RoHS compliant
1550 nm Single-mode XFP Transceiver up to 32db link budget W/I DDMI
10GBASE-EZW/EZR (Ethernet)/ Fiber channel/ SONET OC192 IR2/
SONET OC192/IR-3/SDH STM-64.2b/ SDH STM S-64.3b/ ITU-T G709

Features

- RoHS compliant
- Compliant with IEEE802.3ae 10GBASE-EZW/EZR Ethernet
- Compliant with 32db link budget 10G Fiber Channel
- Compliant with SONET OC-192 IR-2/SONET OC-192 IR-3
- Compliant with SDH STM S-64.2b/SDH STM S-64.3b
- Compliant with SONET OC-192/SDH STM-64 with ITU-T G.709
- Compliant with 32db link budget 10G Ethernet with ITU-T G.709 FEC
- Compliant with XFP MSA INF-8077i
- Differential LVPECL inputs and CML outputs
- TTL signal detect indicator
- Hot Pluggable
- Power consumption<3.5W

Class 1 laser product complies with EN 60825-1

Ordering Information

PART NUMBER	INPUT/OUTPUT	SIGNAL DETECT	VOLTAGE	TEMPERATURE
CL-XFP-EZR-120	AC/AC	TTL	3.3V	-5°C to 70 °C
CL-XFP-EZR-120i	AC/AC	TTL	3.3V	-40°C to 85 °C

Pin Descriptions

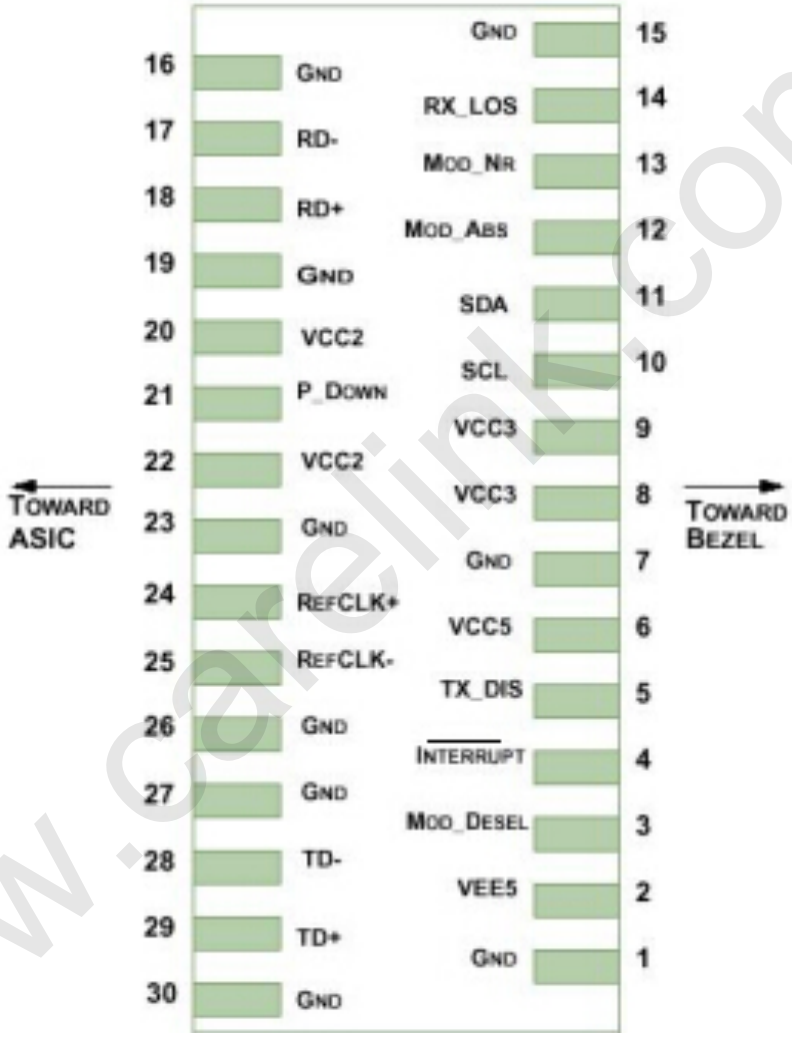
Pin	Symbol	Name/Description	Ref.
1	GND	Module Ground	
2	VEE5	Optional -5.2 Power Supply – Not required	
3	MOD_DESEL	Module De-select; When held low allows the module to respond to 2-wire serial interface. LVTTL-I	
4	/INTERRUPT	Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface. LVTTL-O	2
5	TX_DIS	Transmitter Disable. Logic1 indicates laser output disabled, LVTTL-I	
6	VCC5	+5V Power Supply	
7	GND	Module Ground	1
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	2-Wire Serial Interface Clock. LVTTL-I	2
11	SDA	2-Wire Serial Interface Data Line. LVTTL-I/O	2
12	MOD_Abs	Indicates Module is not present. Grounded in the Module. LVTTL-O	2
13	MOD_NR	Module Not Ready; Indicating Module Operational Fault. Open-collector. LVTTL-O	2
14	RX_LOS	Loss of Signal indication. Logic 1 indicates loss of Signal. Open-collector. LVTTL-O	2
15	GND	Module Ground	1

