



10GEPON ONU PRX30 SFP+ Transceiver *Preliminary*

SOEX3667-PSGA

FEATURES

- Single fiber bi-directional data links Asymmetric TX 1.25Gbps/RX10.3125Gbps application
- 0°C to 70°C operating case temperature
- Single 3.3V power supply
- SFP+ package with SC Receptacle connector
- Hot-pluggable capability
- High power 1310nm DFB LD and high sensitivity 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

- Asymmetric 10GEPON PRX30 ONU

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, Class I

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Min.	Max.	Unit	Notes
Storage Ambient Temperature	T_{STG}	-40	85	°C	
Operating Case Temperature	T_c	0	70	°C	
Operating Humidity	OH	5	95	%	
Power Supply Voltage	V_{CC}	-0.5	3.6	V	

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Case Temperature	T_c	0		70	°C	
Power Supply Voltage	V_{CC}	3.13	3.3	3.47	V	
Power Supply Current	I_{CC}			380	mA	
Nominal upstream line rate			1.25		Gbps	
Nominal downstream line rate			10.3125		Gbps	

TRANSMITTER OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Average Launch Optical Power	P_{OUT}	0.62	-	5.62	dBm	
Extinction Ratio	ER	9	-	-	dB	
Centre Wavelength	λ	1285	1310	1360	nm	
Spectral Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Side Mode Suppression Mode	SMSR	30			dB	
Burst on time	T_{on}			30	ns	
Burst off time	T_{off}			30	ns	
Transmitter and dispersion penalty	TDP			1.4	dB	
Eye Diagram	Compliant With IEEE Std 802.3ah™-2004				PRBS 2 ⁷ -1 test pattern @1.25Gbit/s	

TRANSMITTER ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Input Differential Impedance	Z_{IN}	90	100	110	Ω	
Data Input Swing Differential	V_{IN}	200	-	1600	mV	
Burst_ENABLE	Burst Diable			2.0	Vcc	V
	Burst Enable			0	-	0.8

RECEIVER OPTICAL CHARACTERISTICS						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Optical Center Wavelength	λ_c	1575	-	1580	nm	
Receiver Sensitivity				-29	dBm	Measured with PRBS 2 ³¹ -1 test pattern @10.3125Gbit/s, BER $\leq 1 \times 10^{-3}$.
Receiver Overload		-8			dBm	
Receiver reflectance				-12	dB	
RX_LOS De-Assert		-38			dBm	
RX_LOS Assert				-30	dBm	
RX_LOS Hysteresis		0.5		6	dB	

RECEIVER ELECTRICAL CHARACTERISTICS						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Output Swing Differential	V_{OUT}	340	-	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	LVTTTL Input, Low: transmitter on, Internal pull up
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_LOS	Loss of Signal	Low: signal detected; High: loss of signal
9	P_Down	Module power down, Putting the module in the power saving mode	Active Low
10	VeeR	Module Receiver Ground	
11	VeeR	Module Receiver Ground	
12	RD-	Inverted Received Data Out	AC-coupled
13	RD+	Non-inverted Received Data Out	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	
19	TD-	Inverted Transmit Data in	
20	VeeT	Module Transmitter Ground	

