

### Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Single LC connector
- Up to 20 km on 9/125µm SMF
- 1490nm DFP laser transmitter
- 1550nm PIN photo-detector
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Maximum power dissipation <1W
- Industrial operating temperature range: -40°C to 85°C Version available
- RoHS compliant and Lead Free



### Applications

- 1000Base-LX Ethernet
- Metro/Access Networks
- 1×Fibre Channel
- Other Optical Links

### 1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	TS	-40		+85	°C
Supply Voltage	VCC	-0.5		4	V
Relative Humidity	RH	0		85	%

### 2. Recommended Operating Environment:

Parameter	Symbol	Min.	Typ.	Max.	Unit
Case Operating Temperature	Industrial	TC	-40	85	°C
	Extended		-5	85	°C
	Commercial		0	+70	°C
Supply Voltage	VCC	3.135		3.465	V
Supply Current	Icc			300	mA

Inrush Current	I <sub>surge</sub>			I <sub>cc+30</sub>	mA
Maximum Power	P <sub>max</sub>			1	W

### 3. Electrical Characteristics

(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter Section:</b>						
Input differential impedance	R <sub>in</sub>	90	100	110		1
Single ended data input swing	V <sub>in PP</sub>	250		1200	mVp-p	
Transmit Disable Voltage	VD	V <sub>cc</sub> - 1.3		V <sub>cc</sub>	V	2
Transmit Enable Voltage	VEN	V <sub>ee</sub>		V <sub>ee</sub> + 0.8	V	
Transmit Disable Assert Time	T <sub>dassert</sub>			10	us	
<b>Receiver Section:</b>						
Single ended data output swing	V <sub>out,pp</sub>	300		800	mv	3
LOS Fault	V <sub>losfault</sub>	V <sub>cc</sub> - 0.5		V <sub>CC_host</sub>	V	5
LOS Normal	V <sub>los norm</sub>	V <sub>ee</sub>		V <sub>ee</sub> +0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

**Note:**

1. AC coupled.
2. Or open circuit.
3. Into 100 ohm differential termination.
4. 20 - 80 %
5. LOS is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5MHz up to specified value applied through the power supply filtering network shown on page 23 of the Small Form-factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 14, 2000.

### 4. Optical Characteristics

(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

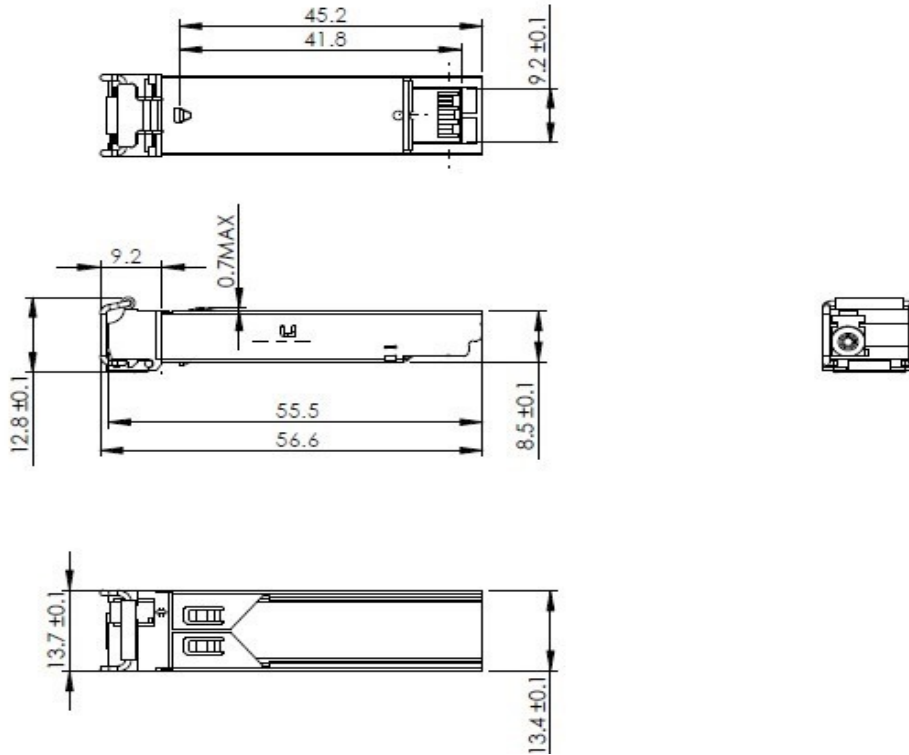
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter Section:</b>						
Center Wavelength	λ <sub>c</sub>	1470	1490	1510	nm	
Spectral Width(RMS)	σ <sub>RMS</sub>			4	nm	

Optical Output Power	Pout	-9		-3	dBm	1
Extinction Ratio	ER	9			dB	
Optical Rise/Fall Time	tr / tf			260	ps	2
Relative Intensity Noise	RIN			-120	dB/Hz	
Total Jitter Contribution	TX Δ TJ			0.284	UI	3
Eye Mask for Optical Output	Compliant with IEEE802.3 z (class 1 laser safety)					
<b>Receiver Section:</b>						
Optical Input Wavelength	λc	1530	1550	1570	nm	
Receiver Overload	Pol	-3			dBm	4
RX Sensitivity	Sen			-24	dBm	4
RX_LOS Assert	LOS A	-40			dBm	
RX_LOS De-assert	LOS D			-25	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	
<b>General Specifications:</b>						
Data Rate	BR		1.25		Gb/s	
Bit Error Rate	BER			10-12		
Max. Supported Link Length on 9/125μm SMF@1.25Gb/s	LMAX		20		km	
Total System Budget	LB	14			dB	

### Notes:

1. The optical power is launched into SMF.
2. 20-80%.
3. Contributed total jitter is calculated from DJ and RJ measurements using  $TJ = RJ + DJ$ . Contributed RJ is calculated for 1x10<sup>-12</sup> BER by multiplying the RMS jitter (measured on a single rise or fall edge) from the oscilloscope by 14. Per FC-PI (Table 9 - SM jitter output, note 1), the actual contributed RJ is allowed to increase above its limit if the actual contributed DJ decreases below its limits, as long as the component output DJ and TJ remain within their specified FC-PI maximum limits with the worst case specified component jitter input.
4. Measured with PRBS 27-1 at 10-12 BER

### 5. Mechanical Diagram



**Note:** External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

### 6. Ordering Information

OEM	Part Number	OEM	Part Number
MSA Generic	AN-SFP-BX45-20-I	OnePort	OP-SFP-BX45-20

### 7. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>