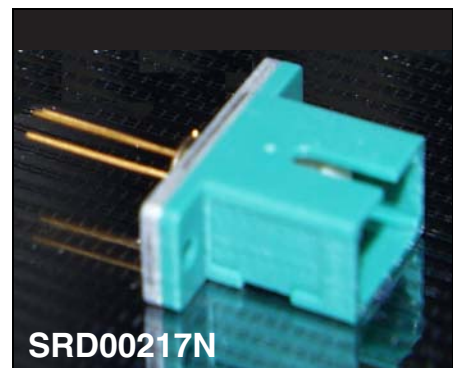


Ternary PIN Photodiode in Receptacle Package

SRD00217x

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



Pin Configuration

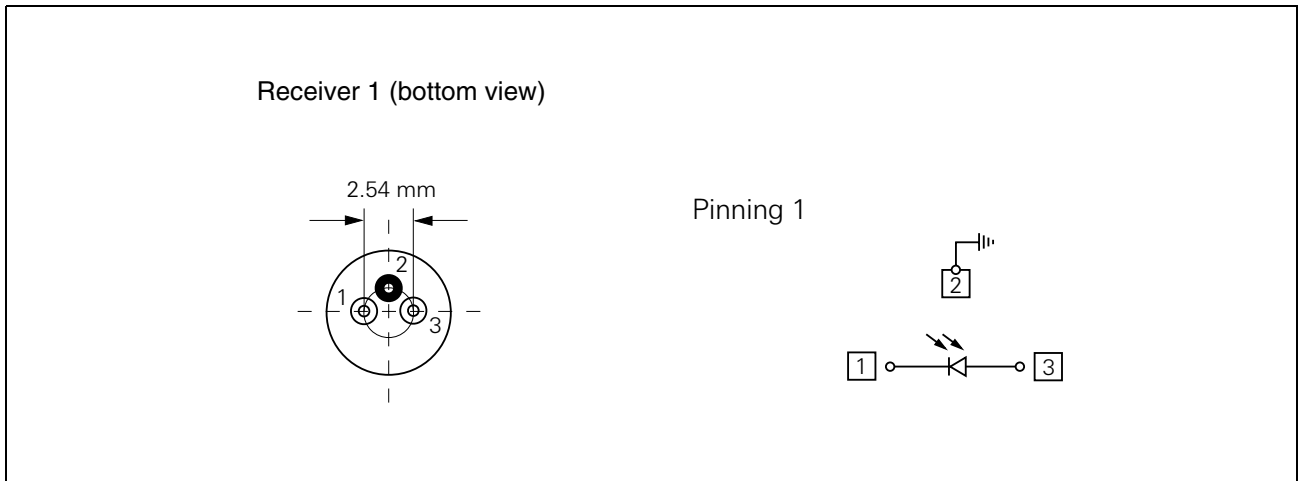


Figure 1 Receiver 1

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 photodiode 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® (**Figure 2**).

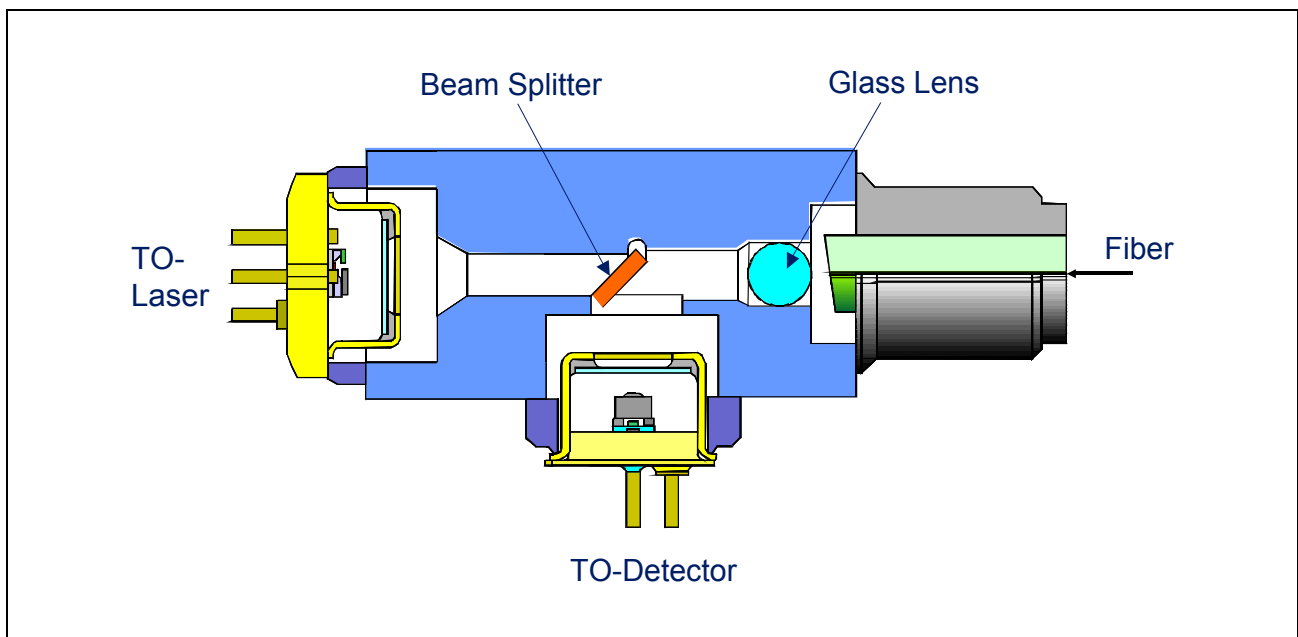


Figure 2 Compact Realization of the Transceiver in One Module

Technical Data

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

Absolute Maximum Ratings

Parameter	Symbol	Limit Values		Unit
		min.	max.	
Module				
Operating temperature range at case	T_C	-40	85	°C
Storage temperature range	T_{stg}	-40	85	
Soldering temperature ($t_{max} = 10$ s, 2 mm distance from bottom edge of case)	T_S		260	
Receiver Diode				
Reverse Voltage	V_R		20	V
Forward Current	I_F		10	mA
Optical power into the optical port	P_{port}		1	mW

