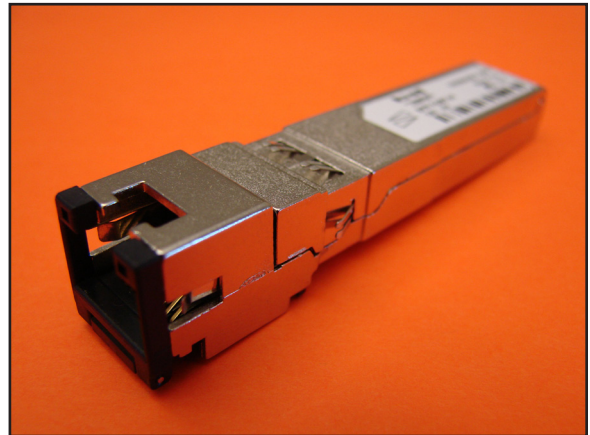


## 10/100/1000Base-T RJ45 SFP Module

### SFP-1GBT-03

#### FEATURES / BENEFITS

- Designed with Broadcom's BCM54616S chipset (login at <https://support.broadcom.com/Core/Login.aspx> for IC support)
- Complies with IEEE 802.3, 802.3u, and 802.3ab specifications
- Conforms to Multi-Source Agreement (MSA) specifications for SFP transceivers
- Supports IEEE 802.3u and IEEE 802.3ab auto-negotiation features to allow networking equipment to automatically determine and adjust the required settings
- Automatically compensates for baseline wander by removing the DC offset from the input signal
- Assembled with low EMI emissions IC and fully metallic housings
- Automatic dependent interface (DI) crossover, eliminating the need for crossover cables or cross-wire (MDIX) ports
- Bail latch provides ease of extraction
- Compact RJ45 connector assembly
- Data is scrambled to reduce radiated emission
- Power consumption is 610mW typical for 1000Base-T
- Power consumption is 320mW typical for 10/100Base-T
- Fully RoHS compliant



#### APPLICATIONS

- 10/100/1000 Mbps data rate in excess of 100 meters of Category 5/5e cable
- Networking equipment
- Switch-to-switch interface
- Routers

The BCM54616S physical layer IC (PHY) can be accessed via I<sup>2</sup>C interface:  
 PHY address = "ACh" for transceivers with serial number 0000000607 and higher.  
 PHY address = "82h" or "01" binary for transceivers with serial number 0000000606 and lower.  
 The EEPROM memory address = "A0h"

The Bel SFP-1GBT-03 module is an internally configured 10/100/1000Base-T SFP that requires the host system to provide SGMII interface. The PHY interfaces directly with SerDes interface. The host interface transmits and receives serial data differentially at 1.25 Gbps. The copper interface is full featured as advertised full/half duplex and 1000Base-T wire speed.

- SFP Transceiver identification is specified as "08h" for byte 6 in the EEPROM.

#### REGULATORY AND STANDARDS COMPLIANCE

- Compliant with IEEE 802.3:2000
- FCC Part 15, Class A
- EN55022 Class A (CISPR 22 Class A)
- CE
- E55024 Immunity standard and NEBS 3 ESD



**SFP-1BGT-03 MODULE SPECIFICATIONS**

| Parameter      | Symbol    | Min  | Typ | Max  | Units | Notes        |
|----------------|-----------|------|-----|------|-------|--------------|
| Supply Voltage | $V_{DD3}$ | 3.12 | 3.3 | 3.46 | V     |              |
| Supply Current | $I_S$     |      | 185 |      | mA    | 1000Base-T   |
| Supply Current | $I_S$     |      | 98  |      | mA    | 10/100Base-T |

| SFP Host Serial Interface (TX/RX) | Symbol        | Min | Typ | Max | Units    | Notes                                      |
|-----------------------------------|---------------|-----|-----|-----|----------|--|
| Line Frequency                    | $F_{LINE}$    |     | 125 |     | MHz      |  |
| TX Output Impedance               | $Z_{TX\_OUT}$ |     | 100 |     | $\Omega$ | Differential                               |
| RX Output Impedance               | $Z_{RX\_IN}$  |     | 100 |     | $\Omega$ | Differential                               |
| Clock Frequency                   |               |     | 25  |     | MHz      |  |
| Rise/Fall Time                    | $T_R/T_F$     |     | 4   |     | ns       | 20% - 80%                                  |
| RMS Phase Jitter                  | $F_J$         |     |     | 1.5 | ps-rms   | $F_J = 12$ kHz to 20 MHz offset frequency. |

| Environmental Specifications | Symbol    | Min | Typ | Max | Units       | Notes               |
|------------------------------|-----------|-----|-----|-----|-------------|---------------------|
| Operating Temp               | $T_{OP}$  | 0   |     | +70 | $^{\circ}C$ | Case temperature    |
| Storage Temp                 | $T_{STG}$ | -40 |     | +85 | $^{\circ}C$ | Ambient temperature |

