

10PU-PXTXR-P3C

Symmetric 10GE PON ONU SFP+ Transceiver

Features

- Single fiber bi-directional data links Symmetric TX 10.3125Gbps/RX10.3125Gbps application
- 0 to 70°C operating case temperature
- Single 3.3V power supply
- SFP+ package with SC/UPC Receptacle connector
- Hot-pluggable capability
- High power 1270nm DFB LD and high sensitivity 1577nm APD
- Support 20km transmission distance with SMF
- CML compatible data input/output interface
- Low power dissipation
- Low EMI and excellent ESD protection
- Digital diagnostic monitor interface
- RoHS-6 compliance



Applications

- Symmetric 10GE PON PR30 ONU with 15~29dB attenuation range

Standards

- Complies with SFP+ MSA (SFF-8431)
- Complies with IEEE 802.3av
- Complies with SFF-8472
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Storage Ambient Temperature	TSTG	-40	85	°C	
Operating Case Temperature	Tc	0	70	°C	
Operating Humidity	OH	5	95	%	
Power Supply Voltage	VCC	-0.5	3.6	V	

Recommended Operating Environment

Table 2 - Recommended Operating Environment

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		+70	°C	
Power Supply Voltage	VCC	3.13	3.3	3.47	V	
Power Supply Current	ICC		400	600	mA	
Nominal upstream line rate			10.3125		Gbps	
Nominal downstream line rate			10.3125		Gbps	

Transmitter Optical Characteristics

Table 3- Transmitter Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Average Launch Optical Power	P _{OUT}	4		9	dBm	EOL, Launched into 9/125µm single mode fiber
		5		9	dBm	BOL, Room temperature, Launched into 9/125µm single mode fiber

Extinction Ratio	ER	6			dB	
Centre Wavelength	λ	1260	1270	1280	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Mode	SMSR	30			dB	
Burst on time	Ton			30	ns	
Burst off time	Toff			30	ns	
Transmitter and dispersion penalty	TDP			3	dB	Transmit on 20km SMF
Eye Diagram	Compliant With IEEE Std IEEE 802.3av					PRBS 2 ³¹ -1 test pattern @10.3125Gbit/s

Transmitter Electrical Characteristics

Table 4- Transmitter Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Input Differential Impedance	ZIN	90	100	110	Ω	
Data Input Swing Differential	VIN	200		1600	mV	
Burst_ENABLE	Burst Disable	2.0		Vcc	V	
	Burst Enable	0		0.8	V	

Receiver Characteristics

Table 5- Receiver Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical Center Wavelength	λ_C	1575		1580	nm	

Receiver Sensitivity				-28.5	dBm	EOL, Over Temperature, Measured with PRBS 2 ³¹ -1test pattern @10.3125Gbit/s, BER ≤1×10 ⁻³ .
				-29	dBm	BOL, Room temperature, Measured with PRBS 2 ³¹ -1test pattern @10.3125Gbit/s, BER ≤1×10 ⁻³ .
Receiver Overload		-10			dBm	
Receiver reflectance				-12	dB	
LOS Assert		-45			dBm	
LOS De-Assert				-31.5	dBm	
LOS Hysteresis		0.5		6	dB	
Data Output Swing	VOUT	300		850	mV	
LOS	High	2.4		Vcc	V	
	Low	0		0.4	V	

Pin Descriptions

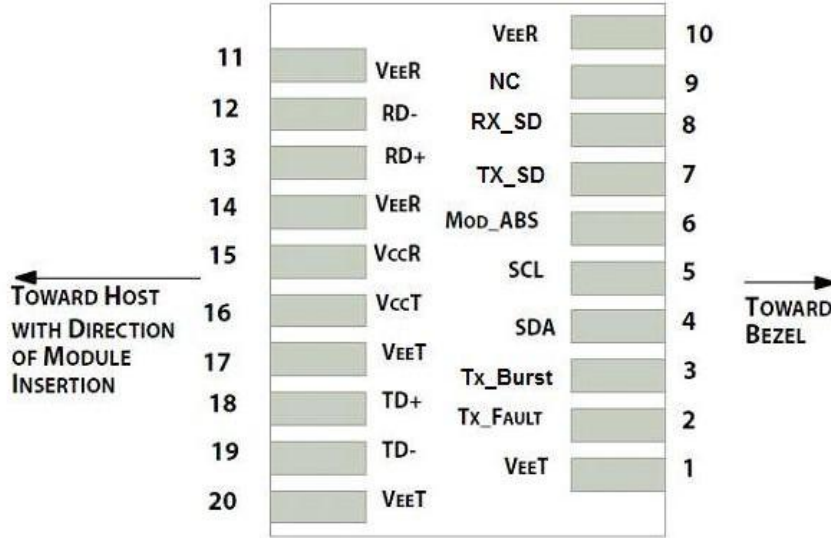
Table 6-Pin Descriptions

Pin	Name	Description	Notes
1	VeeT	Module Transmitter Ground	
2	Tx_FAULT	Module Transmitter Fault	Low: normal; High: abnormal
3	Tx_BURST	Transmitter Burst Enable	TTL Input, Low: transmitter on

