Ratioplast
Electronics | OptoElectronics

Data Sheet RPOpto-Clamp
SI-PIN Photo diode

SI-PIN Photo Diode 400..1100nm

1 General

The RPOpto-Clamp is especially suitable for applications with standard 1mm plastic fiber optical cable. Pre-mounted with a high speed Si PIN photodiode the device is designed for visible to near infrared light detection with wideband characteristics at low bias, making it suitable for optical communications and other photometry. The RPOpto-Clamp is a good solution in data transmission systems with plastic fiber optical cable.

Pic. 1 *Fiber optic receiver*

2 Applications

Due to the high speed, the good optical and mechanical features, this receiver may be used in many applications:

- Optical networks
- Industrial electronic
- Power electronic

3 Ordering Information

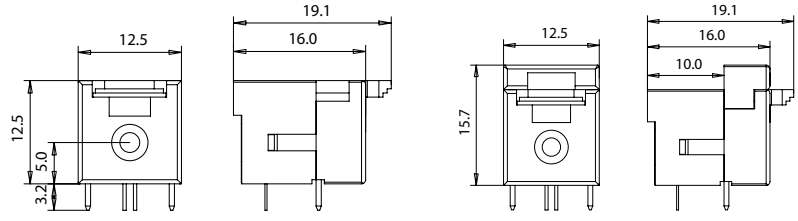
Style	Part Number
Photo diode	905EMPINKR003
Photo diode (with front panel fill)	905EMPINKR004

4 Features

- 400..1100nm PIN photodiode
- High sensitivity
- t_r, t_f <= 5ns
- Suitable for all plastic optical fiber cables with an outside diameter of 2.2 mm and a fiber diameter of 1 mm
- Fast locking mechanism (manual control)
- Plastic housing
- Suitable for automatic assembly
- Reflow-/ wave soldering

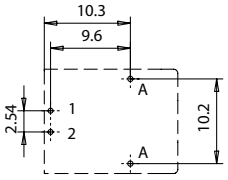
5 Technical Drawing

Housing



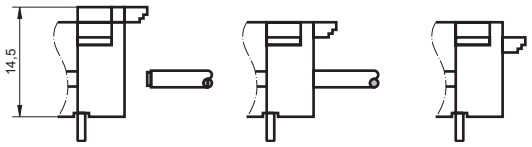
without front panel fill **with front panel fill**

Drill drawing for PCB



View : Component side
Drill diameter:
PIN 1,2 = 0,8 mm
Fixing pins A = 1 mm

positions of sliders, locking mechanism

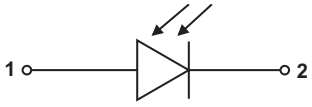


Slider „**open**“ for mounting or de-mounting of fiber

Fiber fixed by clamping.

In this position the RPopto clamp connector is dust and light protected.

Schematic diagram



Pic 2 Case drawing

SI-PIN Photo Diode 400..1100nm

6 Maximum Ratings (T_A=25°C)

Stresses beyond those listed under ´Maximum Ratings´ may cause permanent damage to the device. Listed values are stress limits only and functional operation of the device at these conditions is not recommended. Exposure to maximum rating conditions for extended periods may affect the device reliability.

Parameter	Value	Unit
Operating temperature	-40 ... +100	°C
Storage temperature		
Soldering temperature: 1.) 2mm from case, t ≤ 10s; 2.) max. 10s at max. 5s contact time per wave	260	°C
Reverse voltage	20	V
	50 at t ≤ 2min	
Power dissipation	150	mW
ESD withstand voltage	2	kV

7 Technical Data (T_A=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Spectral range of sensitivity	$\lambda_{10\%}$		400		1100	nm
Wavelength of max sensitivity	λ_{Smax}			850		
Half angle	φ			75		°deg.
Dark current	I_R	V_R=20V		1	5	nA
Spectral sensitivity of the chip	S_A	λ=850nm		0.62		A/W
Open-circuit voltage	V_O	E_V=1000lx; Std. Light A	300	350		mV
Short-circuit current	I_{SC}	E_V=1000lx; Std. Light A		9.3		µA
Rise and fall time	t_r	VR = 20 V; RL = 50 Ω; λ = 850 nm		0.005		µs
	t_f					
Forward voltage	V_F	IF = 100 mA; E = 0		1.3		V
Capacitance	C_O	VR = 0 V; f = 1 MHz; E = 0		11		pF
Temperature coefficient	TC_V	Voltage		-2.6		mV/K
	TC_I	Short-circuit current Std. Light A		0.18		%/K

