Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


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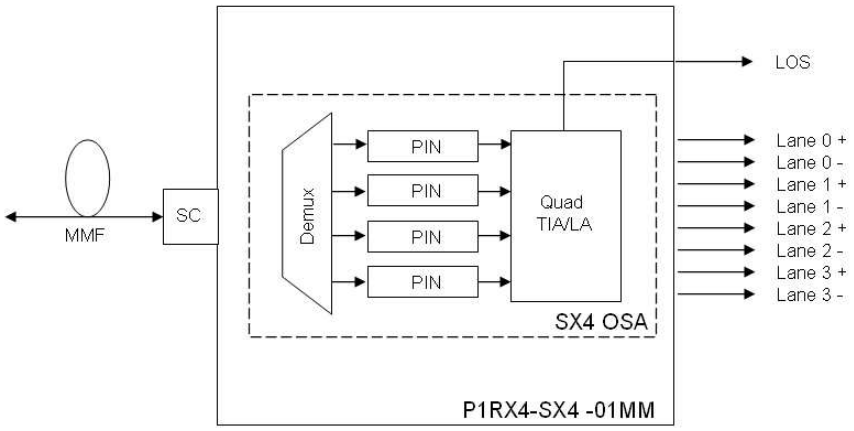
## 1.0 Description

The P1RX4C-SX4x-01MM (SX4 ROSA Module) is an optical to electrical (O-E) module that receives four video- or data-channels from one singlemode or multimode fiber. With the TIA and Limiting Amp embedded in the OSA and enclosed in an EMI shielded metal housing, the SX4 ROSA module is a fully integrated receiver versatile enough to be designed in to a variety of systems.

## 2.0 Features

- Multiple signals from one Multimode fiber
- Integrated TIA and Limiting Amp
- Metal enclosure with SC optical interface
- CML outputs




This device is **EXTREMELY SENSITIVE** to Electrostatic Discharge (ESD). At a minimum, all handling must be performed in accordance with an ANSI-compliant ESD Control Program (ANSI/ESD S20.20-2007) to mitigate possible ESD-induced damage. Reliability and life of the device will be adversely affected if these precautions are not met.


This device is a Class 3R Laser device (per IEC 60825-1:2007) and can cause damage to eye sight if used improperly. Refer to ANSI Z136 for proper handling and usage of Class 3R devices.

## 3.0 Absolute Maximum Ratings

| Parameter | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Storage Temperature[1, 3] | Tst | -40 | | 85 | °C |
| 3.3V Supply Voltage | VCC1 | -0.3 | | 3.6 | V |
| Operating Surface Temperature[2] | Ta | 0 | | 65 | °C |
| Operating Humidity[3] | RH | | | 80 | % |
| Durability – SC Connector | | | 200 | | cycles |
| Durability – Plug-down Connector | | | 50 | | cycles |

## 4.0 Optical Characteristics

| Parameter (per channel) | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Wavelength – Lane 0 | | | 778 | | nm |
| Wavelength – Lane 1 | | | 800 | | nm |
| Wavelength – Lane 2 | | | 825 | | nm |
| Wavelength – Lane 3 | | | 850 | | nm |
| Data Rate per Channel[4]<br>P1RX4C-SX4V-01<br>P1RX4C-SX4D-01 | $D_R$ | | | 1.65<br>3.50 | Gb/s |
| Peak Optical Input Power | Pin | | | 4.0 | dBm |
| OMA Sensitivity[5] | | -14.25 | -16.00 | | dBm |

[1] Stresses listed may be applied without causing damage. Functionality at or above the values listed is not implied. Exposure to these values for extended periods may affect reliability.
[2] See outline drawing for measurement point.
[3] Non condensing, 80% RH.
[4] Requires DC-balanced data pattern and max run rate of 80 bits. Measured with input signals conforming to HDMI rev 1.3a, section 4.2.5, figure 4-20.
[5] Optical Modulation Amplitude. Based on an unstressed input signal.

