

Datasheet

1.25 Gbps Extended Multi-Mode SFP Transceiver

SFP-GD-MX



Highlights

- SFP transceiver
- Data Rates: 1.0625 to 1.25 Gbps
- Protocols:
 - 1 Gigabit Ethernet
 - 1 Gigabit Fibre Channel
- Multi-mode fiber (MMF)
- 1310 nm
- Distance range:
 - 0 - 3 km reach for 50/125 µm MMF (1000 MHz•km)
 - 0 - 2 km reach for 50/125 µm MMF (500 MHz•km)
 - 0 - 1 km reach for 62.5/125 µm MMF (1000 MHz•km)
 - 0 - 1 km reach for 62.5/125 µm MMF (500 MHz•km)
- Duplex LC connector
- Digital Diagnostics (SFF-8472)
- Hot-swap

Overview

Enhanced Small Form-Factor Pluggable (SFP) interfaces from MRV Communications provide flexible high speed links in a small industry standard package. They deliver the deployment options and inventory control that network administrators demand for growing networks.

SFPs are designed to Multi-Source Agreement (MSA) standards to ensure network equipment compatibility. They are a perfect addition to MRV’s extensive lines of networking equipment.

Visit the MRV website at www.mrv.com or contact your nearest authorized MRV Communications dealer for more information.

Specifications Overview	
Data Rate	1.0625 to 1.25 Gbps
Tx Wavelength	1310 nm
Tx Power (Minimum)	-9 dBm
Tx Disable	Yes
Rx Wavelength	1270 - 1355 nm
Rx Sensitivity	-17 dBm
Rx Saturation	-3 dBm
Rx Damage Threshold	6 dBm
Operating Temperature Range	0 to 70 °C
Power Consumption	1 Watt

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Optical Transmitter Specifications

Parameter	Symbol	Min	Max	Unit	Notes
Optical Power	P_{op}	-9	-3	dBm	-
Average Launch Power of Off Tx	P_{off}	-	-30	dBm	-
Extinction Ratio (Dynamic)	ER	9	-	dB	-
Eye Mask	IEEE 802.3Z, SONET/SDH compliant				-
Total Jitter	TJ	-	200	ps	-
Optical Rise Time	t_r	-	260	ns	1
Optical Fall Time	t_f	-	260	ns	1
Mean Wavelength	λ	1270	1355	nm	-
Spectral Width (RMS)	$\Delta\lambda$	-	4	nm	-
Relative Intensity Noise	RIN	-	-120	nm	-

Notes: 1. 20% to 80% values

Optical Receiver Specifications

Parameter	Symbol	Min	Max	Unit	Notes
Receive Power Low	$R_{sens,low/high}$	-17	-3	dBm	1
Damage Threshold for Receiver	$P_{in,damage}$	6	-	dBm	-
Wavelength	λ	1270	1355	nm	2
Maximum Reflectance of Receiver	RX_r	-	-12	dB	-
LOS Assert	LOS_A	-32	-	dBm	-
LOS De-assert	LOS_D	-	-17	dBm	-
LOS Hysteresis	Hys	0.5	-	dB	-

Notes: 1. Measured at BER of 10^{-12} , PRBS of 27 - 1
2. Operational over 1200 - 1625 nm range

General Operating

Parameter	Symbol	Min.	Max.	Unit	Notes
Supply Voltage	V_{cc}	3.135	3.465	V	-
Total Current	I_{cc}	-	300	mA	-
Power Supply Noise Rejection	PSR	100	-	mV_{p-p}	1
Operating Temperature	T_{opr}	-5	70	°C	-
Storage Temperature	T_{stg}	-40	85	°C	-
Data Rate GbE	DR	-	1250	Mbps	-
Data Rate FC	DR	-	1062.5	Mbps	-

Notes: 1. 20 Hz to 155 MHz

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Electrical Transmitter Specifications

Parameter	Symbol	Min	Max	Unit	Notes
Input Differential Impedence	R_{in}	80	120	Ω	-
PECL Single Ended Data Input Swing	$V_{in,p-p}$	250	1200	mV	-
TxFault_Fault	V_{fault}	2	V_{cc}	V	-
TxFault_Normal	V_{normal}	V_{ee}	$V_{ee} + 0.5$	V	-
TxDisable_Disable	V_d	2	V_{cc}	V	-
TxDisable_Enable	V_{en}	V_{ee}	$V_{ee} + 0.8$	V	-

Electrical Receiver Specifications

Parameter	Symbol	Min	Max	Unit	Notes
PECL Single Ended Data Output Swing	$V_{out,p-p}$	185	800	mV	-
Data Output Rise Time	t_r	-	175	ps	-
Data Output Fall Time	t_f	-	175	ps	-

