

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

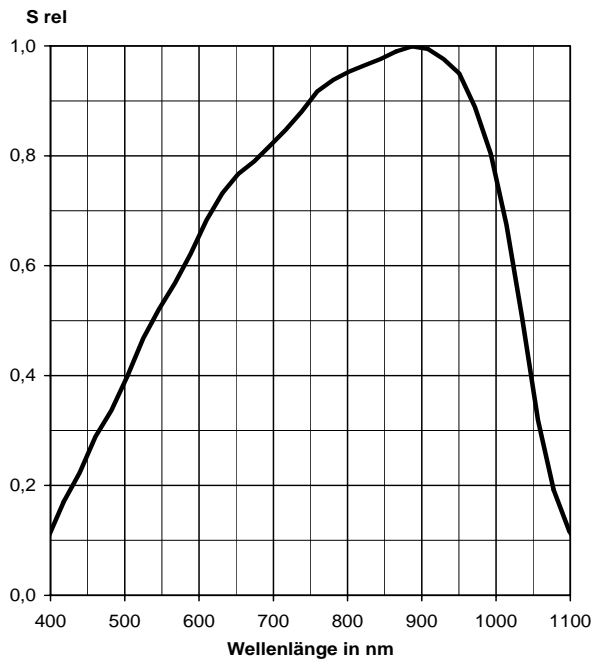
technical data :

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

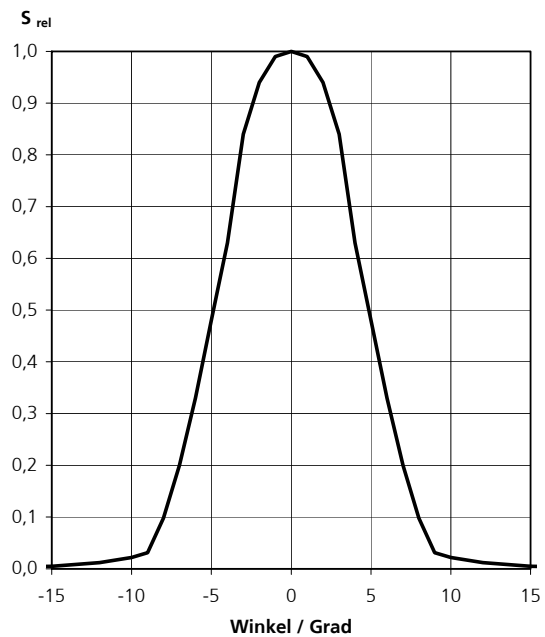
parameter	testcondition	J1 447L	J1 448 L	unit
active aerea		4,8	4,8	mm ²
feedback resistor		10	100	MΩ
dark offset voltage	E = 0 lx	± 0,5 (± 2)	± 1,0 (± 2)	mV
noise voltage	B = 10 kHz	0,5	0,5	mV _{rms}
spectral range	S=0,1*S _{max}	400...1100	400...1100	nm
max. of spectral responsivity	S = S _{max}	850	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

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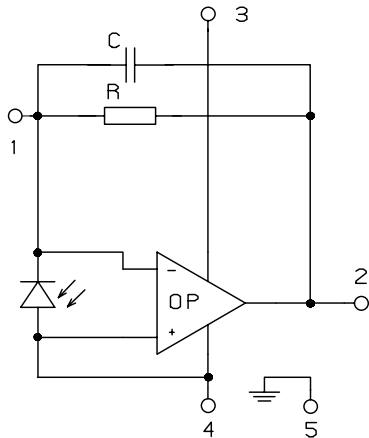
relative spectral responsivity



angle dependence

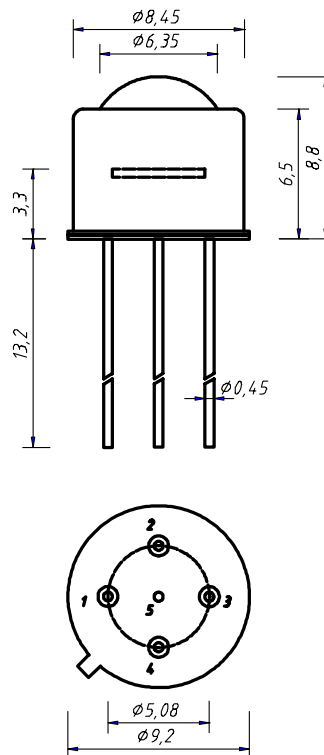


Internal circuit



- 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 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“.