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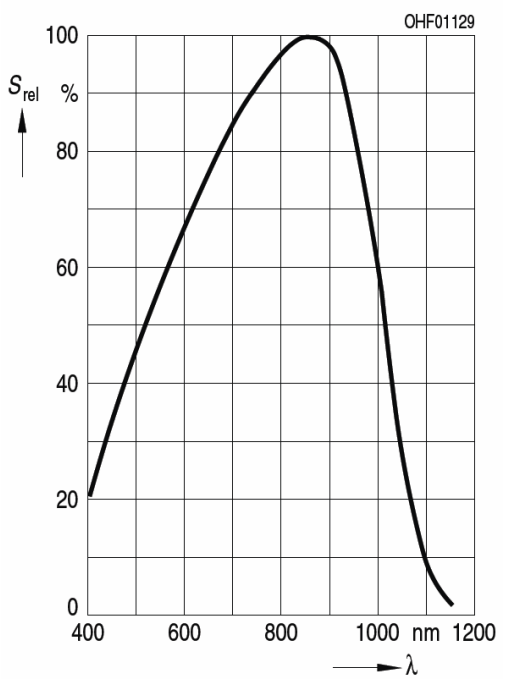
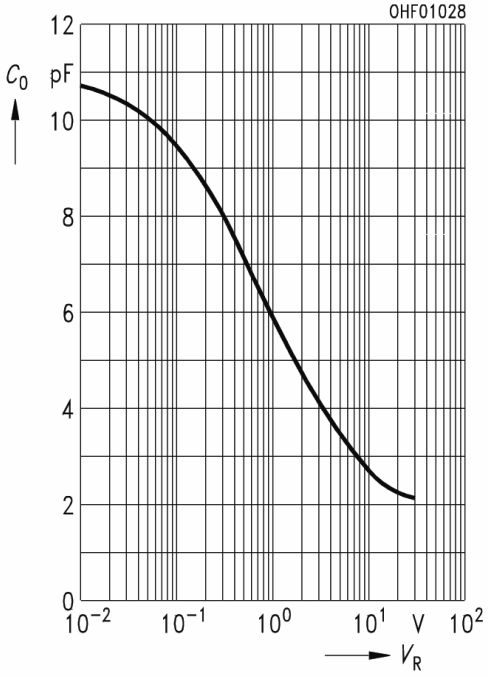
8 Characteristics

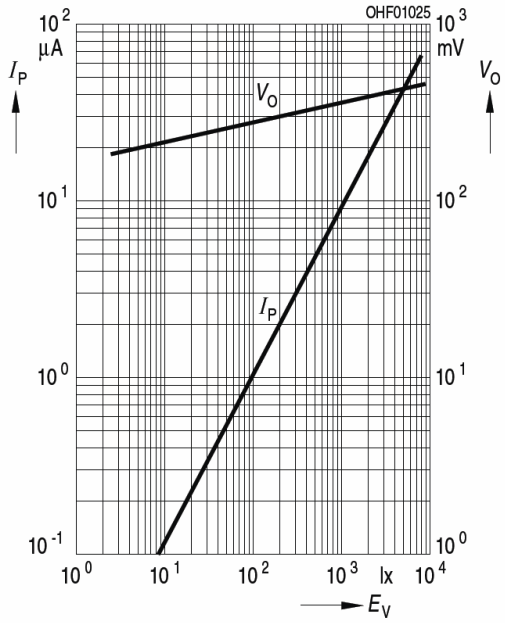
Relative Spectral Sensitivity



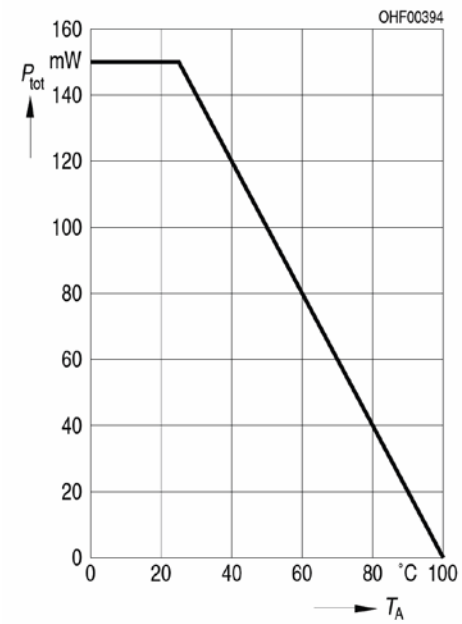
Capacitance



I_P (V_R = 5 V) / V_O = f (E_v)



P_{tot} = f (T_A);



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