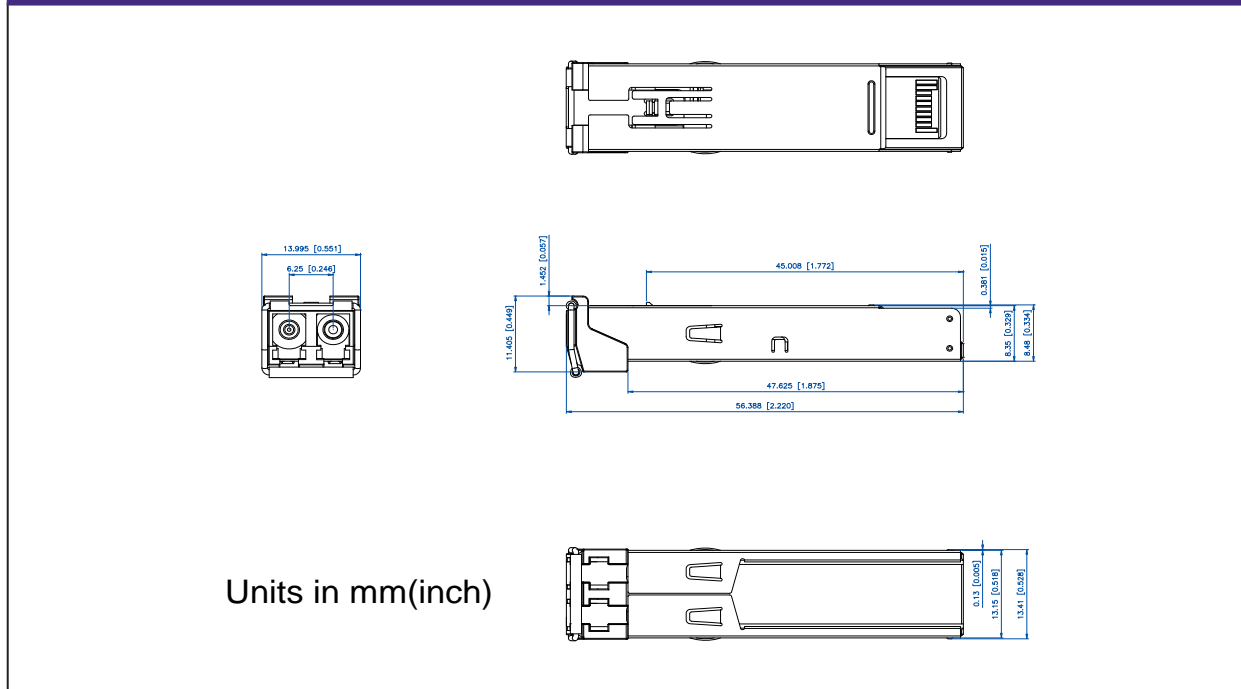
Timing and Electrical

Parameter	Symbol	Min	Max	Unit	Notes
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}	-	100	KHz	-
RX_LOS Voltage (High)	RX_LOS_H	2	-	V	-
RX_LOS Voltage (Low)	RX_LOS_L	-	0.8	V	-
LOS Output Voltage-Fault	$V_{LOS\ fault}$	2	V_{cc}	V	-
LOS Output Voltage-Normal	$V_{LOS\ normal}$	V_{ee}	$V_{ee} + 0.5$	V	-
MOD_DEF (0:2)-High	V_H	2	V_{cc}	V	-
MOD_DEF (0:2)-Low	V_L	V_{ee}	$V_{ee} + 0.5$	V	-

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Pin	Function	Notes
1	V _{ee} T	TX GND
2	TX_FAULT	Open Collector
3	TX_DISABLE	Internally Pulled High
4	MOD_DEF2	Serial Data Input
5	MOD_DEF1	Serial Clock Input
6	MOD_DEF0	Internally Grounded
7	NC	Not Connected
8	LOS	Open Collector
9	V _{ee} R	RX Ground
10	V _{ee} R	RX Ground
11	V _{ee} R	RX Ground
12	RXD-	RX Data Negative
13	RXD+	RX Data Positive
14	V _{ee} R	RX GND
15	V _{cc} R	RX Power
16	V _{cc} T	TX Power
17	V _{ee} T	TX GND
18	TXD+	TX Data Positive
19	TXD-	TX Data Negative
20	V _{ee} T	TX GND

Outline Drawing





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Ordering Information

Model	Description	Data Rate (Gbps)	Wave length (nm)	Digital Diagnostics	Bail Latch Color	Max. Link Length (km)
SFP-GD-MX	1.25 Gbps Extended Multi-Mode SFP Transceiver	1.0625 to 1.25	1310	Yes	Grey	up to 3*

* 0 - 3 km reach for 50/125 µm MMF (1000 MHz·km)
0 - 2 km reach for 50/125 µm MMF (500 MHz·km)
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Regulatory and Industry Compliances

Class 1 Laser Product, complies with EN 60825-1 and 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50. dated June 24, 2007
MSA SFF-8074i; Telcordia GR-468

Certified by one or more of the following agencies: TÜV, UL, CSA

RoHS Directive; China RoHS; California RoHS Law, REACH Directive SVHC; WEEE Directive

The Quality Management System is certified to ISO 9001 by QMI-SAI Global

The Environmental Management System is in compliance with ISO 14001

Warnings

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at www.mrv.com. Please e-mail us at info@mrv.com or call us for assistance.

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