

GBIC-SXSC-H-OPC

GarrettCom® GBIC-SXSC-H Compatible TAA 1000Base-SX GBIC Transceiver (MMF, 850nm, 550m, SC)

Features

- SFF-8053 Compliance
- Duplex SC Connector
- Multi-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 1000Base-SX Ethernet
- 1x Fibre Channel
- Access and Enterprise

Product Description

This GarrettCom® GBIC-SXSC-H compatible GBIC transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an SC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with GarrettCom®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit |
|---------------------|--------|------|------|------|
| Supply Voltage | Vcc | -0.5 | 4.0 | V |
| Storage Temperature | TS | -40 | 85 | °C |
| Operating Humidity | RH | 5 | 95 | % |

Recommended Operating Conditions

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|--------|------|-------|------|------|
| Power Supply Voltage | Vcc | 3.13 | 3.30 | 3.47 | V |
| Power Supply Current | Icc | | | 250 | mA |
| Case Operating Temperature – Commercial | Tc | 0 | | 70 | °C |
| Case Operating Temperature – Industrial | Ti | -40 | | 85 | °C |
| Data Rate (Gigabit Ethernet) | | | 1.25 | | Gbps |
| Data Rate (Fibre Channel) | | | 1.063 | | Gbps |
| 50/125µm MMF | L | | | 550 | m |

Electrical Characteristics (TOP=25°C, Vcc=3.3V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------|----------|------|------|---------|------|-------|
| Transmitter | | | | | | |
| Input differential impedance | Rin | 85 | 100 | 115 | Ω | 1 |
| Single ended data input swing | Vin, pp | 250 | | 1200 | mV | |
| TX Disable-High | | 2 | | 3.45 | V | |
| TX Disable-Low | | 0 | | 0.8 | V | |
| TX Fault-High | | 2 | | Vcc+0.3 | V | |
| TX Fault-Low | | 0 | | 0.5 | V | |
| Receiver | | | | | | |
| Single ended data output swing | Vout, pp | 300 | 400 | 800 | mV | 2 |
| Data output rise time | tr | | | 175 | ps | 3 |
| Data output fall time | tf | | | 175 | ps | 3 |
| LOS-High | | 2 | | Vcc+0.3 | V | |
| LOS-Low | | 0 | | 0.8 | V | |

Notes:

1. AC coupled.

2. Into 100 ohm differential termination.
3. 20% - 80%

Optical and Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------|-------------|------|------|------|------|-------|
| Transmitter | | | | | | |
| Average Output Power | PO | -9.5 | | -4 | dBm | 1 |
| Optical Wavelength | λ | 830 | 850 | 860 | nm | |
| Spectral Width | σ | | | 0.85 | nm | |
| Optical Rise/Fall Time | tr/tf | | | 260 | ps | 2 |
| Total Jitter | TJ | | | 56.5 | ps | |
| Optical Extinction Ratio | ER | 9 | | | dB | |
| Receiver | | | | | | |
| Receiver Sensitivity | RSENS | | | -18 | dBm | 3,4 |
| Maximum Received Power | RX_{MAX} | 0 | | | dBm | |
| Centre Wavelength | λC | 770 | | 860 | nm | |
| LOS De-Assert | LOSD | | | -19 | dBm | |
| LOS Assert | LOSA | -35 | | | dBm | |
| LOS Hysteresis | | 0.5 | | 5 | dB | |

Notes:

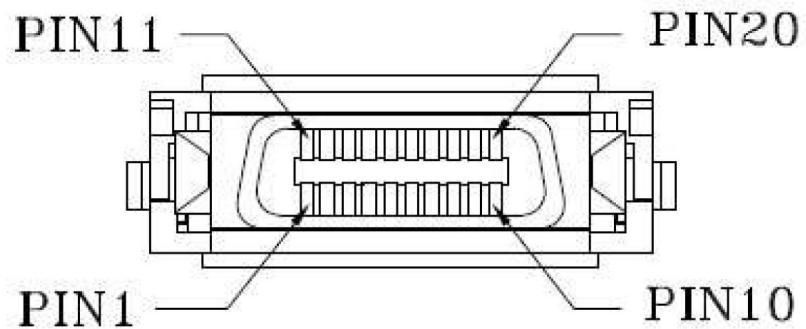
1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS 2⁷-1 at 10⁻¹⁰ BER.

