

SFP-1000BASE-MX-PRO

MSA and TAA Compliant 1000Base-MX SFP Transceiver (MMF, 1310nm, 2km, DOM, 0 to 70C, LC)

Features

- INF-8074 and SFF-8472 Compliance
- Fabry Perot transmitter and PIN receiver
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications:

- 1000Base Ethernet
- Up to 2km over MMF
- Access and Enterprise

Product Description

This MSA Compliant SFP transceiver provides 1000Base-MX throughput up to 2km over multi-mode fiber (MMF) using a wavelength of 1310nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Proline's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products.



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	V _{CC}	-0.5	4.0	V
Storage Temperature	T _{stg}	-40	85	°C
Operating Case Temperature	T _c	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R _{MAX}		0	dBm
Maximum Bitrate	B _{max}		1.25	Gbps

Electrical Characteristics (T_c=25°C, V_{CC}=3.3 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{CC}	3.15	3.30	3.43	V	
Power Supply Current	I _{CC}			303	mA	
Power Consumption				1	W	
Transmitter						
Differential Data Input Swing	V _{IN,pp}	120		850	mV	
Input Differential Impedance	Z _{IN}	80	100	120	Ω	
Receiver						
Differential Data Output Swing	V _{OUT,pp}	300		850	mV	
Output Differential Impedance	Z _{IN}	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (Average)	P _{AVE}	-9.5		-3	dBm	1
Optical Extinction Ratio	ER	9			dB	
Optical Wavelength	Tλ	1270	1310	1355	nm	
Insertion Loss	IL		0.6			
Receiver						
Receiver Sensitivity (Average)	R _{AVE}			-24	dBm	3
Receiver Overload	P _{max}	0			dBm	4
Optical Return Loss	ORL	12			dB	
Receiver Wavelength	Rλ	1260		1565	nm	

Notes:

1. Coupled into a single-mode fiber.
2. Per IEEE 802.3ah specification.
3. Average power, back-to-back, @1.25Gbps, BER 1E⁻¹², and PRBS 2³¹-1.
4. Exceeding the Receiver Overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. Not Supported.	
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.”	2
4	MOD_DEF (2)	Module Definition 2. Data Line for Serial ID.	3
5	MOD_DEF (1)	Module Definition 1. Clock Line for Serial ID.	3
6	MOD_DEF (0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No Connection Required.	
8	LOS	Loss of Signal Indication. “Logic 0” indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground).	1
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted Data Out. AC Coupled.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted Data In. AC Coupled.	
19	TD-	Transmitter Inverted Data In. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The circuit ground is isolated from the chassis ground.
2. Disabled: $T_{DIS} > 2V$ or Open, Enabled: $T_{DIS} < 0.8V$.
3. Should be pulled up with $4.7k\Omega$ to $10k\Omega$ on the host board to a voltage between 2V and 3.6V.
4. LOS is an open collector output.



Pin-Out of Connector Block on the Host Board

Recommended Circuit Schematic



Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map-specific data field description is as below:



About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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