

# SFP MODULE SYSTEM PRODUCTS

1.25Gbps SFP Bi-Directional Transceiver 20-80km (Single-mode)



## FEATURE

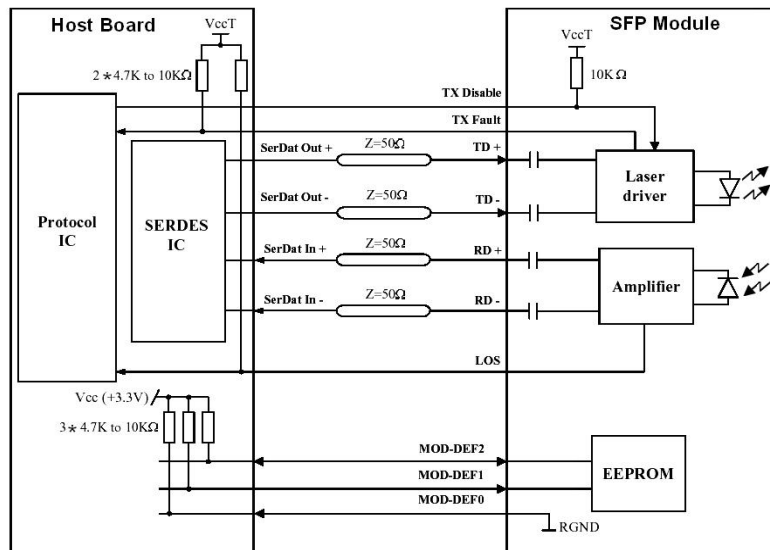
- Up to 1.25Gbps data rate
- All-metal shell, simplex LC or SC receptacle.
- +3.3V single power supply
- Hot-pluggable
- Standard PECL data output and input with signal detect indication
- High quality laser and photodetector
- Compliant with SFP MSA and SFF-8472
- Optional Digital Diagnostic Monitoring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



## DESCRIPTION

- Class 1 laser product EN 60825-1 standards
- Compliant with SDH/SONET
- Single LC or SC connector
- Hot pluggable
- 3.3V Single Power Supply
- Operating Temperature 0°C~+70°C

## INTERFACE CIRCUIT



## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit
Storage Temperature	Ts	-40		+85	°C
Supply Voltage	Vcc	-0.5		4.5	V
Operating Humidity		5		85	%

## RECOMMENDED OPERATING CONDITIONS

Parameter		Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Commercial	T <sub>c</sub>	0		+70	°C
	Industrial		-40		+85	°C
Power Supply Voltage		V <sub>cc</sub>	3.13	3.3	3.47	V
Power Supply Current		I <sub>cc</sub>			300	mA
Data Rate				1.25		Gbps

## ELECTRICAL CHARACTERISTICS

Parameter		Symbol	Min	Typical	Max	Unit
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

