BO-SFP+XX-80 Series

10.3125G SFP (Small Form Pluggable) CWDM 60km DUAL Transceiver

Models:

BO-SFP+C27-80
BO-SFP+C29-80
BO-SFP+C31-80
BO-SFP+C33-80
BO-SFP+C35-80
BO-SFP+C37-80
BO-SFP+C39-80
BO-SFP+C41-80
BO-SFP+C43-80
BO-SFP+C45-80

Features

- Up to 11.1Gbps Data Links
- CWDM EML transmitter and APD receiver
- Metal enclosure, for lower EMI
- Single +3.3V power supply
- Hot-pluggable
- Without CDR or with CDR supported 9.95 to 11.3Gb/s reference-free
- Operating temperature range:
- Commercial: 0°C~+70°C
- RoHS Compliant
- Industrial: -20 to +70°C
- 2-wire interface with integrated Digital Diagnostic monitoring
- Up to 60km transmission distance over Single Mode Fiber(SMF)
- Low power dissipation
- Without CDR:1.4W power dissipation without CDR for Commercial temperature With CDR:1.5W power dissipation with CDR for Commercial temperature

Applications

- 10GBASE-BX
- 10G SONET/SDH, OTU2/2e

Ordering information

Part No.	Data Rate	Connector	Temp.	Distance	CDR	DDMI
BO-SFP+XX-80*	Up to 11.3Gbps	LC	Standard	80km	Yes	YES

*Standard version

Product Description

The BO-SFP+XX-80 series optical transceivers are hot pluggable 3.3V Small-Form-Factor transceiver modules. They are designed expressly for high-speed communication applications that require rates up to 11.1Gb/s, they are designed to be compliant with SFF-8472 SFP+ MSA. The module data link up to 60km in 9/125um single mode fiber.

General Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature (Commercial)	Tc	-5		70	℃
Power Supply Voltage	Vcc3	3.13	3.3	3.47	V
Supply Current	Icc3	430		460	mA
Data Rate			10.3125	11.3	Gbps
Fiber Length 9/125μm core SMF		-	60	-	km

Optical Characteristics – Transmitter

VCC=3.13 to 3.47 TC=-5℃ to 70℃

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Launched Power (avg.)	Pout	-1		4	dBm	1
Operating Wavelength Range	λc	1270		1450	nm	2
Spectral Width(-20dB)	Δλ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	8.2			dB	
Transmitter and Dispersion Penalty	TDP			3	dB	
Output Eye Diagram	Compliant with ITU-T G.691 eye mask and IEEE802.3ae eye mask					

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
2. “λ” is: 1470,1490,1510,1530,1550,1570,1590,1610.

Electrical Characteristics – Transmitter

VCC=3.13 to 3.47 TC=-5℃ to 70℃

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Receiver Sensitivity	S			-23	dBm	1
Wavelength Range	λc	1270		1450	nm	

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Optical Power Input Overload	Pin-max	-6			dBm	
LOS De-assert	Pd			-26	dBm	
LOS Assert	Pa	-35			dBm	
LOS Hysteresis		0.5	2	6	dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.

Electrical Characteristics – Transmitter

VCC=3.13 to 3.47 TC=-5℃ to 70℃

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Transmitter differential input voltage	Vin,pp	180		700	m V	
Input differential impedance	Rin		100		Ω	1
Transmit disable voltage	VIH	2.0		Vcc	V	
Transmit enable voltage	VIL	Vee		Vee+0.8	V	
Transmit Disable Assert Time				10	us	

