**C-MCC10GRJLC-SR-SK**

10GBase-T RJ-45 to 10GBase-SR(LC) 850nm 300m Standalone Media Converter Card Kit

**Features**

- Support Jumbo Frame
- Transparent Transport and very low delay
- Support ITUT prescribed DWDM/CWDM wavelength
- Support DMI function for SFP+ fiber module
- Support Loopback test function
- Economic In-band Management function
- Powerful Network Management function (Web, SNP, Console)
- Supports hot plugging
- Support 2U Rack (16 channel) and standalone use
- Full State Led Display
- Easy installation
- UTP cable length detection (only RJ-45 interface)

**Applications**

- Connection between fiber to copper 10Gbps Ethernet equipment function as fiber-to-copper media converter for long distance transmission.
- Media converter for network backbone (SAN, LAN, MAN).
- Can be applied in telecommunication room, R&D laboratory, data center, or network uses.

**Product Description**

This is a standalone media converter card kit that converts 10GBase-T RJ-45 to 10GBase-SR(LC) 850nm 300m. It includes the a media converter card and enclosure. The open SFP+ port also allows users to customize between the SR, LR, CWDM, DWDM, bidirectional, or etc. connections. It provides a cost effective conversion from 10GBase copper RJ-45 & SFP+, while extending your network reach beyond the 100m reach limitation of copper. This standalone media converter can also be used (without the enclosure) and housed in the rack's system for plug and play rack mount support. Our media converters and network interface cards are 100% compliant for all of our networking needs. Now you have a cost effective solution to your network upgrade needs.

## Media Converter Specifications

| Parameter | Specifications |
|---|---|
| **Transmission Speed** | 10Gbps |
| **Protocols** | IEEE 802.3an (10Gbase-T), IEEE 802.3ae (10Gbase-SR/LR/ER/ZR) |
| **Access Type** | 10G LAN |
| **Interface Type** | Type: RJ-45 to/from SFP+ |
| **Support Distance** | SFP+ module: up to 80km<br>10Gbase-T: 100m Cat 6a cable |
| **Maximum Packet Forwarding Rate** | 14,880,950/S |
| **Network management information** | Card type information<br>• SFP+ fiber module detection<br>• SFP+ fiber module DMI function (Temperature, Voltage, Optical power)<br>• Link Status detector<br>• Enable/Disabled Loopback test function.<br>• UTP cable length detection (only RJ-45 interface) |
| **Operating Temperature** | 0˚C to 50˚C |
| **Storage Temperature** | 10˚C to 70˚C |
| **Relative Humidity** | 5% to 90% Non-condensing |
| **Rack-mountable** | AC 85~220V or DC -48V |
| **Standalone** | AC 220V or DC -48V |
| **Power consumption** | ≤6W |
| **Card Dimension** | 11.5mm (W) x 78 (D) |
| **Standalone Dimension** | 156mm (W) x 128mm (D) x 32mm (H) |

## Transceiver Specifications

### Absolute Maximum Ratings

| Parameter | | | | |
|---|---|---|---|---|
| **Maximum Supply Voltage** | Vcc | -0.5 | 4.0 | V |
| **Storage Temperature** | TS | -40 | 85 | °C |
| **Operating Case Temperature** | Tc | 0 | 70 | °C |
| **Operating Humidity** | RH | 5 | 85 | % |
| **Receiver Power** | $R_{MAX}$ | | -1 | dBm |
| **Maximum Bitrate** | $B_{max}$ | | 11.3 | Gbps |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Power Supply Voltage** | Vcc | 3.15 | 3.30 | 3.43 | V | |
| **Power Supply Current** | Icc | | | 303 | mA | |
| **Power Consumption** | $P_{DISS}$ | | | 1 | W | |
| **Transmitter** | | | | | | |
| **Differential data input swing** | Vin,pp | 120 | | 850 | mV | |
| **Input differential impedance** | Zin | 80 | 100 | 120 | Ω | |
| **Receiver** | | | | | | |
| **Differential data output swing** | Vout, pp | 300 | | 850 | mV | |
| **Output differential impedance** | Zin | 80 | 100 | 120 | Ω | |

### Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Optical Power (average)** | $P_{AVE}$ | -7.3 | | -1.2 | dBm | 1 |
| **Optical Modulation amplitude (OMA)** | $P_{OMA}$ | -1.5 | | | dBm | 2 |
| **Optical Extinction Ratio** | ER | 3 | | | dB | |
| **Optical Wavelength** | Tλ | 840 | 850 | 860 | nm | |
| **Insertion loss** | IL | | 2 | | | |
| **Receiver** | | | | | | |
| **Receiver Sensitivity (average)** | $R_{AVE}$ | | | -9.9 | dBm | 3 |
| **Receiver Sensitivity (OMA)** | $R_{OMA}$ | | | -11.1 | | 2 |
| **Receiver overload** | $P_{max}$ | -1 | | | dBm | 4 |
| **Receiver wavelength** | Rλ | 840 | | 860 | nm | |

