

SFP+ 10G (DUAL FIBER)



GOXP-1596-80

80KM SFP+ ZR Optical Transceiver

Description:

GOXP-1596-80
SFP+, 10G, 1550NM,
80KM, SMF, DDM

> Overview:

SFP+ZR Transceiver is designed for 8.5G/10G Fiber- Channel and 10GBE applications. The transceiver consists of two sections: The transmitter section incorporates a cooled EML laser. And the receiver section consists of an APD photodiode integrated with a TIA. All modules satisfy class I laser safety requirements. SFP+ZR Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.

> Features:

- Compliant with SFF-8431 and IEE802.3ae
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- Data rate selectable ≤4.25Gbps or 9.95Gbps to 11.3Gbps bit rates
- OUT2 10.70G Line rate support
- Cooled EML transmitter and APD receiver link length up to 80km
- Low Power Dissipation 1.4W Typical (Maximum:2W)
- -5 to 70 degree Operating Temperature
- Single 3.3V power supply
- Diagnostic Performance Monitoring of module temperature, supply Voltages laser bias current, transmit optical power
- Receive optical power RoHS compliant and lead free

> Applications:

- 10GBASE-ER/EW (with/without FEC)
- 10G Fiber Channel (with/without FEC)
- SDH/SONET

> Absolute Maximum Ratings:

Parameter	Symbol	Min	Max	Unit	Parameter
Supply Voltage	Vcc	-0.5	3.8	V	Supply Voltage
Storage Temperature	Tst	-40	85	°C	Storage Temperature
Relative Humidity	Rh	0	85	%	Relative Humidity

>> Operating Conditions:

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Supply current	Icc		420	610	mA
Operating Case temperature	Tca	-5	-	70	°C
Module Power Dissipation	Pm	-	1.4	2	W

Notes:

- [1] Supply current is shared between VCCTX and VCCR_X. Typical Supply current test at 25°C Max Supply current test at 60~70°C
- [2] In-rush is defined as current level above steady state current requirements

>> Transmitter Specifications – Optical:

Parameter	Symbol	Min	Typical	Max	Unit
Center Wavelength	λ_c	1528		1565	nm
Optical Average Power	Po	0	-	+4	dBm
Optical OMA Power	SMSR	30	-	-	dB
Side Mode Suppression Ratio	PTX_DISABLE	-	-	-30	dBm
Optical Transmit Power (disabled)	ER	9		-	dB
Extinction Ratio				-128	dB/Hz
RIN _{21OMA} [1]				21	dB
Optical Return Loss Tolerance	DP			2	dB

>> Transmitter Specifications - Electrical:

Parameter	Symbol	Min	Typical	Max	Unit
Data Rate	Mra	-	10.3	11.3	Gbps
Input differential impedance	Rim	-	100	-	Ω
Differential data Input	VtxDIFF	120	-	850	mV
Transmit Disable Voltage	VD	2.0	-	Vcc3+0.3	V
Transmit Enable Voltage	Ven	0	-	+0.8	V
Transmit Disable Assert Time	Vn	-	-	100	us

Receiver Specifications - Optical:

Parameter	Symbol	Min	Typical	Max	Unit
Input Operating Wavelength	λ	1110	-	1650	nm
Receiver sensitivity [1]		-	-	-24	dBm
Maximum Input Power	RX-overload	-	-	-8	dBm
Loss of Signal Asserted		-34	-	-	dBm
LOS De-Asserted		-	-	-24	dBm
LOS Hysteresis		0.5	-	-	dB

Notes:

1. Measured with conformance test signal for BER = 10⁻¹². PRBS31, Data Rate=10.3Gbps.

Receiver Specifications – Electrical:

Parameter	Symbol	Min	Typical	Max	Unit
Data Rate	Mra	-	10.3	11.3	Gbps
Differential Output Swing	Vout P-P	350	-	850	mV
Rise/Fall Time	Tr / Tf	24	-	-	ps
Loss of Signal –Asserted	VOH	2	-	Vcc3+0.3-	V
Loss of Signal –Negated	VOL	0	-	+0.4	V

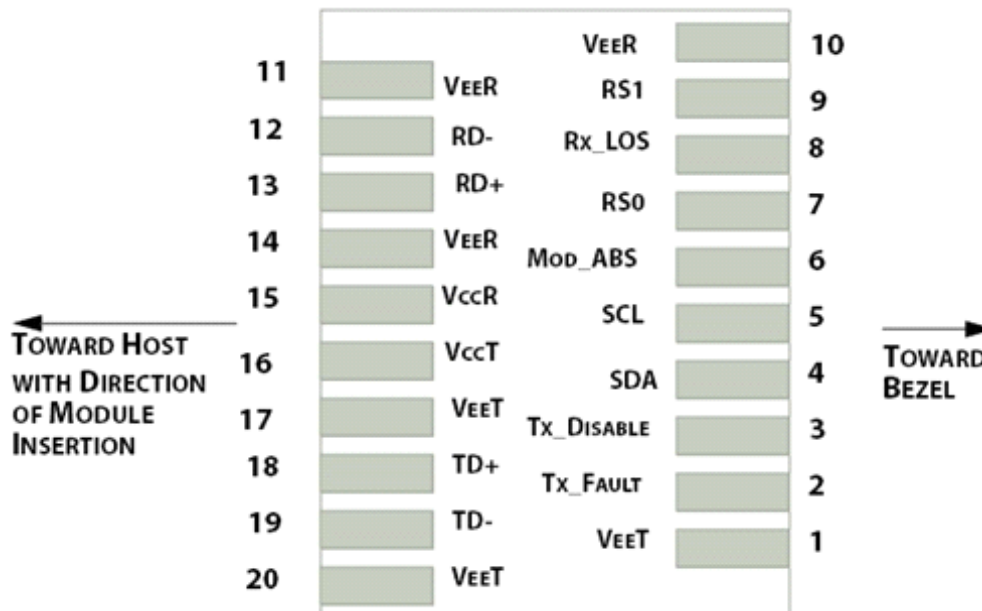


Figure1.Electrical Pin-out Details

> Pin Description:

Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	RS0 for Rate Select: Open or Low = Module supports ≤4.25Gbps High = Module supports 9.95 Gb/s to 10.3125 Gb/s
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	No connection required
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
3. Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull this contact up to Vcc_Host with a resistor in the range 4.7 kΩ to 10 kΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.

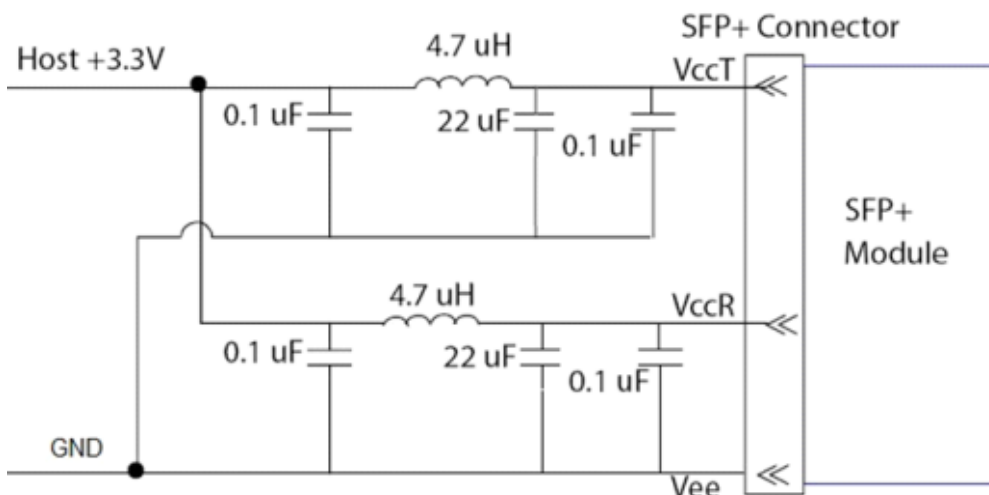


Figure2. Host Board Power Supply Filters Circuit

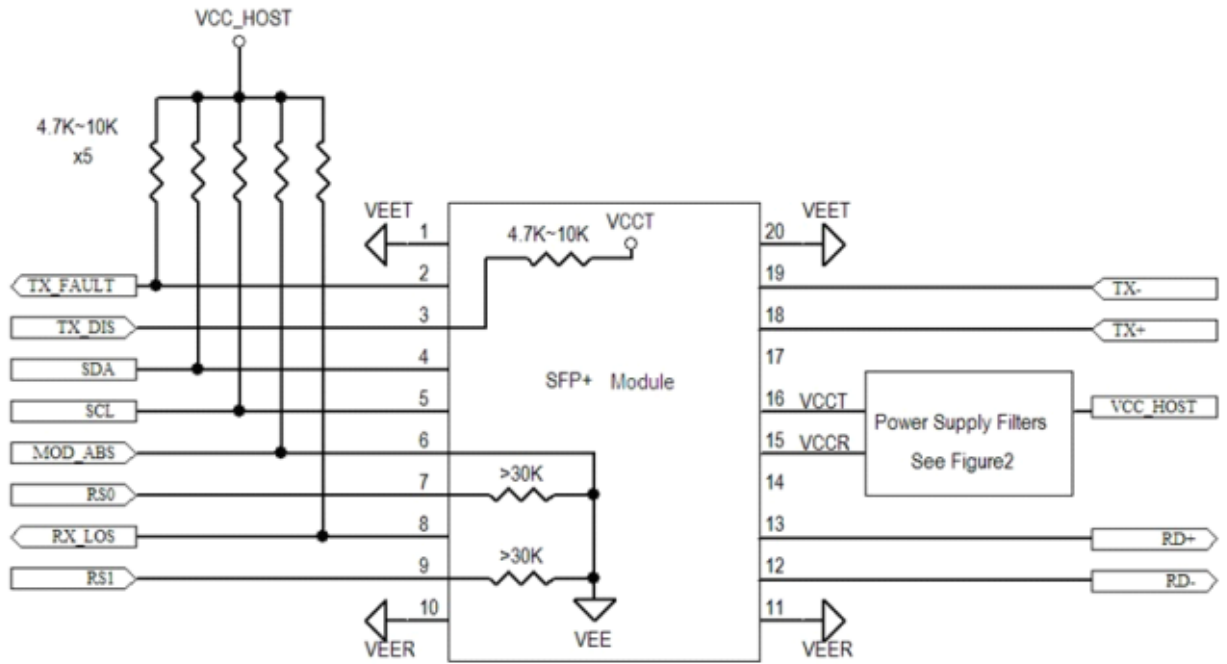


Figure3. Host-Module Interface

> Ordering Information:

Part Number	Product Description
GOXP-1596-40	10Gbps, 1550nm SFP+ER 40km, -5 ~ +70 degree