

QSFP28-BXU/BXD-20-100GD

**Single-Lambda 100GBASE, QSFP28-BiDi, SMF TRANSCEIVER, 20km
(BXU)1271/1331nm, (BXD)1331/1271nm, SIMPLEX LC CONNECTOR**

Product Features

- QSFP28 MSA package with LC connector
- Compliant to 100G Lambda MSA 100G-LR1-10
- Interoperable with IEEE 802.3cu
- Lane signaling rate 53.125GBd with PAM4
- High speed I/O electrical interface
- Two Wire Serial Interface with Digital Diagnostic Monitoring
- Support KP4 FEC inside the module and KP4 FEC shutdown
- Reaches up to 10km over SMF
- Maximum power consumption 4.5W
- 3.3V power supply voltage
- Compliant to RoHS2.0
- Case operating temperature:
 - Commercial: 0 ~ 70°C
 - Industrial: -40 ~ 85°C



Product Applications

- 100GBASE 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	15		85	%
Supply Voltage	Vcc	0		3.6	V
Data input voltage		-0.3		3.6	
Control input voltage		-0.3		4	

II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	TOP	0		+70	°C	Commercial
		-40		+85		Industrial
Supply Voltage	V _{CC}	3.13	3.3	3.47	V	
Operating Relative Humidity	RH	15		85	%	
Data Rate	BR		53.125±100ppm		GBd	
Bit Error Rate	BER			2.4E-4		1
Operating Link Distance	D			20	km	2

Notes:

1. Tested with a PRBS31Q test pattern for 53.125 GBd operation.
2. Distances are based on FC-P1-6 Rev. 3.1 and IEEE 802.3 standards, with FEC.

III. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Module Supply Current	I _{CC}			1437	mA	
Power Dissipation	PD			4500	mW	
Transmitter						
Input Differential Impedance	Z _{in}	90	100	110	Ω	
Differential Data Input Swing	V _{in,p-p}	180		900	mVp-p	
Receiver						
Output Differential Impedance	Z _O	90	100	110	Ω	
Differential Data Output Swing	V _{out,p-p}	300		900	mVp-p	

IV. Optical Characteristics

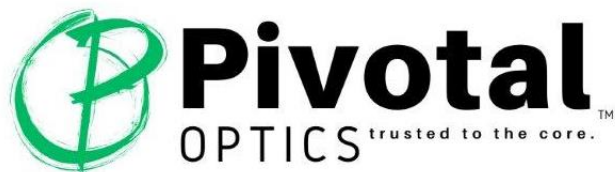
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength Range	λ_C	1264.5	1271	1277.5		BXU
		1324.5	1331	1337.5		BXD
Launch Optical Power (Average)	Po	-0.2		6.6	dBm	1
Launch Optical Power (OMA)	Poma	2.8		6.8	dBm	TDECQ < 1.4 dB
		1.4+ TDECQ		6.8		1.4 dB ≤ TDECQ ≤ TDECQ (max)
Extinction Ratio	ER	3.5			dB	
Transmitter and dispersion penalty eye closure for PAM4	TDECQ			3.6	dB	
Transmitter eye closure for PAM4	TECQ			3.4		
RIN17.1OMA (max)	RIN			-136	dB/Hz	
Optical Return Loss Tolerance	ORLT			15.6	dB	
Pout @ TX-Disable Asserted Poff	Poff			-15	dBm	
Receiver						
Center Wavelength Range	λ_C	1324.5	1331	1337.5		BXU
		1264.5	1271	1277.5		BXD
Receiver Sensitivity (OMA)	RXsens			-7.6	dBm	2: TECQ <1.4dB
				-9 + TECQ		1.4<TECQ <3.6dB
Receiver reflectance				-26	dB	
LOS De-Assert	LOS _D			-12	dBm	
LOS Assert	LOS _A	-18			dBm	
LOS Hysteresis	LOS _H	0.5			dB	

Notes:

- Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
- Measured with PRBS31Q test pattern, 53.125GBd, BER<2.4E-4.

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V. Ordering Information

Pivotal Part Number	Description
QSFP28-BXU-20-100GD	QSFP28, BiDi 1270TX/1330RX, 100G-LR1 SMF 20km (FEC), 100G DDM, C-Temp
QSFP28-BXU-20-100GDI	QSFP28, BiDi 1270TX/1330RX, 100G-LR1 SMF 20km (FEC), 100G DDM, I-Temp
QSFP28-BXD-20-100GD	QSFP28, BiDi 1330TX/1270RX, 100G-LR1 SMF 20km (FEC), 100G DDM, C-Temp
QSFP28-BXD-20-100GDI	QSFP28, BiDi 1330TX/1270RX, 100G-LR1 SMF 20km (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.