**Notes:**

1. Coupled into a Multi-mode fibre
2. Per IEEE 802.3ae specification
3. Average power, back-to-back, @10.31Gbps, BER 1E-12, PRBS 231-1.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

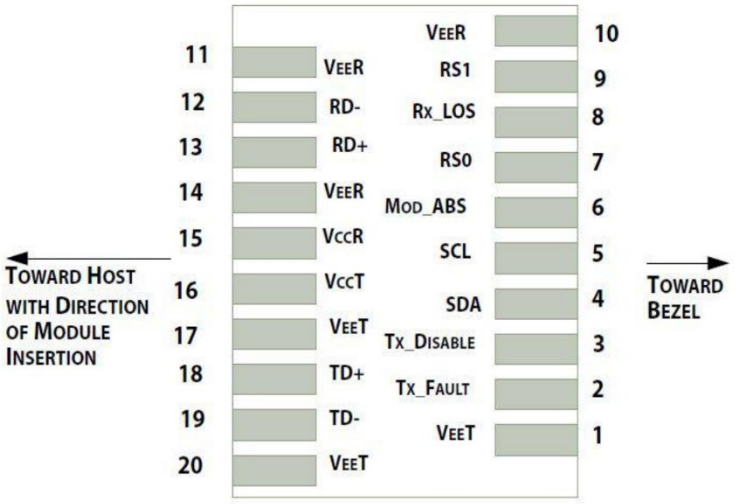
**Pin Descriptions**

| Pin | Symbol | Name/Descriptions | Ref. |
|---|---|---|---|
| **1** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |
| **2** | TX Fault | Transmitter Fault. LVTTL-O | 2 |
| **3** | TX Disable | Transmitter Disable. Laser output disabled on high or open. LVTT-I. | 3 |
| **4** | SDA | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O. | |
| **5** | SCL | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I. | |
| **6** | MOD_ABS | Module Absent, Connect to VeeT or VeeR in Module. | 4 |
| **7** | RS0 | Rate Select 0. Not used | 5 |
| **8** | LOS | Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O. | 2 |
| **9** | RS1 | Rate Select 1. Not used | 5 |
| **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. CML-O. | |
| **13** | RD+ | Receiver Non-inverted DATA out. AC Coupled. CML-O. | |
| **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. CML-I. | |
| **19** | TD- | Transmitter Inverted DATA in. AC Coupled. CML-O. | |
| **20** | VeeT | Transmitter Ground (Common with Receiver Ground). | 1 |

**Notes:**

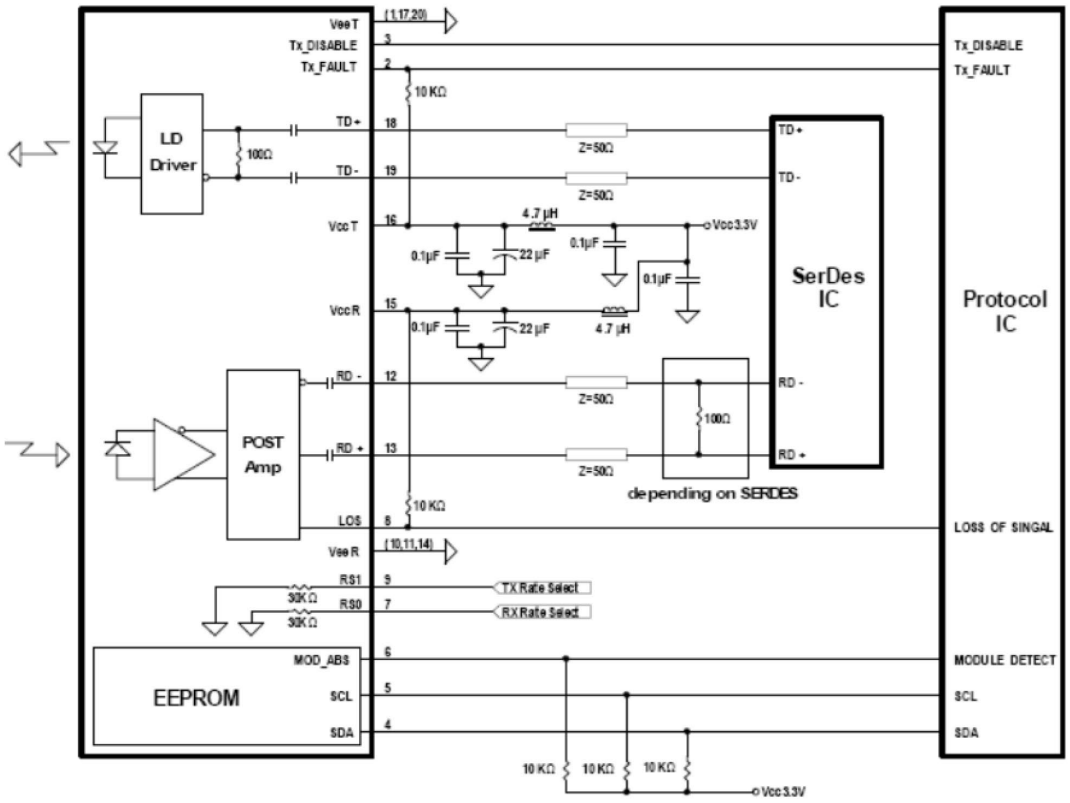
1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.

