

## T-10G-XFP-MM-300M

10Gbps XFP Multi Mode Transceiver 300m

### Features

- Support 9.95Gbps to 11.3Gbps bit rates
- Transmission Distance up to 300M(50um,MMF,2000MHz.km)
- 850nm VCSEL Laser and Pin Receiver
- XFP MSA Rev 4.5 Compliant
- No reference clock required
- +1.8V, +3.3V Supply Voltage
- XFI and lineside loopback Mode Supported
- 0~70 °C Operating Case Temperature
- Diagnostic Performance Monitoring of Module Temperature, Supply Voltage, Laser Bias Current, Transmit Optical Power and Receive Optical Power.
- RoHS6 compliant



### Applications

- 10GBASE-SR/SW Ethernet
- 1200-Mx-SN-I 10G Fiber Channel
- Other Optical Links
- 10GBASE-SR/SW 10G Ethernet with FEC

### Ordering Information

Part No.	Data Rate	Fiber	Distance	Interface	Temperature	DDMI
T-10G-XFP-MM-300M	9.95~10.3 Gbps	SMF	VCSEL 850nm 300M	LC	Standard	YES

### Product Description

T-10G-XFP-MM-300M is compliant with the 10G Small Form-Factor Pluggable (XFP) Multi-Source Agreement (MSA), supporting data-rate of 10.3125Gbps(10GBASE-SR) or 9.953Gbps (10GBASE-SW), and transmission distance up to 300m on 50µm MMF (2000MHz.km).

The transceiver module comprises a transmitter with 850nm a vertical cavity surface emitting (VCSEL) laser and a receiver with a PIN photodiode. Transmitter and receiver are separate within a wide temperature range of 0°C to +70°C and offers optimum heat dissipation and excellent electromagnetic shielding thus enabling high port densities for 10 GbE systems.

## Regulatory Compliance

Feature	Agency	Standard	Certificate / Comments
Laser Safety	FDA	CDRH 21 CFR 1040 and Laser Notice No.50	1120292-000
Product Safety	UL	UL and CUL EN60950-2:2007	WT10093766-D-E-E
Environmental Protection	SGS	RoHS Directive 2002/95/EC	GZ1001008918/CHEM
EMC	WALTEK	EN55022:2006+A1:20077 EN55024:1998+A1+A2:2003	WT10093759-D-E-E

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Tst	-40	+85	°C
Case Operating Temperature	Top	-5	+70	°C
Supply Voltage 1	Vcc3.3	-0.5	4.0	V
Supply Voltage 2	Vcc5	-0.5	6.0	V
Supply Voltage 3	Vcc2	-0.5	2	V

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage 1	Vcc3	3.13	3.3	3.47	V
Supply Current 1	Icc3			240	mA
Supply Voltage 2	Vcc2	1.71	1.8	1.89	V
Supply Current 2	Icc2			400	mA
Operating Case Temperature	Tca	-5		70	°C
Module Power Dissipation	Pm		1.7	1.5	W

## Transmitter Specifications-Optical

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Nominal Wavelength	$\lambda_{TSP}$	840	850	860	nm	
RMS Spectral Width	$\Delta\lambda$		0.4	0.45	nm	
Average Power	$P_{optavg}$	-7.3		-1	dBm	1
Launch Power in OMA	OMA	-2.8	-1.5		dBm	
Extinction Ratio	ER	3.0			dB	2
Tx Jitter	TXJ	Per 802.3ae requirements				
Relative Intensity Noise	RIN			-128	dB/Hz	
Transmitter and Dispersion Penalty	TDP			3.9	dB	

**Notes:**

1. Launched into MMF.
2. Measured with PRBS 231-1 @10.3125Gbps.

## Receiver Specifications-Optical

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Center Wavelength	$\lambda_c$	840	850	860	nm	
Receiver Sensitivity	$P_{IN}$			-9.9	dBm	1
Receiver Sensitivity in OMA	$P_{IN}$			-11.1	dBm	1
Stressed Receiver Sensitivity in OMA	$P_{IN}$			-7.5	dBm	1
Receiver Overload	Pin	-1.0			dBm	s
Receiver Relectance				-12	dBm	
LOS De-Assert	LOSD			-12	dBm	
LOS Assert	LOSA	-25	-15		dBm	
LOS Hysteresis	LOSH	0.5			dB	

Note :

1. Measured with PRBS 231-1 @10.3125Gbps.

## General Specifications

Parameter	Conditions	Min. Modal Bandwidth (MHz * km)	Symbol	Min	Typ	Max	Unit	Ref.
Operating Range	62.5/125 $\mu$ m MMF	160	lop	2		26	m	
	50/125 $\mu$ m MMF	400				66		
	62.5/125 $\mu$ m MMF	200				33		
	50/125 $\mu$ m MMF	500				82		
	50/125 $\mu$ m MMF	2000				300		
Bit Rate			BR	9.95		11.3	Gbps	1
Bit Error Ratio			BER			$10^{-12}$		2

Notes:

