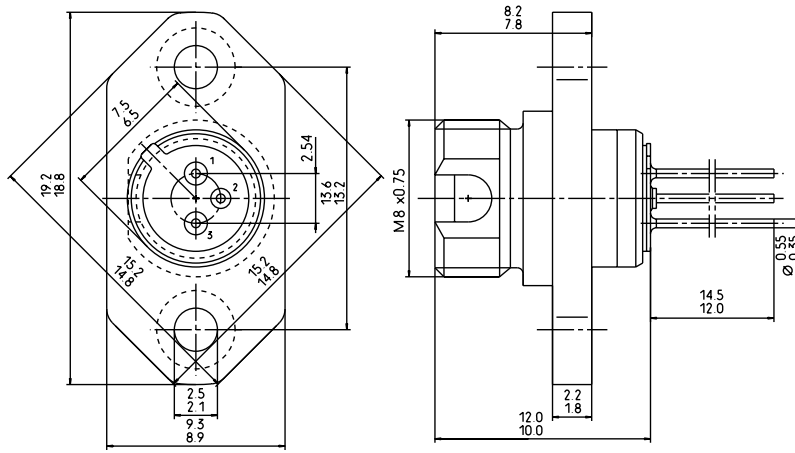
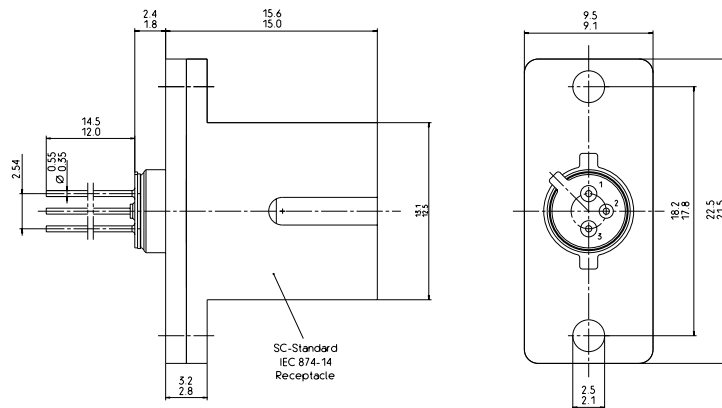


Dimensions in mm



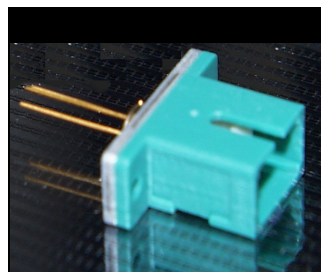
SRD00217G



SRD00217N



SRD00217G



SRD00217N

FEATURES

- InGaAs/InP PIN photodiode
- Designed for applications in fiber-optics communication systems
- Sensitive receiver for 2nd and 3rd optical window (1300 nm and 1550 nm)
- Suitable for bit rates up to 2.5 Gbit/s
- For singlemode and multimode applications SONET OC-1...OC-48, SDH STM-1...STM-16

- Low junction and low package capacitance
- Fast switching times
- Low dark current
- Excellent noise immunity
- High reverse current stability from planar structure
- Hermetically sealed TO46 package

Absolute Maximum Ratings

Module

Operating temperature range at case, T_C -40°C to 85°C
 Storage temperature range, T_{stg} -40°C to 85°C
 Soldering temperature $t_{max}=10$ s,
 2 mm distance from bottom edge of case, T_S 260°C

Receiver Diode

Reverse Voltage, V_R 20 V
 Forward Current, I_F 10 mA
 Optical power into the optical port, P_{port} 1 mW

DESCRIPTION

The Infineon optical receiver module has been designed for use in optical networks and is suitable for bit rates up to max. 2.5 Gbit/s if used without any TIA.

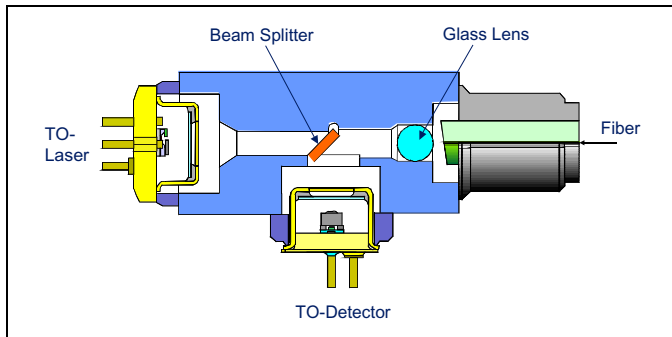
The optical receiver module uses a high-speed PIN photodetector optional coupled with a hybrid low noise transimpedance amplifier (PIN-TIA). The optical receiver photodiode can be used for 1310 nm or 1550 nm optical communications.

