

Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Single LC connector
- Up to 20 km on 9/125µm SMF
- 1550nm DFB laser transmitter
- 1490nm 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
- 1x 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 _{surge} | | | I _{cc+30} | mA |
| Maximum Power | P _{max} | | | 1 | W |

3. Electrical Characteristics

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

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

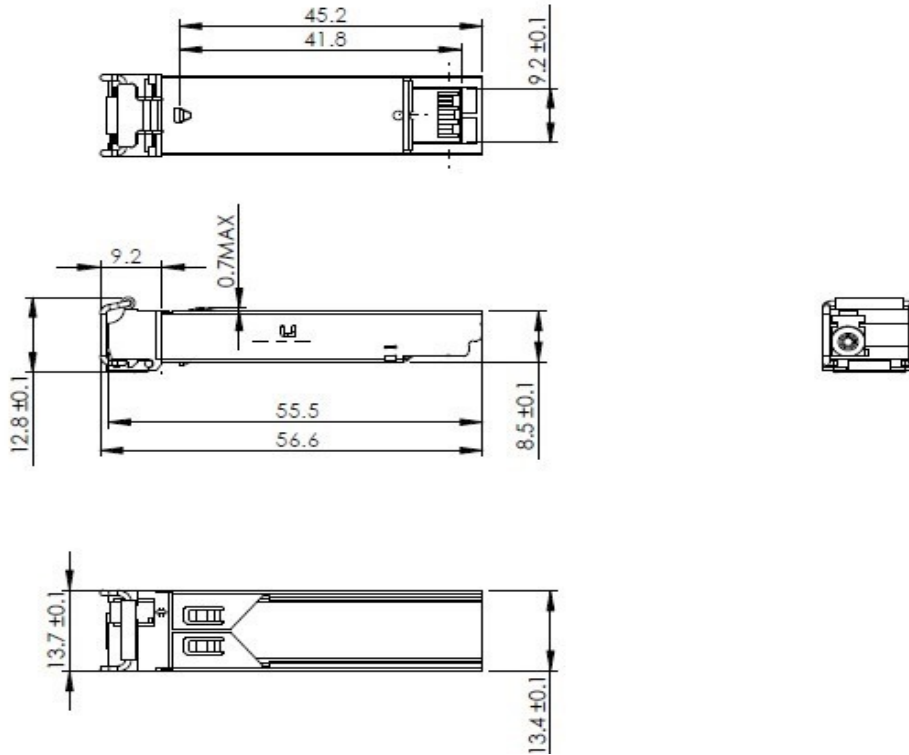
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|-----------------------------|------------------|------|------|------|------|------|
| Transmitter Section: | | | | | | |
| Center Wavelength | λ _c | 1530 | 1550 | 1570 | nm | |
| Spectral Width(RMS) | σ _{RMS} | | | 4 | nm | |

| | | | | | | |
|--|---|------|------|-------|-------|---|
| 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) | | | | | |
| Receiver Section: | | | | | | |
| Optical Input Wavelength | λc | 1470 | 1490 | 1510 | 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 | |
| General Specifications: | | | | | | |
| 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 1x10⁻¹² 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 |
|-------|------------------|---------|----------------|
| Calix | 100-01669-54-L | OnePort | OP-SFP-BX54-20 |
| MSA | AN-SFP-BX54-20-I | | |

7. Contact Information

Tel: 800.590.9535

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