QSFP28-ZR4-100GD

Single-Rate 100GBase QSFP28 ZR4 1294-1310nm SMF 80km Transceiver

Product Features

- Compliant with 100GBASE-ZR4
- Support line rates from 103.125 Gb/s
- Built-in 4-channel Clock and Data Recovery (CDR) in TX and RX
- LAN WDM EML laser and PIN receiver with SOA
- Up to 80km reach for G.652 SMF with FEC
- Hot pluggable 38 pin electrical interface
- QSFP28 MSA compliant
- Duplex LC optical receptacle
- RoHS-10 compliant and lead-free
- Excellent EMI performance
- Single +3.3V power supply
- Maximum power consumption 5.5W
- Case operating temperature:
  - Commercial: 0 ~ 70°C
  - Industrial: -40 ~ +85°C

Product Applications

- 100GBASE-ZR4 Ethernet Links
- Infiniband QDR and DDR interconnects
- Telecom networking

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	Ts	-40		+85	℃
Power Supply Voltage	Vcc	-0.3		4	V
Relative Humidity (non-condensation)	RH	15		85	%
Damage Threshold	THd	6.5			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	25.78125	Gb/s	
Control Input Voltage High		2		V_{CC}	V	
Control Input Voltage Low		0		0.8	V	
Link Distance (SMF)	D			80	km	

Notes:

1. Depending on actual fiber loss/km (link distance specified is for fiber insertion loss of 0.35dB/km)

III. 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	25.78125	Gb/s	
Side-Mode suppression ratio	SMSR	30				
Total Launch power	P_T	8.0		10.5	dBm	
Average Launch Power (each lane)	Pavg	2.0		4.5	dBm	
Extinction Ratio	ER	6.0			dB	
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			3.6	dB	
Average launch power of OFF transmitter (each lane)	Poff			-30	dBm	
Transmitter reflectance	R_T			-12	dB	
$RIN_{20}OMA$	RIN			-130	dB/Hz	
Optical Return Loss Tolerance	TOL			20	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	25.78125	Gb/s	
Average Receive Power (each lane)		-30		-7	dBm	
Receive Power [OMA] (each lane)				-7	dBm	
Receiver reflectance				-26	dB	
Receiver Sensitivity Average (each lane)	SEN1			-23	dBm	1
	SEN2			-22	dBm	2
	SEN3			-29	dBm	3
	SEN4			-28	dBm	4
LOS Assert	LOSA	-40			dBm	
LOS Deassert	LOSD			-29	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Measured @25.78125Gbps, ER=8.2dB, BER=<1E-12, PRBS=2^31-1 NRZ
2. Measured @25.78125Gbps, ER=8.2dB, BER=<1E-12, PRBS=2^31-1 NRZ
3. Measured @25.78125Gbps, ER=8.2dB, BER=<5E-5, PRBS=2^31-1 NRZ
4. Measured @25.78125Gbps, ER=8.2dB, BER=<5E-5, PRBS=2^31-1 NRZ

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	p			5.5	W	
Supply Current	Icc			1585	mA	
Transmitter						
Input Differential impedance	Rin		100		Ω	
Differential Termination Mismatch				10	%	
Differential Data Input Amplitude	V_{in}, PP	180		1000	mV	
LPMode, Reset and ModSelL	V_{IL}	-0.3		0.8	V	
	V_{IH}	2		V_{CC}+0.3	V	
Receiver						
Differential Data output Amplitude	V_{out}, PP	350		900	mV	
Differential Termination Mismatch				10	%	
Transition Time, 20 to 80%		9.5			Ps	
ModPrsL and IntL	V_{OL}	0		0.4	V	
	V_{OH}	V_{CC}-0.5		V_{CC}+0.3	V	

V. Ordering Information

Pivotal Part Number	Description
QSFP28-ZR4-100GD	QSFP28, 1310nm, ZR4 EML SMF 80km with FEC, 100G DDM, C-Temp
QSFP28-ZR4-100GDI	QSFP28, 1310nm, ZR4 EML SMF 80km with FEC, 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.