

# 155Mbps Duplex Fiber SFP Transceiver

## >> Features

- Up to 155Mbps 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

- SDH / SONET
- Fast Ethernet
- Router/Server interface
- Other optical transmission systems

## >> Ordering Information

Model No.	Data Rate	Wavelength	Distance	Connector	DDM
SFP-SX-MM-0102	155Mbps	1310nm	MMF 2km	Duplex LC	Optional
SFP-LX-SM-0120	155Mbps	1310nm	SMF 20km	Duplex LC	Optional
SFP-LX-SM-0140	155Mbps	1310nm	SMF 40km	Duplex LC	Optional
SFP-ZX-SM-0160	155Mbps	1550nm	SMF 60km	Duplex LC	Optional
SFP-ZX-SM-0180	155Mbps	1550nm	SMF 80km	Duplex LC	Optional
SFP-ZX-SM-01120	155Mbps	1550nm	SMF 120km	Duplex LC	Optional

## >> Specifications

Parameters	Symbol	Min	Type	Max	unit	Note
<b>Absolute Maximum Ratings</b>						
Storage Temperature	T <sub>s</sub>	-40		+85	°C	
Supply Voltage	V <sub>cc</sub>	-0.5		4.5	V	
Relative Humidity	R <sub>H</sub>	5		95	%	
<b>Recommended Operating Conditions</b>						
Operating Temperature Range	T <sub>c</sub>	0		+70	°C	Standard
	T <sub>c</sub>	-40		+85	°C	Industrial
Supply Voltage	V <sub>cc</sub>	+3.13	+3.3	+3.47	V	
Data Rate			155		Mbps	
<b>Electrical Characteristics</b>						
Module Supply Current	I <sub>cc</sub>			300	mA	
Inrush Current	I <sub>RUSH</sub>			30	mA	
Input differential impedance	R <sub>in</sub>		100			
Transmitter Single Ended Input Voltage (TD±)	V <sub>in</sub>	400		1800	mV	
Transmit Fault (TX_Fault)	V <sub>OH</sub>	2.0		3.3	V	
LOSS of Signal (LOS)	V <sub>OL</sub>	0		0.8	V	
Transmit Disable Input Low	V <sub>IL</sub>	0		0.8	V	
Transmit Disable Input High	V <sub>IH</sub>	2.4		3.3	V	
Receiver Single Ended Output Voltage (RD±)	V <sub>out</sub>	200		800	mV	
<b>Optical transmitter Characteristics</b>						
Center Wavelength	λ	1260	1310	1360	nm	
		1540	1550	1560	nm	
		830	850	870	nm	
Optical Power	P <sub>0</sub>	See the Optical Parameters Table below				
Optical Rise Time	T <sub>r</sub>		120	150	ps	
Optical Fall Time	T <sub>f</sub>		120	150	ps	
Extinction Ratio	Ext	10			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				
<b>Optical receiver Characteristics</b>						
Center Wavelength	λ	1100		1650	nm	
Receive Optical Sensitivity	Sen	See the Optical Parameters Table below				
LOS output (TTL high level)	V <sub>LOS</sub>	2			V	
Receiver Overload	P <sub>inMAX</sub>	-3			dBm	
LOS Assert	P <sub>LOS_A</sub>	-45			dBm	

LOS De-Assert	P <sub>LOS_D</sub>			-34	dBm	
LOS Hysteresis	P <sub>H</sub>	0.5	2	4	dB	$10\log(V_{DE-ASSERT}/V_{ASSERT})$

