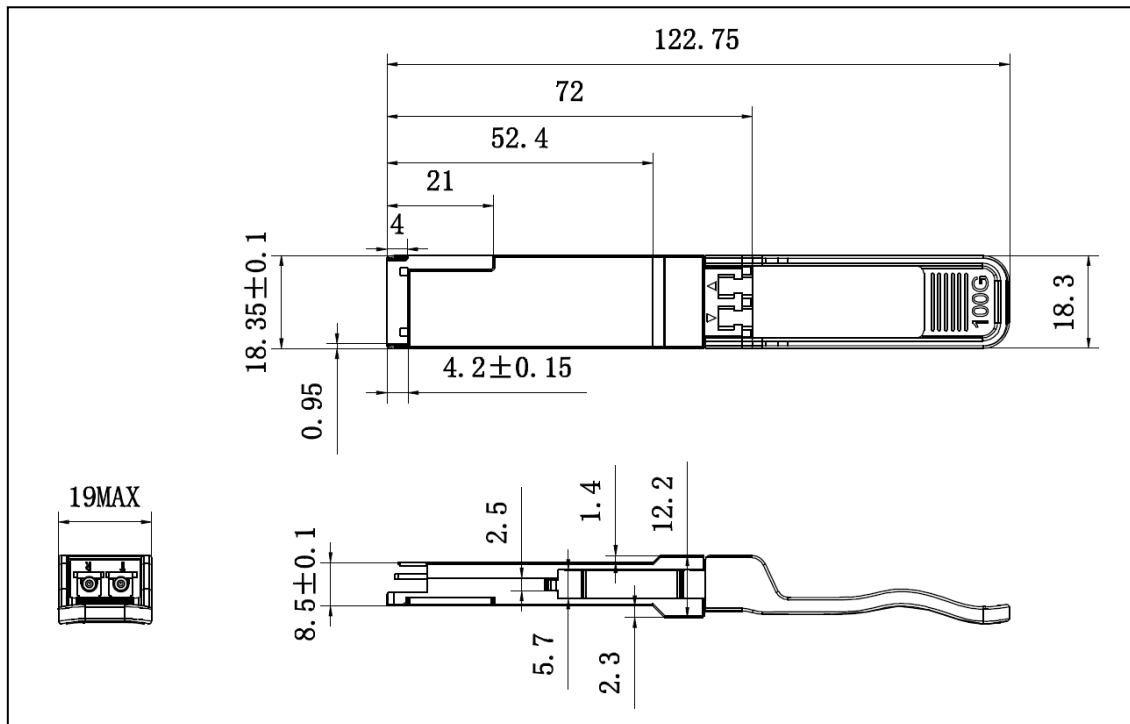
V. Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Supply Voltage	V _{CC}	3.135		3.465	V	
Supply Current	I _{CC}			1.15	A	
Module total power	P			4.5	W	
Transmitter						
Signaling rate per lane		25.78125±100ppm			Gbps	
Differential pk-pk input voltage	V _{in,pp,diff}	350			mV	
Differential input Resistance	R _{tin}		100		Ohm	
Receiver						
Signaling rate per lane		25.78125±100ppm			Gbps	
Differential data output swing	V _{out,pp}		400		mVpp	
Eye width		0.57			UI	
Differential output Resistance			100		ohm	

VI. Digital Diagnostic Functions

LQP100-ER4L transceivers support the I2C-based diagnostics interface specified by the SFF8636.

VII. Mechanical Specifications(Unit: mm)





Revision History

Version No.	Date	Description
1.0	August 20, 2020	Preliminary datasheet