LQP100-SR4

QSFP28 100Gb/s SR4 100m DDM

PRODUCT FEATURES

- Supports 103.1Gb/s aggregate bit rate
- 4x25Gb/s electrical interface
- Maximum link length of 100m on OM4 Multimode Fiber (MMF)
- Hot-pluggable QSFP28 footprint
- Single MPO 12 receptacle
- Maximum power dissipation<3.5W
- RoHS-6 compliant and lead-free
- Support Digital Diagnostic Monitor interface
- Case operating temperature Commercial: 0°C to +70°C

APPLICATIONS

- 100GBASE-SR4 100G Ethernet

Compliance

- QSFP28 MSA.
- IEEE802.3bm
- SFF-8436
- RoHS

PRODUCT DESCRIPTION

LQP100-SR4 are designed for use in 100 Gigabit Ethernet links over multimode fiber. They are compliant with the QSFP28 MSA and IEEE 802.3bm 100GBASE-SR4and CAUI-4. Module-level digital diagnostic functions are available via an I2C interface, as specified by the QSFP+ MSA. The optical transceiver is compliant per the RoHS Directive 2011/65/EU.

Ordering information

Package	Product part NO.	Data Rate(Gbps)	Media	Wavelength(nm)	Transmission Distance(m)	Temperature Range（℃）	
QSFP28	LQP100-SR4	4X25	multi-mode fiber	850	100	0~70	Commercial

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Storage Temperature	T_S	-40		85	ºC	
Storage Ambient Relative Humidity	H_A	0		85	%	
Maximum Supply Voltage	V_{CC}	-0.5		4.0	V	
Signal Input Voltage		-0.3		Vcc+0.3	V	
Receiver Damage Threshold		+3.4			dBm	
Lead Soldering Temperature/Time	TSOLD			260/10	ºC/sec	1
Lead Soldering Temperature/Time	TSOLD			360/10	ºC/sec	2

Notes:

1. Suitable for wave soldering.

2. Only for soldering by iron.

II. General Product Characteristics

Data Rate Spcifications	Symbol	Min.	Typ.	Max.	Unit	Ref.
Bit Rate(all wavelength combined)	BR			103.1	Gb/s	1
Bit Error Ratio(pre-FEC)	BER			10^{-5}		2
Maximum Supported Distance						
Fiber Type						
Link distance on OM3 MMF	d			70	meters	3

Link distance on OM4 MMF	d			100	meters	3

Notes:

1.Supports 100GBASE-SR4 per IEEE 802.3bm.

2. Tested with a PRBS 231-1 test pattern.

3. Requires FEC on the host to support maximum distance, per 100GBASE-SR4.

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter(per lane)						
Average Output Power per lane	P_{OUT}	-8.4		2.4	dBm	
Transmit OMA per Lane	TxOMA	-6.4		3.0	dBm	
Extinction Ratio	ER	2			dB	
Center Wavelength	λC	840		860	nm	
RMS Spectral Width	σ			0.6	nm	
Transmitter OFF Output Power	POff			-30	dBm	
Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		{0.3,0.38,0.45,0.35,0.41,0.5}				1
Receiver(per lane)						
Input Optical Wavelength	λ_{IN}	840		860	nm	
Rx Sensitivity(OMA) per lane	R_{SENS}			-10.3	dBm	2
InputSaturation Power (Overload)	PSAT	+3.4			dBm	
Receiver Reflectance	Rfl			-12	dBm	
Loss of Signal Assert	P_A	-30			dBm	
Loss of Signal De-assert	P_D			-11.3	dBm	
LOS Hysteresis	P_D - P_A	0.5		6	dB	

Notes:

1.Hit Ratio 1.5x10-3 hit/sample.

2.Minimum value is informative only and not the principal indicator of signal strength.

IV. Digital Diagnostic Functions

LQP100-SR4 QSFP28 transceivers support the I2C-based diagnostics interface specified by the QSFP28 MSA.

V. Electrical Interface Characteristics

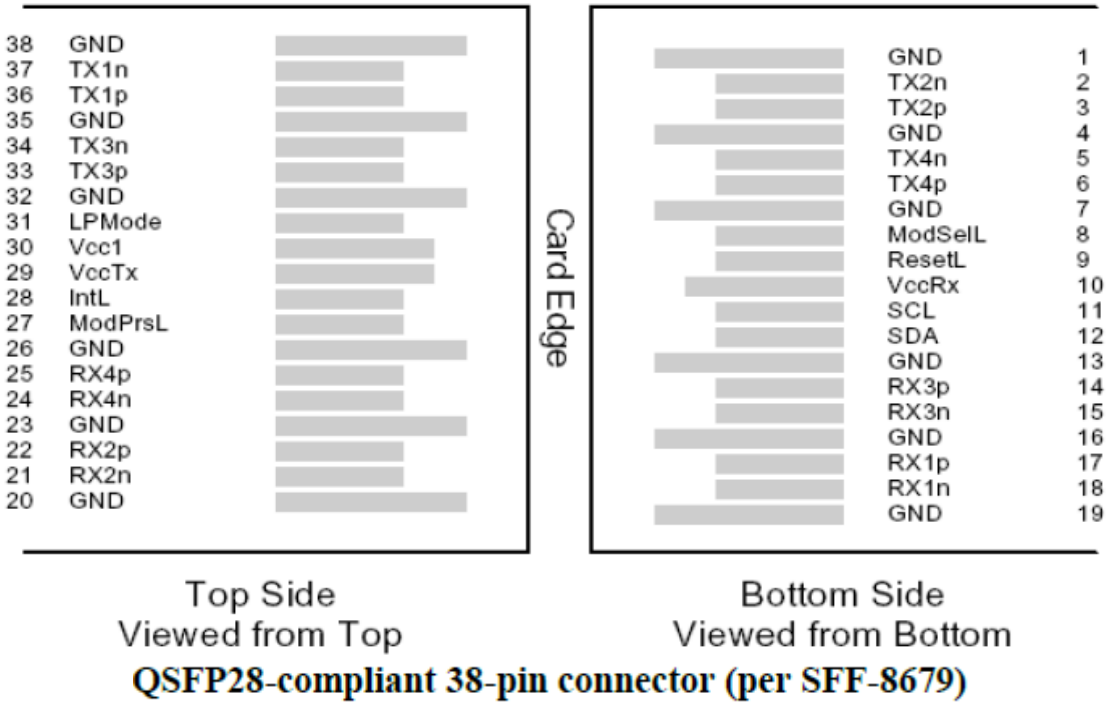
Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	V_{CC}	3.15		3.45	V	

