

SFP-1G-BX40-53

1000Base Bidirectional SFP
Tx 1550nm / Rx 1310nm
40km Reach

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Features

- Support 1.25Gbps data links
- Hot-Pluggable LC connector
- Up to 40km on 9/125µm SMF
- 1550nm DFB laser transmitter
- 2x Bi-directional transceivers in 1 SFP metallic casing
- Single 3.3V power supply
- Monitoring Interface Compliant with SFF-8472
- Commercial Operating temperature : 0°C to 70°C
- Industrial Operating temperature : -40°C to 85°C
- Built-in digital diagnostic functions
- RoHS-6 compliant (lead-free)



Applications

- Gigabit Ethernet(1000BASE-BX)
- Point to Point FTTH Application
- Other optical transmission systems

| Part number | Product description |
|------------------|---|
| SFP-1G-BX40-53 | 1000Base SMF SFP Bidi TX1550/RX1310 40km 0°C to 70°C LC Simplex DDM |
| SFP-1G-BX40-53-I | 1000Base SMF SFP Bidi TX1550/RX1310 40km -40°C to 85°C LC Simplex DDM |

PIN Description

| PIN | Symbol | Name - Description | Notes |
|-----|-------------|--|-------|
| 1 | VEET | Transmitter Ground (Common with Receiver Ground) | 1 |
| 2 | TFAULT | Transmitter Fault. Not supported. | 2 |
| 3 | TDIS | Transmitter Disable. Laser output disabled on high or open. | 3 |
| 4 | MOD_DEF(2) | Module Definition 2. Data line for Serial ID. | 2 |
| 5 | MOD_DEF(1) | Module Definition 1. Clock line for Serial ID. | 2 |
| 6 | MOD_DEF(0) | Module Definition 0. Grounded within the module. | 2 |
| 7 | Rate Select | No connection required | |
| 8 | RX_LOS | Loss of Signal indication. Logic 0 indicates normal operation. | 4 |
| 9 | VEER | Receiver Ground (Common with Transmitter Ground) | |
| 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 | 5 |
| 16 | VCCT | Transmitter Power Supply | 5 |
| 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. Circuit ground is internally isolated from chassis ground.
2. T_{FAULT} is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to V_{CC} + 0.3V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
3. Laser output disabled on T_{DIS} >2.0V or open, enabled on T_{DIS} <0.8V.
4. LOS is open collector output. Should be pulled up with 4.7k – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
5. Internally connected



Figure 1. Diagram of host board connector block pin numbers and names

Absolute Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

| Parameter | Symbol | Min | Typ | Max | Unit | Ref. |
|------------------------|-----------------|-----|-----|-----|------|------|
| Maximum Supply Voltage | V _{cc} | 0 | | 3.6 | V | |
| Storage Temperature | T _S | -40 | | 85 | °C | |
| Relative Humidity | RH | 0 | | 85 | % | 1 |

Notes:

1. Non-condensing

Recommended Operating Environment

| Parameter | Symbol | Min | Typical | Max | Unit |
|---------------------------|-----------------|-------|---------|-------|------|
| Case operating Com. Temp. | Top | 0 | | +70 | °C |
| Case operating Ind. Temp. | Top | -40 | | +85 | °C |
| Supply Voltage | V _{CC} | 3.135 | 3.30 | 3.465 | V |
| Supply Current | I _{cc} | | 230 | 300 | mA |

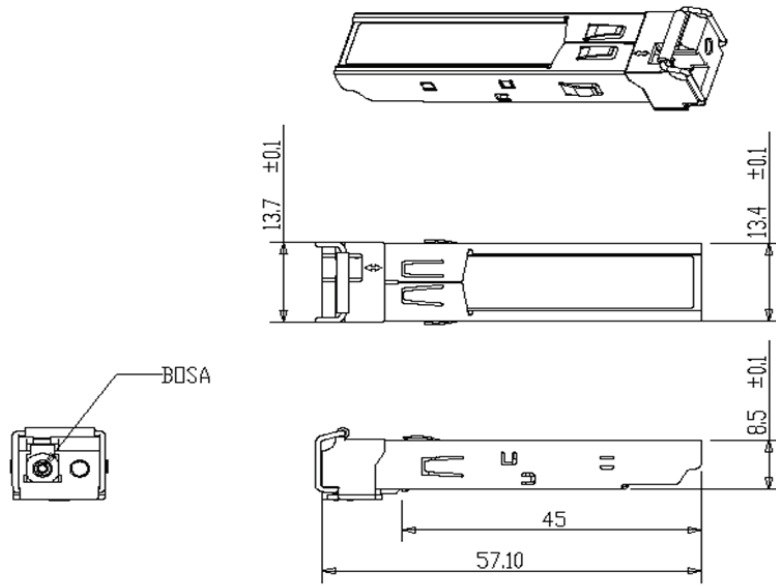
Optical Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Note |
|-----------------------------|------------------|------|---------|------|------|------|
| Transmitter | | | | | | |
| Center Wavelength | λ_c | 1530 | 1550 | 1570 | nm | |
| Spectral Width | σ | - | - | 4 | nm | |
| Optical Output Power | P _{out} | -5 | - | 0 | dBm | 1 |
| Extinction Ratio | ER | 9 | - | - | dB | |
| RMS Spectral Width (-20dB) | $\Delta\lambda$ | - | - | 1 | nm | |
| Side Mode Suppression Ratio | SMSR | 30 | - | - | dB | |
| Receiver | | | | | | |
| Optical Input Wavelength | λ_c | 1260 | 1310 | 1360 | nm | |
| Rx Sensitivity | P _{min} | - | - | -23 | dBm | 2 |
| Rx Overload | P _{max} | -3 | - | - | dBm | |
| LOS Assert | LOS _a | -34 | - | - | dBm | |
| LOS De-Assert | LOS _d | - | - | -22 | dBm | |
| LOS Hysteresis | LOS _h | 0.5 | - | - | dB | |

Note:

1. Average Output Power as coupled into a 9/125 μ m single-mode fiber
2. Sensitivity is measured at 1.25Gbps PRBS 2-7-1 data pattern, ER=9, BER \leq 10-12.

Mechanical Dimensions



Units in mm

Revision history

| Revision | Date | Author | Description |
|----------|------------|--------|------------------|
| V1.1 | 25-11-2021 | JGN | Initial Document |

Note : Nexgen A/S reserves the right to change this document without notice.