**SMCBGSLCX1-AO**

SMC Networks® SMCBGSLCX1 Compatible TAA 1000Base-SX SFP Transceiver (MMF, 850nm, 550m, LC, DOM)

**Features**

- INF-8074 and SFF-8472 Compliance
- VCSEL transmitter and PIN receiver
- Duplex LC 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 SMC Networks® SMCBGSLCX1 compatible SFP transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent SMC Networks® 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. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. 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."

TAA COMPLIANT

**Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| **Supply Voltage** | Vcc | -0.5 | | 4.0 | V |
| **Storage Temperature** | TS | -40 | | 85 | ℃ |
| **Case Operating Temperature** | Tc | 0 | | 70 | ℃ |
| **Operating Humidity** | RH | 5 | | 95 | % |
| **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 |
|---|---|---|---|---|---|---|
| **Power Supply Voltage** | Vcc | 3.13 | 3.30 | 3.47 | V | |
| **Power Supply Current** | Icc | | | 250 | mA | |
| **Transmitter** | | | | | | |
| **Input differential impedance** | Rin | | 100 | | Ω | 1 |
| **Single ended data input swing** | Vin, pp | 250 | | 1200 | mV | |
| **TX Disable-High** | | Vcc-1.3 | | Vcc | V | |
| **TX Disable-Low** | | Vee | | Vee+0.8 | V | |
| **TX Fault-High** | | Vcc-0.5 | | Vcc | V | |
| **TX Fault-Low** | | Vee | | Vee+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** | | Vcc-0.5 | | Vcc | V | |
| **LOS-Low** | | Vee | | Vee+0.5 | V | |

**Notes:**

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

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Average Output Power** | PO | -9 | | -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 | | | 200 | 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 | | | -26 | dBm | |
| **LOS Assert** | LOSA | -40 | | | dBm | |
| **LOS Hysteresis** | | 0.5 | | 5 | dB | |

**Notes:**

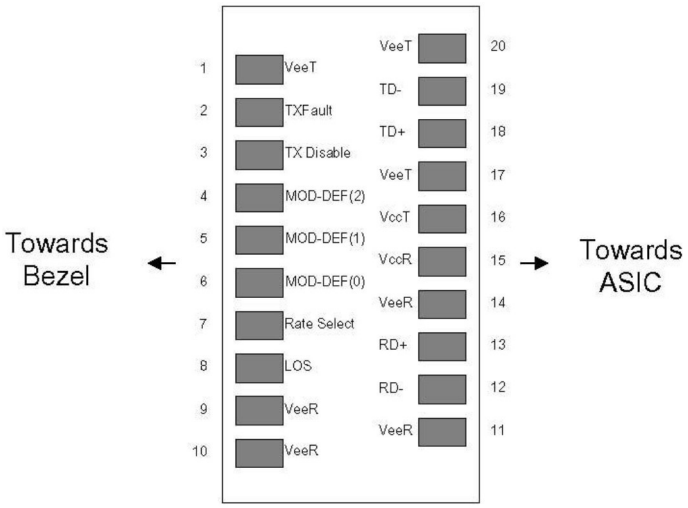
1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS $2^7$-1 at $10^{-10}$ BER.

**Pin Descriptions**

| Pin | Symbol | Name/Descriptions | Ref. |
|---|---|---|---|
| **1** | VeeT | Transmitter Ground (Common with Receiver Ground) | 1 |
| **2** | TX Fault | Transmitter Fault. | |
| **3** | TX Disable | Transmitter Disable. Laser output disabled on high or open. | 2 |
| **4** | MOD DEF (2) | Module Definition 2. Data line for Serial ID. | 3 |
| **5** | MOD_DEF (1) | Module Definition 1. Clock line for Serial ID. | 3 |
| **6** | MOD_DEF (0) | Module Definition 0. Grounded within the module. | 3 |
| **7** | Rate Select | No connection required. | |
| **8** | LOS | Loss of Signal indication. Logic 0 indicates normal operation. | 4 |
| **9** | VeeR | Receiver Ground (Common with Transmitter Ground) | 1 |
| **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. | |
| **16** | VccT | Transmitter Power Supply. | |
| **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 |

