

## 130-0016-00-AO

McAfee® 130-0016-00 Compatible TAA 1000Base-SX GBIC Transceiver (MMF, 850nm, 550m, SC)

### Features

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



### Applications

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

### Product Description

This McAfee® 130-0016-00 compatible GBIC transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via a SC connector. It is guaranteed to be 100% compatible with the equivalent McAfee® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of McAfee®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure 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.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



## 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 |
|--------------------------------|----------|------|------|---------|------|-------|
| <b>Transmitter</b>             |          |      |      |         |      |       |
| 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    |       |
| <b>Receiver</b>                |          |      |      |         |      |       |
| 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 |
|--------------------------|-------------------|------|------|------|------|-------|
| <b>Transmitter</b>       |                   |      |      |      |      |       |
| Average Output Power     | PO                | -9.5 |      | -4   | dBm  | 1     |
| Optical Wavelength       | $\lambda$         | 830  | 850  | 860  | nm   |       |
| Spectral Width           | $\sigma$          |      |      | 0.85 | nm   |       |
| Optical Rise/Fall Time   | tr/tf             |      |      | 260  | ps   | 2     |
| Total Jitter             | TJ                |      |      | 56.5 | ps   |       |
| Optical Extinction Ratio | ER                | 9    |      |      | dB   |       |
| <b>Receiver</b>          |                   |      |      |      |      |       |
| Receiver Sensitivity     | RSENS             |      |      | -18  | dBm  | 3,4   |
| Maximum Received Power   | RX <sub>MAX</sub> | 0    |      |      | dBm  |       |
| Centre Wavelength        | $\lambda_C$       | 770  |      | 860  | nm   |       |
| LOS De-Assert            | LOSD              |      |      | -19  | dBm  |       |
| LOS Assert               | LOSA              | -35  |      |      | dBm  |       |
| LOS Hysteresis           |                   | 0.5  |      | 5    | dB   |       |

### Notes:

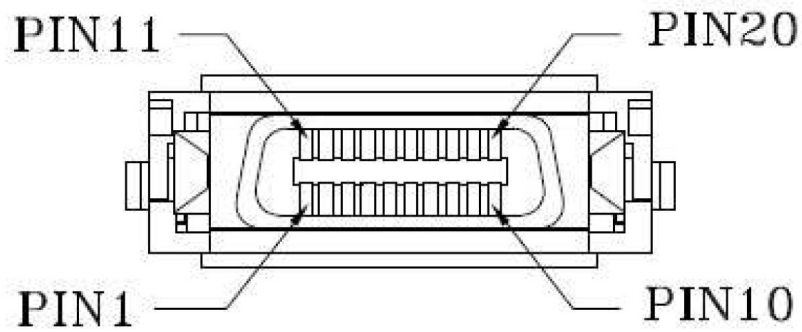
1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS  $2^7-1$  at  $10^{-10}$  BER.

