1250Mbps SFP Transceiver

MXP-248S

Features:

- Operating data rate 1250Mbps
- Industry standard Small Form Pluggable (SFP) package
- Duplex LC connector
- Single +3.3V power supply
- Differential LVPECL inputs and outputs
- TTL signal detect indicator

Application:

- Switch to Switch interface
- Switched backplane applications
- Router/Server interface
- Other optical transmission systems

Description:

MXP-24x series are transceivers compliant with SFP MSA, This series features high performance with hot-pluggable, small form pluggle package and it provide users a cost effective selection for data rate up to 1250Mbps.

The transmitter section and the receiver section works independently in the transceiver. The receiver section contains a InGaAs PIN photo diode or a GaAs PIN photo diode, a transi-mpedance amplifier and a post amplifier (with working data rate up to 1250Mbps), functional transmit received optical power to steady electrical data. The transmitter section contains a highly reliable laser diode with back-facet monitor and a laser driver with APC function, functional transmit input electrical data to steady optical output signal.

MXP-248 transceivers provide users optical signal at 850nm wavelength with multi-mode fiber; optical interface LC receptacle; 3.3V supply voltage; TTL signal detect logic,differential LVPECL input and output.

Specification:

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Storage Temperature	T_S	-40	+85	℃	
Operating Temperature	T_O	0	+70	℃	
Power Supply Voltage	V_{CC}	-0.5	3.6	V	

MXP-248S (850nm VCSEL and PIN, 550m)

Transmitter Optical, Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Input Differential Impedance	R_{in}		100		Ω	
Differential Data Input Swing	V_{in} PP	100		1200	mV	
Transmit Disable Input High Voltage		2.0			V	
Transmit Disable Input Low Voltage				0.8	V	
Transmit Fault Output High Voltage		2.0			V	
Transmit Fault Output Low Voltage				0.8	V	
Transmit Disable Assert Time			0.14	5	μs	
Optical Transmit Power	P_O	-9.5		-3	dBm	Average Power
Extinction Ratio	ER	9			dB	
Central Wavelength	λc		850		nm	
Output Spectrum Width (RMS)	Δλ			0.85	nm	

Receiver Optical, Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Single Ended Data Output Swing	V_{out} PP	200		800	mV	
Receiver Loss of Signal Output Voltage -High		2			V	
Receiver Loss of Signal Output Voltage -Low				0.8	V	
Sensitivity	Sen			-17	dBm	BER<1E-12
Maximum Input Power	P_{inMAX}	-3			dBm	
Signal Detect Range		-35		-17	dBm	
Signal Detect-Hysteresis		0.3			dB	

Pin Definition:

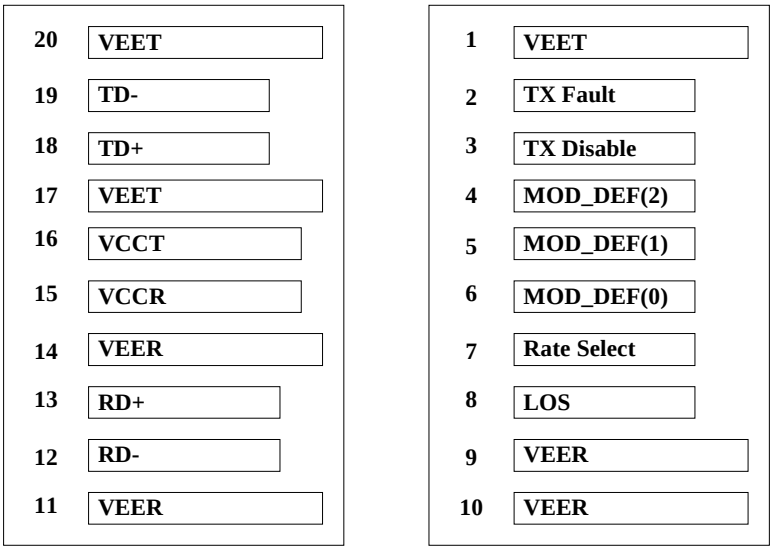


Figure1

Pin Assignment:

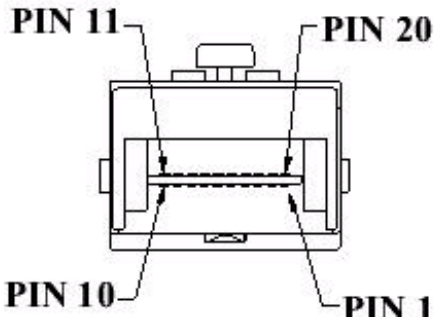


Figure2

Pin	Name	Description
1	VEET	Transmitter Ground
2	TXFAULT	Transmitter Fault.
3	TXDIS	Transmitter Disable.
4	MOD_DEF(2)	SDA Serial Data Signal
5	MOD_DEF(1)	SCL Serial Clock Signal
6	MOD_DEF(0)	Grounded within the module.
7	Rate Select	No connection required
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.
9	VEER	Receiver Ground