Pin Descriptions

| Pin | Symbol | Name/Descriptions | Ref. |
|-----|-------------|--|------|
| 1 | RX_LOS | Receiver Loss of Signal, logic high, open collector compatible, 4.7K to 10K Ohm pullup to VDDT on host | 2 |
| 2 | RGND | Receiver Ground (may be connected with TGND in GBIC) | 2 |
| 3 | RGND | Receiver Ground (may be connected with TGND in GBIC) | 2 |
| 4 | MOD DEF (0) | GBIC module definition and presence, bit 0, 4.7K to 10K Ohm pullup to VDDT on host | 2 |
| 5 | MOD_DEF (1) | GBIC module definition and presence, bit 1, 4.7K to 10K Ohm pullup to VDDT on host | 2 |
| 6 | MOD_DEF (2) | GBIC module definition and presence, bit 2, 4.7K to 10K Ohm pullup to VDDT on host | 2 |
| 7 | TX_DISABLE | Transmitter Disable, logic high, open collector compatible, 4.7K to 10K Ohm pullup to VDDT on GBIC | 2 |
| 8 | TGND | Transmitter Ground (maybe connected with RGND internally) | 2 |
| 9 | TGND | Transmitter Ground (maybe connected with RGND internally) | 2 |
| 10 | TX_FAULT | Transmitter Fault, logic high, open collector compatible, 4.7K to 10K Ohm pullup to VDDT on host | 2 |
| 11 | RGND | Receiver Ground (may be connected with TGND in GBIC) | 1 |
| 12 | -RX_DAT | Receive Data, Differential PECL | 1 |
| 13 | +RX_DAT | Receive Data, Differential PECL | 1 |
| 14 | RGND | Receiver Ground (may be connected with TGND in GBIC) | 1 |
| 15 | VDDR | Receiver +5 volt (maybe connected with VDDT in GBIC) | 2 |
| 16 | VDDT | Transmitter +5 volt (maybe connected with VDDR in GBIC) | 2 |
| 17 | TGND | Transmitter Ground (maybe connected with RGND internally) | 1 |
| 18 | +TX_DAT | Transmit Data, Differential PECL | 1 |
| 19 | -TX_DAT | Transmit Data, Differential PECL | 1 |
| 20 | TGND | Transmitter Ground (maybe connected with RGND internally) | 1 |

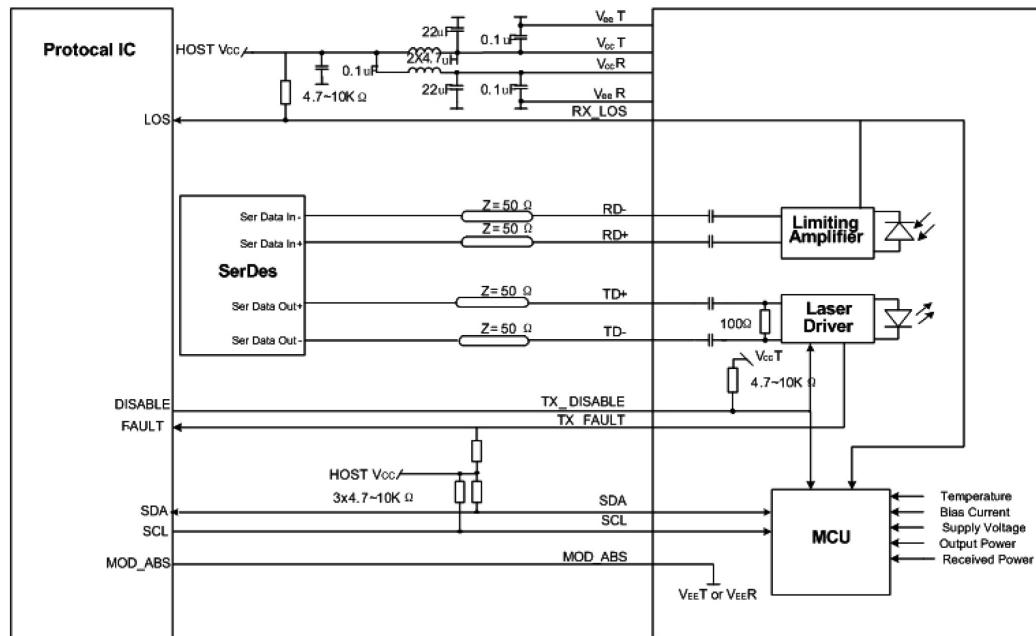
Notes:

