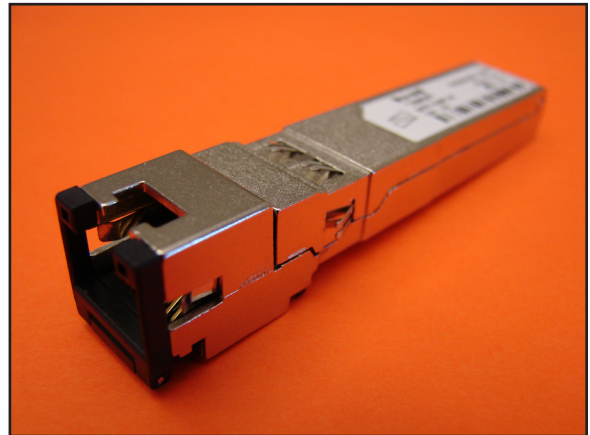


# 1000Base-T RJ45 SFP Module

## SFP-1GBT-02

### 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
- Fully RoHS compliant
- The BCM54616S physical layer IC (PHY) can be accessed via I<sup>2</sup>C interface:  
PHY address = “ACh”  
The EEPROM memory address = “A0h”



Part Number	Description
SFP-1GBT-02	1000Base-X to 1000Base-T SFP

The Bel SFP-1GBT-02 module is an internally configured 1000Base-T SFP that requires the host system to provide GBIC 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

### APPLICATIONS

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



**SFP-1BGT-02 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	

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

# 1000Base-T RJ45 SFP Module

## SFP-1GBT-02

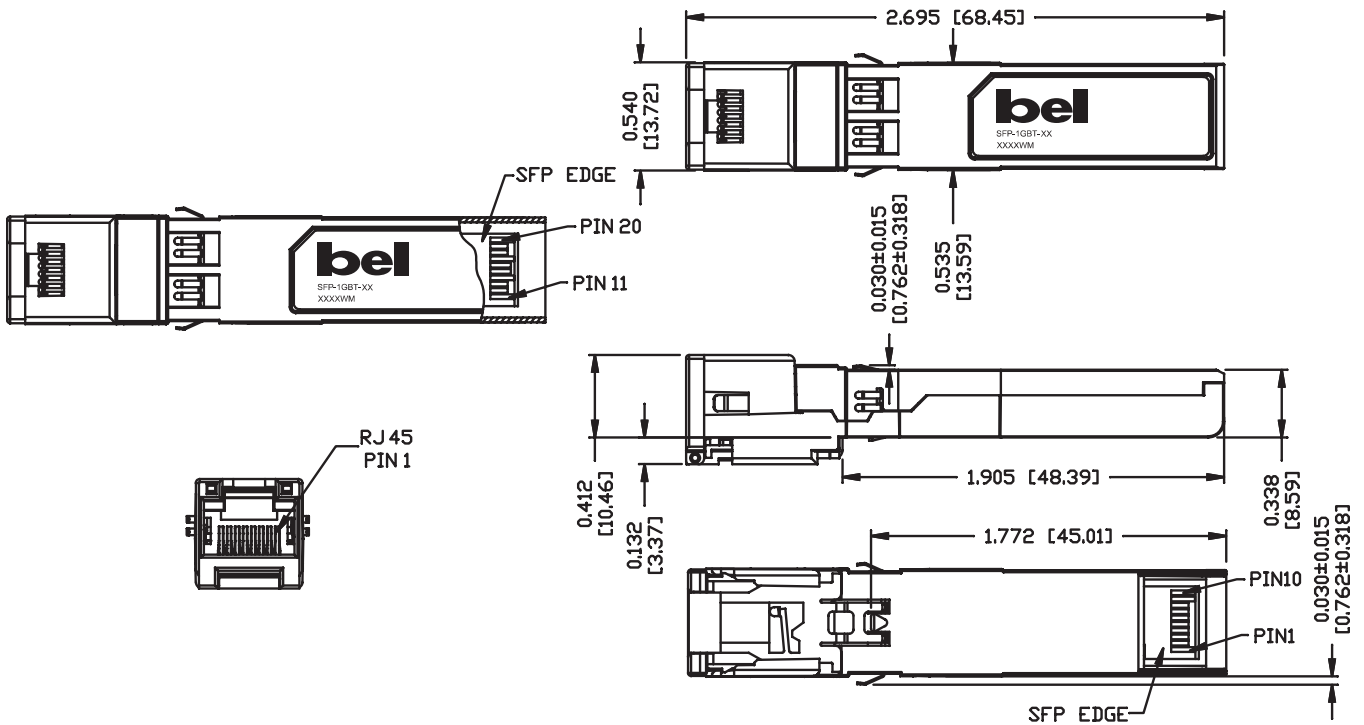


### SFP HOST CONNECT ELECTRICAL INTERFACE AND PINS DESCRIPTIONS

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).

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### MECHANICAL



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