1.25Gbps Duplex Fiber SFP Transceiver

>>Features

- Up to 1.25Gbps data rate
- Single mode or Multi-mode
- All-metal shell, duplex LC receptacle.
- +3.3V single power supply
- Hot-pluggable
- Standard PECL data output and input with signal detect indication
- High quality laser and photodetector
- Compliant with SFP MSA and SFF-8472
- Optional Digital Diagnostic Monitoring
- Standard level and Industrial level products for customers

>> Applications

- Gigabit Ethernet
- Fiber Channel
- Switch to Switch interface
- Switched backplane applications
- Router/Server interface
- Other optical transmission systems

>>Ordering Information

Model No.	Data Rate	Wavelength	Distance	Connector	DDM
SFP-SX-MM-0205	1.25Gbps	850nm	MMF 0.5km	Duplex LC	Optional
SFP-LX-SM-0220	1.25Gbps	1310nm	SMF 20km	Duplex LC	Optional
SFP-LX-SM-0240	1.25Gbps	1310nm	SMF 40km	Duplex LC	Optional
SFP-ZX-SM-0240	1.25Gbps	1550nm	SMF 40km	Duplex LC	Optional
SFP-ZX-SM-0260	1.25Gbps	1550nm	SMF 60km	Duplex LC	Optional
SFP-ZX-SM-0280	1.25Gbps	1550nm	SMF 80km	Duplex LC	Optional
SFP-ZX-SM-02120	1.25Gbps	1550nm	SMF 120km	Duplex LC	Optional

>>Specifications

Parameters	Symbol	Min	Type	Max	unit	Note
Absolute Maximum Ratings						
Storage Temperature	Ts	-40		+85	°C	
Supply Voltage	Vcc	-0.5		4.5	V	
Relative Humidity	R_H	5		95	%	
Recommended Operating Conditions						
Operating Temperature Range	Tc	0		+70	°C	Standard
	Tc	-40		+85	°C	Industrial
Supply Voltage	Vcc	+3.13	+3.3	+3.47	V	
Data Rate			1.25		Gbps	
Electrical Characteristics						
Module Supply Current	I_{CC}			300	mA	
Inrush Current	I_{RUSH}			30	mA	
Input differential impedance	R_{in}		100			
Transmitter Single Ended Input Voltage (TD±)	V_{in}	400		1800	mV	
Transmit Fault (TX_Fault)	V_{OH}	2.0		3.3	V	
LOSS of Signal (LOS)	V_{OL}	0		0.8	V	
Transmit Disable Input Low	V_{IL}	0		0.8	V	
Transmit Disable Input High	V_{IH}	2.4		3.3	V	
Receiver Single Ended Output Voltage (RD±)	V_{out}	200		800	mV	
Optical transmitter Characteristics						
Center Wavelength	λ	1260	1310	1360	nm	
		1540	1550	1560	nm	
		830	850	870	nm	
Optical Power	P_0	See the Optical Parameters Table below				
Optical Rise Time	T_r		120	150	ps	
Optical Fall Time	T_f		120	150	ps	
Extinction Ratio	Ext	9			dB	
Spectral Width	Δλ			4	nm	FP-LD, RMS
	Δλ			1	nm	DFB-LD, -20dB
Eye Mask		Compliant with Eye Mask Defined in IEEE802.3				
Optical receiver Characteristics						
Center Wavelength	λ	1100		1650	nm	
Receive Optical Sensitivity	Sen	See the Optical Parameters Table below				
LOS output (TTL high level)	V_{LOS}	2			V	
Receiver Overload	P_{inMAX}	-3			dBm	
LOS Assert	P_{LOS_A}	-32			dBm	

LOS De-Assert	P_{LOS_D}			-28	dBm	
LOS Hysteresis	P_H	0.5	2	4	dB	10log($V_{DE-ASSERT}$ /V_{ASSERT})

Note:

