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 10GEPON 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 RATING

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 CONDITION

Parameter	Symbol	Min.	Typ.	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

Parameter	Symbol	Min.	Typ.	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)	Δλ			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

Parameter		Symbol	Min.	Typ.	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

Parameter		Symbol	Min.	Typ.	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		V_{OUT}	300		850	mV	
LOS	High		2.4		Vcc	V	
	Low		0		0.4	V	

PIN DESCRIPTION

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 OUT DRAWING

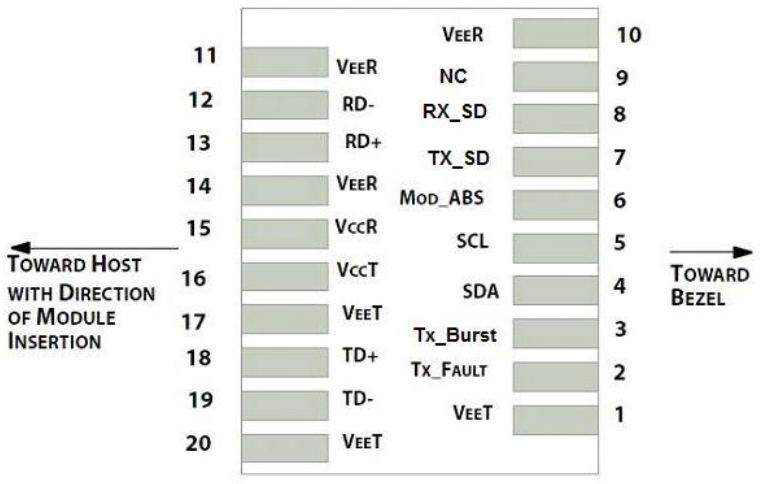


Figure 1 Pin Out Drawing