1. TX Fault is open collector/drain output, which should be pulled up externally with a 4.7K – 10KΩ resistor on the host board to supply $<V_{ccT}+0.3V$ or $V_{ccR}+0.3V$. When high, this output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to $<0.8V$.
2. TX Disable input is used to shut down the laser output per the state table below. It is pulled up within the module with a 4.7-10K resistor. Low (0V-0.8V): Transmitter on between (0.8V and 2V): Undefined High (2.0-V_{ccT}): Transmitter Disabled Open: Transmitter Disabled.

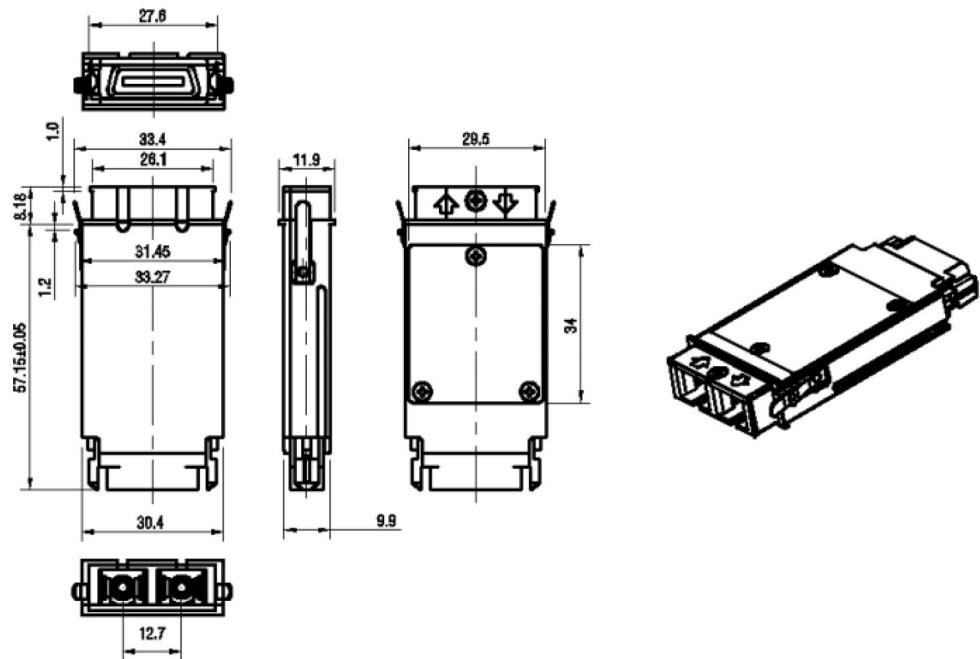


Pin-out of connector Block on Host board

Recommended Circuit Schematic



Mechanical Specifications



EEPROM Information

EEPROM memory map specific data field description is as below:

| 2 wire address 1010000X (A0h) | | 2 wire address 1010001X (A2h) | |
|-------------------------------|---|-------------------------------|---|
| 0 | Serial ID Defined by SFP MSA (96 bytes) | 0 | Alarm and Warning Thresholds (56 bytes) |
| 95 | Vendor Specific (32 bytes) | 55 | Cal Constants (40 bytes) |
| 127 | Reserved, SFF8079 (128 bytes) | 95 | Real Time Diagnostic Interface (24 bytes) |
| 255 | | 119 | Vendor Specific (8 bytes) |
| | | 127 | User Writable EEPROM (120 bytes) |
| | | 247 | Vendor Specific (8 bytes) |
| | | 255 | |