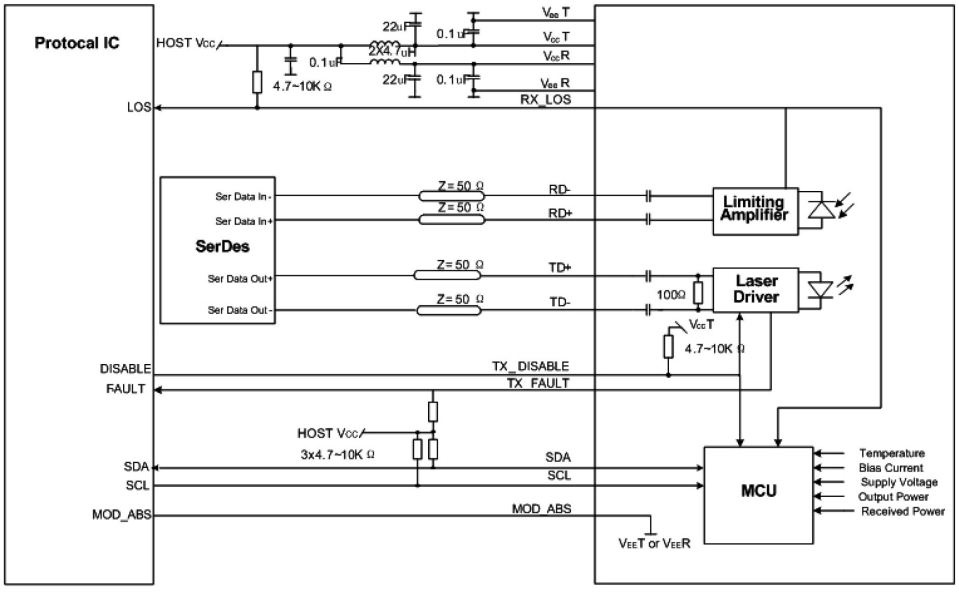
**Notes:**

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.
3. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF (0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



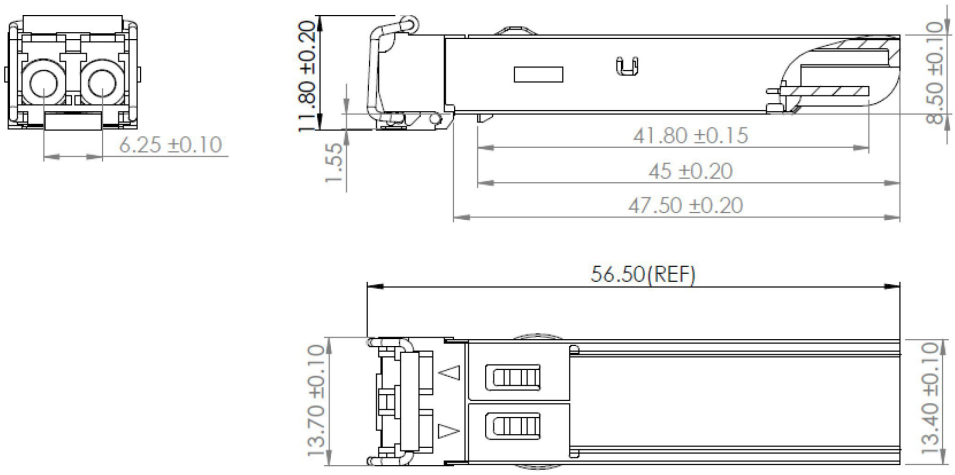

Pin-out of connector Block on Host board

**Recommend Circuit Schematic**



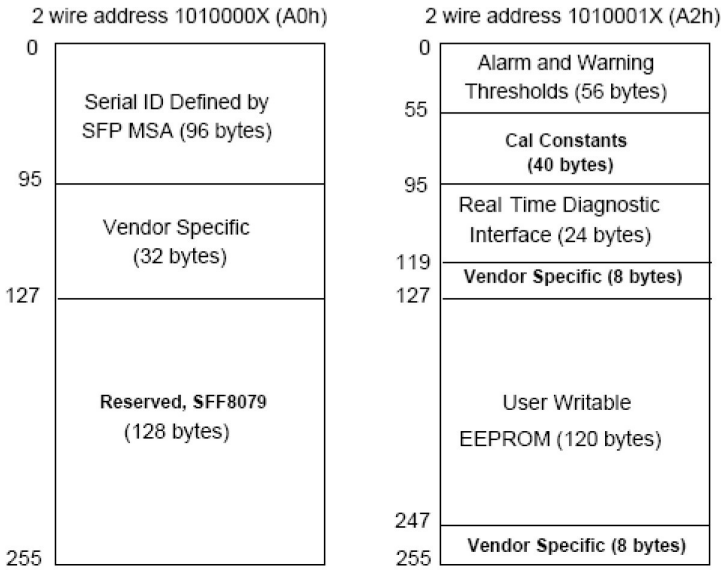
**Mechanical Specifications**

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).




**EEPROM Information**

EEPROM memory map specific data field description is as below:



**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 in engrained 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

Telephone: +1 877.292.1701

Fax: 949.266.9273

**Europe Headquarters**

Email: salessupportemea@addonnetworks.com

Telephone: +44 1285 842070