Electrical Characteristics – Receiver

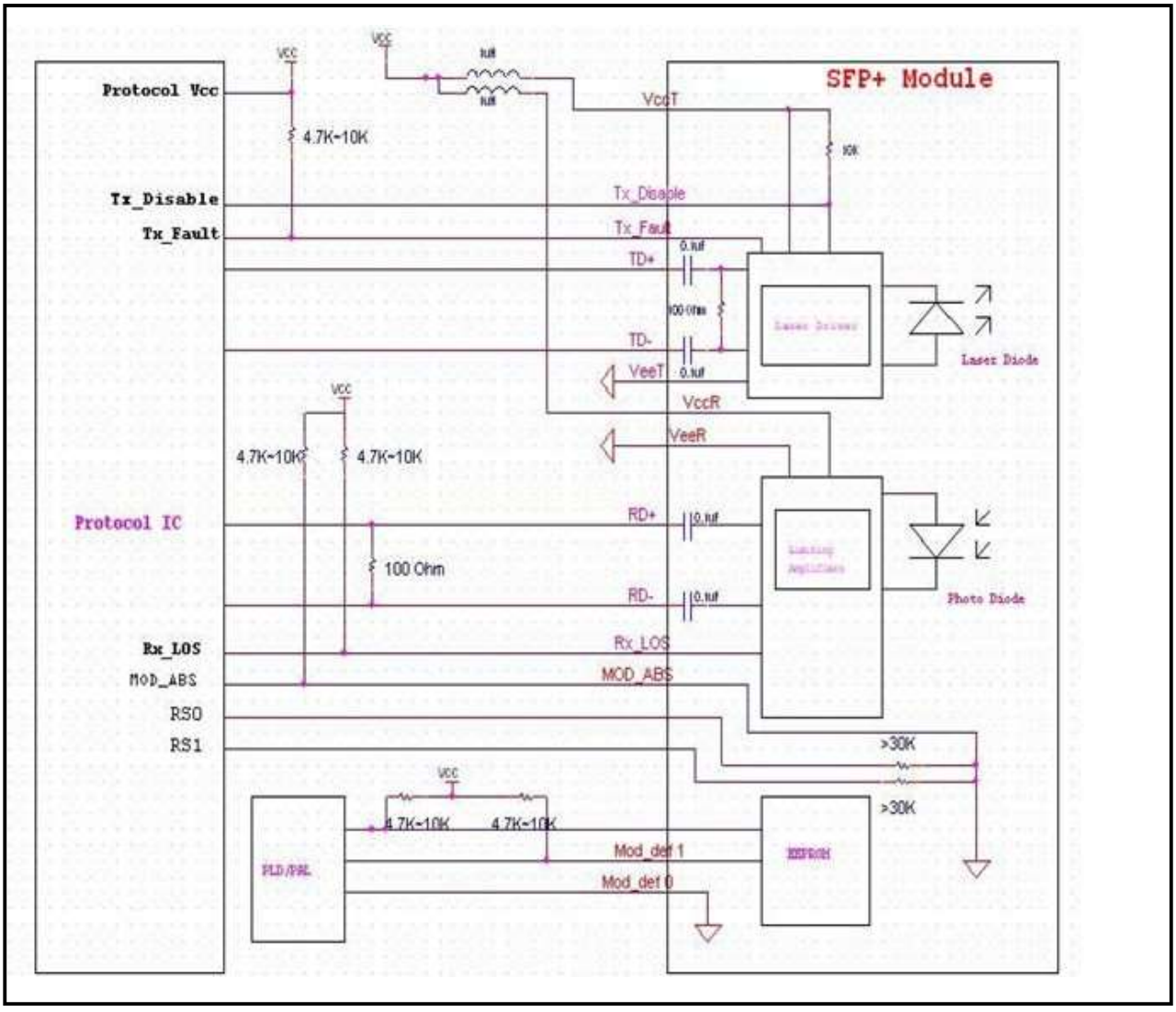
VCC=3.13 to 3.47 TC=-5℃ to 70℃

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Receiver differential output Voltage	Vout,pp	400		800	m V	
LOS Fault	VLOS fault	2.0		VccHost	V	1
LOS Normal	VLOS norm	Vee		Vee+0.8	V	1
Data output rise time	Tr	28			ps	
Data output fall time	Tf	28			ps	