1. 10GBASE-SR/SW, 1200-Mx-SN-I

2. Measured with PRBS 231-1

## Pin Description

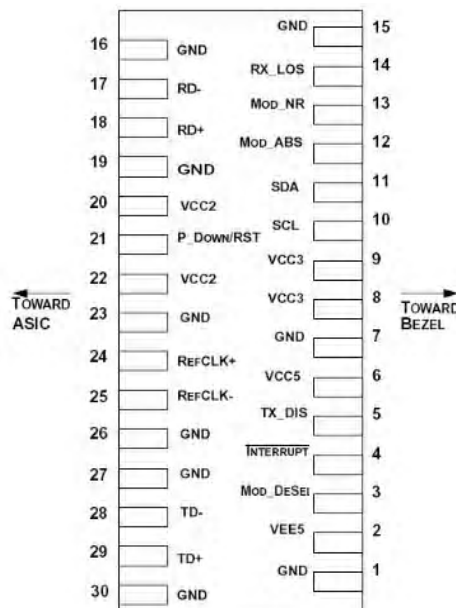
Pin No	Logic	Symbol	Name / Description	Ref
1		GND	Module Ground	1
2		VEE5	Optional-5.2 Power Supply- Not required	
3	LVTTTL-I	Mod-Desel	Module De-select; When held low allows the module to , respond to 2-wire serial interface commands	
4	LVTTTL-O0	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply-Not required	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTTL-I	SCL	Serial 2-wire interface clock	2
11	LVTTTL-I/O	SDA	Serial 2-wire interface data line	2
12	LVTTTL-O	Mod_Abs	Module Absent; Indicates Module is not present. Ground in the module.	2
13	LVTTTL-O	Mod_NR	Module Not Ready	2
14	LVTTTL-O	RX_LOS	Receiver Loss of Signal Indicator	2

15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver Inverted Data Output	
18	CML-O	RD+	Receiver Non-inverted Data Output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply	
21	LVTTL-I	P Down/RST	Power Down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset	
			Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle.	
22		VCC2	Port Address Bit 1 (Low = 0)	
23		GND	Port Address Bit 0 (Low = 0)	1
24	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – <b>Not required</b>	3
25	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – <b>Not required</b>	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter Inverted Data Input	
29	CML-I	TD+	Transmitter Non-inverted Data Input	
30		GND	Module Ground	1

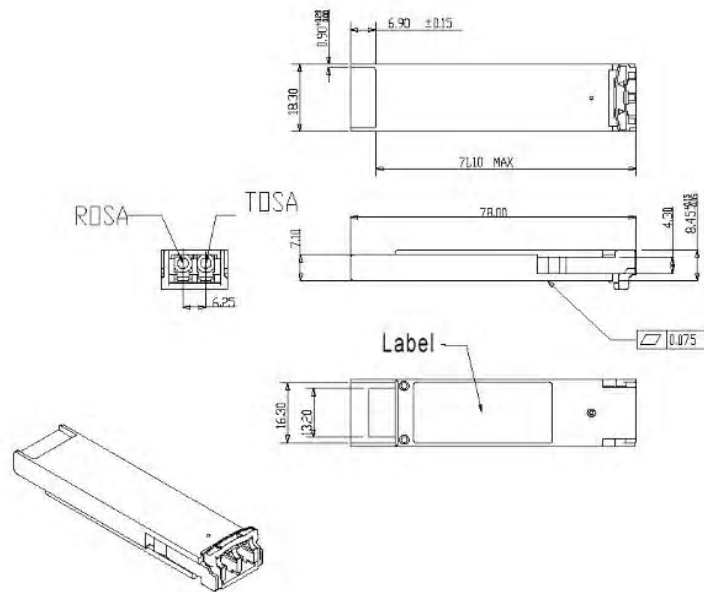
### Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
3. Reference Clock input is not required

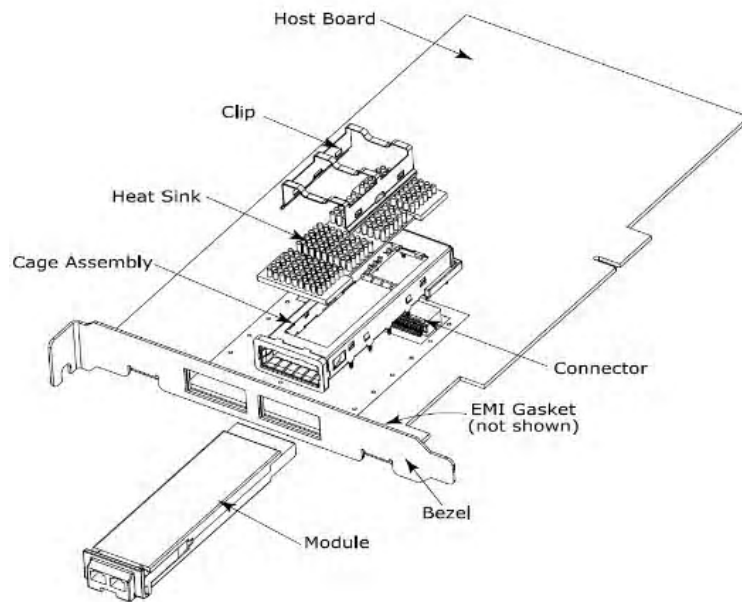
### Electrical Pin-out Details



## Mechanical Specification



## XFP Mechanical Components



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