RAYMARK RMT-SFP-SX DATASHEET

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 50/125μm MMF
- 300m transmission with 62.5/125μm MMF
- Single +3.3V power supply
- RoHS Compliant
- Operating case temperature: 0°C ~70°C

Applications

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

Description

The SFP optical transceivers are high performance, cost effective modules supporting data-rate of 1.25Gbps and 550m transmission distance with MMF.

The transceiver consists of three sections: a VCSEL laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier ITIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472 for further information, please refer to SFP MSA.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	*Ts*	-40		85	°C
Supply Voltage	*Vcc*	-0.5		4.5	V
Operating Relative Humidity		5		95	%

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
Case Operating Temperature	*Top*	0		70	°C	CMD
		-40		85	°C	IMD
Power Supply Current	*Icc*			300	mA	
Data Rate			1.25		Gbp	

Digital Diagnostic Functions

Parameter	Symbol	Accuracy	Unit	Notes
Temperature Monitor Absolute Error	*DMI_Temp*	± 3	°C	Over operating Temp
Supply Voltage Monitor Absolute Error	*DMI_VCC*	±0.1	V	Full operating range
RX Power Monitor Absolute Error	*DMI_RX*	± 3 dB	dB	1
Bias Current Monitor	*DMI_Ibias*	± 10%	mA	
Laser Power Monitor Absolute Error	*DMI_TX*	± 3 dB	dB	1

Notes:

1. Due to measurement accuracy of different single mode fibers, there could be an additional +/-1 dB fluctuation, or a +/- 3 dB total accuracy.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Transmitter						
Optical Center Wavelength	λ	830	850	860	nm	
Output Optical Power	P_{TX}	-9.5		-3	dBm	1
Extinction Ratio	ER	9			dB	
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	
Optical Rise/Fall Time (20%-80%)	t_r/t_f		100	150	ps	
Receiver						
Optical Center Wavelength	$\underline{\lambda}$	770		860	nm	
Receiver Overload	P_{OL}	0			dBm	2
Receiver Sensitivity	P_{SEN}			-23	dBm	2
LOS Assert	LOS_A	-30			dBm	
LOS De-assert	LOS_D			-23	dBm	
LOS Hysteresis	LOS_H	0.5			dB	

Note:

2. The optical power is launched into MMF
3. Measured with a PRBS2^7-1 test pattern @1250Mbps, BER≦1x10^{-12}

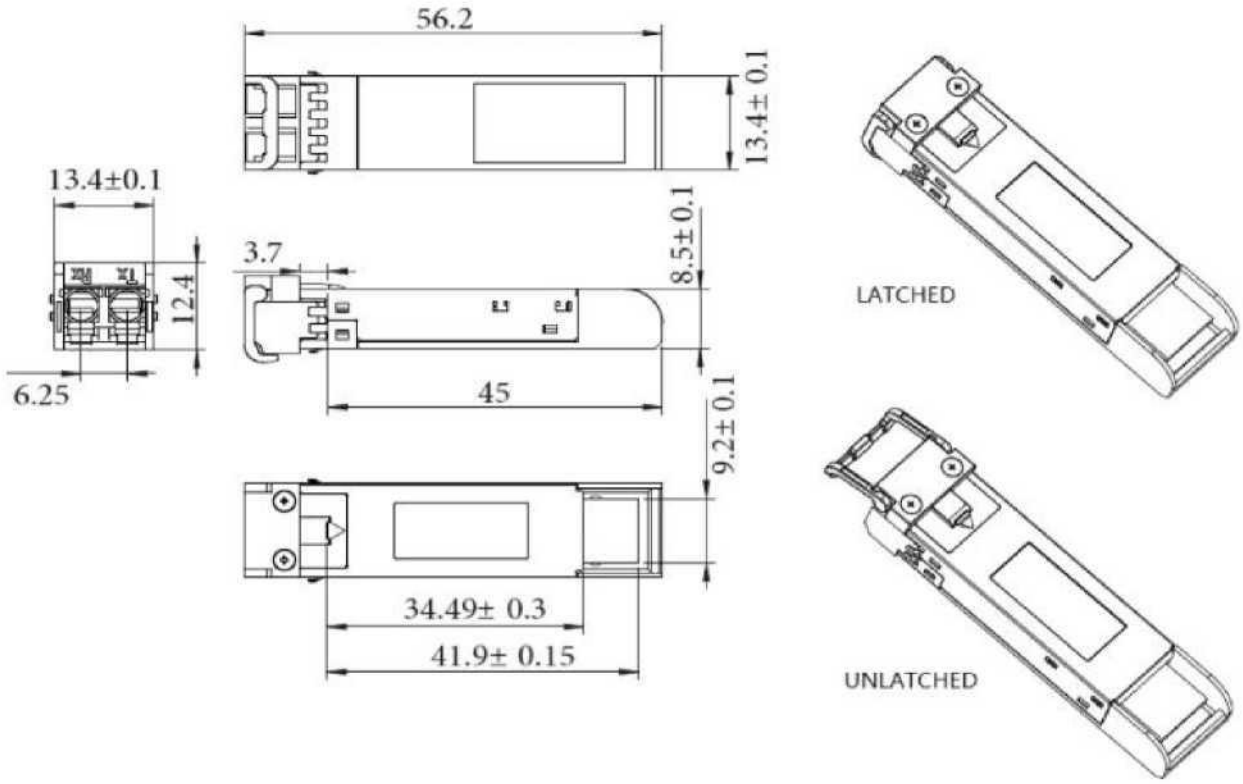
Electrical Characteristics

Parameter	*Symbol*	*Min.*	*Typ.*	*Max.*	*Units*	*Note*
Transmitter						
Input Differential Impedance	*ZIN*	90	100	110	Ω	
Single Ended Data Input Swing	*VIN_pp*	250		1200	mV	1
Transmit Disable Voltage	*VD*	2		Vcc	V	
Transmit Enable Voltage	*VEN*	VEE		VEE+0.8	V	
Receiver						
Data Output Swing Differential	*VOUT*	400		1800	mV	2
Data Output Rise/Fall Time (20%~80%)	*tr/tf*		90	175	ps	
LOS	*High*	2	-	Vcc	V	
	Low	VEE		VEE+0.5	V	

Note:

1. PECL input, internally AC-coupled and terminated.
2. Internally AC-coupled.

Dimensions



ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

Ordering Information

Model Number	*Wavelength*	*Temperature*
RMT-SFP-SX	850nm	0°C ~70 °C