**Note:**

1. Measured with a PRBS 2<sup>23</sup> -1 test pattern @155Mbps, BER≤1×10<sup>-10</sup>.

## >>Optical Parameters Table

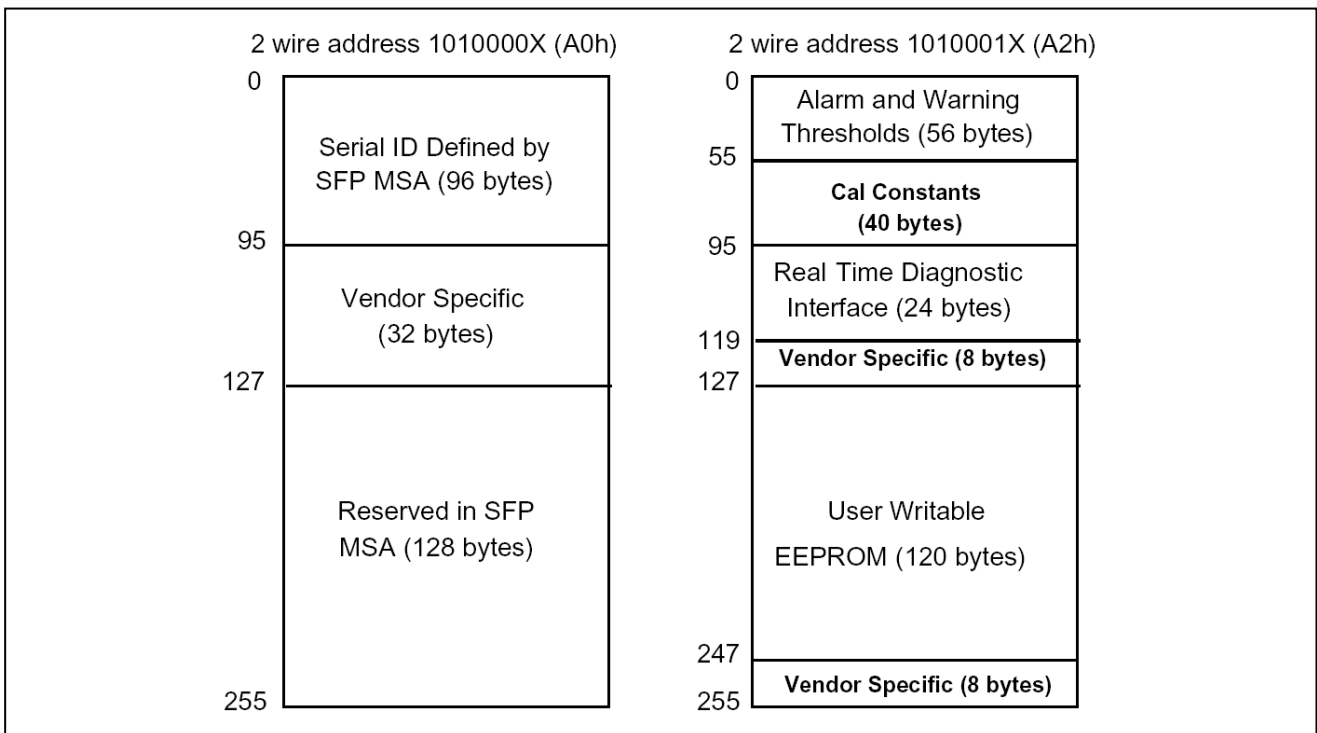
Data rate	LD	Wavelength	Power	Sensitivity	Distance
155M	FP	1310nm	-18~-10dBm	<-32dBm	MMF 2km
155M	FP	1310nm	-15~-8dBm	<-33dBm	SMF 20km
155M	FP	1310nm	-9~-3dBm	<-33dBm	SMF 40km
155M	DFB	1550nm	-5~0dBm	<-34dBm	SMF 60km
155M	DFB	1550nm	-5~0dBm	<-34dBm	SMF 80km
155M	DFB	1550nm	0~5dBm	<-34dBm	SMF 120km

