

# Si - photodiode with integrated amplifier

## J1 447L J1 448L



- characteristics :**
- ◆ Si-photodiode with integrated low noise JFET-amplifier
  - ◆ integrated feedback resistor and capacitor
  - ◆ decadic staggered responsivity
  - ◆ spectral range VIS and NIR
  - ◆ very low offset- and driftparameters
  - ◆ high dynamic range
  - ◆ single voltage supply
  - ◆ low power consumption
  - ◆ external sensor pin for reducing responsivity or cut-off-frequency
  - ◆ hermetically sealed TO-5 package with lense cap
  - ◆ assembly isolated to package
  - ◆ replacement type for IPL10500 and IPL10530 from IPL (not pin compatibel)
  - ◆ components are in conformity with RoHS and WEEE

- applications :**
- ◆ common light-/radiation measuring applications
  - ◆ detector for measuring of low radiation intensities with high signal to noise level
  - ◆ spectroscopy
  - ◆ medical diagnostics

- maximum ratings :**
- ◆ operating voltage +27 V
  - ◆ operating temperature range -25 °C ... +85 °C
  - ◆ storage temperature range -40 °C ... +100 °C
  - ◆ welding temperature (3s) 300 °C

**technical data :**

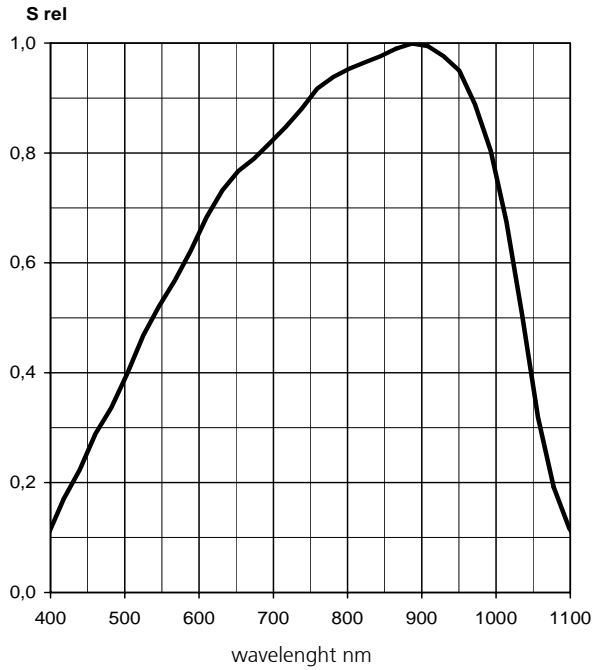
common test conditions, as not otherwise specified:  $T_A = 25\text{ °C}$ ,  $V_S = \pm 15\text{ V}$   
typ. data, maximum data in brackets

parameter	testcondition	J1 447L	J1 448 L	unit
active aerea		4,8	4,8	mm <sup>2</sup>
feedback resistor		10	100	MΩ
dark offset voltage	E = 0 lx	± 0,5 (± 2)	± 0,5 (± 2)	mV
noise voltage	B = 10 kHz	0,5	0,5	mV <sub>rms</sub>
spectral range	S=0,1*S <sub>max</sub>	400...1100	400...1100	nm
max. of spectral responsivity	S = S <sub>max</sub>	850	850	nm
max. spectral responsivity	S=S <sub>max</sub>	10	100	mV/nW
rise time		20	50	μs
bandwidth	- 3 dB	15	5	kHz
opening angle	S=0,5*S <sub>max</sub>	± 5	± 5	Grad
saturation voltage	R <sub>L</sub> = 2 kΩ	+0,01... +23,90	+0,01... +23,90	V
short current		± 10	± 10	mA
operation voltage		+5...+26	+5...+26	V
current consumption		0,7 (1,0)	0,7 (1,0)	mA

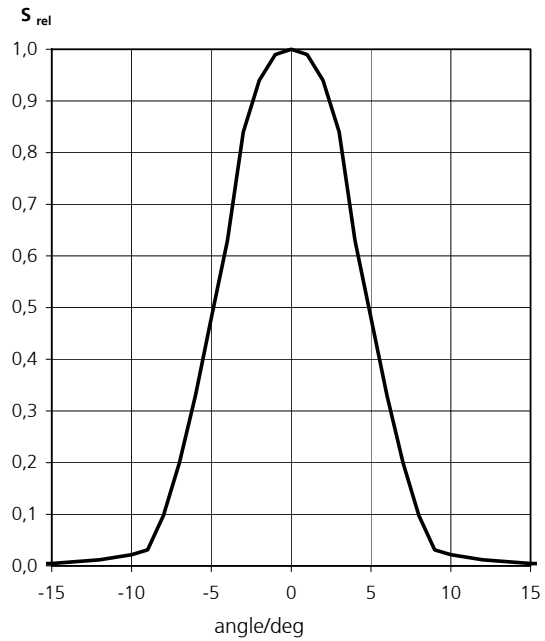
rev. 1 (03/2009)

# JI 447L, JI 448L

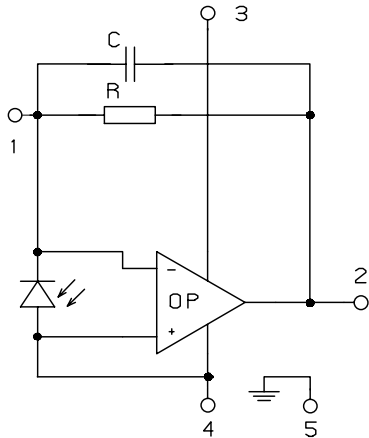
## relative spectral responsivity



## angle dependence

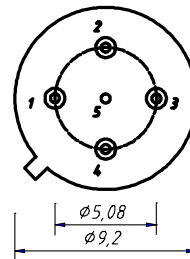
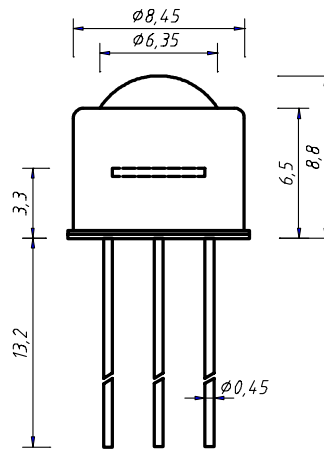


## Internal circuit



- 1 R<sub>f</sub>
- 2 Out
- 3 V<sub>s</sub>
- 4 GND
- 5 Case

## package dimension



## application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitive interference.
- If internally adjusted gain is used only, please cut pin „1“.