10	VEER	Receiver Ground
11	VEER	Receiver Ground
12	RD-	Receiver Inverted DATA out.
13	RD+	Receiver Non-inverted DATA out.
14	VEER	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET	Transmitter Ground
18	TD+	Transmitter Non-Inverted DATA in.
19	TD-	Transmitter Inverted DATA in.
20	VEET	Transmitter Ground

Block Diagram Of Transceiver

Transmitter Section

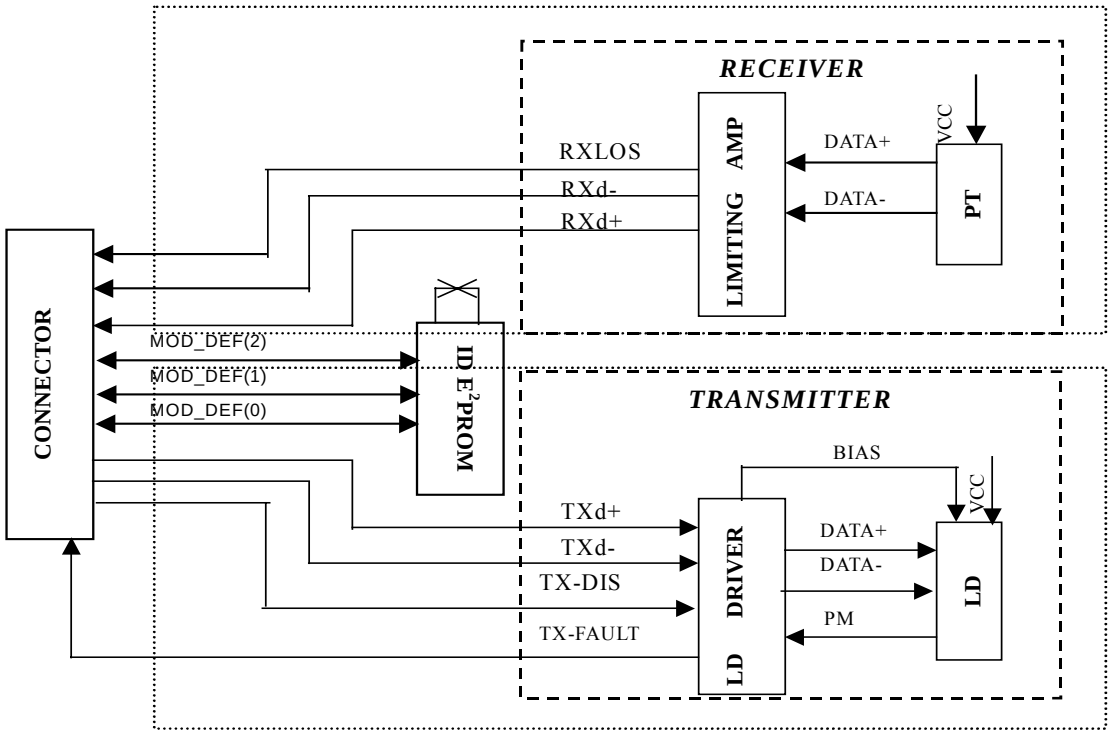


Figure3

TX-FAULT

TX-Fault is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT, R+0.3V. When high, output indicates a laser fault of some kind.

Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

When sensing an improper power level in the laser driver, the SFP sets this signal high and turns off the laser. TX-FAULT can be reset with the TX-DISABLE line. The signal is in TTL level.

TX-DISABLE

TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 – 10 KΩ resistor. Its states are: Low (0 – 0.8V): Transmitter on; (>0.8, < 2.0V): Undefined; High (2.0 – 3.465V): Transmitter Disabled; Open: Transmitter Disabled. The TX-DISABLE signal is high (TTL logic "1") to turn off the laser output. The laser will turn on when TX-DISABLE is low (TTL logic "0").

TD-/+

These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 500 – 2400 mV (250 – 1200 mV single-ended), though it is recommended that values between 500 and 1200 mV differential (250 – 600 mV single-ended) be used for best EMI performance.

Receiver Section

RX-LOS

LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩresistor. Pull up voltage between 2.0V and VccT, R+0.3V. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

The RX-LOS is high (TTL logic "1") when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in TTL level.

RD-/+

These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100 Ω(differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 370 and 2000 mV differential (185 – 1000 mV single ended) when properly terminated.