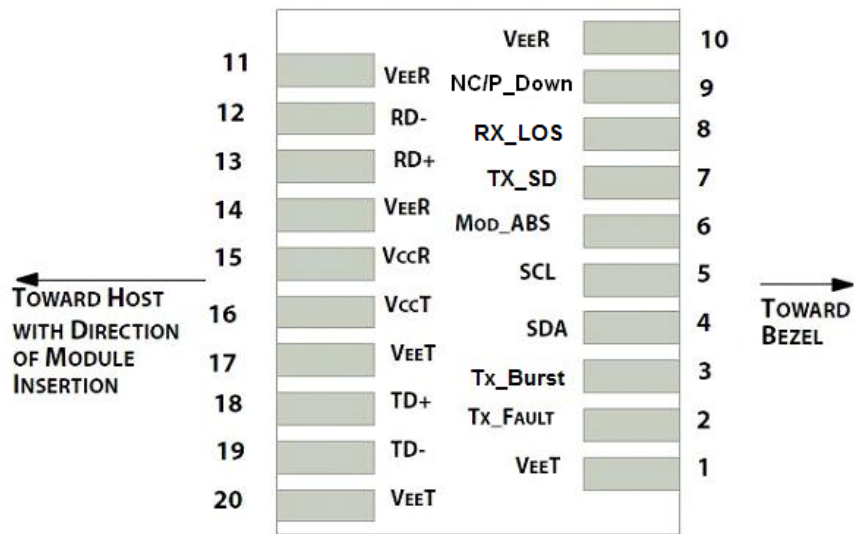
PIN OUT DRAWING


Figure 1 Pin Out Drawing

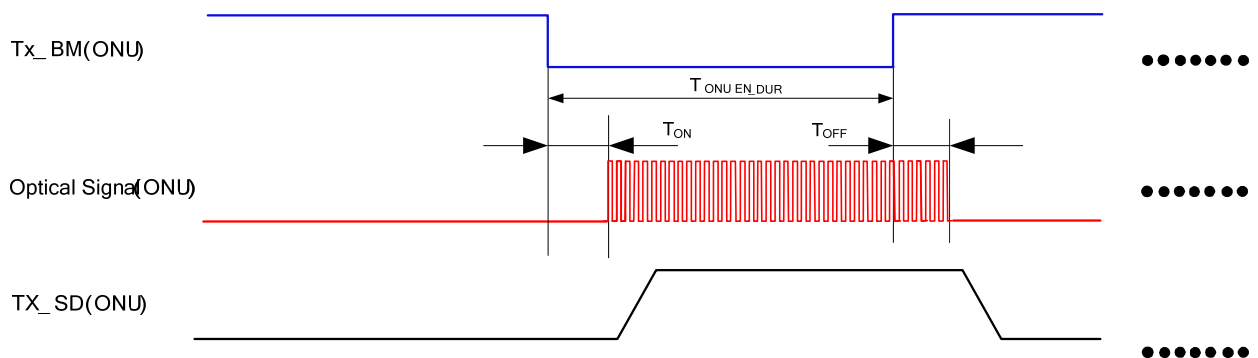
TYPICAL ONU TIMING SEQUENCE


Figure 2 Typical ONU Timing Sequence

TYPICAL INTERFACE CIRCUIT

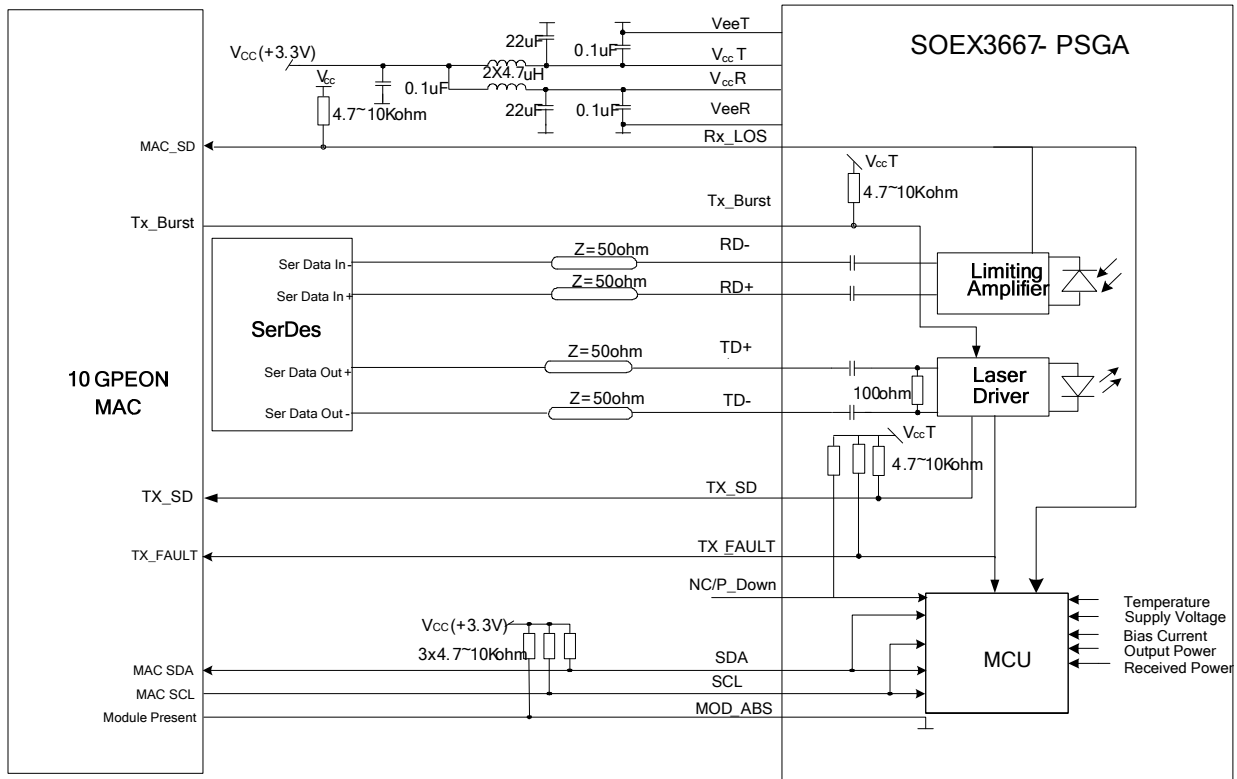


Figure 3 Typical Interface Circuit

PACKAGE OUTLINE

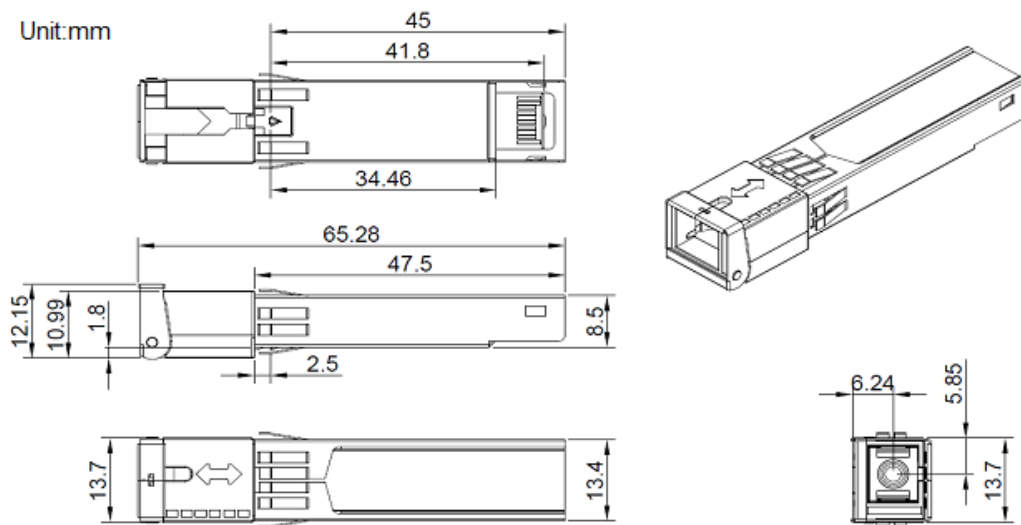


Figure 4 Package Outline

EEPROM INFORMATION

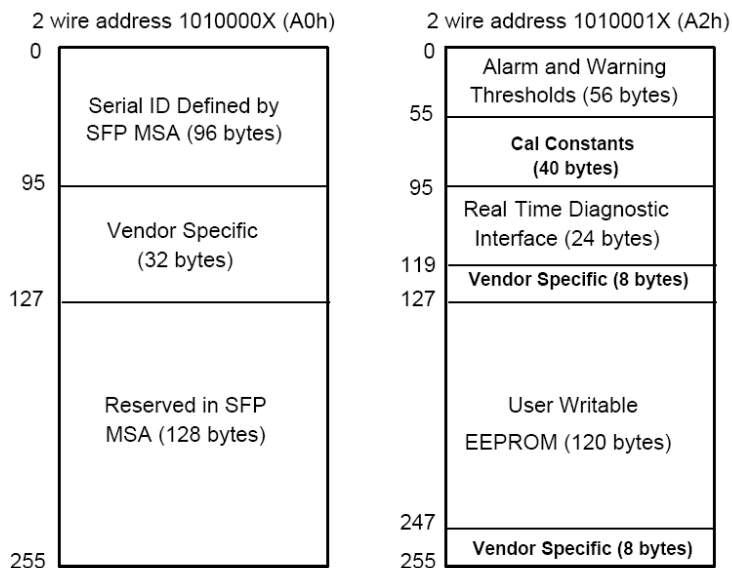
