

FEATURES

- Supports 1.25Gbps to 3.072Gbps bit rates
- 0 to 70°C operating case temperature
- SFP package with single LC/APC Receptacle connector
- Single Wavelength Single Fiber
- Hot-pluggable capability
- Single 3.3V power supply
- Uncooled CWDM DFB transmitter and High performance PIN receiver
- Up to 18dB power budget
- Up to 20km transmission distance over SMF
- Low EMI and excellent ESD protection
- Built- in Digital Diagnostic monitoring (DDM) function
- Class I laser product
- RoHS-6

APPLICATIONS

- GBE/FE Links
- CWDM Network
- CPRI

STANDARDS

- Complies with SFP MSA
- Complies with SFF-8472
- Complies with FCC 47 CFR Part 15, Class B
- Complies with 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	0	70	°C	
Operating Humidity	OH	5	85	%	
Power Supply Voltage	V_{CC}	-0.5	3.6	V	
Receiver Damaged Threshold		+3		dBm	

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}			300	mA	
Date Rate		1.25	2.5	3.072	Gbps	
Data Rate Drift		-100		+100	PPM	

TRANSMITTER OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Average Launch Optical Power	P_{OUT}	-2	-	+3	dBm	
Extinction Ratio	ER	6	-	-	dB	
Centre Wavelength (BOL)	λ	$\lambda-6.5$	λ	$\lambda+6.5$	nm	
Spectral Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Side Mode Suppression Mode	SMSR	30			dB	

TRANSMITTER ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Input Differential Swing		180		700	mV	
Input Differential Impedance		85	100	115	Ω	
TX Disable	Disable	2		$V_{CC}+0.3$	V	
	Enable	-0.3		0.8	V	
TX Fault	Fault	2.4		$V_{CC_{HOST}}$	V	
	Normal	-0.3		0.4	V	

RECEIVER OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Wavelength	λ_C	$\lambda-6.5$	λ	$\lambda+6.5$	nm	
Sensitivity	SEN			-20	dBm	BER<1E-10, 2.5G, PRBS23
Saturation Optical Power	SAT	0			dBm	
LOS De-Assert	LOS _D			-22	dBm	
LOS Assert	LOS _A	-35			dBm	
LOS Hysteresis	HYS	0.5		5	dB	

RECEIVER ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Differential data output swing	Vout	350		850	mV	CML AC coupling
Rx_LOS Output Voltage - High	High	2.4		VCC _{HOST}	V	
Rx_LOS Output Voltage - Low	Low	-0.3		0.4	V	

PIN DESCRIPTION			
PIN	Name	Description	Notes
1	V _{EE} T	Transmitter Ground	
2	TX_Fault	Transmitter Fault Indication	Low: normal; High: abnormal
3	TX_Disable	Transmitter Disable	Low: transmitter on; High: transmitter off
4	SDA	SDA	The data line of two wire serial interface
5	SCL	SCL	The clock line of two wire serial interface
6	MOD_ABS	Module Absent	Connected to V _{EE} T or V _{EE} R in the module
7	Rate	Not Connected	
8	RX_LOS	Loss of Signal	Low: signal detected; High: loss of signal
9	V _{EE} R	Receiver Ground	
10	V _{EE} R	Receiver Ground	
11	V _{EE} R	Receiver Ground	
12	RD-	Inv. Received Data Out	CML AC-coupling
13	RD+	Received Data Out	CML AC-coupling
14	V _{EE} R	Receiver Ground	
15	V _{CC} R	Receiver Power	
16	V _{CC} T	Transmitter Power	
17	V _{EE} T	Transmitter Ground	
18	TD+	Transmit Data In	CML AC-coupling
19	TD-	Inv. Transmit Data In	CML AC-coupling
20	V _{EE} T	Transmitter Ground	

PIN OUT DRAWING (TOP VIEW)

