

## CERTECH 1.25G LC Duplex Multimode SFP Module

### FEATURES:

- Up to 2.125Gbps data links
- 550m with 50/125µm 2000MHz MMF
- 850nm VCSEL laser
- Digital Diagnostic Monitor DDM
- Duplex LC Connector
- Hot-pluggable SFP footprint
- Single 3.3V power supply
- Operating temperature: 0 ~ 70°C
- RoHS

### APPLICATIONS:

- 1.25Gbps 1000Base-LX
- 1G/2G Fiber Channel



This product is a small form factor pluggable (SFP) transceiver compatible with multi-sourcing agreement (MSA). It is suitable for multi-mode fiber (MMF) communications in 1G/2G Ethernet and 1.06Gbps Fiber Channel.

### REGULATORY COMPLIANCE

This product is Class 1 Laser Products comply with FDA regulations. Meet Class 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN 60950.

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage	Vcc	-0.5	3.6	V	
Storage Temperature	Ts	-40	85	°C	
Operating Case Temperature	Tc	0	70	°C	

## Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Supply Current	Icc			200	mA	
Data Rate			1.25		Gbps	
Max Link Length on 50/125µm 2000MHz MMF	Lmax		550		m	

## Optical Characteristics

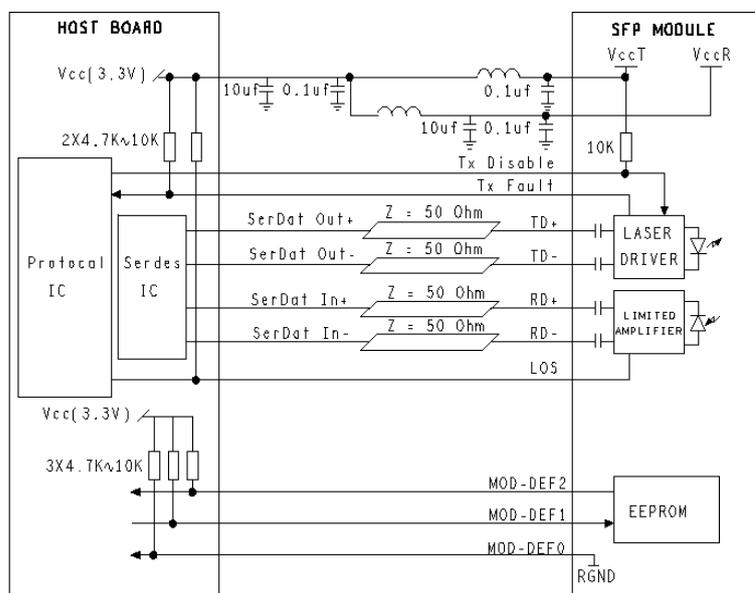
Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	$\lambda_c$	830	850	860	nm	
Spectral Width (RMS)	$\sigma$			1	nm	
Average Output Power	Pout	-9		-3	dBm	
Extinction Ratio	ER	9			dB	
Optical Rise/Fall Time	tr/tf			250	ps	
<b>Receiver</b>						
Centre Wavelength	$\lambda_c$	780	850	860	nm	
Receiver Sensitivity	PIN			-17	dBm	
Receiver Overload	Pmax	2			dBm	
LOS De-Assert	LOSD			-20	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5		4.5	dB	