# 10/100/1000Base-T RJ45 SFP Module

## SFP-1GBT-03



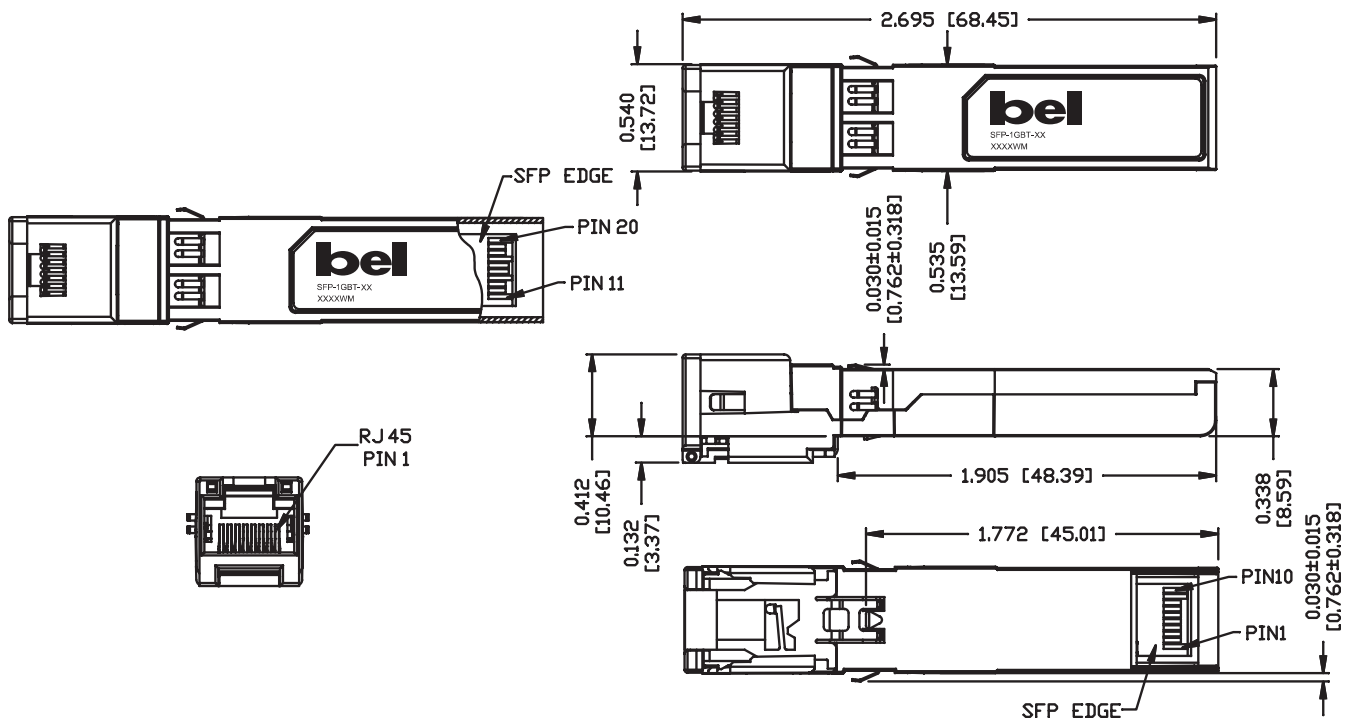
### SFP HOST CONNECT ELECTRICAL INTERFACE AND PINS DESCRIPTIONS

| Pin | Name        | Description   |
|-----|-------------|---|
| 1   | VeeT        | Transmitter ground (common with receiver ground).   |
| 2   | TX Fault    | Transmitter fault is internally tied to transmit ground and is not supported.                         |
| 3   | TX Disable  | Transmit disable. This pin is tied to PHY low power mode.   |
| 4   | MOD-DEF2    | Signal SDA (data) of the two-wire serial ID interface.  |
| 5   | MOD-DEF1    | Signal SCL (clock) of the two-wire serial ID interface.   |
| 6   | MOD-DEF0    | This pin is internally tied to transmit ground.   |
| 7   | Rate Select | Not implemented. This pin is floating internally.   |
| 8   | LOS         | Loss of signal indication.  |
| 9   | VeeR        | Receiver ground (common with transmitter ground).   |
| 10  | VeeR        | Receiver ground (common with transmitter ground).   |
| 11  | VeeR        | Receiver ground (common with transmitter ground).   |
| 12  | RD-         | Differential receiver outputs. User to terminate to 100 $\Omega$ differential at host. AC coupled.    |
| 13  | RD+         | Differential receiver outputs. User to terminate to 100 $\Omega$ differential at host. AC coupled.    |
| 14  | VeeR        | Receiver ground (common with transmitter ground).   |
| 15  | VccR        | 3.3V power  |
| 16  | VccT        | 3.3V power  |
| 17  | VeeT        | Transmitter ground (common with receiver ground).   |
| 18  | TD+         | Differential transmitter outputs. User to terminate to 100 $\Omega$ differential at host. AC coupled. |
| 19  | TD-         | User to terminate to 100 $\Omega$ differential at host. AC coupled.                                   |
| 20  | VeeT        | Transmitter ground (common with receiver ground).   |

©2011 Bel Fuse Inc. Specifications subject to change without notice. 04.29.11



### MECHANICAL



©2011 Bel Fuse Inc. Specifications subject to change without notice. 04.29.11

#### CORPORATE

**Bel Fuse Inc.**  
206 Van Vorst Street  
Jersey City, NJ 07302  
Tel 201-432-0463  
Fax 201-432-9542  
www.belfuse.com

#### ASIA

**Bel Fuse Ltd.**  
8F / 8 Luk Hop Street  
San Po Kong  
Kowloon, Hong Kong  
Tel 852-2328-5515  
Fax 852-2352-3706  
www.belfuse.com

#### EUROPE

**Bel Stewart Connector**  
45/46 Riverside  
Medway City Estate  
Rochester, Kent ME2 4DP U.K.  
Tel 44-1634-722890  
Fax 44-1634-716677  
www.belfuse.com