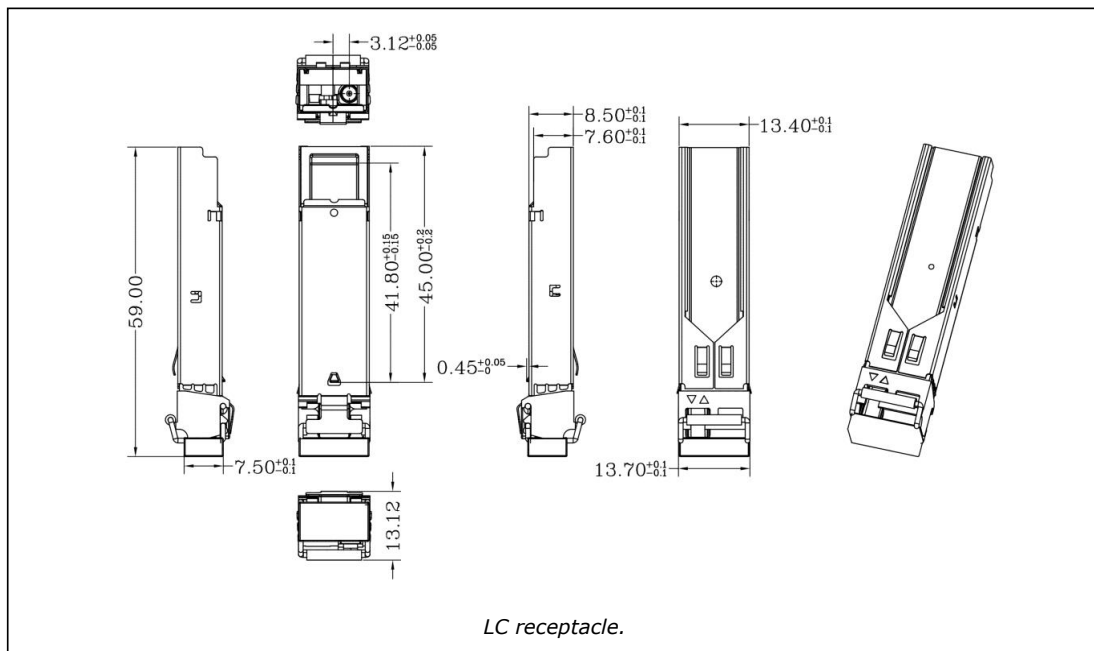
## OPTICAL TRANSMITTER CHARACTERISTICS

Parameter		Symbol	Min	Typical	Max	Unit
Center Wavelength		$\lambda$	1260	1310	1360	nm
			1540	1550	1560	nm
			1480	1490	1500	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	9			dB
Spectral Width	(FP-LD, RMS)	$\Delta\lambda$			4	nm
	(DFB-LD, -20dB)	$\Delta\lambda$			1	nm
Optical Power			Compliant with Eye Mask Defined in IEEE802.3z			

## OPTICAL RECEIVER CHARACTERISTICS

Parameter		Symbol	Min	Typical	Max	Unit
Center Wavelength		$\lambda$	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>	-32			dBm
LOS De-Assert		P <sub>LOS_D</sub>			-28	dBm
LOS Hysteresis		P <sub>H</sub>	0.5	2	4	dB

## MECHANICAL DIMESIONS



## OPTICAL STANDARD

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>500 V) Isolation with the case
Electromagnetic Interference(EMI)	FCC Part 15 Class B	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11	Compatible with Class I laser product.
	EN60950, EN (IEC) 60825-1,2	Compatible with TÜV standards
Component Recognition	UL and CUL	UL file E317337
Green Products	2002/95/EC 2005/618/EC	RoHS6

## DESCRIPTION PARAMETER

Model	Rate	Wavelength	Distance	Optical power	Sensitivity
MC-SFP-WDM-SM-0203A	1.25Gbps	TX1310nm	3km	-9~-3dBm	<-21dbm
MC-SFP-WDM-SM-0203B	1.25Gbps	TX1550nm	3km	-9~-3dBm	<-21dbm
MC-SFP-WDM-SM-0220A	1.25Gbps	TX1310nm	20km	-9~-3dBm	<-22dbm
MC-SFP-WDM-SM-0220B	1.25Gbps	TX1550nm	20km	-9~-3dBm	<-22dbm
MC-SFP-WDM-SM-0240A	1.25Gbps	TX1310nm	40km	-5~0dBm	<-23dbm
MC-SFP-WDM-SM-0240B	1.25Gbps	TX1550nm	40km	-5~0dBm	<-23dbm
MC-SFP-WDM-SM-0280A	1.25Gbps	TX1490nm	80km	0~5dBm	<-24dbm
MC-SFP-WDM-SM-0280B	1.25Gbps	TX1550nm	80km	0~5dBm	<-24dbm
MC-SFP-WDM-SM-02120A	1.25Gbps	TX1490nm	120km	0~5dBm	<-32dbm
MC-SFP-WDM-SM-02120B	1.25Gbps	TX1550nm	120km	0~5dBm	<-32dbm

## ORDER INFORMATION

PRODUCT	PART NUMBER
1.25Gbps SFP WDM Tx1310/Rx1550nm, LC, 3km	MC-SFP-WDM-SM-0203A
1.25Gbps SFP WDM Tx1550/Rx1310nm, LC, 3km	MC-SFP-WDM-SM-0203B
1.25Gbps SFP WDM Tx1310/Rx1550nm, LC, 20km	MC-SFP-WDM-SM-0220A
1.25Gbps SFP WDM Tx1550/Rx1310nm, LC, 20km	MC-SFP-WDM-SM-0220B
1.25Gbps SFP WDM Tx1310/Rx1550nm, LC, 40km	MC-SFP-WDM-SM-0240A
1.25Gbps SFP WDM Tx1550/Rx1310nm, LC, 40km	MC-SFP-WDM-SM-0240B
1.25Gbps SFP WDM Tx1490/Rx1550nm, LC, 60km	MC-SFP-WDM-SM-0260A
1.25Gbps SFP WDM Tx1550/Rx1490nm, LC, 60km	MC-SFP-WDM-SM-0260B
1.25Gbps SFP WDM Tx1490/Rx1550nm, LC, 80km	MC-SFP-WDM-SM-0280A
1.25Gbps SFP WDM Tx1550/Rx1490nm, LC, 80km	MC-SFP-WDM-SM-0280B
1.25Gbps SFP WDM Tx1490/Rx1550nm, LC, 120km	MC-SFP-WDM-SM-02120A
1.25Gbps SFP WDM Tx1550/Rx1490nm, LC, 120km	MC-SFP-WDM-SM-02120B