

QSFP28-LR4-100GD

Single-Rate 100GBASE, QSFP28, LR4, SMF TRANSCEIVER 1294-1310nm, 10km REACH, DUPLEX LC CONNECTOR

Product Features

- Compliant with 100GBASE-LR4
- Supports 103.1Gb/s aggregate bit rate.
- Integrated LAN WDM TOSA/ROSA for up to 10km transmission over SMF
- 4x25G electrical interface (OIF CEI-28G-VSR) and 4-lane 25.78Gb/s optical interface
- Duplex LC optical receptacle
- Support Digital Monitoring interface
- No external reference clock
- RoHS-10 compliant and lead-free
- Compliant with QSFP28 MSA with LC connector
- Single +3.3V power supply
- Maximum power consumption 3.5W
- All-metal housing for superior EMI
- Case operating temperature:
 - Commercial: 0 ~ 70°C
 - Industrial: -40 ~ +85°C



Product Applications

- 100GBASE-LR4 Ethernet Links
- LAN

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	Ts	-40		+85	°C
Power Supply Voltage	Vcc	-0.3		4	V
Relative Humidity (non-condensation)	RH	5		95	%
Damage Threshold	THd	5.0			dBm

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TC	0		+70	°C	Commercial
		-40		+85	°C	Industrial
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate (each lane)			25.78125		Gb/s	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance (SMF)	D			10	km	

III. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			3.5	W	
Transmitter						
Single-ended Input Voltage Tolerance	Vcc	-0.3		4.0	V	
Differential Input Voltage Swing	V _{in,pp}	180		820	mVpp	
Differential Input Impedance	Z _{in}	90	100	110	Ohm	1
Transmit Disable Assert Time				10	us	
Transmit Disable Voltage	V _{dis}	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	V _{en}	V _{ee}		Vcc+0.8	V	2
Receiver						
Differential Output Voltage Swing	V _{out,pp}	350		850	mVpp	
Differential Output Impedance	Z _{out}	90	100	110	ohms	3
Data output rise/fall time	Tr/Tf	28			ps	4
LOS Assert Voltage	V _{losH}	Vcc-1.3		Vcc	V	5
LOS De-Assert Voltage	V _{losL}	V _{ee}		Vcc+0.8	V	5

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Input 100 ohms differential termination.
4. These are unfiltered 20-80% values.
5. Loss of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

IV. Optical Characteristics

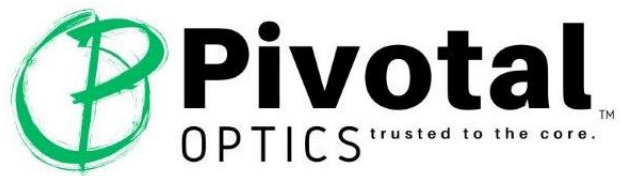
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Lane Wavelength (range)	L0	1294.53	1295.56	1296.59	nm	
	L1	1299.02	1300.05	1301.09	nm	
	L2	1303.54	1304.58	1305.63	nm	
	L3	1308.09	1309.14	1310.09	nm	
Signaling rate (each lane)			25.78125		Gb/s	
Side-Mode suppression ratio	SMSR	30				
Total Launch power	P _T			10.5	dBm	
Average Launch Power (each lane)	P _{avg}	-4.3		4.5	dBm	
Extinction Ratio	ER	4			dB	
Transmitter and Dispersion Penalty (each lane)	TDP			2.2	dB	
OMA minus TDP (each lane)		-2.3			dBm	
Average launch power of OFF transmitter (each lane)	P _{off}			-30	dBm	
Transmitter reflectance	R _T			-12	dB	
Transmitter eye mask { X1, X2, X3, Y1, Y2, Y3 }		{ 0.25, 0.4, 0.45, 0.25, 0.28, 0.4 }				
Receiver						
Signaling rate (each lane)			25.78125		Gb/s	
Receiver Sensitivity (per lane)	R _{sen}			-10.6	dBm	1
Input Saturation Power (overload)	P _{sat}			4.5	dBm	
Receiver reflectance	R _r			-26	dB	
LOS Assert	LOS A	-30			dBm	
LOS De-Assert	LOS D			-12	dBm	
LOS Hysteresis	LOS H	0.5		4	dB	

Notes:

1. Measured with a PRBS 231-1 test pattern, @25.78Gb/s, BER<10⁻¹²

QSFP28-LR4-100GD

Single-Rate 100GBASE, QSFP28, LR4, SMF TRANSCEIVER
1294-1310nm, 10km REACH, DUPLEX LC CONNECTOR



v. Ordering Information

Pivotal Part Number	Description
QSFP28-LR4-100GD	QSFP28, 1310nm, LR4 SMF 10km, 100G DDM, C-Temp
QSFP28-LR4-100GDI	QSFP28, 1310nm, LR4 SMF 10km, 100G DDM, I-Temp

Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

Warranty

<https://pivotaloptics.com/warranty/>

Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.