4	SDA	2-wire Serial Interface Data Line	Same as MOD-DEF2 in INF-8074i
5	SCL	2-wire Serial Interface Clock	Same as MOD-DEF1 in INF-8074i
6	Mod_ABS	Module Absent	Connected to VeeT or VeeR in the module
7	TX_SD	Tx Transmitter State Indication	TX_Indication Assert When Transmitter ON
8	Rx_SD	Signal Indication	High: signal detected; Low: loss of signal
9	NC	NC Connect	
10	VeeR	Module Receiver Ground	
11	VeeR	Module Receiver Ground	
12	RD-	Inverted Received Data Out	CML, AC-coupled
13	RD+	Non-inverted Received Data Out	CML, AC-coupled
14	VeeR	Module Receiver Ground	
15	VccR	Module Receiver 3.3 V Supply	
16	VccT	Module Transmitter 3.3 V Supply	
17	VeeT	Module Transmitter Ground	
18	TD+	Non-Inverted Transmit Data in	CML, AC-coupled
19	TD-	Inverted Transmit Data in	CML, AC-coupled
20	VeeT	Module Transmitter Ground	

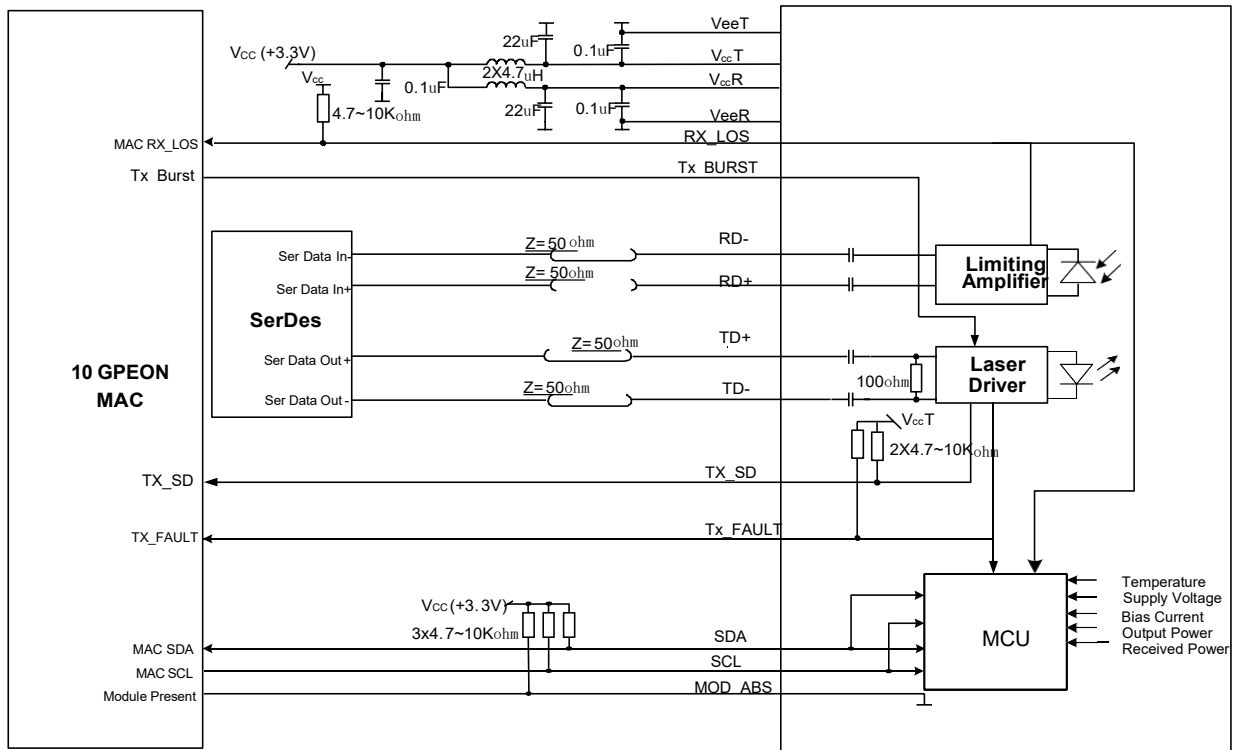
Pin Assignment

Pin Out Drawing



