

10Gb/S SFP+ CWDM Transceiver

P/N: TSFPPC-AC1KxxA



Product Features

- Compliant with IEEE802.3ae 10GBASE-ZR/ZW
- Compliant with SFP+ MSA
- Up to 80km on 9/125um SMF
- 10Gb/s serial optical interface
- Maximum power consumption 1.8W
- SFP MSA package with duplex LC connector
- Very low EMI and excellent ESD protection
- Single 3.3V power supply
- SFP mechanical interface
- Digital Diagnostic Monitor Interface
- RoHS-6 Compliant

Application

- 10G Base-ZR/ZW
- 10G Fiber Channel

Absolute Maximum Rating

Parameter	Min	Max	Unit	Note
Storage Temperature	-40	85	°C	
3.3V Power Supply Voltage	-0.5	4.0	V	
Relative Humidity		85	%	

Recommended Operating Conditions

Parameter	Min	Typical	Max	Unit	Note
Case Operating Temperature	0		70	°C	
Power Supply Voltage	3.135	3.3	3.465	V	
Data Rate	Ethernet	10.3125		Gbps	
	SDH/Sonet	9.953			
Supply Current			500	mA	
Link Distance			80	km	

Electrical Characteristics

Parameter	Min	Typical	Max	Unit	Note
Transmitter					
Differential Input Voltage	120		820	mVpp	
Tx Disable input	H	2.0	Vcc+0.3	V	
	L	0	0.8		
Tx Fault output	H	2.0	Vcc+0.3	V	
	L	0	0.8		
Input Differential Impedance		100		Ω	
Receiver					
Differential output voltage swing	340	650	800	mVpp	
Rx LOS Output	H	2.0	Vcc+0.3	V	
	L	0	0.8		

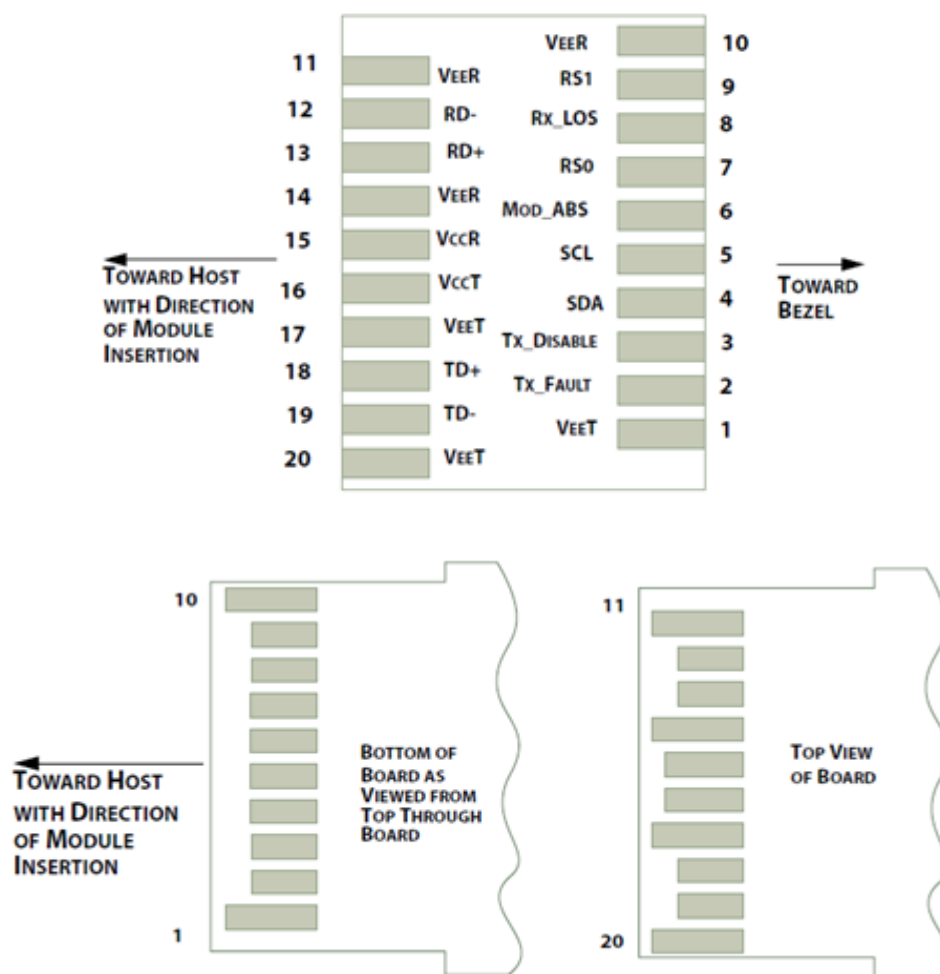
Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter Optical Characteristics						
Center Wavelength	λ	$\lambda_c-6.5$		$\lambda_c+6.5$	nm	
Spectral Width – RMS	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Optical Power	LOP	0		+5	dBm	1
Optical Modulation Amplitude	OMA	2			dBm	
Extinction Ratio	ER	6			dB	1
Rise/Fall time (20%~80%)				50	ps	
Dispersion penalty				3	dB	
Output Optical Eye		IEEE 802.3-2005 Compliant				
Receiver Optical Characteristics						
Center Wavelength	λ	1270		1610	nm	
Sensitivity	Psen			-23	dBm	2
Min. overload		-7			dBm	
LOS Assert	LOSA	-32			dBm	
LOS De-assert	LOSD			-24	dBm	
LOS Hysteresis	LOSH	0.5		4	dB	