1. Measured with a PRBS 2^7-1 test pattern @1250Mbps, BER≤1×10^{-12}.

>>Optical Parameters Table

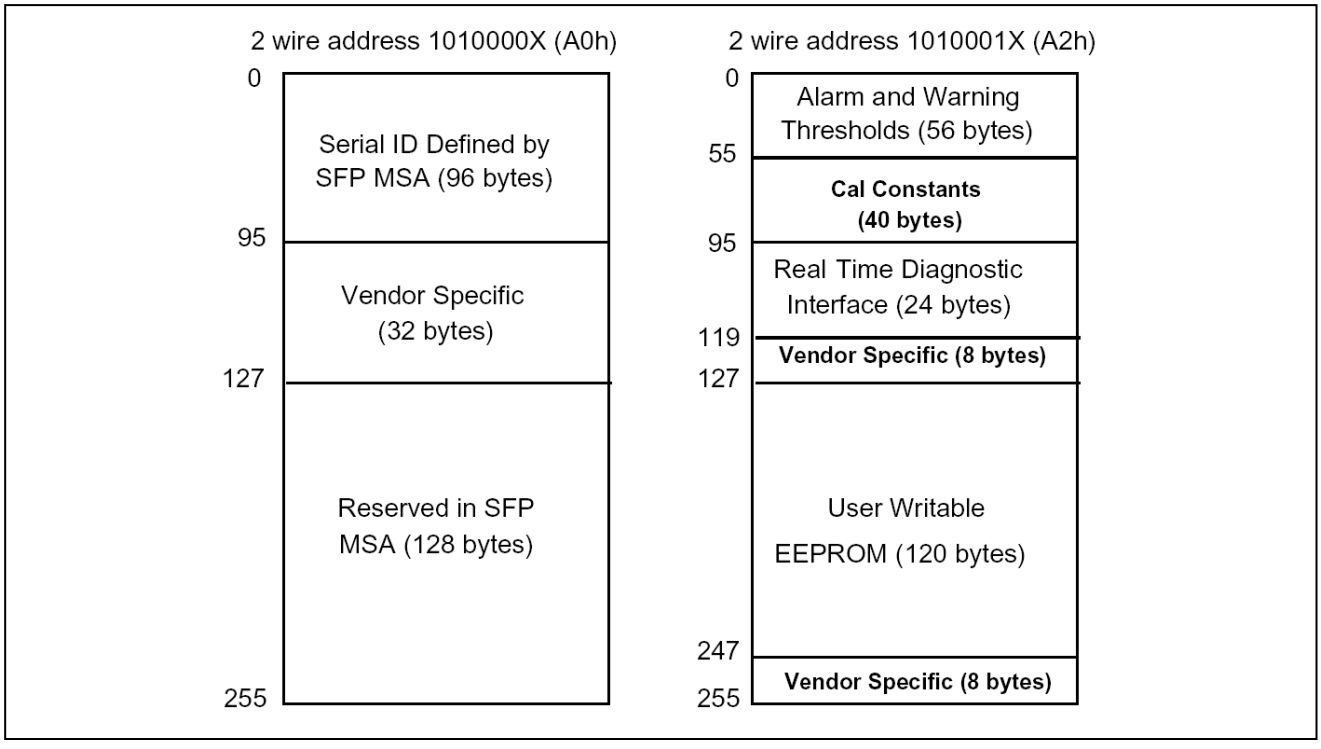
Data rate	LD	PD	Wavelength	Power	Sensitivity	Distance
1.25G	VCSEL	PIN	850nm	-9~-3dBm	<-17dBm	MMF 0.5km
1.25G	FP	PIN	1310nm	-9~-3dBm	<-23dBm	SMF 20km
1.25G	DFB	PIN	1310nm	-5~0dBm	<-24dBm	SMF 40km
1.25G	DFB	PIN	1550nm	-5~0dBm	<-24dBm	SMF 40km
1.25G	DFB	PIN	1550nm	-2~3dBm	<-24dBm	SMF 60km
1.25G	DFB	PIN	1550nm	0~5dBm	<-25dBm	SMF 80km
1.25G	DFB	APD	1550nm	0~5dBm	<-32dBm	SMF 120km