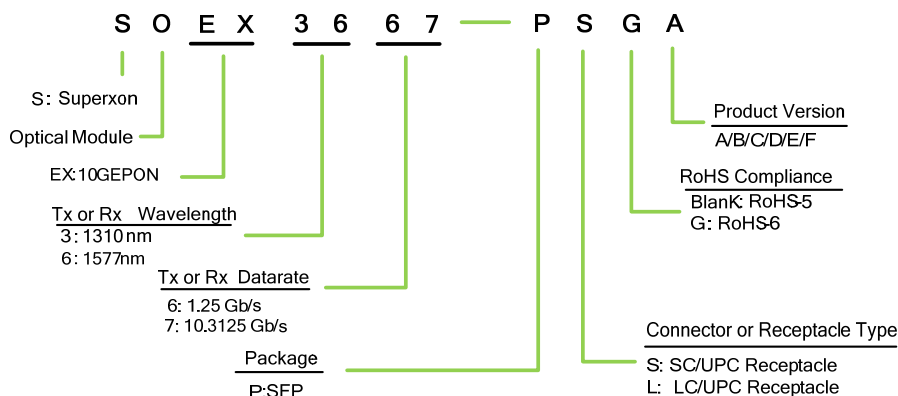


Figure 5 EEPROM Memory Map Specific Data Field Descriptions

DIGITAL DIAGNOSTIC MONITORING INTERFACE

Parameter	Range	Accuracy	Calibration
Temperature	0 to 70°C	±3°C	Internal
Voltage	3 to 3.6V	±3%	Internal
Bias Current	0 to 131mA	±10%	Internal
TX Power	0.62 to 5.62dBm	±2dB	Internal
RX Power monitor	-29 to -8dBm	±3dB	Internal

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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