4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



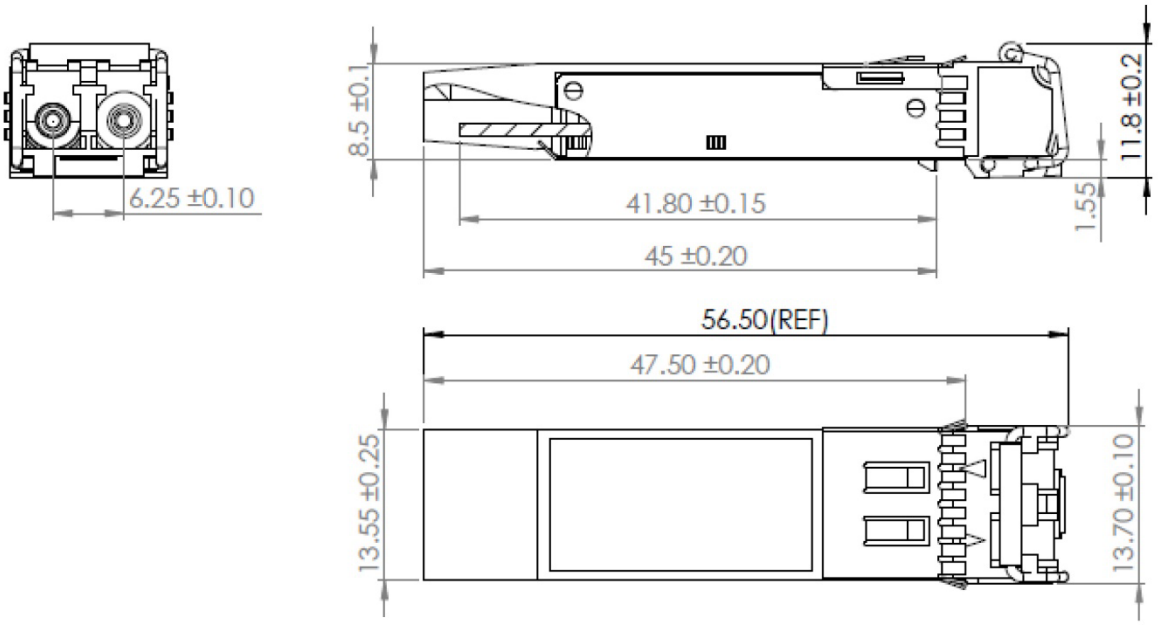

Pin-out of connector Block on Host board

**Recommended Circuit Schematic**



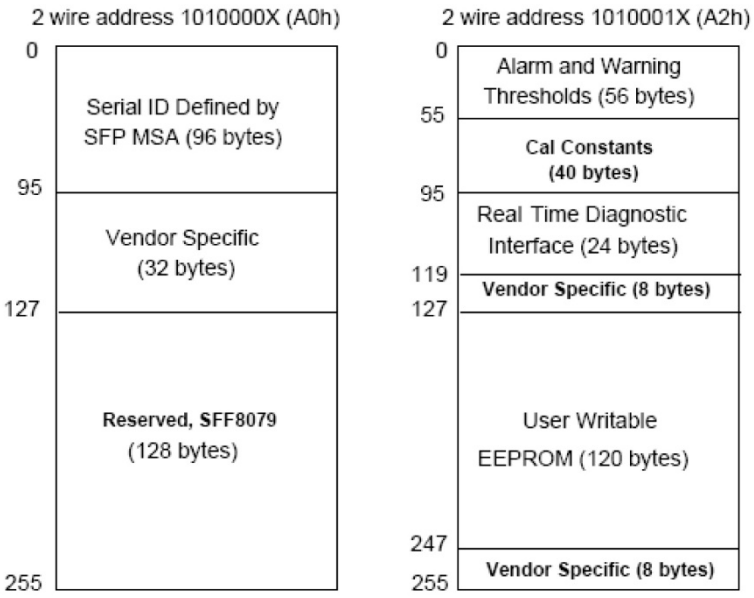
**Mechanical Specifications**

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 ProLabs**

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

**Complete Portfolio of Network Solutions**

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

**Trusted Partner**

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.


**Contact Information**

ProLabs US

Email: sales@prolabs.com
Telephone: 952-852-0252

ProLabs UK
Email: salessupport@prolabs.com
Telephone: +44 1285 719 600