The PIN photodiode is made of InGaAs/InP and has an active diameter of 75 μm . The function of the PIN and PIN-TIA optical receiver module is to detect input optical power, to transduce the incident radiation into current (PIN) and then to convert the current into a voltage (PIN-TIA).

The low input noise current density of the used transimpedance amplifiers in PIN-TIA's provides the optical receiver module, when used with appropriate filtering, with ample sensitivity for realizing minimum input power requirements. Designers of optical receivers can use the module in any application that benefits from integration of the photodiode and TIA into a TO coaxial package. Typical for such applications are receivers for digital crossconnects, digital loop carriers, add/drop-multiplexers and optical network units.

Last but not least the fast switching times, low dark currents and the packaging in a compact and hermetically sealed TO46 make the optical receivers usable in many other fiber optic receiver applications. One application is the use in a Compact realization of a transceiver in one module like the so called **BIDI®** (Fig. 1).

Figure 1. Compact realization of the transceiver in one module



TECHNICAL DATA

All data refer to the full operating temperature range unless otherwise specified.

Receiver Diode Electro-Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Units |
|---|--|------|------|------|-------|
| Spectral sensitivity $V_R = -2 \text{ V}$, $P_{\text{opt}} = 1 \mu\text{W}$ | $S_{1310\text{nm}}$ $S_{1550\text{nm}}$ | 0.8 | 0.9 | | A/W |
| Change in Spectral Sensitivity in Operating Temperature Range | ΔS | | | 0.2 | %/K |
| Dark current $V_R = 2 \text{ V}$, $P_{\text{opt}} = 0 \text{ mW}$ | $I_{d25^\circ\text{C}}$ | | | 5 | nA |
| | $I_{d85^\circ\text{C}}$ | | | 50 | nA |
| Total Capacitance $V_R = 3 \text{ V}$, $f = 1 \text{ MHz}$, $V_{\text{RF}} = 30 \text{ mV}$ | C | | 0.8 | 1 | pF |
| Rise and fall time (10%...90%) $V_R = 5 \text{ V}$, $P_{\text{opt}} = (0.1...1) \text{ mW}$, 50Ω | t_r , t_f | | 200 | 300 | ps |
| Cut Off Frequency $\lambda = 1310 \text{ nm}$, $V_R = 5 \text{ V}$, 50Ω | $f_{3\text{dB}}$ | 1 | | | GHz |
| Return Loss $\lambda = 1310 \text{ nm}$ | RL | | | -20 | dB |

End of Life Time Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Units |
|---|--------|------|------|------|-------|
| Detector Dark Current $V_R = 2 \text{ V}$, $T = T_{\text{max}}$ | I_R | | | 400 | nA |

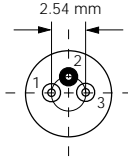
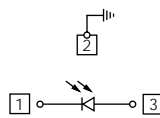
FIBER DATA

The mechanical fiber characteristics are described in the following table.

Fiber Characteristics

| Parameter | Min. | Typ. | Max. | Units |
|---|------|------|------|---------------|
| Mode Field Diameter | | 50 | | μm |
| Cladding Diameter | 123 | 125 | 127 | |
| Mode Field/Cladding Concentricity Error | | | 1 | |
| Cladding Non-circularity | | | 2 | % |
| Mode Field Non-circularity | | | 6 | |
| Cut off Wavelength | 1270 | | | nm |
| Jacket Diameter | 0.8 | | 1 | mm |
| Bending Radius | 30 | | | |
| Tensile Strength Fiber Case | 5 | | | N |
| Length | 0.8 | | 1.2 | m |

Pin Description

| Pinning (bottom view) | Pin Description |
|---|--|
| Receiver 1 | |
|  | Pinning 1  |

FLANGE OPTIONS

| Model | Type |
|--------------------------|--------------------------|
| SRD00217G | SM FC Receptacle Package |
| SRD00217H | MM FC Receptacle Package |
| SRD00217N | SM SC Receptacle Package |
| SRD00217O | MM SC Receptacle Package |
| Other flanges on request | |

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Information

For further information on technology, delivery terms and conditions and prices please contact the Infineon Technologies offices or our Infineon Technologies Representatives worldwide - see our webpage at www.infineon.com/fiberoptics

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