SPECTRUM

SPECTRUM TRANSCEIVER

GLC-M005-85-CMI

1.25G Small Form Pluggable

FEATURES

- Data-rate of 1.25Gbps operation.
- 850nm VCSEL laser and PIN photodetector.
- Compliant with SFP MSA and SFF-8472 with duplex LC receptacle.
- Digital Diagnostic Monitoring: Internal Calibration or External Calibration.
- 550m transmission with 50/125>m MMF.
- 270m transmission with 62.5/125>m MMF.
- Compatible with SONET OC-24-LR-1.
- Compatible with RoHS.
- +3.3V single power supply.
- Operating case temperature range of 0°C to +70°C (Standard) or -40°C to +85°C (Industrial).

APPICATIONS

- Gigabit Ethernet.
- Fiber Channel.
- Switch to Switch Interface.
- Switched backplane applications.
- Router/Server interface.
- Other optical transmission systems.

SPECIFICATIONS

a) Electrical and Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
50µm Core Diameter MMF	L		550		m
Data Rate			1.25		Gbps
Trasmitter					
Centre Wavelength	λC	830	850	860	nm
Spectral Width (RMS)	σ			0.85	nm
Average Output Power	P_{OUT}	-9		-3	dBm
Extinction Ratio	EX	9			dB
Rise/Fall Time (20%~80%)	tr/tf			0.26	ns
Data Input Swing Differential	V_{IN}	400		1800	mV
Input Differential Impedance	Z_{IN}	90	100	110	Ω
TX_Disable - Disable		2.0		Vcc	V
TX_Disable - Enable		0		0.8	V
TX_Fault - Fault		2.0		Vcc	V
TX_Fault - Normal		0		0.8	V
Receiver					
Centre Wavelength	λC	770		860	nm
Receiver Sensitivity	P_{IN}			-17	dBm
Receiver Overload		0			dBm
Data Output Swing Differential	V_{OUT}	400		1800	mV
LOS Hysteresis		1		4	dB
LOS De-Assert	LOSD			-20	dBm
LOS Assert	LOSA	-40			dBm
LOS - High		2.0		Vcc	V
LOS - Low		0		0.8	V

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b) Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T_{ST}	-40	+85	^{0}C
Supply Voltage	VCC	-0.5	4.5	V
Operating Humidity		5	85	%

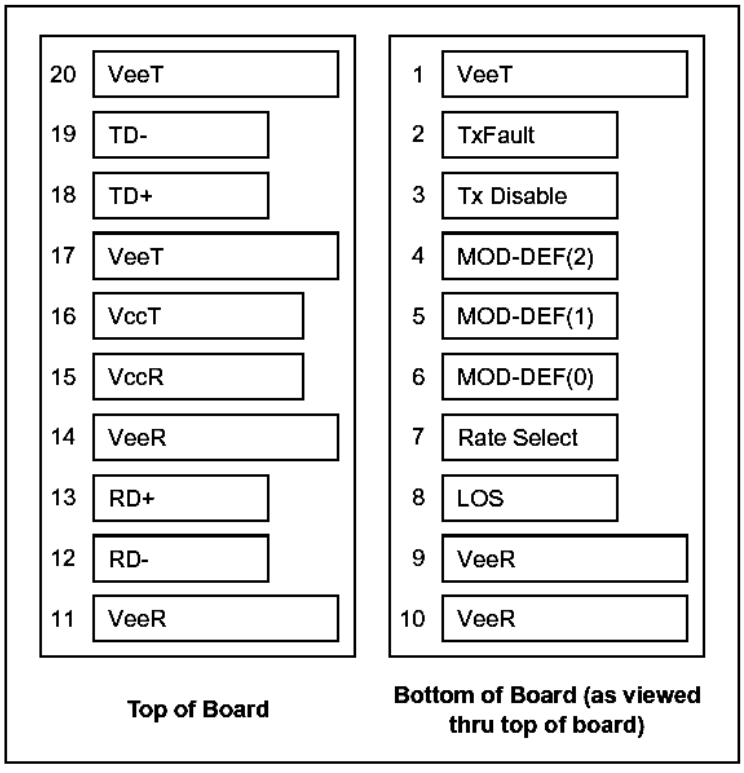
c) Recommended Operating Environment

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	V_{CC}	+3.13	+3.3	+3.47	V
Power Supply Current	I_{CC}			300	mA
Data Rate			1.25		Gbps
Operating Temperature Standard	T_C	0	-	+70	^{0}C
Operating Temperature Industrial	T_C	-40		+85	^{0}C

d) Timing and Electrical

Parameter	Symbol	Min.	Typical	Max.	Unit
Tx Disable Negate Time	t_on			1	ms
Tx Disable Assert Time	t_off			10	µs
Time To Initialize, including Reset of Tx Fault	t_init			300	ms
Tx Fault Assert Time	t_fault			100	µs
Tx Disable To Reset	t_reset	10			µs
LOS Assert Time	t_loss_on			100	µs
LOS De-assert Time	t_loss_off			100	µs
Serial ID Clock Rate	f_serial_clock			400	KHz
MOD_DEF (0:2)-High	V_H	2		Vcc	V
MOD_DEF (0:2)-Low	V_L			0.8	V

e) Pin Assignment



Pin out of Connector Block on Host Board

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f) Pin Description

Pin Num.	Name	Function	Notes
1	VeeT	Transmitter Ground	
2	TX Fault	Transmitter Fault Indicator	Notes 1
3	TX Disable	Transmitter Disable	Note 2
4	MOD-DEF(2)	SDA Serial Data Signal	Note 3
5	MOD-DEF(1)	SCL Serial Clock Signal	Note 3
6	MOD-DEF(0)	TTL Low	Note 3
7	Rate Select	Not Connect	Function not available
8	LOS	Loss of Signal	Note 4
9	VeeR	Receiver Ground	
10	VeeR	Receiver Ground	
11	VeeR	Receiver Ground	
12	RD-	Inv. Received Data Out	Note 5
13	RD+	Received Data Out	Note 5
14	VeeR	Receiver Ground	
15	VccR	Receiver Power	
16	VccT	Transmitter Power	
17	VeeT	Transmitter Ground	
18	TD+	Transmit Data In	Note 6
19	TD-	Inv. Transmit Data In	Note 6
20	VeeT	Transmitter Ground	

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1. TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
2. TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10kΩ resistor. Its states are:
   - Low (0 to 0.8V): Transmitter on (>0.8V, < 2.0V): Undefined.
   - High (2.0 to 3.465V): Transmitter Disabled.
   - Open: Transmitter Disabled.
3. Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7k~10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.
   - Mod-Def 0 is grounded by the module to indicate that the module is present.
   - Mod-Def 1 is the clock line of two wire serial interface for serial ID.
   - Mod-Def 2 is the data line of two wire serial interface for serial ID.
4. LOS is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor. Pull up voltage between 2.0V and Vcc+0.3V. Logic 1 indicates loss of signal; Logic 0 indicates normal operation. In the low state, the output will be pulled to less than 0.8V.
5. RD-/+: These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.
6. TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.