Asymmetric 10GEPON ONU SFP+ Transceiver

Preliminary

SOEX3667-PSIGA

FEATURES

- Single fiber bi-directional data links Asymmetric TX 1.25Gbps/RX10.3125Gbps application
- -40°C to 85°C operating case temperature
- Single 3.3V power supply
- SFP+ package with SC Receptacle connector
- Hot-pluggable capability
- High power 1310nm DML 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 compliance for SOEX3667-PSIGA

APPLICATIONS

- Asymmetric 10GEPON PRX30 ONU with 15~29dB attenuation range

STANDARDS

- Complies with SFP+ MSA (SFF-8431)
- Complies with IEEE 802.3av
- Complies with SFF-8472 Rev 10.2
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11, Class Ⅰ
- 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	T_{STG}	-40	85	°C	
Operating Case Temperature	T_c	-40	85	°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	Tc	-40		+85	°C	
Power Supply Voltage	V_{CC}	3.13	3.3	3.47	V	
Power Supply Current	I_{CC}		290	450	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	EOL, Launched into 9/125μm single mode fiber
Extinction Ratio	ER	9	-	-	dB	
Centre Wavelength	λ	1260	1310	1360	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			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		ZIN	90	100	110	Ω	
Data Input Swing Differential		VIN	200	-	1600	mV	
Burst_ENABLE	Burst Diable		2.0	-	V_{cc}	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	Measured with PRBS 2^{31} -1test pattern @10.3125Gbit/s,BER ≤1×10^{-3}.
Receiver Overload			-10			dBm	
Receiver reflectance					-12	dB	
LOS De-Assert			-45			dBm	
LOS Assert					-29.5	dBm	
LOS Hysteresis			0.5		6	dB	
Data Output Swing Differential		V_{OUT}	340	-	850	mV	
LOS	High		2.4	-	V_{cc}	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	MOD-DEF2	Module Definition 2	2 wire serial ID interface，SDA
5	MOD-DEF1	Module Definition 1	2 wire serial ID interface, SCL
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	Receiver Signal Indication	High: signal detected; Low: loss of signal
9	NC/P_Down	NC/ 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	AC-coupled
19	TD-	Inverted Transmit Data in	AC-coupled
20	VeeT	Module Transmitter Ground	