16	GND	Module Ground	1
17	RD-	Receiver Inverted Data Output. CML-O	
18	RD+	Receiver Non-Inverted Data Output. CML-O	
19	GND	Module Ground	1
20	VCC2	+1.8V Power Supply (Not required).	3
21	P_DOWN/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. LVTTL-I	
		Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. LVTTL-I	
22	VCC2	+1.8V Power Supply (Not required)	3
23	GND	Module Ground	1
24	REFCLK+	Reference Clock (Not required)	
25	REFCLK-	Reference Clock (Not required)	
26	GND	Module Ground	1
27	GND	Module Ground	1
28	TD-	Transmitter Inverted Data Input. CML-I	
29	TD+	Transmitter Non-Inverted Data Input. CML-I	
30	GND	Module Ground	1

Notes:

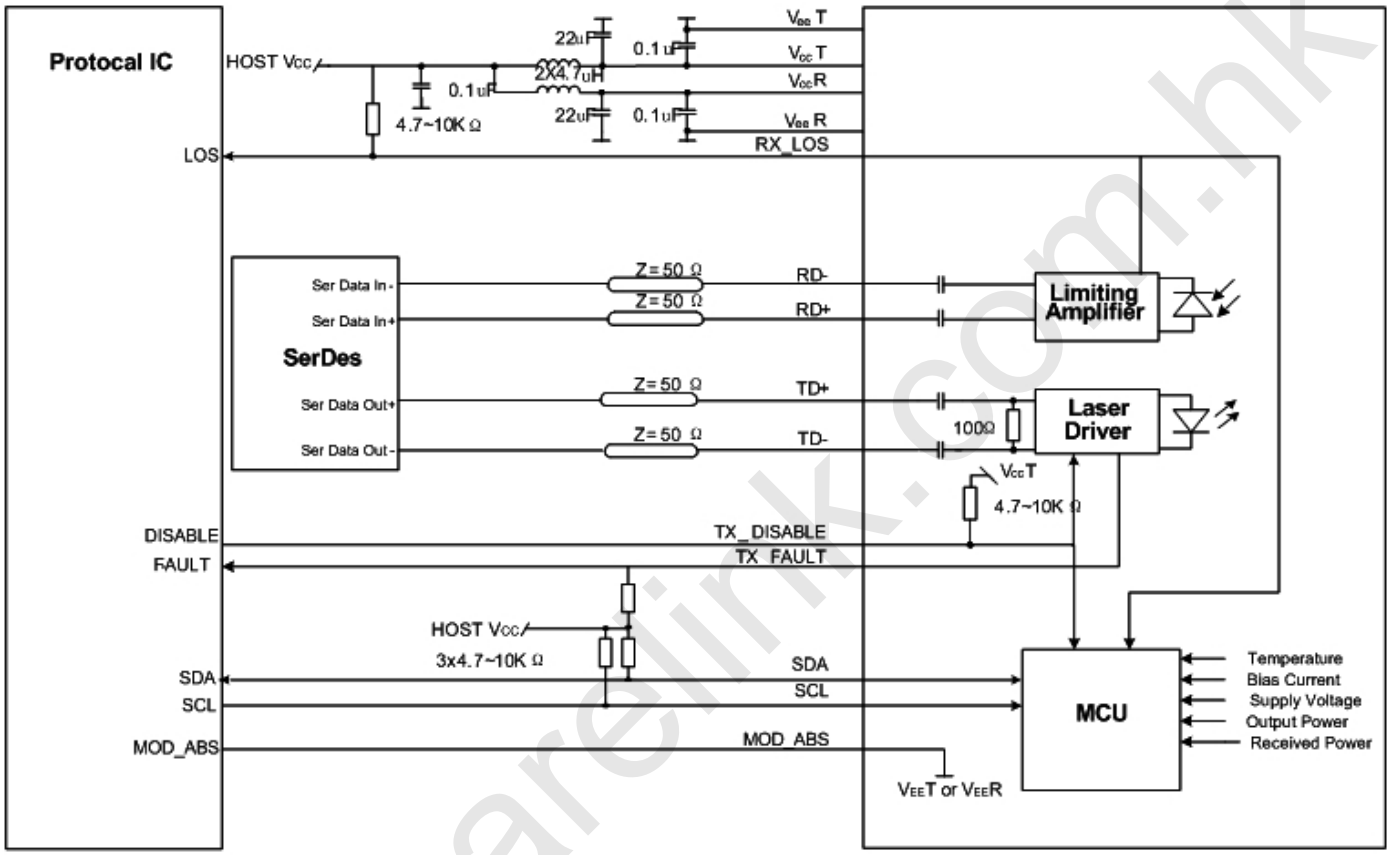
1. Module ground pins GND are isolated from the module case and chassis ground within the module.
2. Open collector; Should be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.6V on the host board.
3. The pins are open within module.