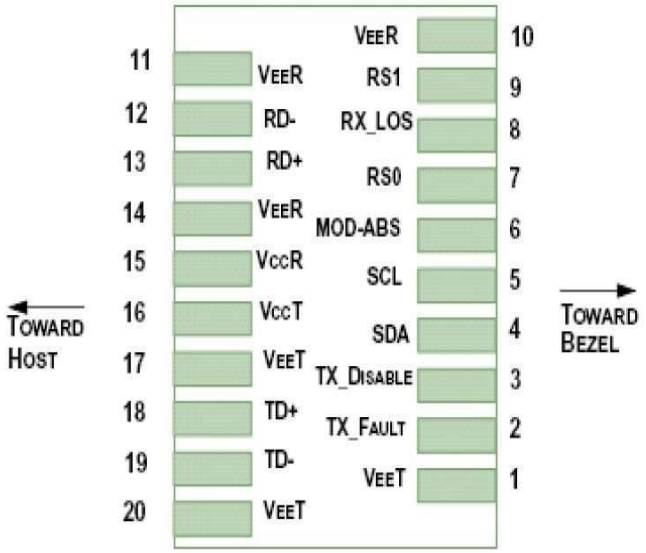
Notes

1. Loss Of Signal is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

Block Diagram of Transceiver



Electrical Pad Layout



Pin Assignment PIN #	Symbol	Description	Remarks
1	VeeT	Module Ground(Common with Receiver Ground)	1
2	TX_Fault	Transmitter Fault, Low: normal; High: abnormal	2
3	TX_Disable	Transmitter Disable High: Transmitter off Low: Transmitter on	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i)	4
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i)	4
6	Mod_ABS	Module Absent, Connect to VeeT or VeeR in Module	4
7	RS0	no connection	
8	RX_LOS	Receiver Loss of Signal indication High: loss of signal Low: signal detected	5
9	RS1	No connection required	
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O	
14	VeeR	Receiver Ground	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-I	
20	SDA	Transmitter Ground	1

Notes:

1. Circuit ground is internally isolated from chassis ground.

2. TFAULT is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V.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.

3. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

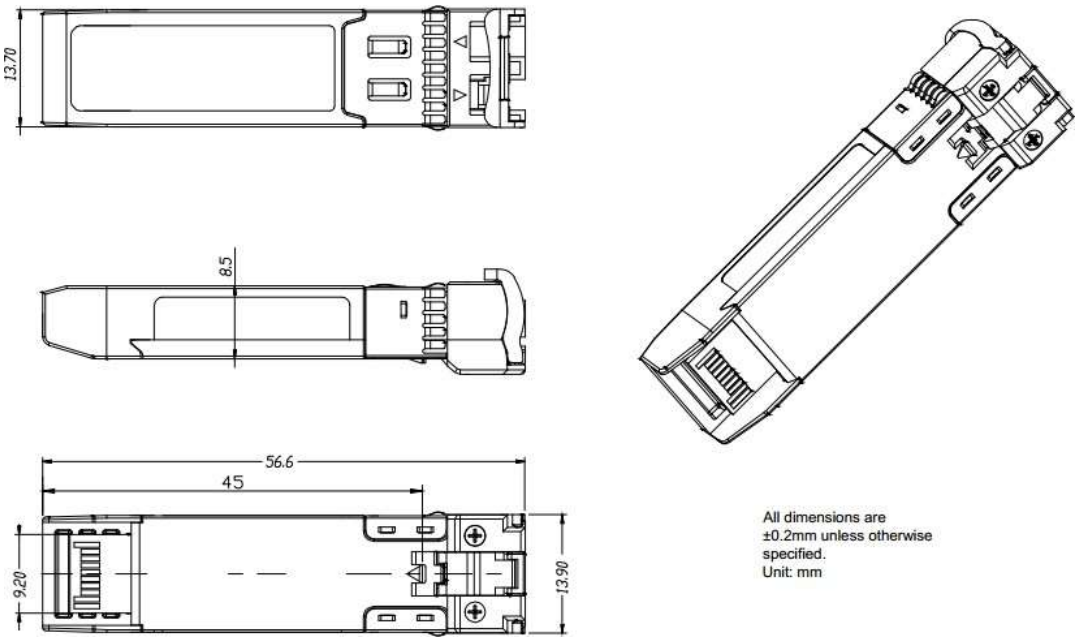
4. Should be pulled up with 4.7kΩ- 10kΩ host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls line low to indicate module is plugged in.

5. LOS is open collector output. It should be pulled up with 4.7kΩ – 10kΩ on host board to a typical 3.3V voltage. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

References

1. IEEE standard 802.3. IEEE Standard Department, 2005.
2. Small Form Factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 2000.

Mechanical Specifications



ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE
SPECIFIED UNIT: mm

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