## Electrical Characteristics

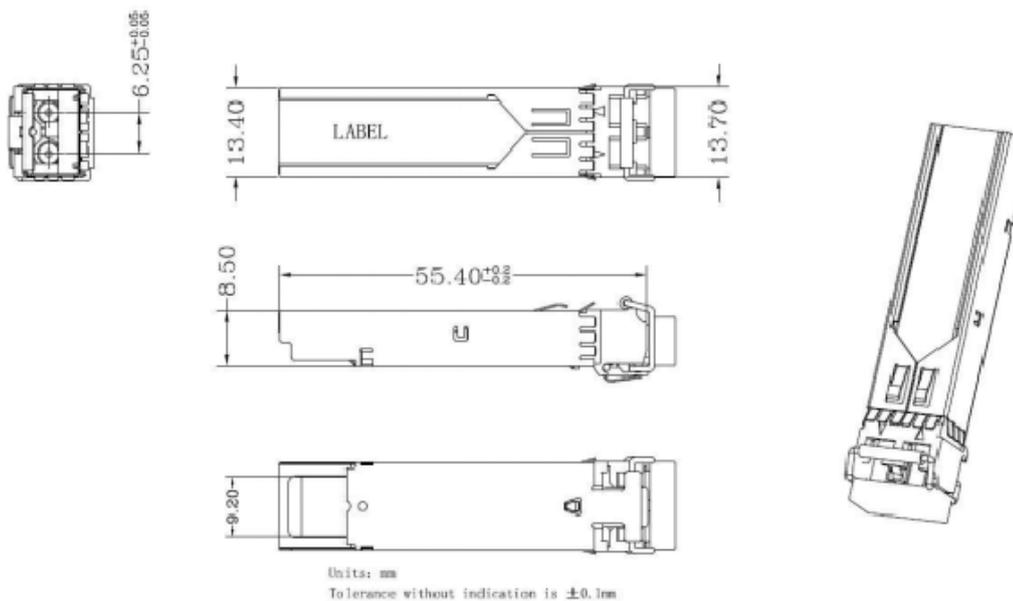
Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Input Differential Impedance	Zin	90	100	110	$\Omega$	
Data Input Swing Differential	Vin	500		2400	mV	
Tx-Dis Disable	Vd	2.0		Vcc	V	
Tx-Dis Enable	Ven	0		0.8	V	
TX-Fault (Fault)		2.0		Vcc+0.3	V	
TX-Fault (Normal)		0		0.8	V	

Receiver					
Data Output Swing Differential	Vout	370		2000	mV
Rx-Los Fault	Vlf	2.0		Vcc+0.3	V
Rx-Los Normal	Vln	0		0+0.8	V

## Recommend Circuit



## Mechanical Dimensions



## EEPROM

2 wire address 1010000X (A0h)

0~95
Serial ID Defined by SFP MSA (96 bytes)
96~127
Vendor Specific (32 bytes)
128~255
Reserved (128 bytes)

## DDM THRESHOLD

	Low Alarm	Low Warn	High Warn	High Alarm
Temperature	-5°C	0°C	70°C	75°C
Voltage	3V	3.1V	3.5V	3.6V
Tx Bias	4mA	5mA	10.8mA	11.8mA
Tx Power	-13.5dBm	-9.5dBm	-3dBm	0dBm
Rx Power	-21dBm	-17dBm	0dBm	1dBm

## Pin Assignment and Description

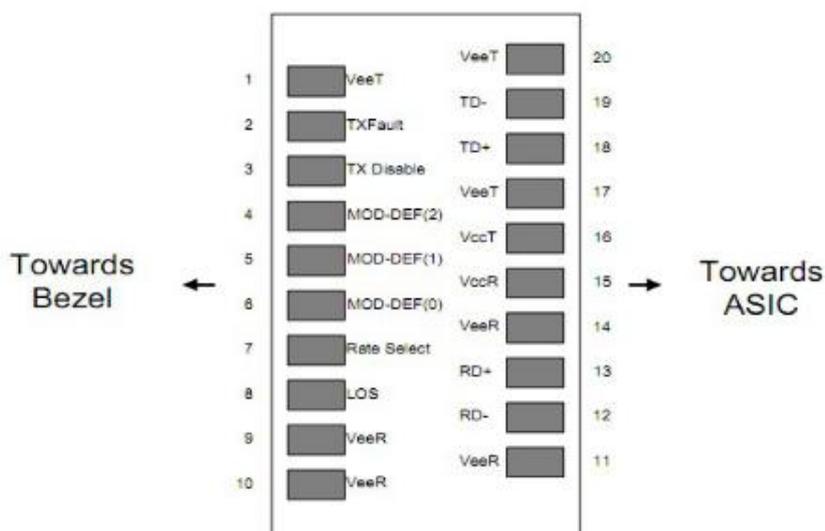


Diagram of Host Board Connector Block Pin Numbers and Names

## Pin Assignment

Pin#	Symbol	Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault. Not supported.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VEER	Receiver Ground (Common with Transmitter Ground)	1
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	
14	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	1

### Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
3. Should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V.  
MOD\_DEF(0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k -10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.