

SFP-10G-BX40-xx

10GBase SFP+ Bidirectional
1270nm (Upstream)
1330nm (Downstream)
40km Reach

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Features

- Single LC connector
- Hot-pluggable SFP footprint
- DFB laser
- RoHS compliant and Lead Free
- Distance up to 40km on 9/125um SMF
- Metal enclosure for lower EMI
- Power dissipation <1.0W (0-70°C)
- Power dissipation <1.2W (-40-85°C)
- Commercial and industrial operating temperature optional
- SFP MSA SFF-8472 SFF-8431 SFF-8432 Compliant



Applications

- 10.3125Gbps Ethernet
- CPRI option 1 to 8
- OC12 / OC48 / OC192

Part number	Product description
SFP-10G-BX40-23	10GBase SMF SFP+ Tx1270nm/Rx1330nm 40km 0°C to 70°C LC Simplex DDM
SFP-10G-BX40-32	10GBase SMF SFP+ Tx1330nm/Rx1270nm 40km 0°C to 70°C LC Simplex DDM
SFP-10G-BX40-23-I	10GBase SMF SFP+ Tx1270nm/Rx1330nm 40km -40°C to 85°C LC Simplex DDM
SFP-10G-BX40-32-I	10GBase SMF SFP+ Tx1330nm/Rx1270nm 40km -40°C to 85°C LC Simplex DDM

PIN Description

PIN	Symbol	Name - Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault. Not supported.	1
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	1
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	1
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	1
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	3
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	4
13	RD+	Receiver Non-inverted DATA out. AC Coupled	4
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	5
19	TD-	Transmitter Inverted DATA in. AC Coupled.	5
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes:

1. Open collector/drain output, which should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to 3.6V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
2. Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
3. LOS is open collector output. Should be pulled up with 4.7kΩ to 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
4. RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
5. TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.



Figure 1. Diagram of host board connector block pin numbers and names

Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit	Notes
Maximum Supply Voltage	-0.3	-	3.6	V	-
Storage Temperature	-40	-	+85	°C	-
Relative Humidity	5	-	95	%	1

Notes:

1. Non-condensing.

Recommend Operation Conditions

Parameter	Min	Typ	Max	Unit	Notes
Power Supply Voltage	3.13	3.3	3.47	V	-
Power Supply Current (com.)	-	-	300	mA	-
Power Supply Current (ind.)	-	-	350	mA	-
Case Operating Temperature (com.)	0	-	+70	°C	-
Case Operating Temperature (ind.)	-40	-	+85	°C	-

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Notes
Transmitter					
Input differential impedance	-	100	-	Ω	1
Single ended data input swing	120	-	850	mV	-
TX Disable-High	Vcc-0.8	-	Vcc	V	-
TX Disable-Low	Vee	-	Vee+0.8	V	-
TX Fault-High	Vcc-0.8	-	Vcc	V	-
TX Fault-Low	Vee	-	Vee+0.8	V	-
Receiver					
Single ended data output swing	300	-	850	mV	2
Data output rise time	28	-	-	ps	3
Data output fall time	28	-	-	ps	3
LOS-High	Vcc-0.8	-	Vcc	V	-
LOS-Low	Vee	-	Vee+0.8	V	-

Notes:

1. AC coupled
2. into 100 Ω differential termination
3. 20 - 80%

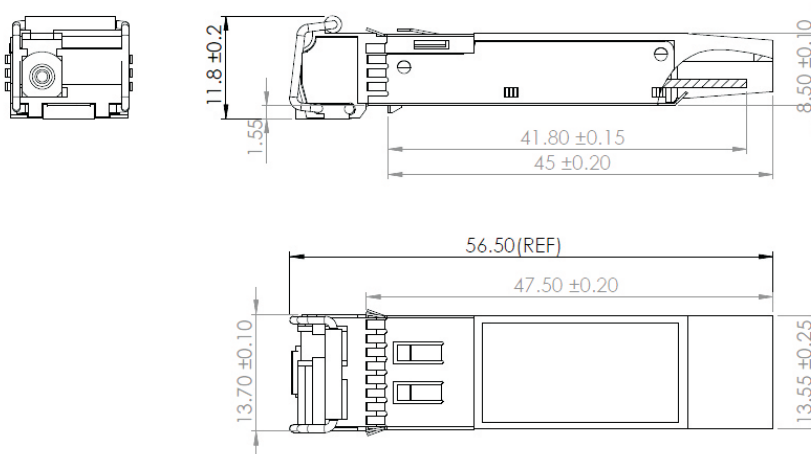
Optical Characteristics

Parameter	Min	Typ	Max	Unit	Notes
Transmitter					
Optical Center Wavelength (Up)	1260	1270	1280	nm	-
Optical Center Wavelength (Down)	1320	1330	1340	nm	-
Average Output Power	1.0	-	5.0	dBm	-
Optical Extinction Ratio	3.5	-	-	dB	-
RMS Spectral Width (-20dB)	-	-	1.0	nm	-
Side-Mode Suppression Ratio	30	-	-	dB	-
Data Rate	-	10.3125	-	Gb/s	-
Receiver					
Optical Center Wavelength (Up)	1320	1330	1340	nm	-
Optical Center Wavelength (Down)	1260	1270	1280	nm	-
Receiver Sensitivity	-	-	-14.4	dBm	1,2
Damage Threshold	2.0	-	-	dBm	-
LOS Assert	-30	-	-	dBm	-
LOS De-Assert	-	-	-15	dBm	-
LOS Hysteresis	0.5	-	-	dB	-

Notes:

1. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
2. Measured with PRBS 2³¹-1 at 10⁻¹² BER.

Mechanical Dimensions



units : mm

Revision history

Revision	Date	Author	Description
V1.1	05-03-2020	JGN	Initial Document

Note : Nexgen A/S reserves the right to change this document without notice.