Recommended Interface Circuit

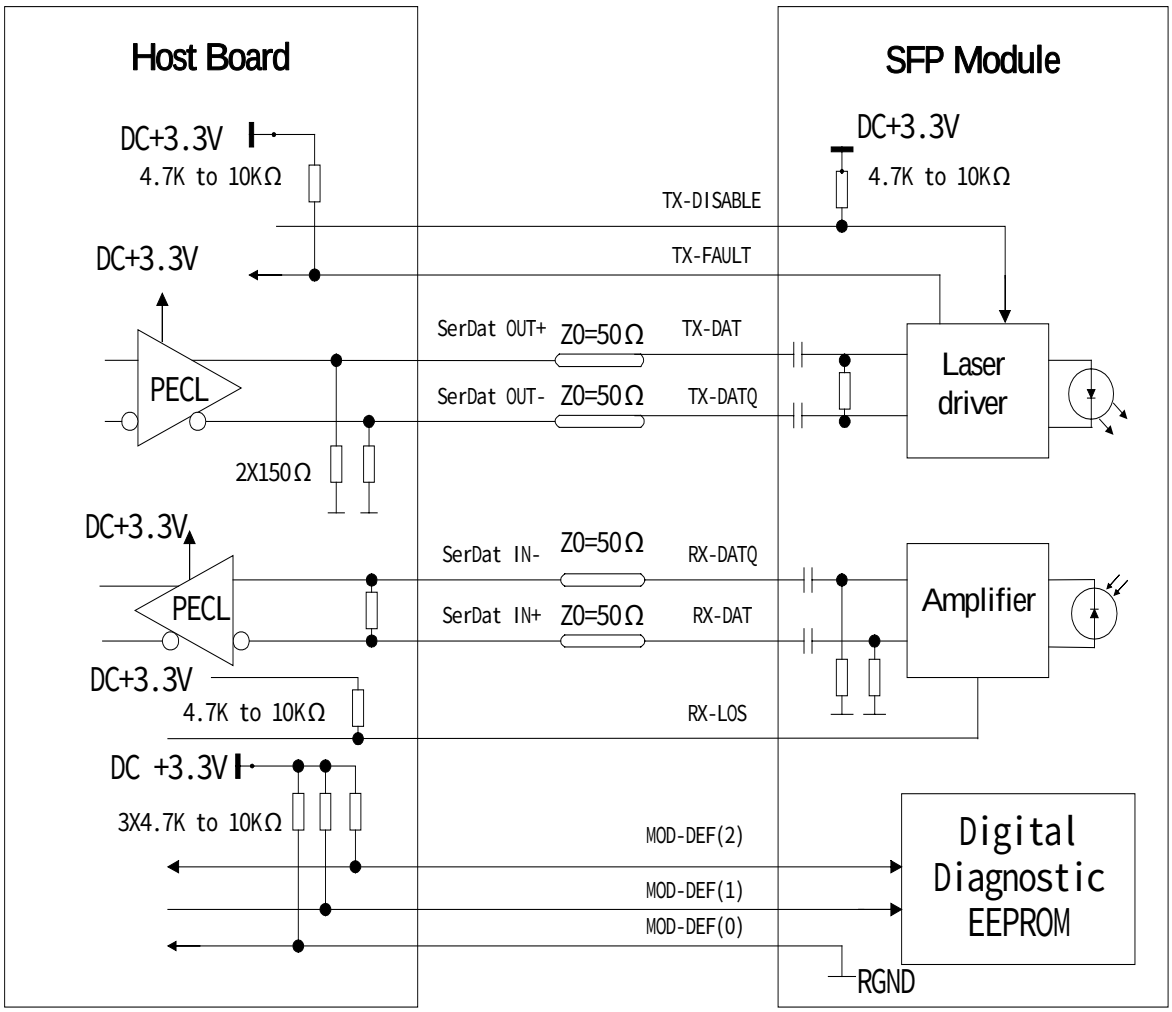


Figure4

Dimensions:

Dimensions are in millimeters. All dimensions are ±0.1mm unless otherwise specified. (unit:mm).