Pin-out Connector Block on Host Board



Pin-out of Connector Block on Host Board

Recommend Circuit Schematic



Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc3	-0.5		+4.0	V	
	Vcc5	-0.5		+6.0	V	
Storage Temperature	TS	-40		+85	°C	
Operating Humidity	RH	0		85	%	

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Power Supply Voltage	Vcc3	3.13	3.30	3.47	V	
	Vcc5	4.75	5.0	5.25	V	
Power Supply Current	Icc3			600	mA	
	Icc5			100	mA	
Case Operating Temperature	Tc	0		+70	°C	Commercial
	Te	0		+85		Extend
	TI	-40		+85		Industrial
Bit Rate	Br	9.95		11.3	Gbps	
9/125um G.652 SMF	Lmax			120	km	

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Input differential impedance	Rin	80	100	120	Ω	1
Differential data input swing	Vin, pp	120		850	mV	
TX Disable-High		Vcc – 0.8		Vcc	V	
TX Disable-Low		Vee		Vee+ 0.8	V	
TX Fault-High		Vcc-0.8		Vcc	V	
TX Fault-Low		Vee		Vee+0.8	V	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	2
Data output rise time	Tr	30			ps	3
Data output fall time	Tf	30			ps	3
LOS-High		Vcc – 0.8		Vcc	V	
LOS-Low		Vee		Vee+0.8	V	