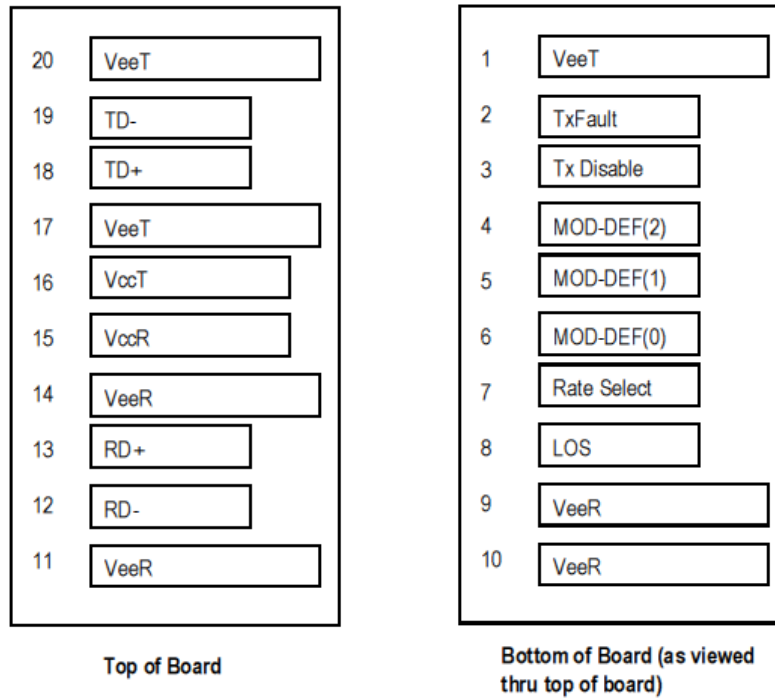


Figure 1 SFP Transceiver Electrical Pad Layout

TYPICAL INTERFACE CIRCUIT

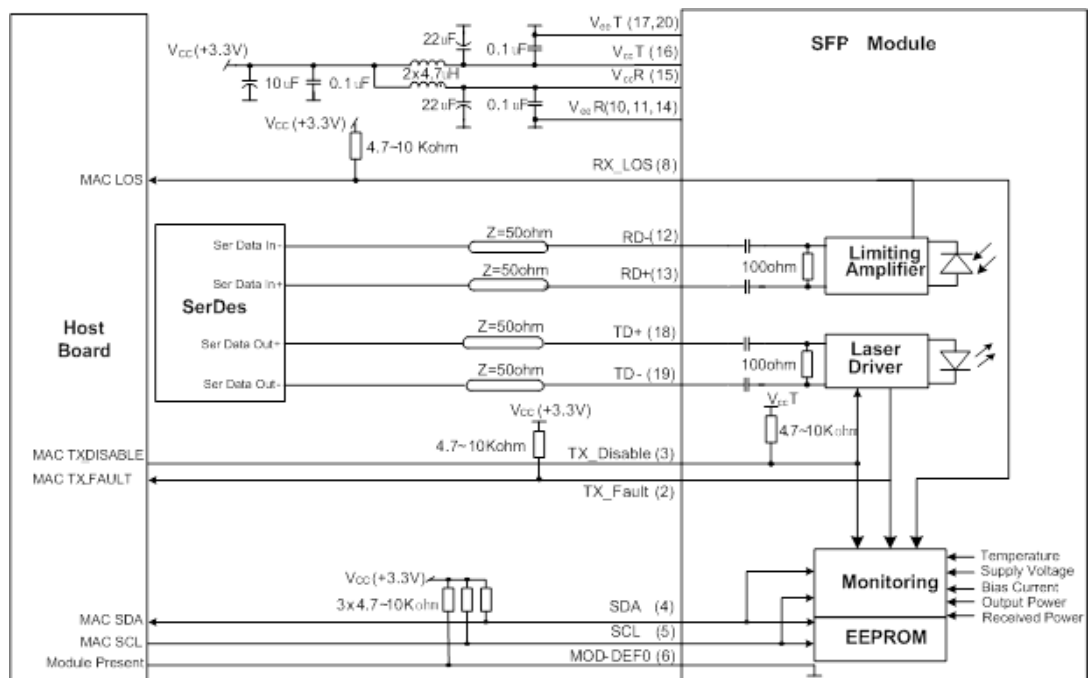


Figure 2 Typical Interface Circuit

PACKAGE OUTLINE

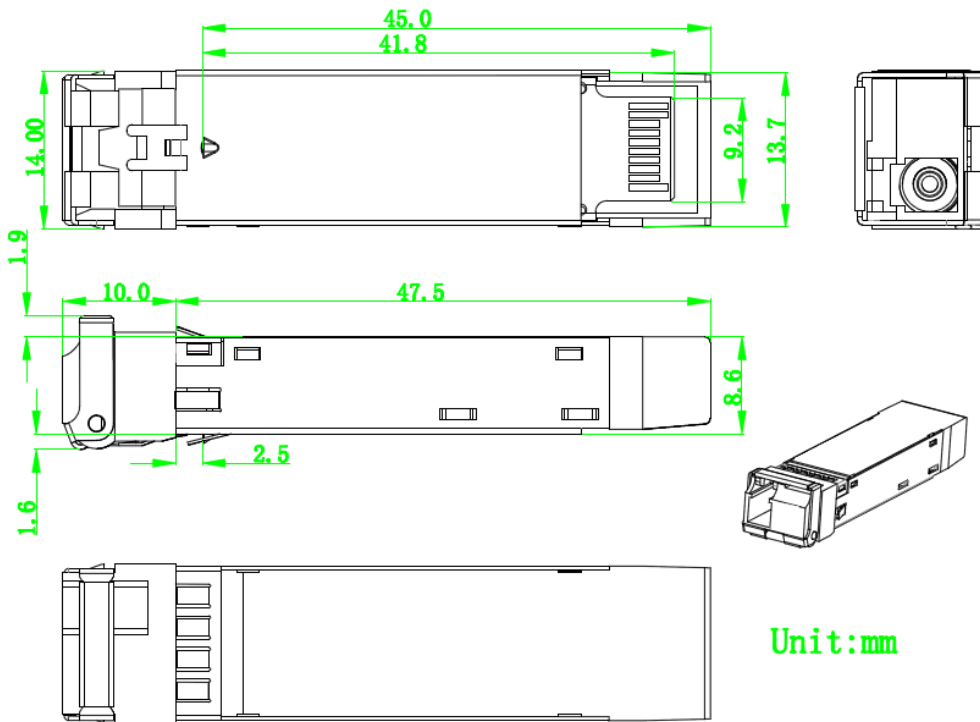


Figure 3 Package Outline

EEPROM INFORMATION

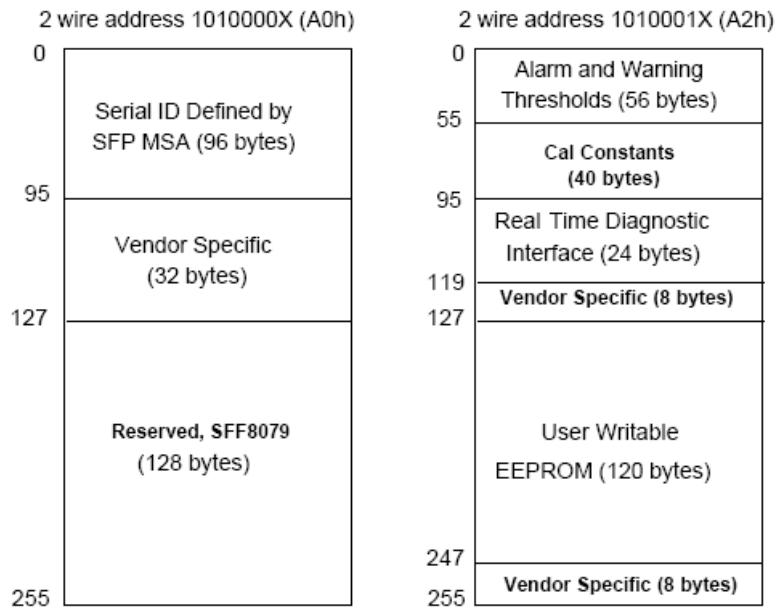


Figure 4 EEPROM Memory Map Specific Data Field Descriptions

DIGITAL DIAGNOSTIC MONITORING INTERFACE

Parameter	Range	Accuracy	Calibration
Temperature	0 to 70°C	±5°C	Internal
Voltage	2.97 to 3.63V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	-2 to 3dBm	±3dB	Internal
RX Power monitor	-22 to 0dBm	±3dB	Internal

Order information

Wavelength Code	Product Number	Center Wavelength (nm)
27	HOLS-P3C27272-LD-xD	1271
29	HOLS-P3C29292-LD-xD	1291
31	HOLS-P3C31311-LD-xD	1311
33	HOLS-P3C33332-LD-xD	1331
35	HOLS-P3C35352-LD-xD	1351
37	HOLS-P3C37372-LD-xD	1371
39	HOLS-P3C39392-LD-xD	1391
41	HOLS-P3C41412-LD-xD	1411
43	HOLS-P3C43432-LD-xD	1431
45	HOLS-P3C45452-LD-xD	1451
47	HOLS-P3C47472-LD-xD	1471
49	HOLS-P3C49492-LD-xD	1491
51	HOLS-P3C51512-LD-xD	1511
53	HOLS-P3C53532-LD-xD	1531
55	HOLS-P3C55552-LD-xD	1551
57	HOLS-P3C57572-LD-xD	1571
59	HOLS-P3C59592-LD-xD	1591
61	HOLS-P3C61612-LD-xD	1611

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.