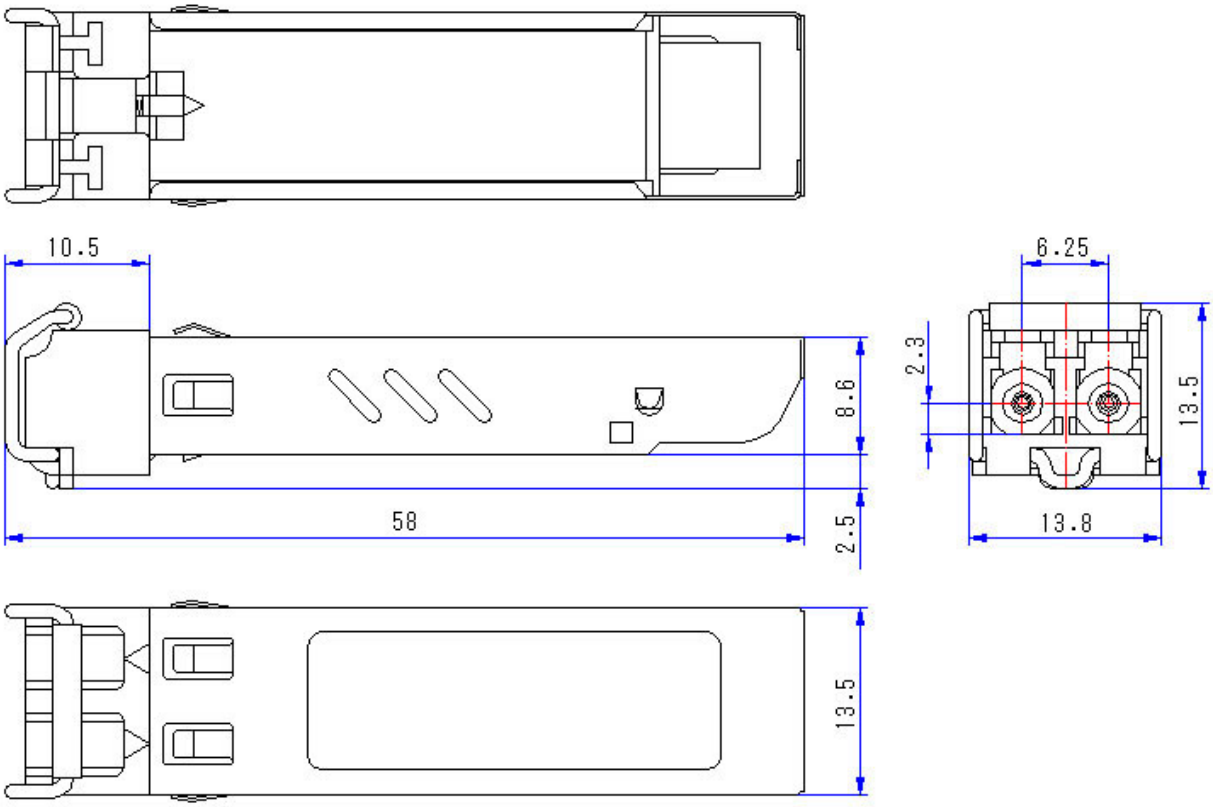
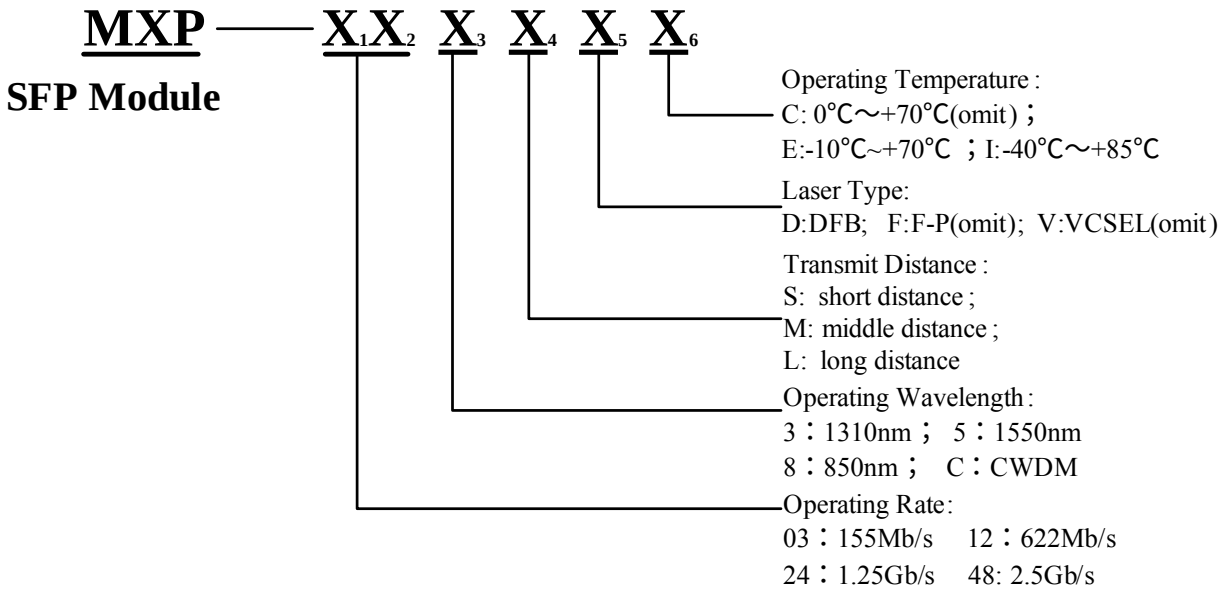


Figure5

Ordering Information:

Digital Transceiver Module Denominate Rule



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