>>Digital Diagnostic Memory Map

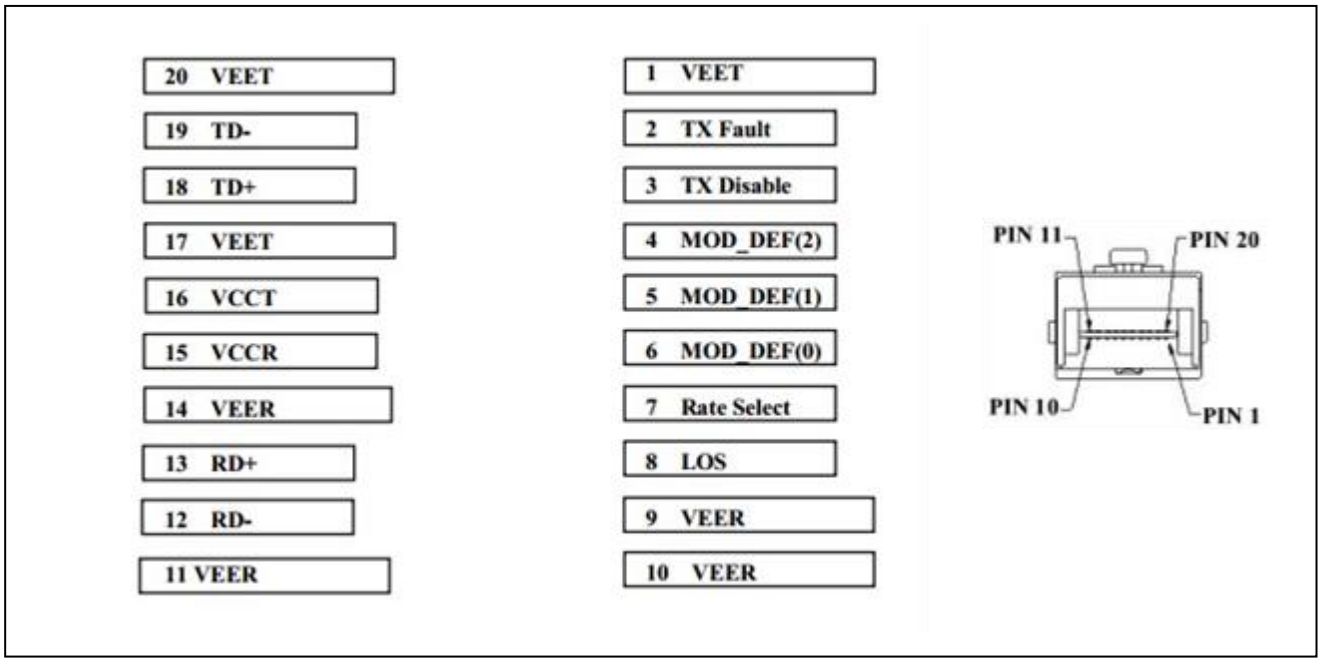
The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The diagnostic information with internal calibration or external calibration all are implemented, including received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring.

The digital diagnostic memory map specific data field defines as following.