Notes:
1. AC coupled.
2. Into 100 ohm differential termination.
3. 20 – 80 %

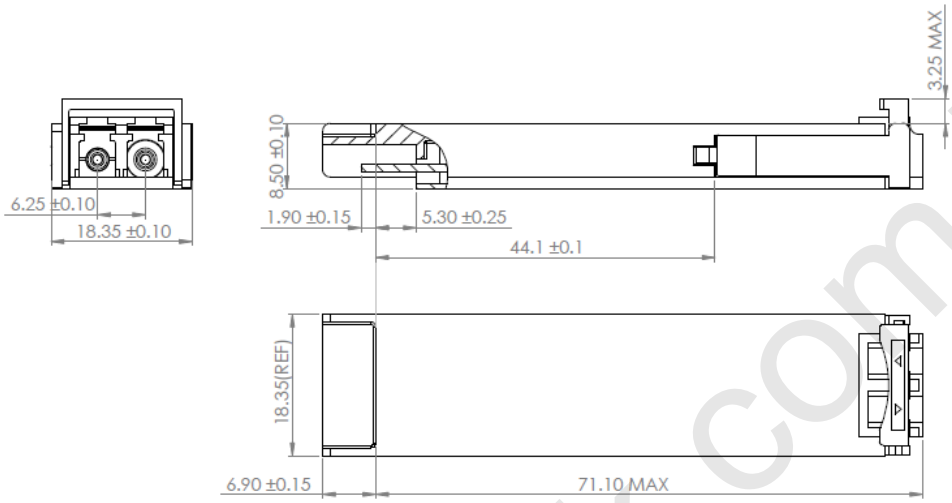
Optical Characteristics (TOP=25°C, Vcc=3.3 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Power	PO	4		7	dBm	
Optical Wavelength	λ	1530		1565	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
RMS Spectral Width(-20dB)	σ			1	nm	
Optical Extinction Ratio	ER	9.0			dB	
Tx Jitter(SONET)20KHZ-80MHZ	Txj1			0.3	UI	3
Tx Jitter(SONET)4MHZ-80MHZ	TXj2			0.1	UI	3
Path penalty at 1600ps/nm@9.95Gb/s				3	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Receiver						
RX Sensitivity @10.3 Gb/s	SENS			-28	dBm	1,2
Receiver Overload		-7			dBm	
Optical Center Wavelength	λC	1260		1600	nm	
LOS De-Assert	LOSD	-		-28,5	dBm	
LOS Assert	LOSA	-37			dBm	
LOS Hysteresis		0.5			dB	

Notes:

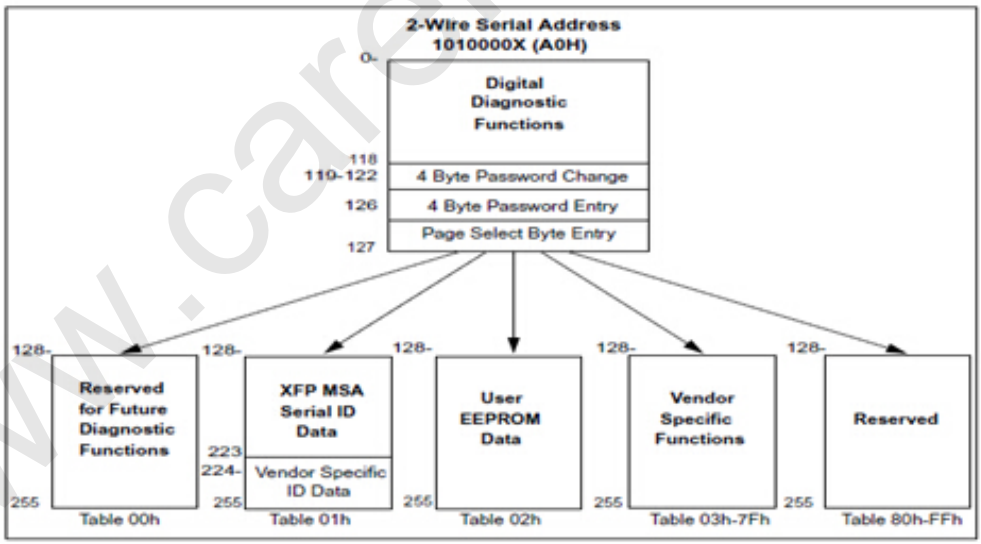
1. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
2. Measured with PRBS 2^{31}-1 at 10^{-12} BER.
3. GR-253-CORE Issue 4.

Mechanical Specifications



EEPROM Information

EEPROM memory map specific data field description is as below:



Digital Diagnostic Monitoring Interface

Five transceiver parameter values are monitored. The following table defines the monitored parameter's accuracy.