TYPICAL INTERFACE CIRCUIT

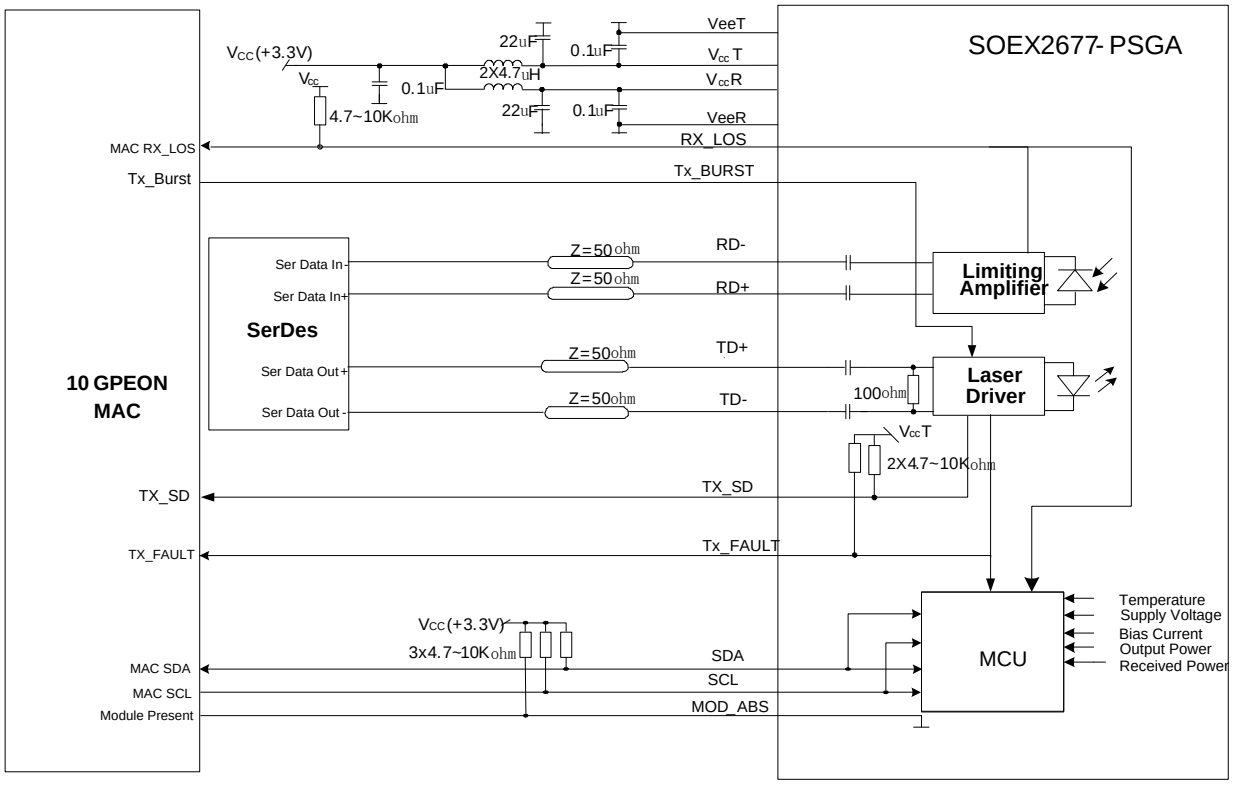


Figure 2 Typical Interface Circuit

PACKAGE OUTLINE

Unit: mm

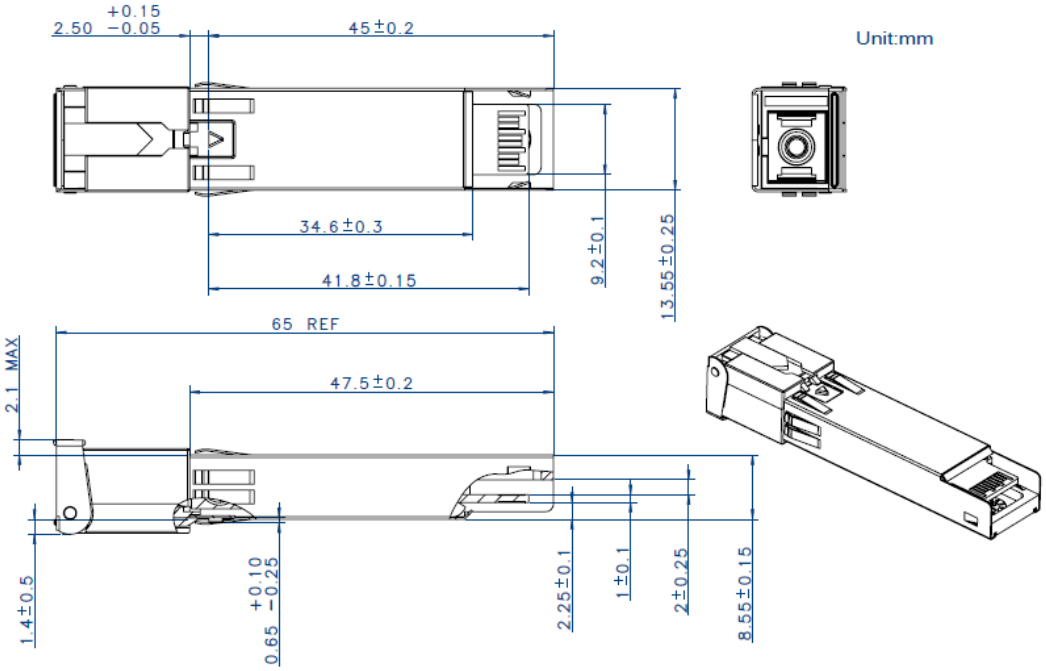


Figure 3

Package Outline

EEPROM INFORMATION

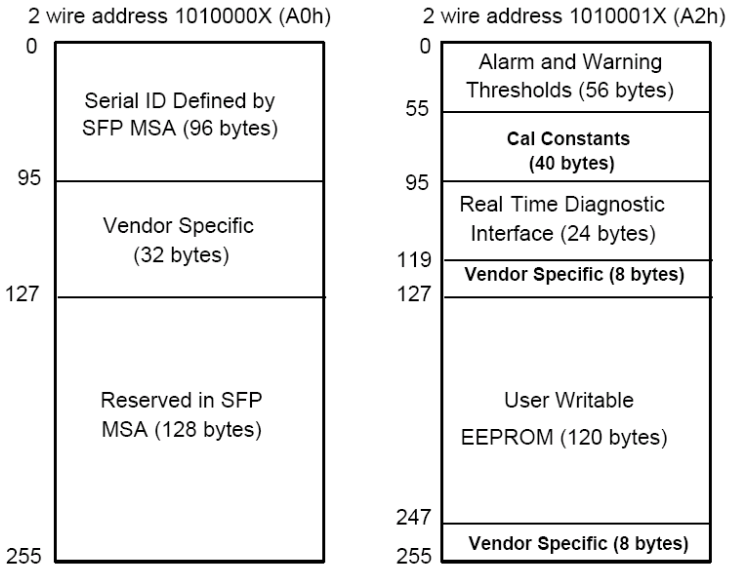


Figure 4 EEPROM Memory Map Specific Data Field Descriptions

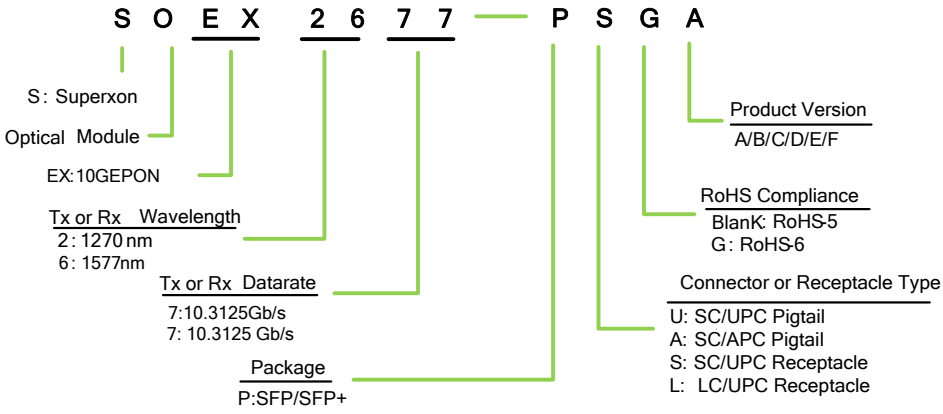
DIGITAL DIAGNOSTIC MONITORING INTERFACE

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

Parameter	Range	Accuracy	Calibration
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

Note：Bias Current 4uA/LSB, TX Power 0.2uW/LSB

ORDERING INFORMATION



WARNINGS

- Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.
- Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

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