## 5.0 Electrical Specifications

| Parameter | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Low Frequency Cutoff | $F_{CUTOFF}$ | | 175 | | kHz |
| Total Jitter (RMS), per lane[6] | $T_{J1}$ | | 10 | | ps |
| Differential Output Voltage[7] | $V_{OD}$ | | 500 | | mVp-p |
| Loss of Signal Assert Sensitivity | $LOS_{SEN-ON}$ | | -14.50 | | dBm |
| Loss of Signal De-Assert Sensitivity | $LOS_{SEN-OFF}$ | | -13.00 | | dBm |
| Loss of Signal Output Low[8] | $V_{LOS}$ | | | 0.7 | V |
| Loss of Signal Output High | $V_{LOS}$ | 2 | | | V |
| Operating Supply Voltage | $V_{CC}$ | 3.15 | 3.30 | 3.54 | V |
| Operating Supply Current | $I_{CC}$ | | 127 | | mA |

[6] Based on a jitter-free source
[7] CML interface through a 100-ohm differential load.
[8] This output is asserted low when a loss of signal is detected on all Lanes

## 6.0 Pin Numbers and Descriptions

The RX-SX4 plugs into a 30 pin connector. For information on the specifications of the connector, contact Hirose (DF12(4.0)-30DP-0.5V(86)).

| Pin # | Signal | Description |
|---|---|---|
| 1 | GND | Ground |
| 2 | LOS | Global Loss of Signal Indicator |
| 3 | +TD0 | Positive Data Output (778nm) |
| 4 | NC | No Connect[9] |
| 5 | -TD0 | Negative Data Output (778nm) |
| 6 | NC | No Connect[9] |
| 7 | +TD1 | Positive Data Output (800nm) |
| 8 | NC | No Connect[9] |
| 9 | -TD1 | Negative Data Output (800nm) |
| 10 | NC | No Connect[9] |
| 11 | +TD2 | Positive Data Output (825nm) |
| 12 | NC | No Connect[9] |
| 13 | -TD2 | Negative Data Output (825nm) |
| 14 | NC | No Connect[9] |
| 15 | +TD3 | Positive Data Output (850nm) |
| 16 | NC | No Connect[9] |
| 17 | -TD3 | Negative Data Output (850nm) |
| 18 | NC | No Connect[9] |
| 19 | GND | Ground |
| 20 | NC | No Connect[9] |
| 21 | NC | No Connect[9] |
| 22 | NC | No Connect[9] |
| 23 | NC | No Connect[9] |
| 24 | NC | No Connect[9] |
| 25 | NC | No Connect[9] |
| 26 | NC | No Connect[9] |
| 27 | NC | No Connect[9] |
| 28 | VCC | 3.3 volt input. |
| 29 | GND | Ground |
| 30 | VCC | 3.3 volt input. |

## 7.0 Laser Safety

The P1RX4-SX4x-01 meets Class-3 requirements.

[9] NC = No Connect. Do not connect anything to this pin.

## 8.0 Environmental Standards

Omron Network Products designs and manufactures its products to minimize the negative impact on our environment. As such, the P1RX4C-SX4-01MM conforms to a variety of environmental and safety standards

| Standard | Compliant | Certificate Available |
|---|---|---|
| RoHS | Yes | Yes |

