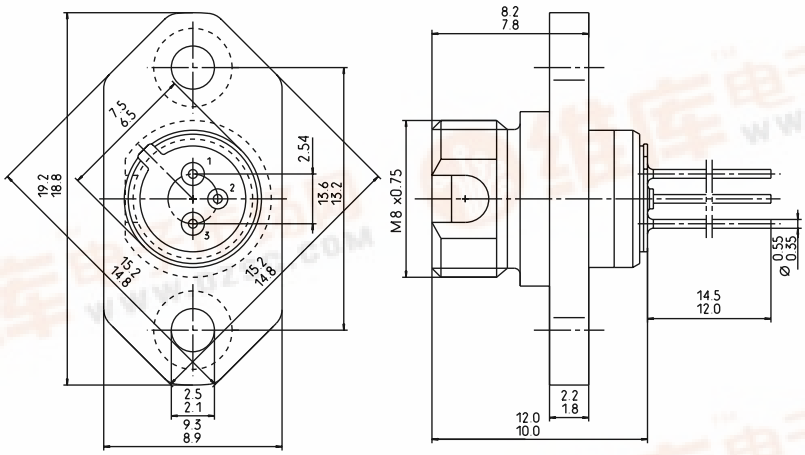
SRD00217x

Ternary PIN Photodiode in Receptacle Package

Dimensions in mm

SRD00217G



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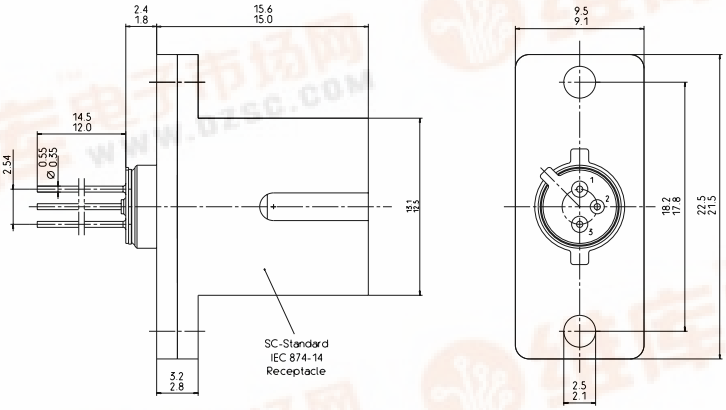

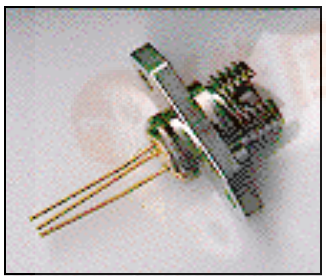

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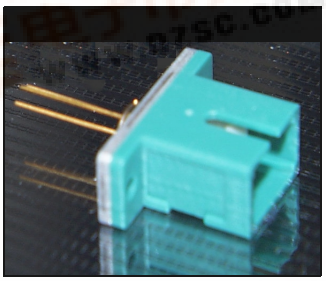


SRD00217N

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.

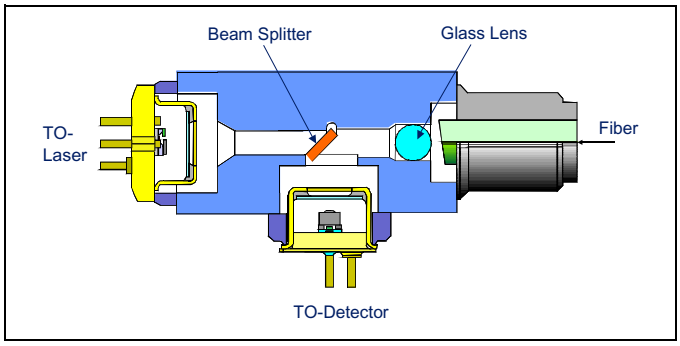
The optical receiver module uses a high-speed PIN photodetector optional coupled with a hybrid low noise transimpedance amplifier (PIN-TIA). The optical receiver photodiode can be used for 1310 nm or 1550 nm optical communications.

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 V, P_{opt}=1 µW	S_{1310nm} S_{1550nm}	0.8	0.9		A/W
Change in Spectral Sensitivity in Operating Temperature Range	ΔS			0.2	%/K
Dark current V_R=2 V, P_{opt}=0 mW	$Id_{25°C}$			5	nA
	$Id_{85°C}$			50	
Total Capacitance V_R=3 V, f=1 MHz, V_{RF}=30 mV	C		0.8	1	pF
Rise and fall time (10%...90%) V_R=5 V, P_{opt}=(0.1...1) mW, 50 Ω	t_r, t_f		200	300	ps
Cut Off Frequency λ=1310 nm, V_R=5 V, 50 Ω	f_{3dB}	1			GHz
Return Loss λ=1310 nm	RL			–20	dB

End of Life Time Characteristics

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

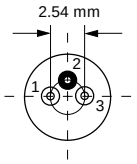
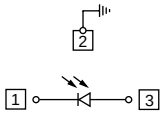
FIBER DATA

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

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