Notes

1. Measured at 10.3125b/s with PRBS $2^{31} - 1$ NRZ test pattern
2. Under the ER worst case, measured at 10.3125 Gb/s with PRBS $2^{31} - 1$ NRZ test pattern for BER $<1 \times 10^{-12}$

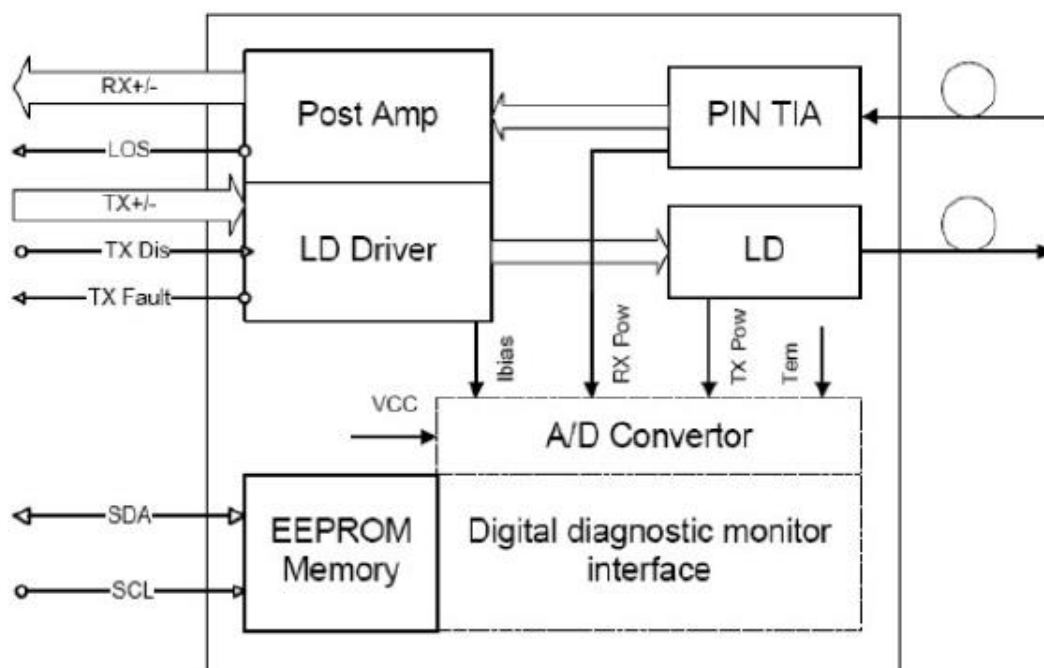
SFP+ Module Pad Assignments and Descriptions