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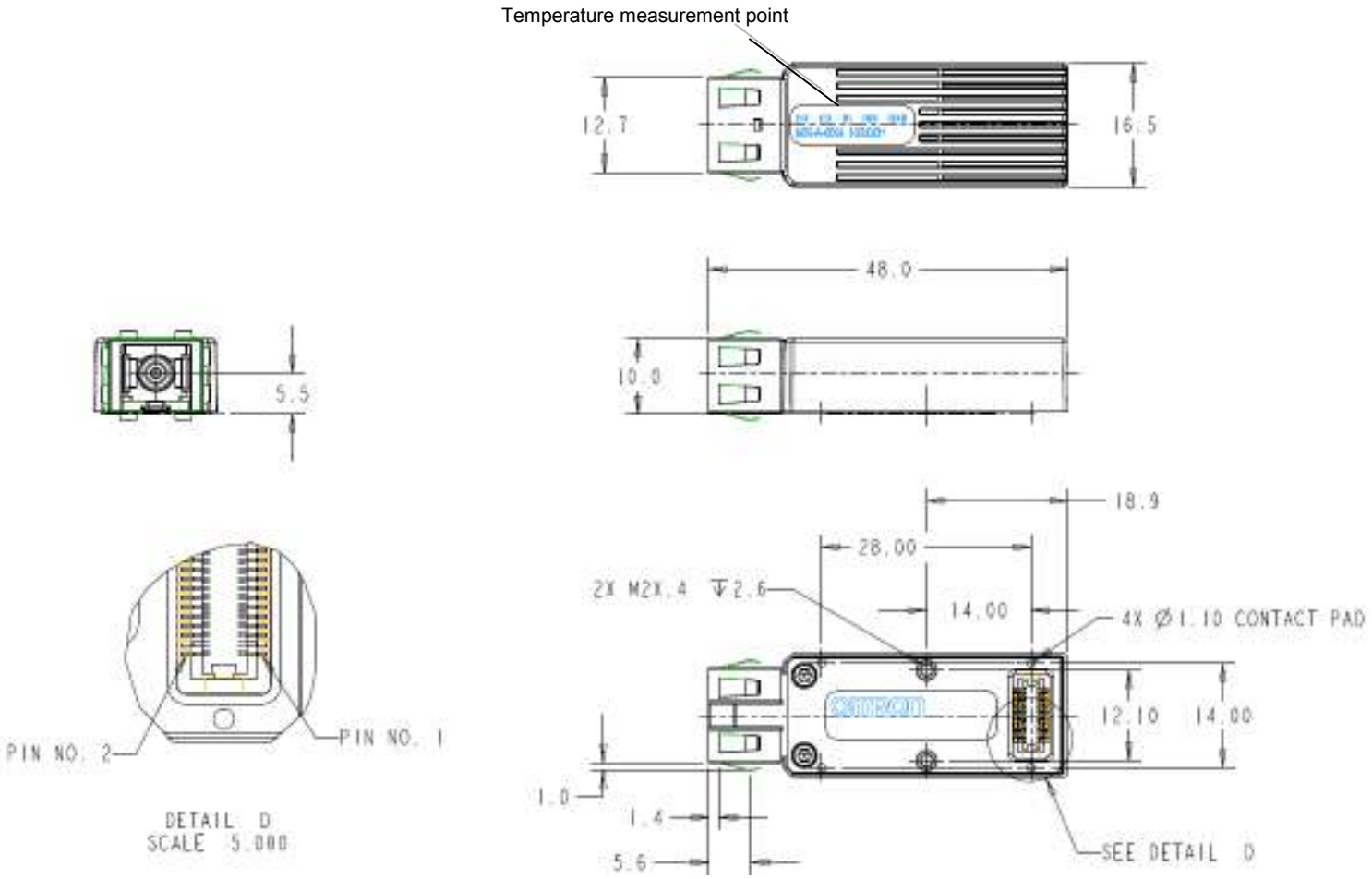
## Dimensions

The SX4 ROSA is designed to work with a standard SC ferrule only. Insertion of any other type may result in damage.

Dimensions (mm) and orientation are for reference only.




| ORIGINATOR: | C. ENG | DATE: | 7/8/2011 | |
|---|---|---|---|---|
| OMRON | P1RX4C-SX4x-01MM Product Specification | | DOCUMENT NO. DOC002107 | REV A |
| | | | SHEET 6 OF 6 | |