Supply Current	I_{CC}			1.5	A	
Module total power	P			3.5	W	1
Transmitter						
Signaling rate per lane		25.78125±100ppm			Gb/s	
Differential pk-pk input voltage tolerance	Vin,pp,diff			900	mV	
Single-ended voltage tolerance	Vin,pp	-0.35		+3.3	V	
Module stress input test		Per Section 83E.3.4.1,IEEE802.3bm				
Receiver						
Signaling rate per lane		25.78125±100ppm			Gb/s	
Differential data output swing	Vout,pp	100		400	mVpp	2
		300		600		
		400	600	800		
		600		1200		
Eye width		0.57			UI	
Eye height,differential		228			mV	
Vertical eye closure	VEC	5.5			dB	

Notes:

1. Maximum total power value is specified across the fulltemperature and voltage range. when CDRs are locked or a lack of input signal results in squelch being activated.If incorrect frequencies cause the CDRs to continuously attempt to lock, maximum power dissipation may reach 4.5W.
2. Output voltage is settable in 4 discrete range via I2C.Default range is Range 2 (400 – 800mV).

VI. Pin Diagram



QSFP28-compliant 38-pin connector (per SFF-8679)

VII. Pin Descriptions

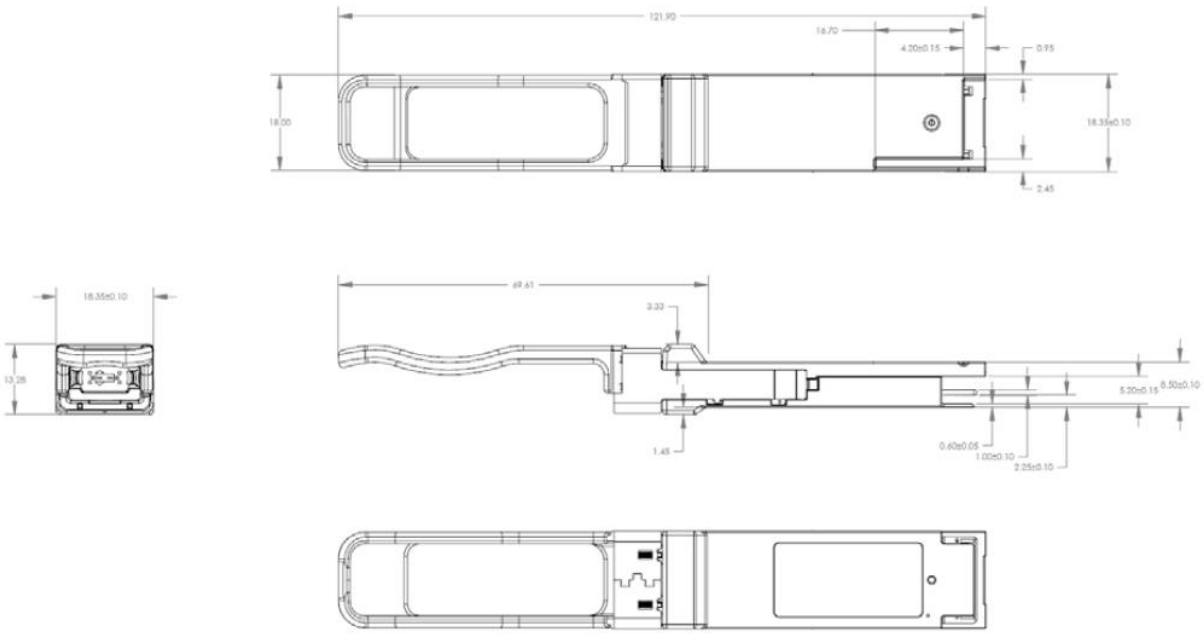
Pin	Symbol	Name/Description	Ref.
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSe1L	Module Select	
Pin	**Symbol**	**Name/Description**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

VIII.Mechanical Specifications(Unit: mm)



Revision History

Version No.	Date	Description
1.0	June 24, 2020	Preliminary datasheet