## >>Digital Diagnostic Memory Map

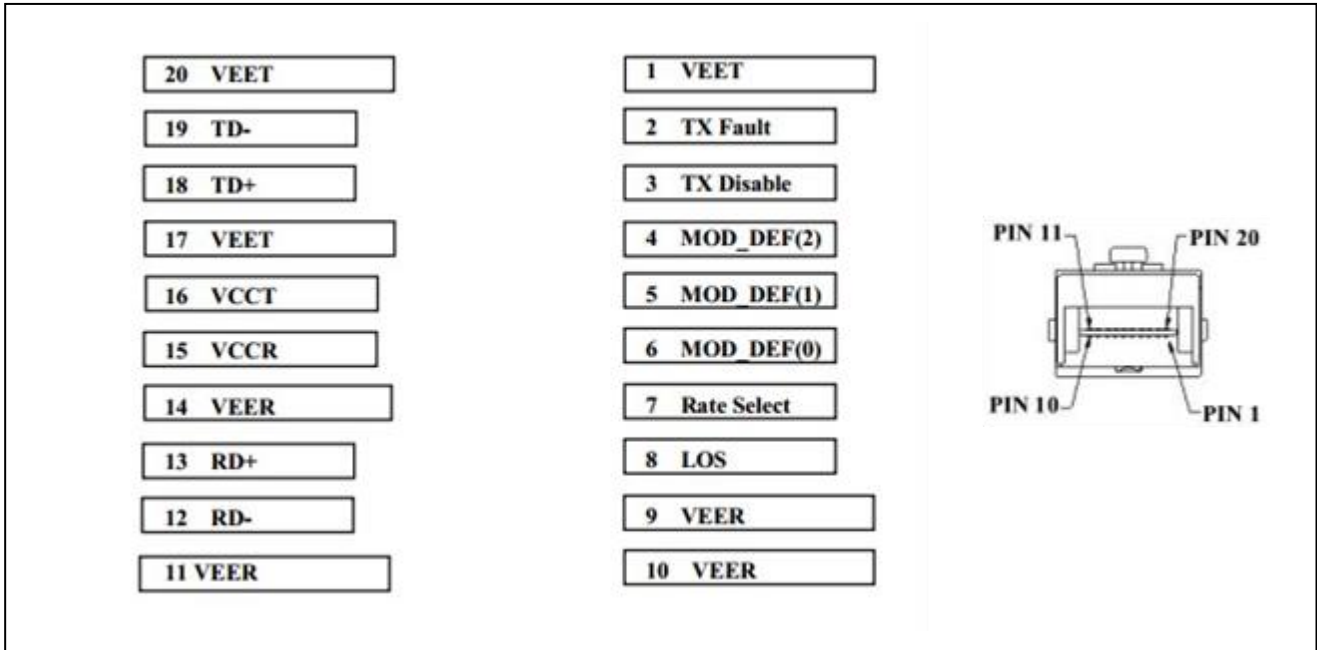
The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

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.



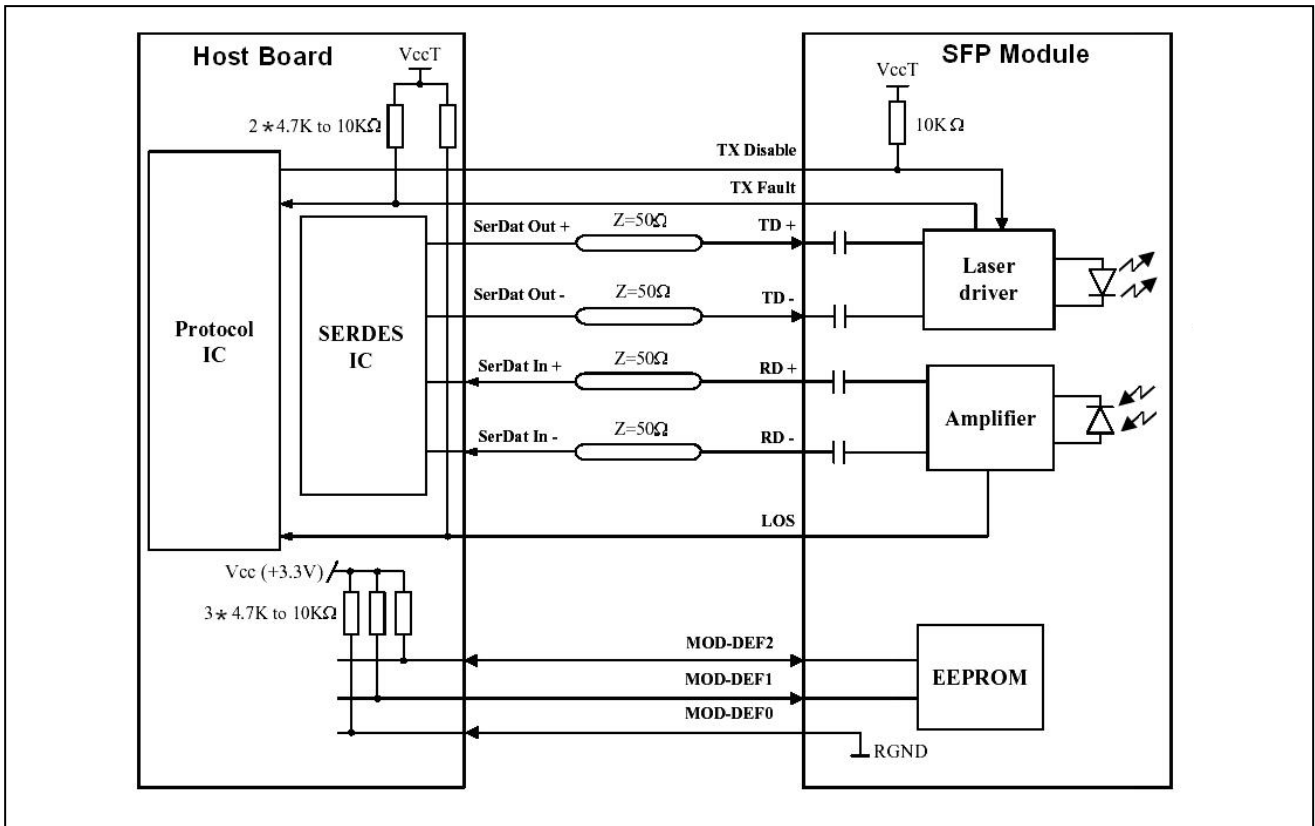
## >>SFP Transceiver Electrical Pad Layout



