

LQP100-SR4

QSFP28100Gb/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

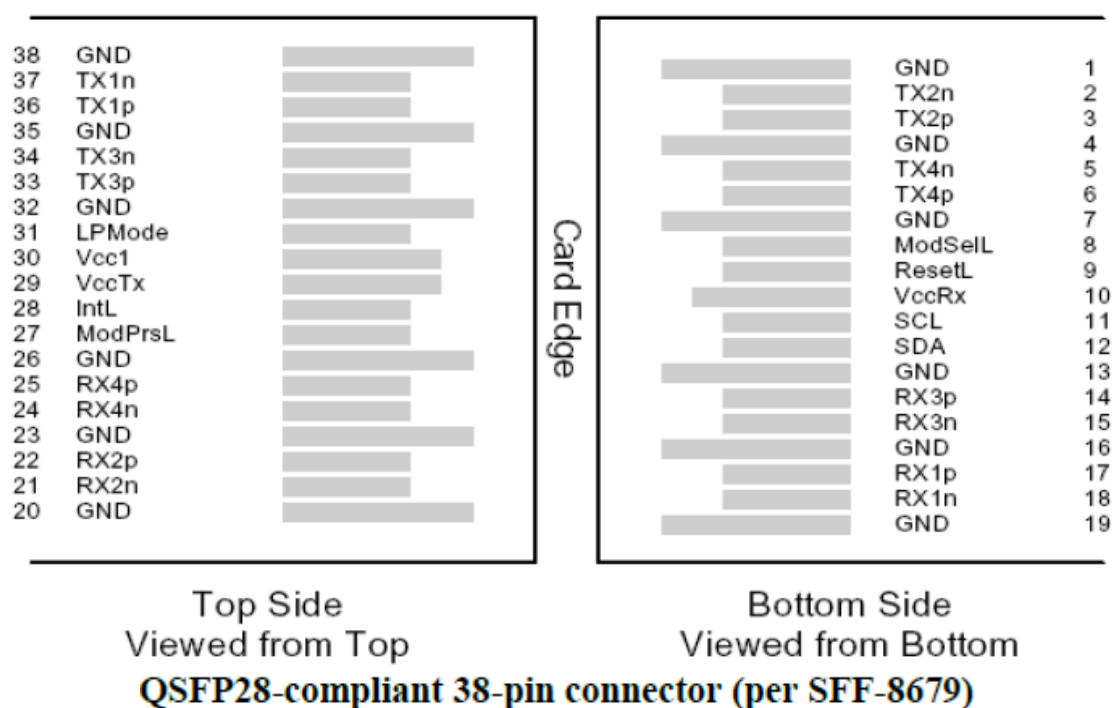
PRODUCT DESCRIPTION

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 (°C)	
QSFP28	LQP100-SR4	4X25	multi-mode fiber	850	100	0~70	Commercial

I. Pin Diagram



II. 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	



Product specification

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	Ref.
Storage Temperature	T _s	-40		85	°C	
Storage Ambient Relative Humidity	H _A	0		85	%	
Maximum Supply Voltage	V _{CC}	-0.5		4.0	V	
Signal Input Voltage		-0.3		V _{CC} +0.3	V	
Receiver Damage Threshold		+3.4			dBm	
Lead Soldering Temperature/Time	TSOLD			260/10	°C/sec	1
Lead Soldering Temperature/Time	TSOLD			360/10	°C/sec	2

Note:

1. Suitable for wave soldering.
2. Only for soldering by iron.

IV. General Product Characteristics

Data Rate Specifications	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.

V. 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	T _x OMA	-6.4		3.0	dBm	
Extinction Ratio	ER	2			dB	
Center Wavelength	λ _C	840		860	nm	
RMS Spectral Width	σ			0.6	nm	
Transmitter OFF Output Power	P _{Off}			-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)	P _{SAT}	+3.4			dBm	
Receiver Reflectance	R _{fl}			-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	

Note:

- 1.Hit Ratio 1.5x10⁻³ hit/sample.
- 2.Minimum value is informative only and not the principal indicator of signal strength.

VI. Digital Diagnostic Functions

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

VII. Electrical Interface Characteristics

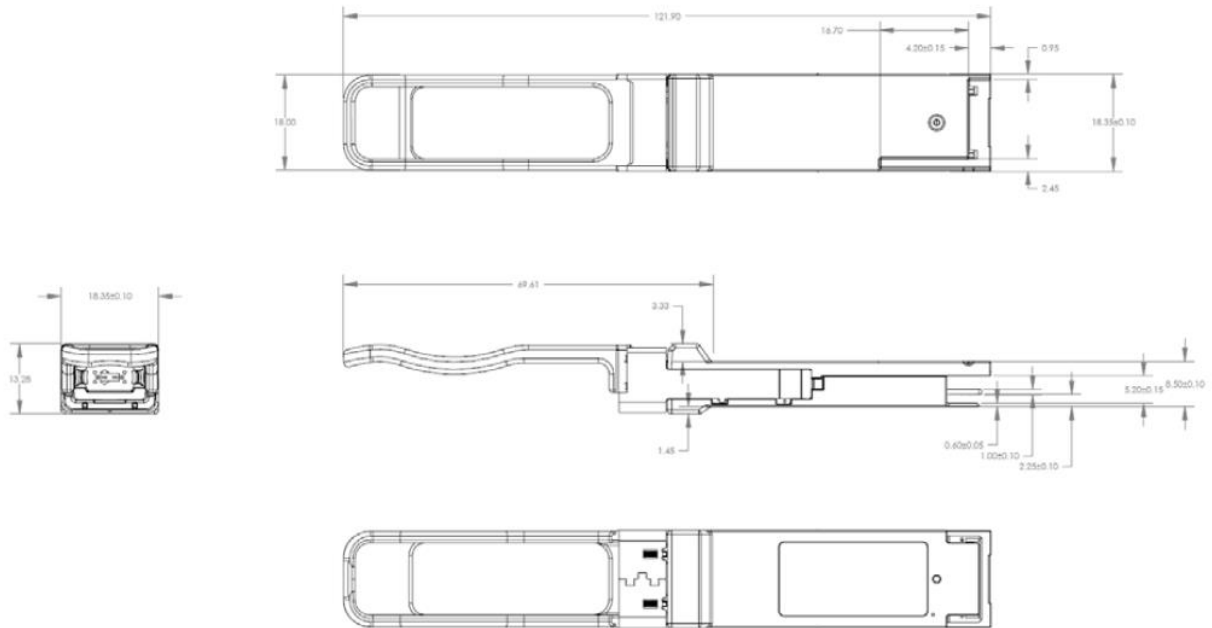
Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	V _{CC}	3.15		3.45	V	
Supply Current	I _{CC}			1.5	A	
Module total power	P			3.5	W	1
Transmitter						
Signaling rate per lane		25.78125±100ppm			Gb/s	
Differential pk-pk input voltage tolerance	V _{in,pp,diff}			900	mV	
Single-ended voltage tolerance	V _{in,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	V _{out,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	

Note :

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).

VIII.Mechanical Specifications(Unit: mm)



LQP100-SR4

Revision History

Version No.	Date	Description
1.0	June 24, 2019	Preliminary datasheet