

QSFP28-BXU/BXD-40-100GD

**Single-Lambda 100GBASE, QSFP28-BiDi, SMF TRANSCEIVER, 40km
(BXU)1304/1309nm, (BXD)1309/1304nm, SIMPLEX LC CONNECTOR**

Product Features

- Up to 106.25Gbps data rate single channel
- 1x106.25Gbps PAM4 Line side, 4x25.78Gbps NRZ Host side or 4x26.56Gbps NRZ Host side (close Media-side KP1 FEC inside Module)
- 100Gbps hermetic BOSA with 1304.58/1309.14nm EML and APD Detector
- Single LC optical interface compliant
- DDM function implemented.
- Maximum link length of 40km on SMF fiber
- Low power dissipation: <4.5W
- International class 1 laser safety certified.
- Compliant with ROHS10
- CEI-28G-VSR, QSFP28 MSA, SFF-8636
- Case operating temperature:
 - Commercial: 0 ~ 70°C
 - Industrial: -40 ~ +85°C



Product Applications

- 100GBASE-ER BiDi Ethernet Links
- Data Center

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	
Relative Humidity (non-condensing)	RH	5	85	%	
Supply Voltage	Vcc	-0.5	3.6	V	
Receiver Damage Threshold (per lane)					

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TOP	0		75	°C	Commercial
		-40		+85	°C	Industrial
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Data Rate (Optical)	DRO		106.25		Gb/s	
Data Rate (Electrical)	DRE	25.781	26.5625		Gb/s	
		25*4				
Operating Link Distance	D			40	km	

III. Electrical Characteristics

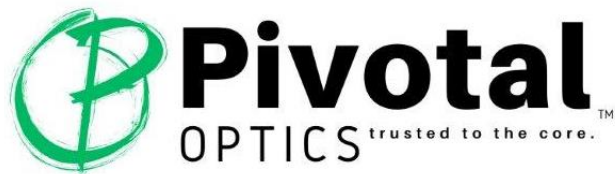
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Input Differential impedance	R _{in}		100		Ω	
Differential Termination Mismatch				10	%	
Differential Data Input Amplitude	V _{in} , PP			900	mV	
Receiver						
Output Differential Impedance	R _{out}		100		mV	
Differential Termination Mismatch				10	%	
Differential Data Output Amplitude	V _{out} , PP			900	Ps	
Eye height, differential output		228			mV	
Eye width, output		0.57			UI	

IV. Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Data Rate			53.125+/-100ppm		Gb/s	PAM4
Lane Center Wavelength		1304.06	1304.58	1305.1	nm	
		1308.61	1309.14	1309.66		
Side Mode Suppression Ration	SMSR	30			dB	
Optical output power		1.7		7.1	dBm	
Optical modulation amplitude		4.7		7.9	dBm	For TDECQ < 1.4 dB
		3.3+ TDECQ		7.9		For 1.4dB<TDECQ<TDECQ(max)
Transmitter & Dispersion eye closure for PAM4 (TDECQ)	TDECQ			3.9	dBm	
TECQ	dB			3.9		
TDECQ-TECQ	dB			2.7		
Optical Extinction Ratio	ER	5			dB	
Average Launch Power of OFF Transmitter per Lane				-10	dBm	
Transmitter over/under-shoot				22	%	
Optical return loss tolerance				15	dB	
Transmitter reflectance				-26	dB	
Transmitter transition time				17	ps	
RINx OMA (max) where x is the optical return loss tolerance (max)				-136	dB/Hz	

QSFP28-BXU/BXD-40-100GD

Single-Lambda 100GBASE, QSFP28-BiDi, SMF TRANSCEIVER, 40km
(BXU)1304/1309nm, (BXD)1309/1304nm, SIMPLEX LC CONNECTOR



Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver						
Data Rate			53.125+/-100ppm		Gb/s	PAM4
Lane Center Wavelength Data Rate		1304.06	1304.58	1305.1	nm	
		1308.61	1309.14	1309.66	Gb/s	
Damage Threshold	Rdam	-2.4			dBm	
Average Receive Power	Rpow	-16		-3.4	dBm	
Receiver Power (OMA) per Lane	Rovl			-2.6	dBm	
Receiver Sensitivity [OMA]				-13.8	dBm	For TECQ < 1.4 dB@BER 2.4e-4
				-15.2+TECQ		For 1.4dB<TECQ<TEDCQ(max) @BER 2.4e-4
Stressed Sensitivity per Lane	SRS			-10	dBm	
Receiver Reflectance				-26	dB	
Conditions of Stressed Receiver Sensitivity test:						
Stressed eye closure for PAM4 (SECQ)			3.9		dB	SECQ
SECQ-10*IgCeq				3.9		

v. Ordering Information

Pivotal Part Number	Description
QSFP28-BXU-40-100GD	QSFP28, BiDi 1304TX/1309RX, 100G-ER1L SMF 40km (FEC), 100G DDM, C-Temp
QSFP28-BXU-40-100GDI	QSFP28, BiDi 1304TX/1309RX, 100G-ER1L SMF 40km (FEC), 100G DDM, I-Temp
QSFP28-BXD-40-100GD	QSFP28, BiDi 1309TX/1304RX, 100G-ER1L SMF 40km (FEC), 100G DDM, C-Temp
QSFP28-BXD-40-100GDI	QSFP28, BiDi 1309TX/1304RX, 100G-ER1L SMF 40km (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.