

## SFP-10G-BXU/BXD-10

10GBASE, SFP+, LR, BiDi, SMF TRANSCEIVER (BXU)1270/1330nm, (BXD)1330/1270nm, 10km REACH, SIMPLEX LC CONNECTOR

# SFP-10G-BX-10

## 10GBase SFP+ BiDi LR (BXU)1270/1330nm, (BXD)1330/1270nm SMF 10km Transceiver

### Product Features

- Up to 11.3Gb/s data links
- 1270nm DFB laser and PIN receiver
- 1330nm DFB laser and PIN receiver
- Up to 10km on 9/125µm SMF
- Hot-pluggable SFP+ footprint
- BiDi LC optical connector
- RoHS-10 compliant and lead-free
- Single +3.3V power supply
- Compliant with SFF+MSA and SFF-8472
- Support Digital Monitoring interface.
- Metal enclosure, for lower EMI
- Meet ESD requirements.
- Available operating temperature ranges:
  - Commercial: 0°C to 70°C
  - Industrial: -40°C to 85°C



### Product Applications

- 10GBASE-LR/LW & 10G Ethernet
- OTN
- Other optical links

### 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	-0.5		3.6	V
Relative Humidity (non-condensation)	RH	5		95	%
Damage Threshold	THd	5			dBm

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## 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	3.1	3.3	3.47	V	
Data Rate	BR		10.3125		Gbps	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance	D			10	km	9/125um

## III. Optical Characteristics

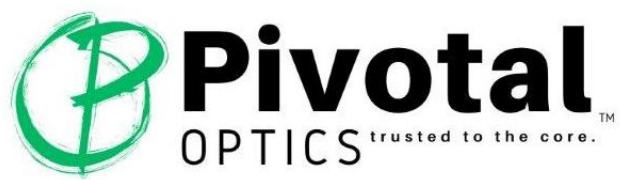
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda_C$	1260	1270	1280	nm	BXU
		1320	1330	1340		BXD
Spectral Bandwidth (RMS)	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Output Power*	Pout, AVG	-6		-1	dBm	
Optical Extinction Ratio	ER	3.5			dB	
Transmitter and Dispersion Penalty	TDP			3.2	dB	
Transmitter OFF Output Power	POff			-45	dBm	
Transmitter Eye Mask		Compliant with IEEE802.3ae				
<b>Receiver</b>						
Center Wavelength	$\lambda_c$	1320	1330	1340	nm	BXU
		1260	1270	1280		BXD
Receiver Sensitivity (AVG Power)	PIN			-14.4	dBm	
Input Saturation Power (overload)	Psat	0.5			dBm	
LOS Assert	LOSA	-30			dBm	
LOS De-Assert	LOSD			-17	dBm	
LOS Hysteresis	LOSH	0.5			dBm	

### Notes:

1. Measured with Light source 1270nm @1330nm, ER=3.5dB; BER $\leq$ 1E-12 @10.3125Gbps, PRBS=2<sup>31</sup> -1 NRZ.

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### IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			1.5	W	
Supply Current	I <sub>cc</sub>			450	mA	
<b>Transmitter</b>						
Single-ended Input Voltage Tolerance	V <sub>cc</sub>	-0.3		4.0	V	
AC Common Mode Input Voltage Tolerance (RMS)		15			mV	
Differential Input Voltage Swing	V <sub>in,pp</sub>	120		820	mVpp	
Differential Input Impedance	Z <sub>in</sub>	90	100	110	Ohm	1
Transmit Disable Assert Time				10	us	
Transmit Disable Voltage	V <sub>dis</sub>	V <sub>cc</sub> -1.3		V <sub>cc</sub>	V	
Transmit Enable Voltage	V <sub>en</sub>	V <sub>ee</sub>		V <sub>cc</sub> +0.8	V	2
<b>Receiver</b>						
Differential Output Voltage Swing	V <sub>out,pp</sub>	350		850	mVpp	
Differential Output Impedance	Z <sub>out</sub>	90	100	110	ohms	3
Data output rise/fall time	Tr/Tf	28			ps	4
LOS Assert Voltage	V <sub>losH</sub>	V <sub>cc</sub> -1.3		V <sub>cc</sub>	V	5
LOS De-Assert Voltage	V <sub>losL</sub>	V <sub>ee</sub>		V <sub>cc</sub> +0.8	V	5
Power Supply Rejection	PSR	100			mVpp	6

#### 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.
6. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the recommended power supply filtering network.

#### Warranty

All transceivers feature a limited lifetime 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.