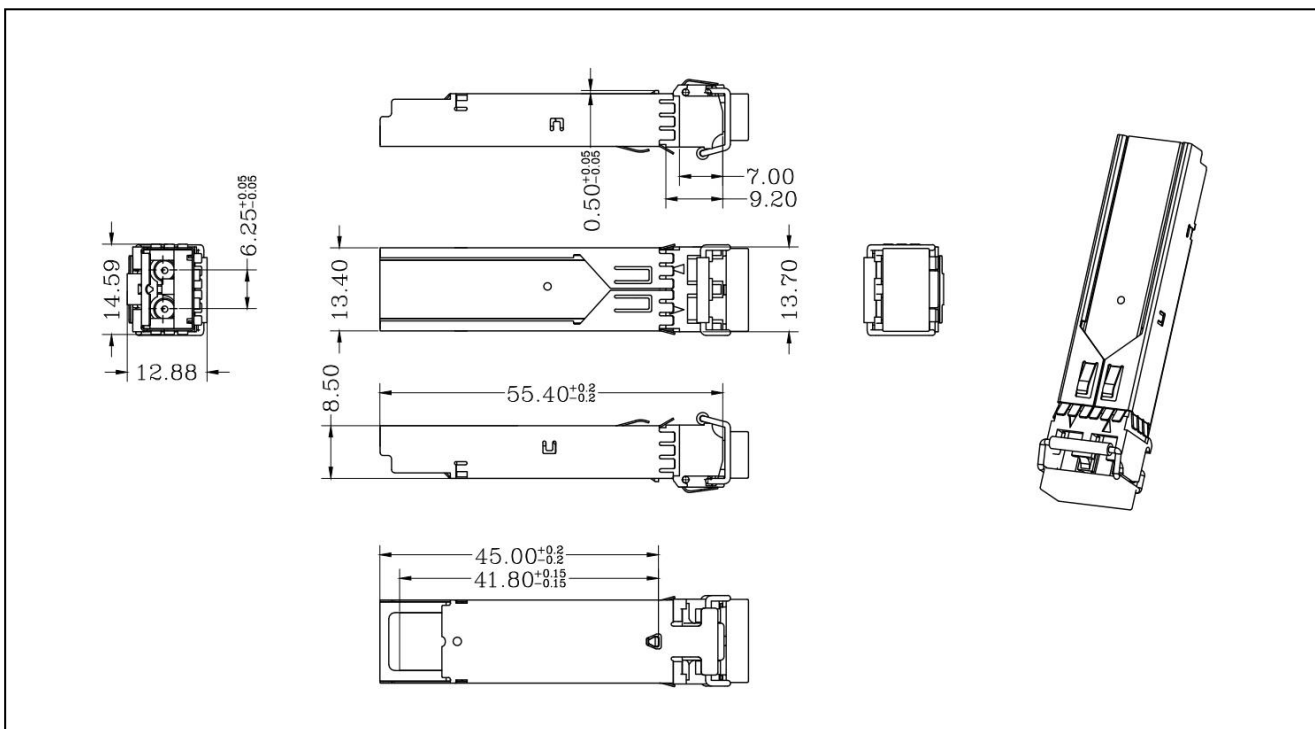
## >>Pin Descriptions

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



## >>Important Notice

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