155 Mbps Multi-Mode 2 km SFP Transceivers

SFP-O3-M

Highlights

- SFP transceiver
- Data Rates: 155 Mbps
- Protocols:
  - SDH STM-1
  - SONET OC-3
- Multi-mode fiber
- 1310 nm
- 0 to 2 km (on 62.5/125 µm MMF)
- Duplex LC connector
- Hot-swap

Overview

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	155 Mbps
Tx Wavelength	1310 nm
Tx Power (Minimum)	-20 dBm
Tx Disable	Yes
Rx Wavelength Range	1260 - 1360 nm
Rx Sensitivity	-30 dBm
Rx Saturation	-8 dBm
Rx Damage Threshold	0 dBm
Operating Temperature Range	-5 to 70 ºC
Power Consumption	1 Watt

Optical Transmitter Specifications

Parameter	Symbol	Minimum	Maximum	Unit	Note
Optical Power	P_{op}	-20	-14	dBm	-
Average Launch Power (Tx:Off)	P_{off}	-	-45	dBm	-
Extinction Ratio	ER	10	-	dB	-
Eye Mask	-	SONET/SDH compliant			-
Optical Rise Time	t_r	-	2	ns	1
Optical Fall Time	t_f	-	2	ns	1
Mean Wavelength	λ	1270	1380	nm	-
Spectral Width (RMS)	Δλ	-	7.7	nm	-

Notes: 1. 20% - 80% values

Optical Transmitter Specifications

Parameter	Symbol	Minimum	Maximum	Unit	Note
Receive Power	$R_{sens,\ low/high}$	-30	-8	dBm	1
Receiver Damage Power	$P_{in,\ damage}$	0	-	dBm	-
Wavelength	λ	1260	1360	nm	2
LOS Assert	LOS_A	-45	-	dBm	-
LOS De-Assert	LOS_D	-	-30	dBm	-
LOS Hysteresis	Hys	0.5	-	dB	-

Notes: 1. Measured with a PRBS 2^{23}-1, BER 10^{-10}
2. Operational over 1200 to 1625nm range

General Operations

Parameter	Symbol	Minimum	Maximum	Unit	Note
Power Supply Voltage	V_{cc}	3.135	3.465	V	-
Power Supply Current	I_{cc}	-	300	mA	-
Power Supply Noise Rejection	PSR	100	-	mV_{p-p}	1
Operating Case Temperature	T_{op}	-5	70	ºC	
Storage Temperature	T_{st}	-40	85	ºC	-
Data Rate OC-3/STM-1	DR	-	155.52	Mbps	-

Notes: 1. 20 Hz to 155 MHz

Electrical Transmitter Specifications

Parameter	Symbol	Minimum	Maximum	Unit	Note
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	Minimum	Maximum	Unit	Note
PECL Single-Ended Data Output Swing	$V_{out, p-p}$	185	800	mV	-
Data Output Rise Time	t_r	-	2	ns	-
Data Output Fall Time	t_f	-	2	ns	-

Timing and Electrical

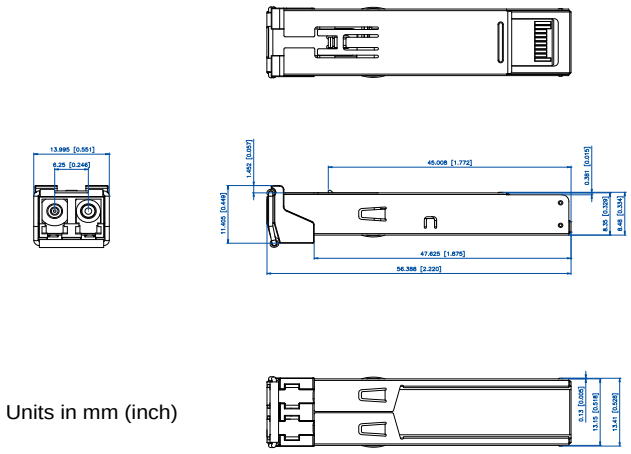
Parameter	Symbol	Minimum	Maximum	Unit	Note
Tx Disable Negate Time	t_on	-	1	ms	-
Tx Disable Assert Time	t_off	-	10	µs	-
Time to Initialize, Including Reset of Tx Fault	t_init	-	300	ms	-
Tx Fault Assert Time	t_fault	-	100	µs	-
Tx Disable to Reset	t_reset	10	-	µs	-
LOS Assert Time	t_loss_on	-	100	µs	-
LOS De-Assert Time	t_loss_off	-	100	µs	-
Serial ID Clock Rate	f_serial_clock	-	100	KHz	-
RX_LOS Voltage (High)	-	2	-	V	-
RX_LOS Voltage (Low)	-	-	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	-

Pin	Function	Notes
1	$V_{ee}T$	TX Ground
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 Ground
15	V_{ccR}	RX Power
16	V_{ccT}	TX Power
17	$V_{ee}T$	TX Ground
18	TXD+	TX Data Positive
19	TXD-	TX Data Negative
20	$V_{ee}T$	TX Ground

Optical Communications Systems™

Datasheet

Mechanical Dimensions



Units in mm (inch)

Ordering Information

Model	Description	Data Rate (Mbps)	Connector	Bail Latch Color	Digital Diagnostics	Maximum Distance Range (km)
SFP-O3-M	SDH STM-1, SONET OC-3 Multi-Mode SFP Transceiver	155	Duplex LC	Grey	No	0 - 2

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; ANSI-T1.105.06 SR-0; Telecordia 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 descharge (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.

MRV Los Angeles
20415 Nordhoff Street
Chatsworth, CA 91311
800-338-5316
818-773-0900

MRV Boston
300 Apollo Drive
Chelmsford, MA 01824
800-338-5316
978-674-6800

MRV International
Business Park Moerfelden
Waldeckerstrasse 13
64546 Moerfelden-Walldorf
Germany
Tel. (49) 6105/2070
Fax (49) 6105/207-100