## 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    |

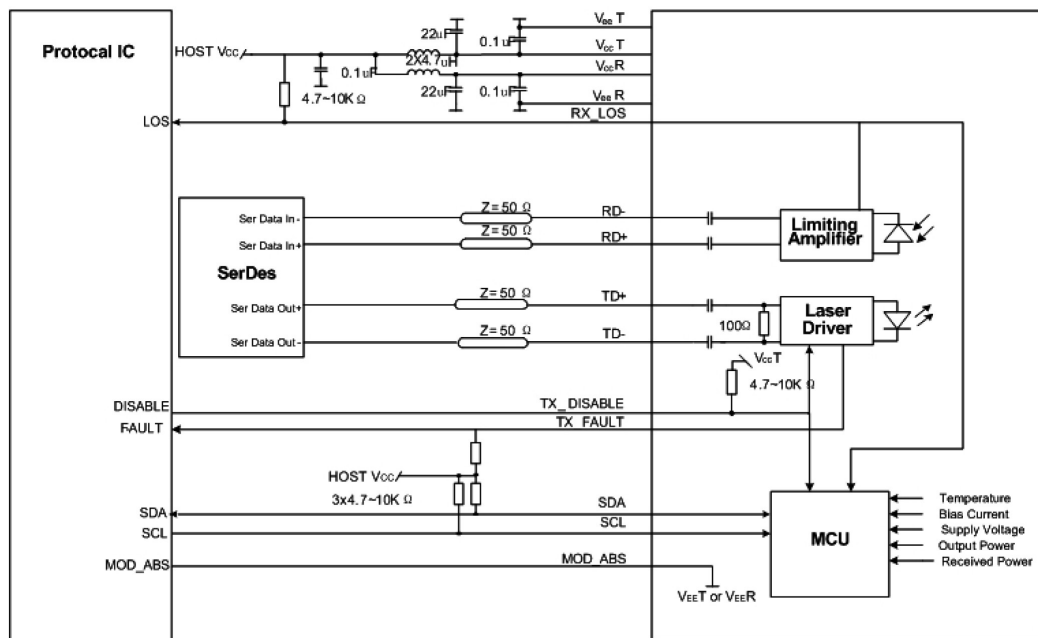
## Notes:

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 <VccT+0.3V or VccR+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-VccT): Transmitter Disabled Open: Transmitter Disabled.

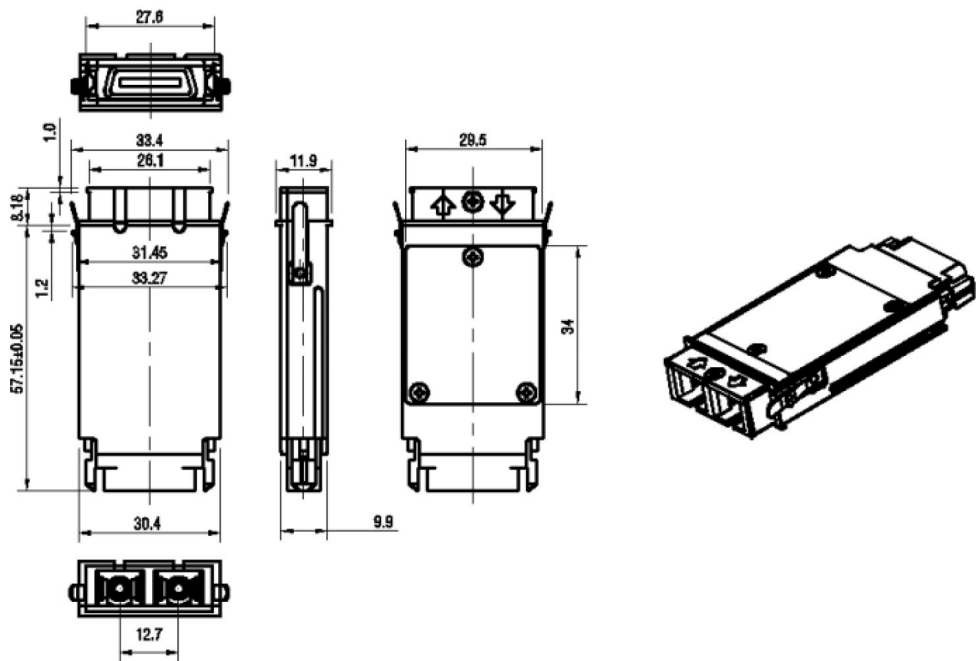


Pin-out of connector Block on Host board

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

## About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.



## U.S. Headquarters

Email: [sales@addonnetworks.com](mailto:sales@addonnetworks.com)

Telephone: +1 877.292.1701

Fax: 949.266.9273

## Europe Headquarters

Email: [salesupportemea@addonnetworks.com](mailto:salesupportemea@addonnetworks.com)

Telephone: +44 1285 842070