Receiver Diode Electro-Optical Characteristics

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Spectral sensitivity $V_R = -2$ V, $P_{opt} = 1$ μ W	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	$I_{D 25^\circ C}$ $I_{D 85^\circ C}$			5 50	nA
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, 50Ω	t_r, t_f		200	300	ps
Cut Off Frequency $\lambda = 1310$ nm, $V_R = 5$ V, 50Ω	f_{3dB}	1			GHz
Return Loss, $\lambda = 1310$ nm	RL			-20	dB

End of Life Time Characteristics

Parameter	Symbol	Max.	Unit
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	Limit Values			Unit
	min.	typ.	max.	
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

Package Outlines

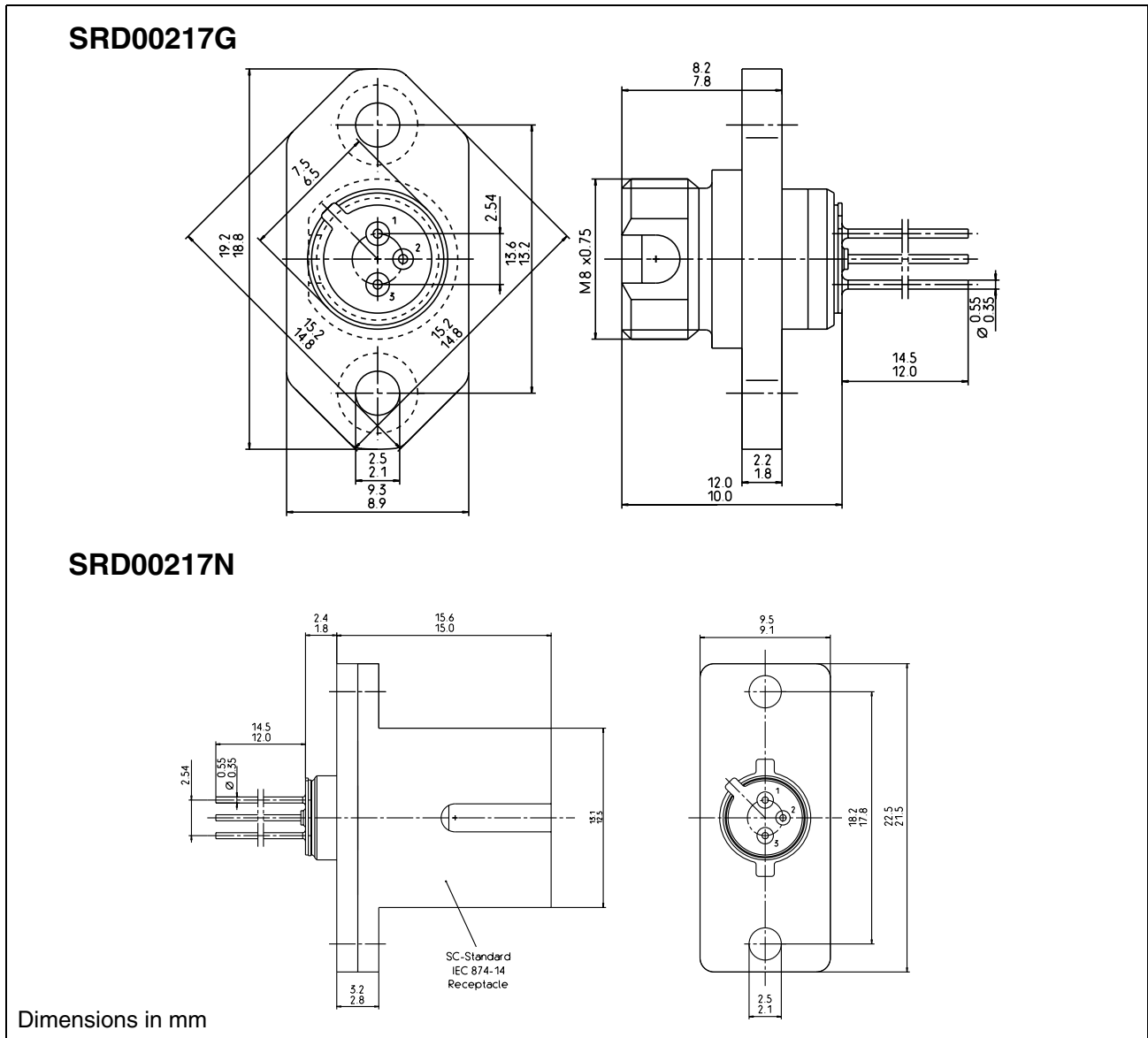


Figure 3

Flange Options

Type	Flange
SRD00217G	SM FC Receptacle Package
SRD00217H	MM FC Receptacle Package
SRD00217N	SM SC Receptacle Package
SRD00217O	MM SC Receptacle Package

Other flanges on request

Previous Version:

Page	Subjects (major changes since last revision)
	Document's layout has been changed: 2002-Aug.

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