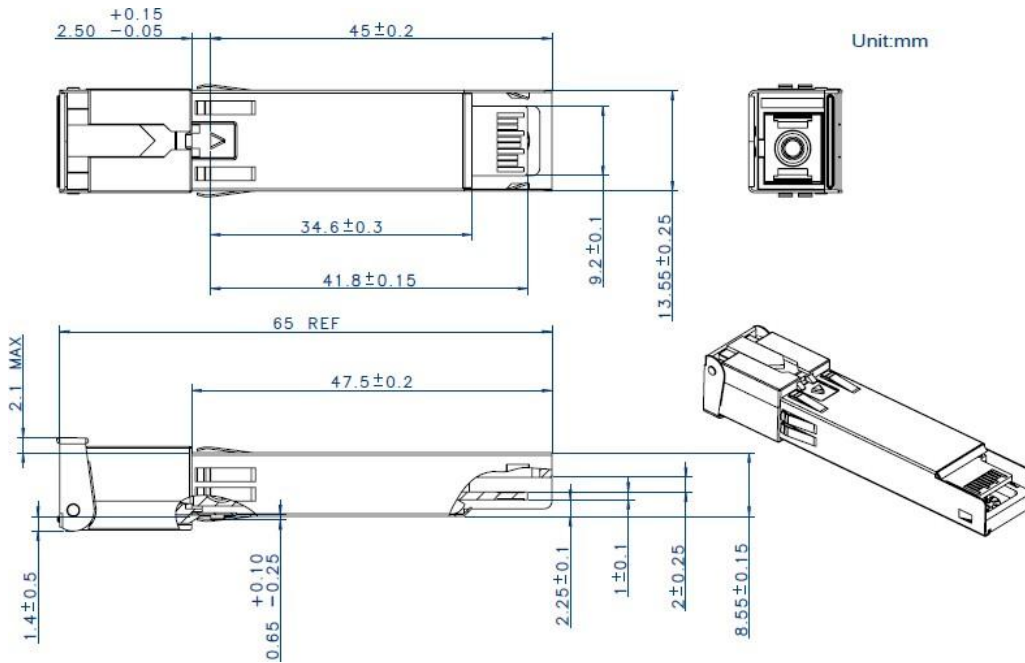
Pin Out Drawing

Typical Interface Circuit



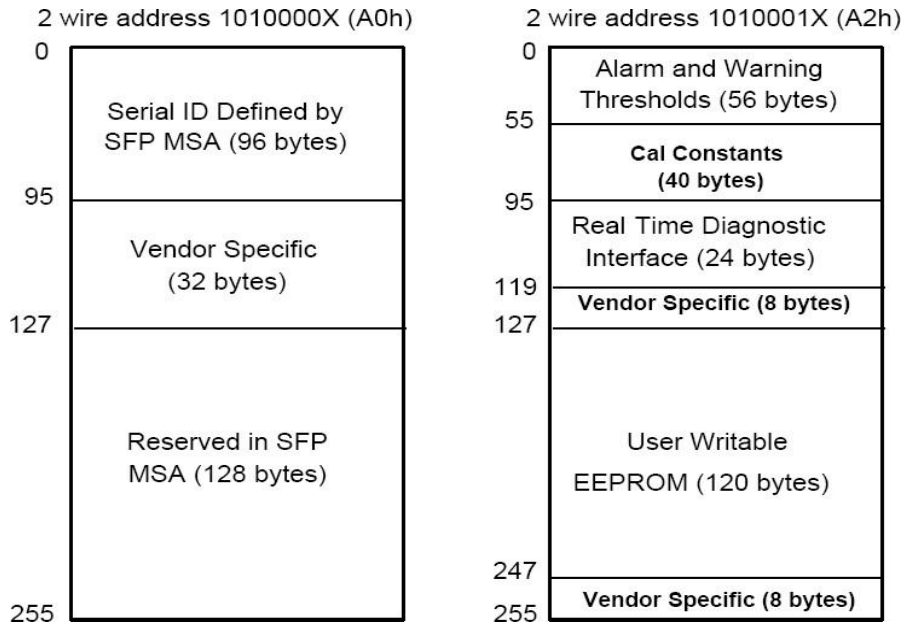
Package Outline

Unit: mm



Package Outline

EEPROM Information



EEPROM Memory Map Specific Data Field Descriptions

Digital Diagnostic Monitoring

Table 7- Digital Diagnostic Monitoring

Five transceiver parameter values are monitored. The following table defines the monitored parameter's accuracy.

Parameter	Range	Accuracy	Calibration	Note
Temperature	0 to 70°C	±3°C	Internal	
Voltage	3.0 to 3.6V	±3%	Internal	
Bias Current	0 to 131mA	±10%	Internal	
TX Power	2 to 9dBm	±3dB	Internal	
RX Power monitor	-30 to -8dBm	±3dB	Internal	

Ordering information

Table 8- Ordering information

Part Number	Product Description
10PU-PXTXR-P3C	Symmetric 10GEPON ONU SFP+, C temp, SC, PR30, 1270T/1577R, 0 ~ +70°C, with DDM

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