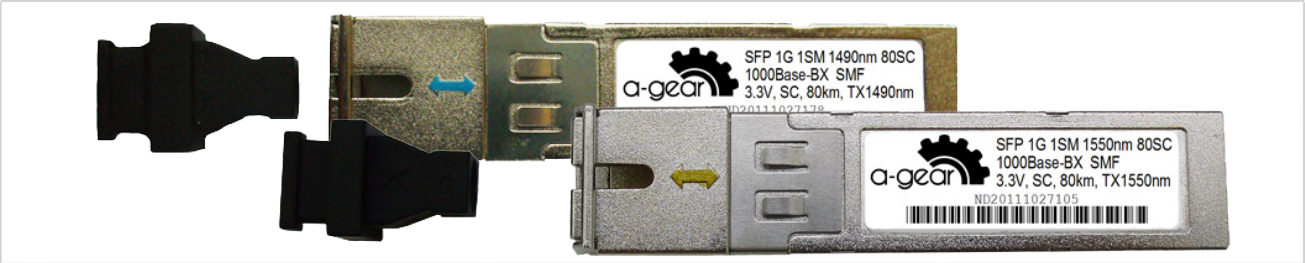
Product Specification
SFP WDM 1G 80km SC Transceiver



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 3.3 V power supply
- Operating temperature range: 0°C to 70°C

Applications

- 1. 25Gb/s Gigabit Ethernet
- Point-to-point FTTX Application

Absolute Maximum Ratings

Rating	Symbol	Min.	Max.	Units
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.	Typical	Max.	Unit
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 LVTTL. 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.	Typical	Max.	Unit
Transmitter					
Output Opt. Pwr (End of Life)	POUT	0		5.0	dBm [1]
Optical Wavelength	λ	1480	1490	1500	nm
Wavelength Temperature Dependance			0.08	0.125	nm/°C
Spectral Width (-20dB)	σ			3.0	nm

Parameter	Symbol	Min.	Typical	Max.	Unit
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	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.	Typical	Max.	Unit
Transmitter					
Output Opt. Pwr (End of Life)	POUT	0		5.0	dBm [1]
Optical Wavelength	λ	1540	1550	1560	nm
Wavelength Temperature Dependance			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 2^7-1 test pattern, @1.25Gb/s, BER<10^{-12}.

[3] Jitter added by receiver (peak to peak). Measured at -18.0dBm average Rx sensitivity, PRBS 2^7 -1 test pattern.

Mechanical Specifications