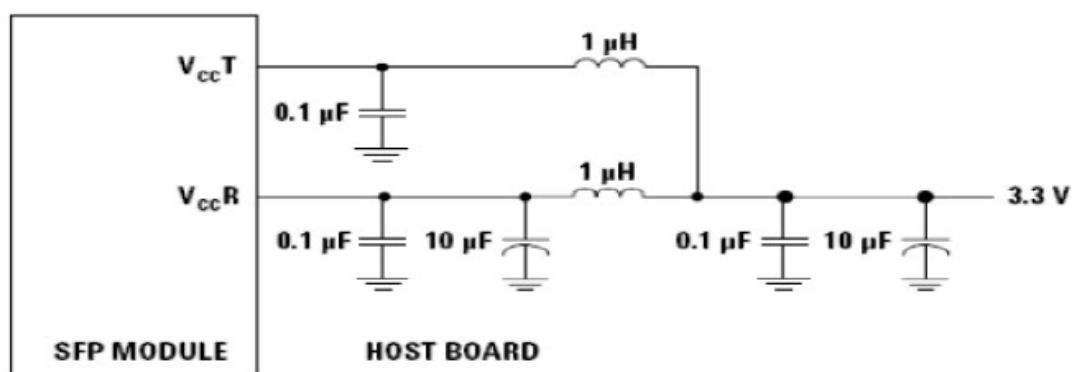
PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTL-I	TX_Dis	Transmitter Disable; Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	2
6		MOD_DEF0	Module Definition, Grounded in the module	
7	LVTTL-I	RS0	Receiver Rate Select, default is high for 8G/10G application, when set to low by system, transceiver will set the bandwidth to under 4.25G to improve the sensitivity at low data rate	

8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW	
9	LVTTL-I	RS1	Transmitter Rate Select, default input is high for 8G/10G application, when set to low by system, transceiver will set the TX optical output to be compliant with low data rate fiber channel specifications	
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	1
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1

Transceiver Block Diagram

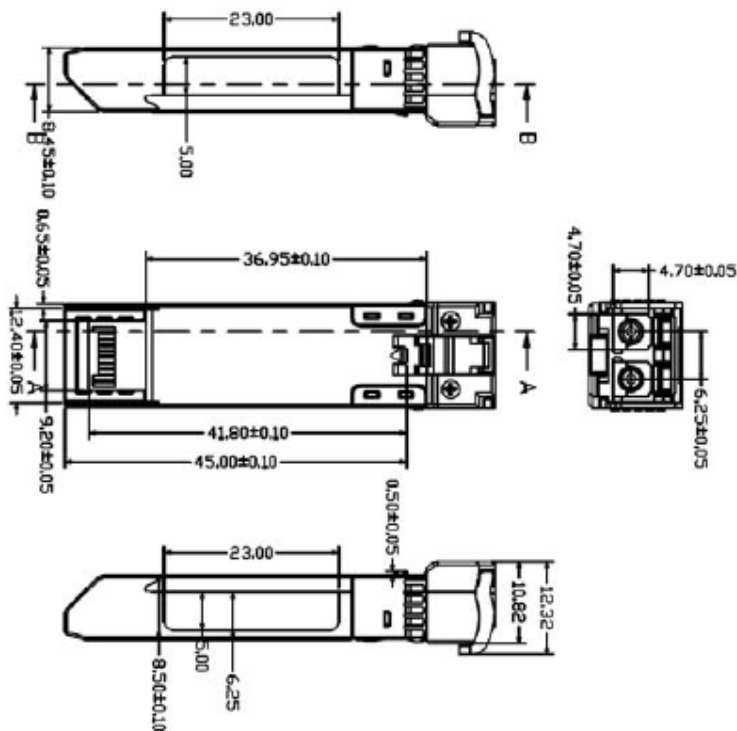


Recommended Host Board Power Supply Circuit



Mechanical Design Diagram

Unit: mm



Order Information

Channel Code (xx)	Center Wavelength(nm)
47	1471
49	1491
51	1511
53	1531
55	1551
57	1571
59	1591
61	1611