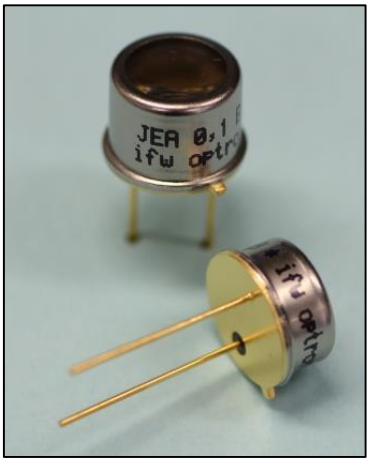
SiC-Photodiode with integrated UV-filter
JEA0,1A · JEA0,1B · JEA0,1C

Characteristics :



- small area SiC-photodiode
- active area: 0,1 mm²
- UV-filters for UVA-, UVB- and UVC-range
- more filter options on request
- hermetically sealed TO-package
- RoHS, REACH and WEEE conform

Applications :

- optical measurement in UV-range with selected spectral range
- control of sterilization lamps
- flame control
- sun light measurement

Maximum Ratings :

♦ reverse voltage	10 V
♦ operating temparature range	- 40 °C ... 125 °C
♦ storage temperatur range	- 40 °C ... 125 °C
♦ soldering temperature (3s)	260 °C

Versions:

Filter	Anode: isolated Cathode: case-pin	Cathode: isolated Anode: case-pin	Anode, Cathode: isolated Additional case-pin	Operating Temperature: 150 °C
UV-A	JEA0,1A	JEAC0,1A	JEA0,1A-I	*-HT
UV-B	JEA0,1B	JEAC0,1B	JEA0,1B-I	
UV-C	JEA0,1C	JEAC0,1C	JEA0,1C-I	

Further available optical filters:

Filter	Spectral-range	Part
UV-AB	280-395 nm	JEA0,1AB
UV-BC	228-322 nm	JEA0,1BC
UV-DVGW	240-290 nm	JEA0,1DVGW
UV-A-350	300-400 nm	JEA0,1A-350
UV-A-365	350-400 nm	JEA0,1A-365
Erythema	CIE 87	JEA0,1E

Further available active areas:

Active Area
0,05 mm²
0,25 mm²
1 mm²
2 mm²
5 mm²

Further available packages:

Package	Parts	Datasheet
TO18	JEA0,1A/B/C-S	on request

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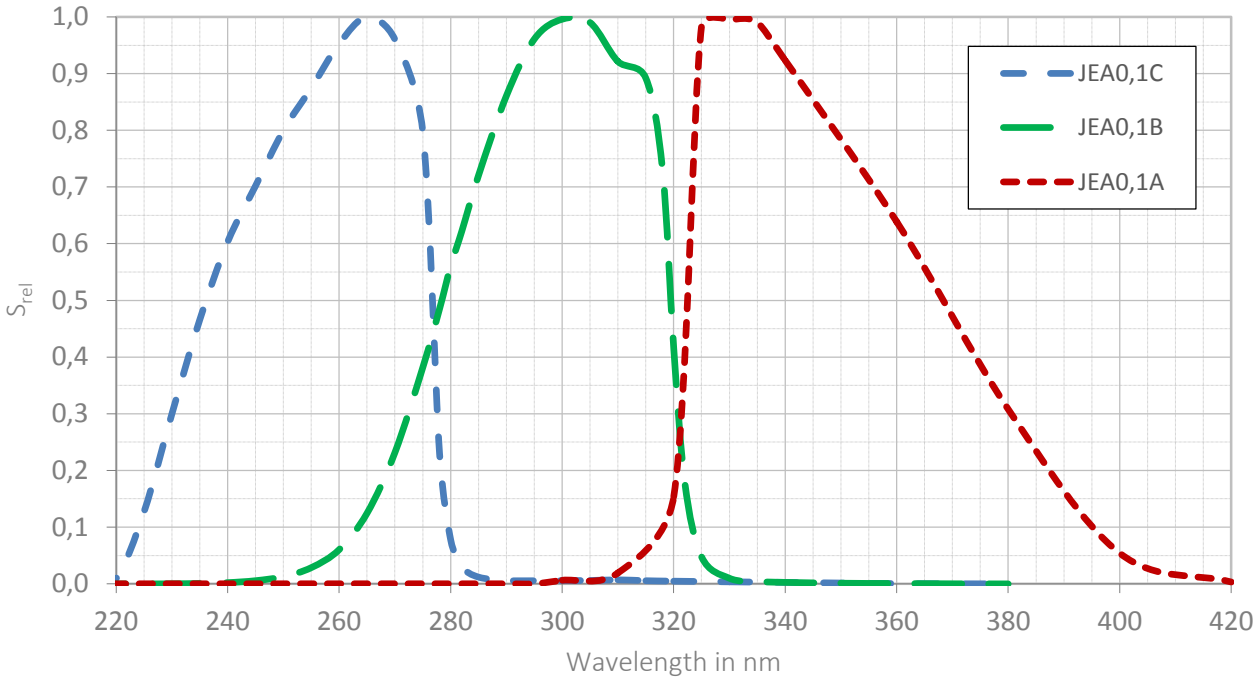
Relative Spectral Responsivity S_{rel}:



Technical Data:

Parameter	Test Conditions	UV-A	UV-B	UV-C	Einheit
active area		0,365 x 0,365			mm^2
spectral range λ_{min}	S = 0,1 * S_{max}	318	265	225	nm
spectral range λ_{max}	S = 0,1 * S_{max}	395	322	280	nm
wavelength of maximum responsivity	λ_{Smax}	330	300	265	nm
maximum responsivity S_{max}	S = S_{max}	0,14	0,14	0,18	A/W
dark current I_R	U_R = 1 V	10			fA
junction capacitance C_j (max.)	f = 10 kHz	13 (20)			pF
field of view	Anode isolated	±30	±30	±45	degree
field of view	Cathode isolated	±27			degree
field of view	A. + C. isolated	±28			degree
weight		1,1			gram
package/drawing	Anode isolated	TO5	TO5	TO5-flat	
package/drawing	Cathode isolated	TO5			
package/drawing	A. + C. isolated	TO5-isolated			

typical values; test conditions, as not otherwise specified: T_A = 25 *C , U_R = 0 V

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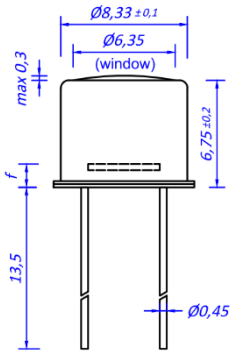
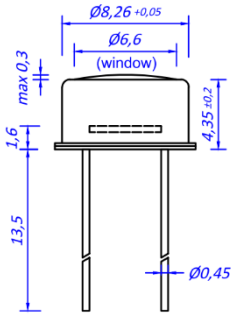
Package Dimensions:

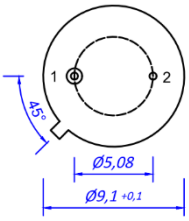
TO5



f = chip surface plane

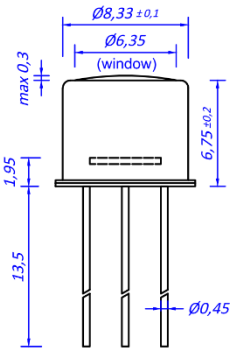
TO5-flat

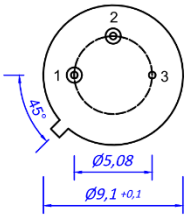




bottom view

TO5-isolated





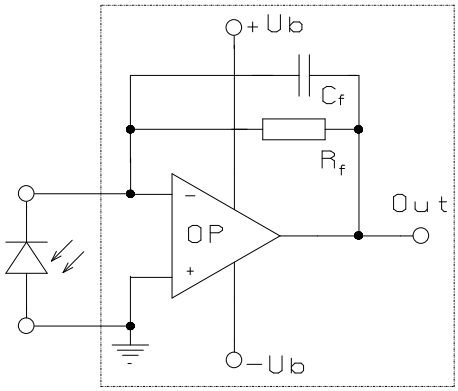
bottom view

Anode isolated: Pin 1: Anode
Pin 2: Cathode + Case
f = 1,6 mm

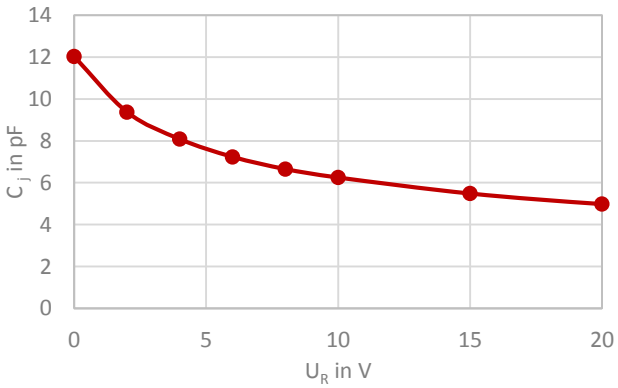
Cathode isolated: Pin 1: Cathode
Pin 2: Anode + Case
f = 1,85 mm

Anode + Cathode isolated: Pin 1: Anode
Pin 2: Cathode
Pin 3: Case

Application Example:



Junction Capacitance C_j vs. Reverse Voltage U_R:



The application example shows a typical circuit R_f is responsible for the gain of the circuit C_f compensates the reverse junction capacitance of the photodiode and the input capacitance of the opamp. The exact value of C_f depends on R_f, used opamp and capacitance of the circuit. A typical value is 1pF.

The chart shows the typical dependence of junction capacitance C_j vs. applied revers voltage U_R.
Lower intrinsic capacitance can be used to increase the bandwith (lower the rise time) in electric circuits.

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