Si - photodiode with integrated amplifier

JI 447L
JI 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

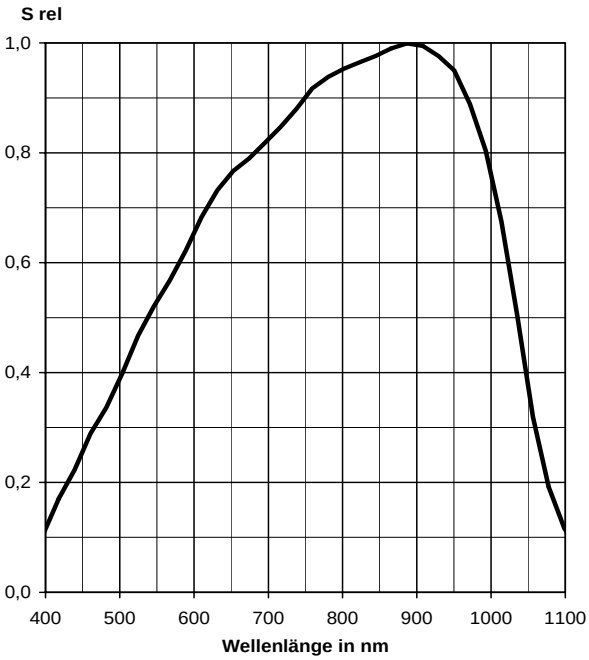
technical data :

common test conditions, as not otherwise specified: T_A = 25 °C, V_S = ±15 V
typ. data, maximum data in brackets

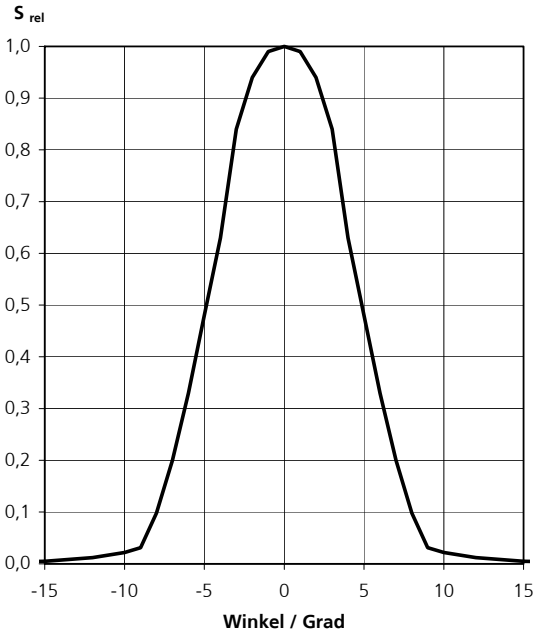
parameter	testcondition	JI 447L	JI 448 L	unit
active aerea		4,8	4,8	mm^2
feedback resistor		10	100	MΩ
dark offset voltage	E = 0 lx	± 0,5 (± 2)	± 1,0 (± 2)	mV
noise voltage	B = 10 kHz	0,5	0,5	mV_{rms}
spectral range	$S=0,1*S_{max}$	400…1100	400…1100	nm
max. of spectral responsivity	$S = S_{max}$	850	850	nm
max. spectral responsivity	$S=S_{max}$	10	100	mV/nW
rise time		20	70	µs
bandwidth	- 3 dB	15	5	kHz
opening angle	$S=0,5*S_{max}$	± 5	± 5	Grad
saturation voltage	R_L = 10 kΩ	+0,015… +23,95	+0,015… +23,95	V
short current		± 10	± 10	mA
operation voltage		+5…+26	+5…+26	V
current consumption		0,7 (1,0)	0,7 (1,0)	mA

DATA SHEET

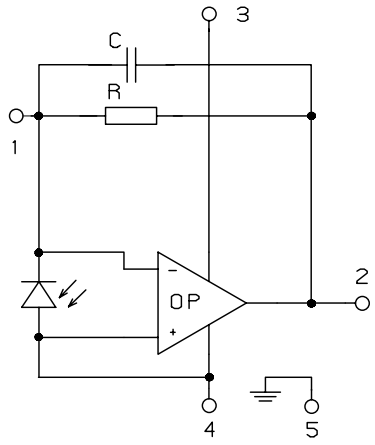
relative spectral responsivity



angle dependence

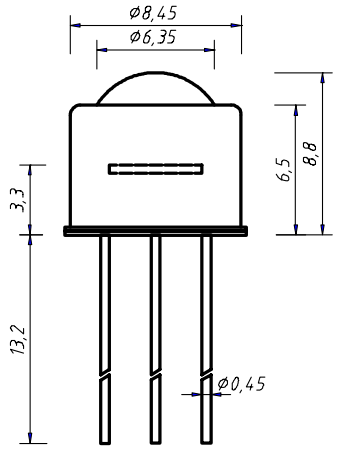


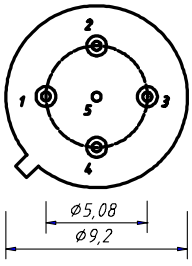
Internal circuit



1 R_f
2 Out
3 V_S
4 GND
5 Case

package dimension





application hints:

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