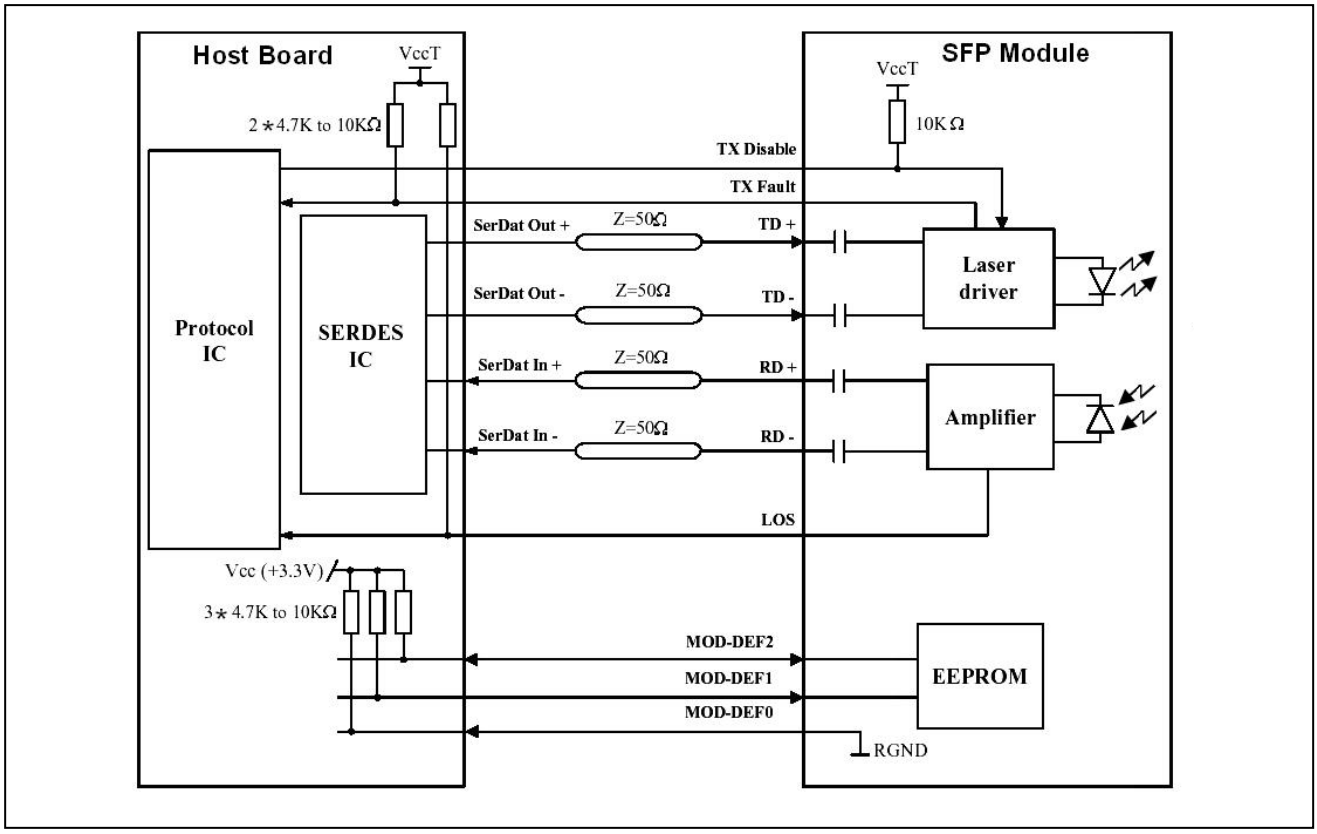
>>SFP Transceiver Electrical Pad Layout



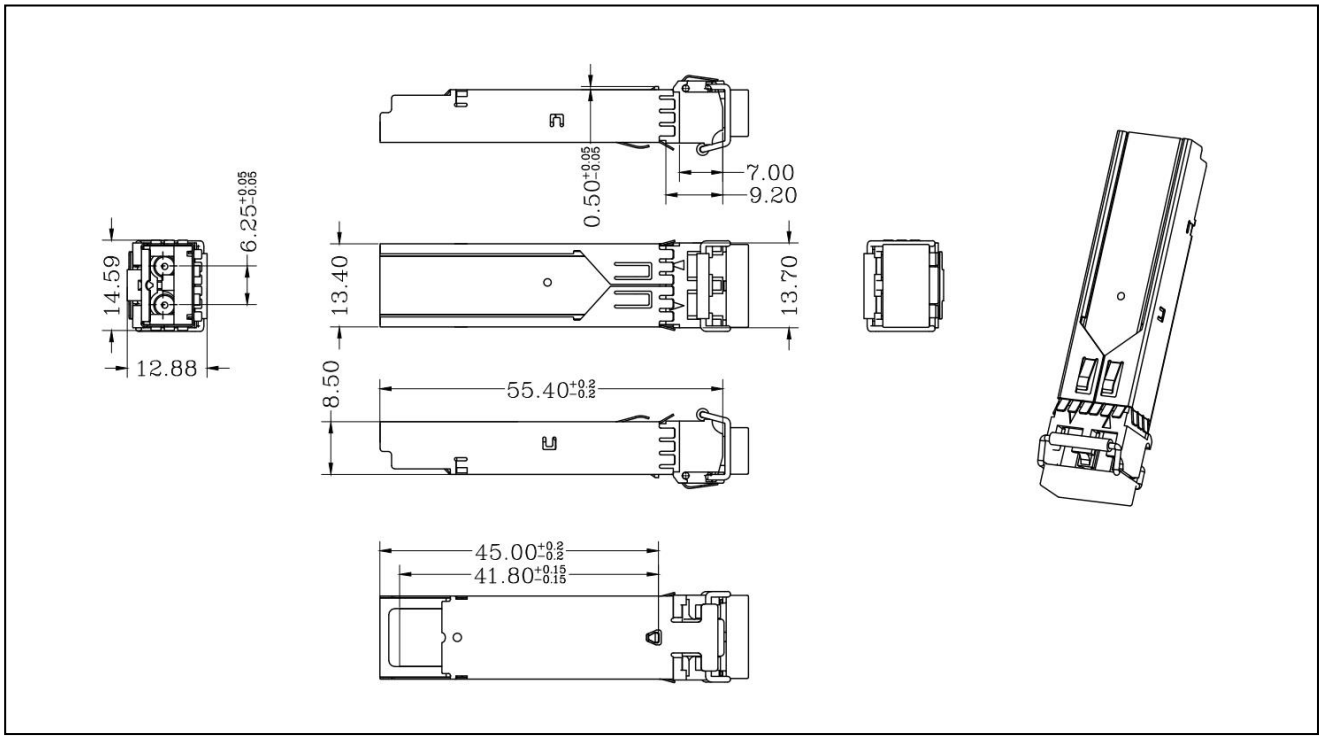
>>Pin Descriptions

Pin	Signal Name	Description
1	VeeT	Transmitter Ground
2	TX Fault	Transmitter Fault Indication
3	TX Disable	Transmitter Disable
4	MOD-DEF2	Module Definition 2
5	MOD-DEF1	Module Definition 1
6	MOD-DEF0	Module Definition 0
7	Rate Select	Select between full or reduced
8	LOS	Loss of Signal
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Inv. Received Data Out
13	RD+	Received Data Out
14	VeeR	Receiver Ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter Ground
18	TD+	Transmit Data In
19	TD-	Inv. Transmit Data In
20	VeeT	Transmitter Ground

>>Recommended Interface Circuit



>>Mechanical Dimensions



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sales@optone.net
http://www.optone.net

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