

A-GEAR Product Specification

Single Fiber Bi-directional SFP Tranceiver SFP-1SM-80SC

PRODUCT FEATURES

- Up to 1.25 Gb/s bi-directional data links
- Hot-pluggable SFP footprint
- 1490nm DFB Transmitter and 1550 PIN Receiver for SFP-1SM-1490nm-80SC
- 1550 DFB Transmitter and 1490 PIN Receiver for SFP-1SM-1550nm-80SC
- Single SC connector
- Low power dissipation
- Digital Diagnostic function
- Metal enclosure, for lower EMI
- Up to 80km point to point transmission
- Single 3.3V power supply
- Operating temperature range: 0°C to 70°C

APPLICATIONS

- 1.25Gb/s Gigabit Ethernet
- Point-to-point FTTX Application

PRODUCT SELECTION

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		4.7	V	
Storage Temperature	TS	-40		85	°C	
Case Operating Temperature	TOP	0		70	°C	

Electrical Characteristics (TOP = 0 to 70°C, VCC = 3.15 to 3.60Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc	3.15	3.3	3.6	V	
Supply Current	Icc		185	250	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single ended data input swing	Vin,pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc- 1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	2
Transmit Disable Assert Time				10	us	



Receiver						
Single ended data output swing	Vout,pp	250		800	mV	3
Data output rise time	tr		100	175	ps	4
Data output fall time	tf		100	175	ps	4
LOS Fault	VLOS fault	Vcc-0.5		VccHOST	V	5
LOS Normal	VLOS norm	Vee		Vee+0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms differential termination.
4. 20 – 80 %
5. Loss Of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specified value applied through the recommended power supply filtering network.

Optical Characteristics (TOP = 0 to 70°C, VCC = 3.15 to 3.60 Volts)

SFP-1SM-1490nm-80SC

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Pwr (End of Life)	POUT	0		5.0	dBm	1
Optical Wavelength	λ	1480	1490	1500	nm	
Wavelength Temperature Dependence			0.08	0.125	nm/°C	
Spectral Width (-20dB)	σ			3.0	nm	
Optical Extinction Ratio	ER	8			dB	
Sidemode Supression ratio	SSRmin	30			dB	
Optical Rise/Fall Time	tr/ tf		100	160	ps	
RIN	RIN			-120	dB/Hz	
Transmitter Jitter (peak to peak)				100	ps	
Receiver						
Average Rx Sensitivity @ Gigabit Ethernet	RSSENS3			-25.0	dBm	2
Maximum Input Power	PMAX	-3.0			dBm	
Optical Center Wavelength	λC	1540	1550	1560	nm	
LOS De -Assert	LOSD			-30	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5		4	dB	
Receiver Jitter Generation @1.25Gbps				160	ps	3

SFP-1SM-1550nm-80SC

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Pwr (End of Life)	POUT	0		5.0	dBm	1



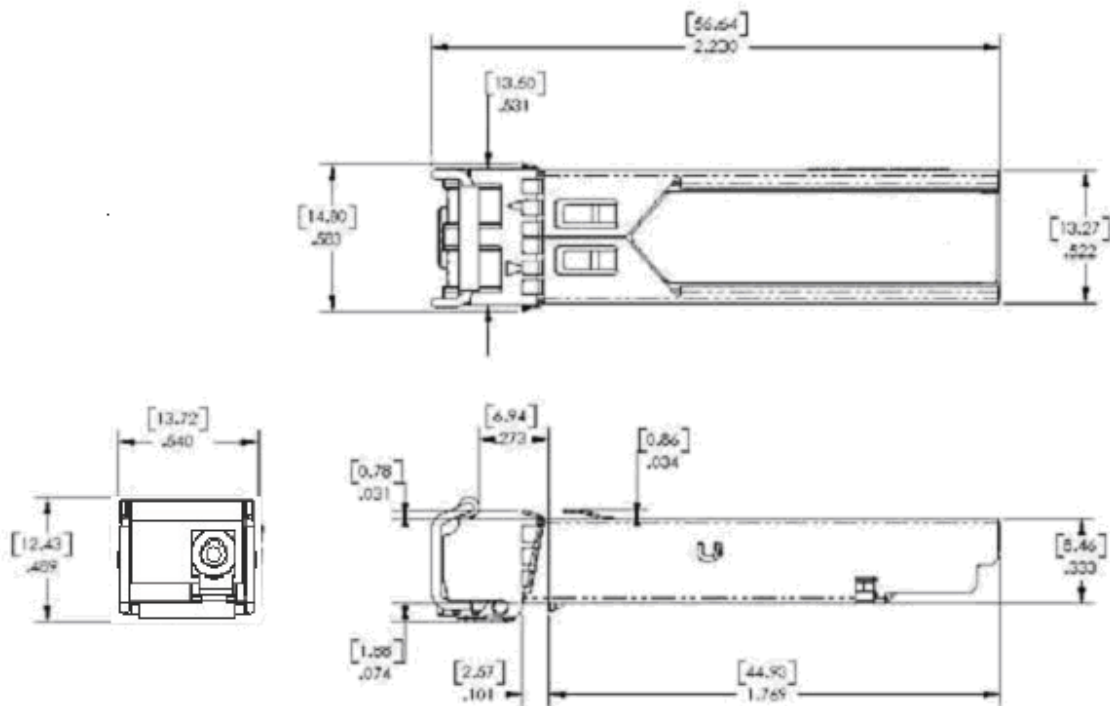
SFP-1SM-3SC DATASHEET

Optical Wavelength	λ	1540	1550	1560	nm	
Wavelength Temperature Dependence			0.08	0.125	nm/°C	
Spectral Width (-20dB)	σ			3.0	nm	
Optical Extinction Ratio	ER	8			dB	
Sidemode Supression ratio	SSRmin	30			dB	
Optical Rise/Fall Time	tr/ tf		100	160	ps	
RIN	RIN			-120	dB/Hz	
Transmitter Jitter (peak to peak)				100	ps	
Receiver						
Average Rx Sensitivity @ Gigabit Ethernet	RSENS3			-25.0	dBm	2
Maximum Input Power	PMAX	-3.0			dBm	
Optical Center Wavelength	λC	1480	1490	1500	nm	
LOS De -Assert	LOSD			-30	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5		4	dB	
Receiver Jitter Generation @1.25Gbps				160	ps	3

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
2. With worst-case extinction ratio. Measured with a PRBS 2⁷-1 test pattern, @1.25Gb/s, BER < 10⁻¹².
3. Jitter added by receiver (peak to peak). Measured at -18.0dBm average Rx sensitivity, PRBS 2⁷-1 test pattern.

Mechanical Specifications



Visual look