PIN OUT DRAWING

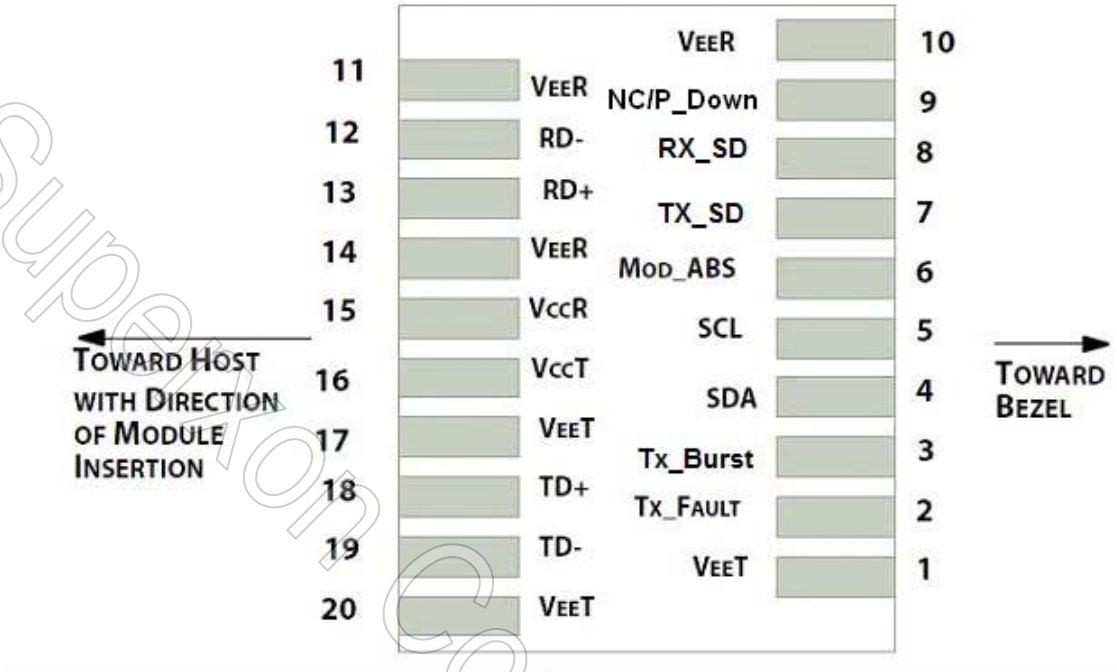


Figure 1 Pin Out Drawing

TYPICAL INTERFACE CIRCUIT

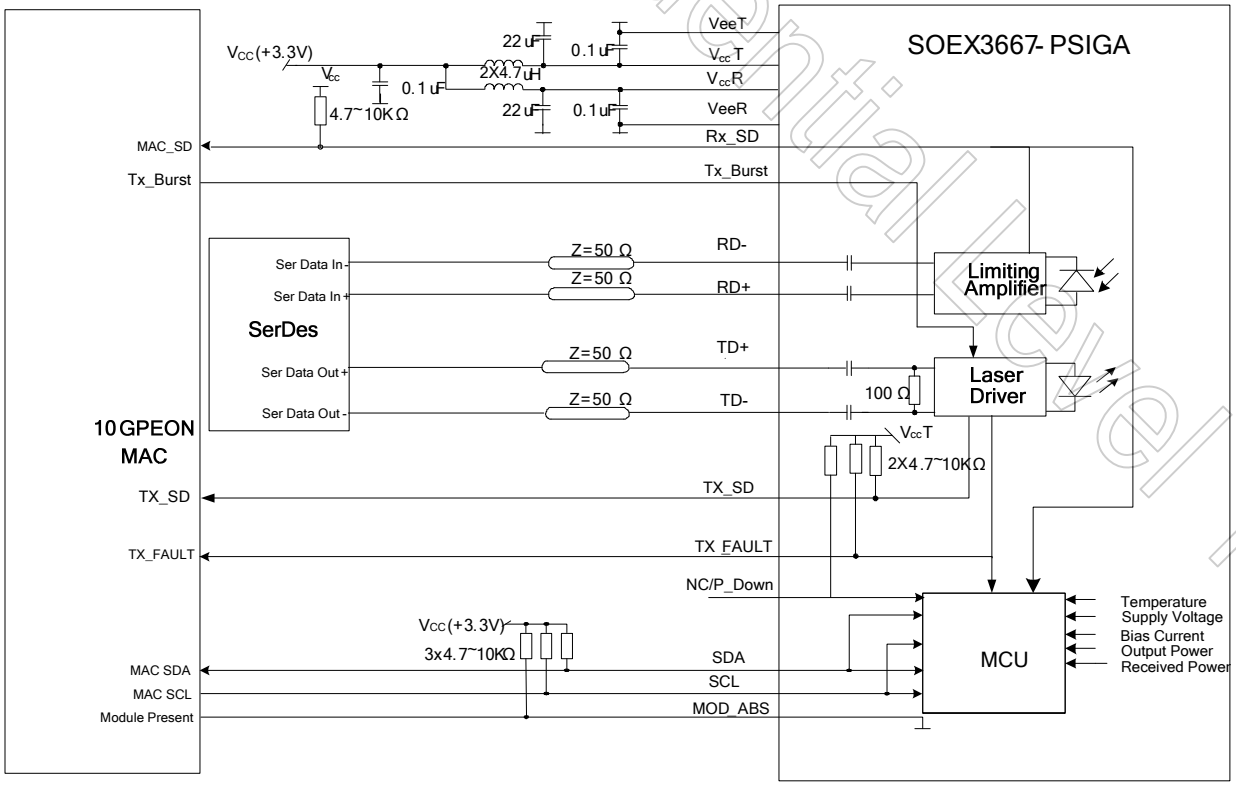


Figure 2 Typical Interface Circuit

PACKAGE OUTLINE

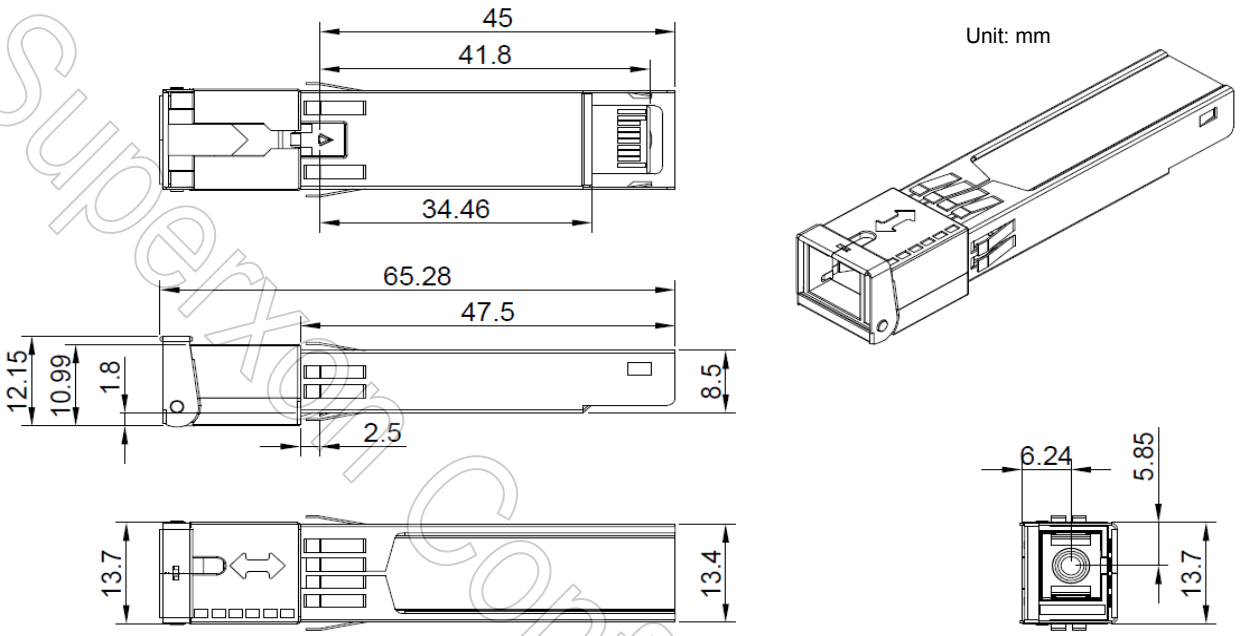


Figure 3 Package Outline

EEPROM INFORMATION

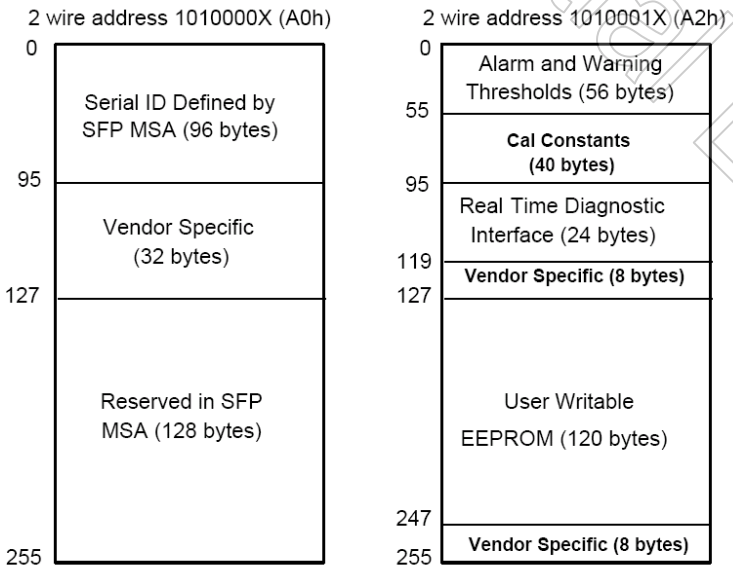


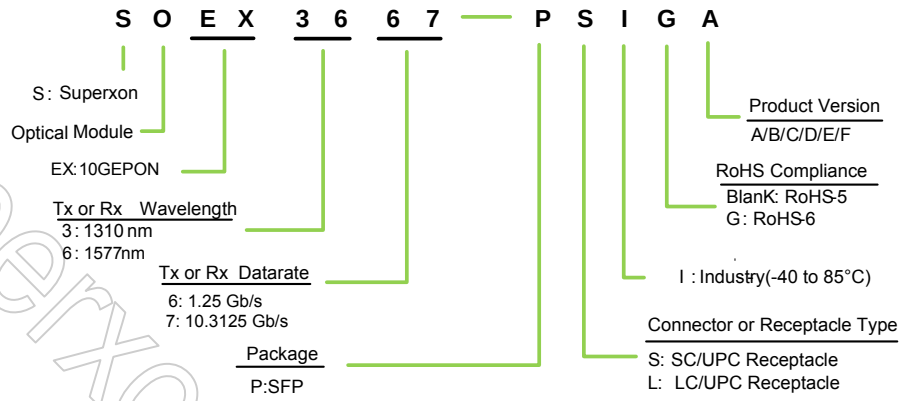
Figure 4 EEPROM Memory Map Specific Data Field Descriptions

DIGITAL DIAGNOSTIC MONITORING INTERFACE

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

Parameter	Range	Accuracy	Calibration
Temperature	-40 to 85°C	±3°C	Internal
Voltage	3.0 to 3.6V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	0.62 to 5.62dBm	±3dB	Internal
RX Power monitor	-28.5 to -10dBm	±2dB	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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