

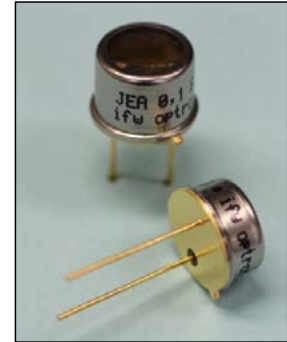
## SiC-Photodiode with integrated UV-filter JEA1A · JEA1B · JEA1C

### Characteristics :

- ◆ 1 mm<sup>2</sup> active area SiC-photodiode
- ◆ UV-filters for UVA-, UVB- and UVC-range
- ◆ more UV-filter options available
- ◆ hermetically sealed TO-package
- ◆ RoHS, REACH and WEEE conform

### Applications :

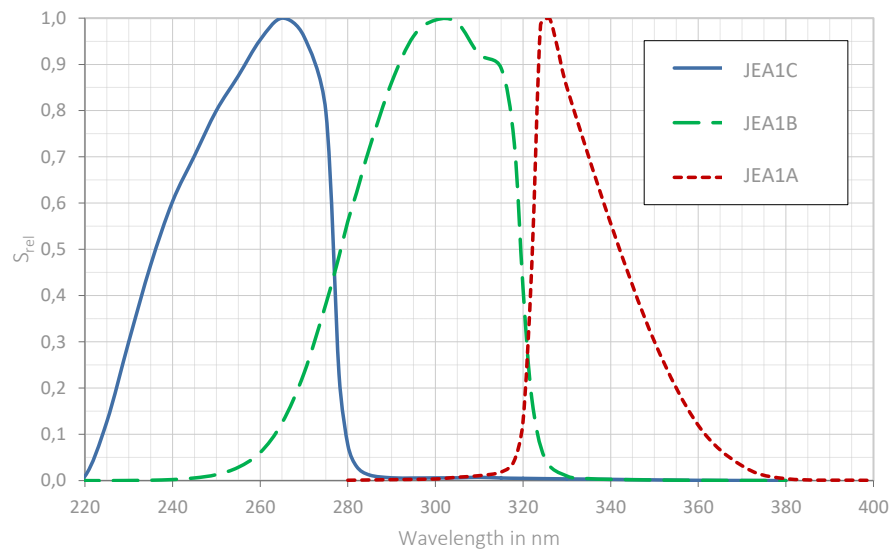
- ◆ optical measurement in UV-range with selected spectral range
- ◆ control of sterilization lamps
- ◆ flame control
- ◆ sun light measurement



### Maximum Ratings :

- |                               |                    |
|-------------------------------|--------------------|
| ◆ reverse voltage $U_R$       | 20 V               |
| ◆ operating temperature range | - 40 °C ... 150 °C |
| ◆ storage temperature range   | - 40 °C ... 150 °C |
| ◆ soldering temperature (3s)  | 260 °C             |

### Relative Spectral Responsivity $S_{rel}$ :



Rev. 4 (08/2021)

## SiC-Photodiode with integrated UV-filter JEA1A · JEA1B · JEA1C

### Technical Data:

Parameter	Test Conditions	UV-A	UV-B	UV-C	Unit
active area		1,04 x 1,04			mm <sup>2</sup>
spectral range	$S = 0,1 * S_{max}$	318	265	225	nm
		360	322	280	nm
wavelength of maximum responsivity $\lambda_{Smax}$		325	300	265	nm
maximum responsivity $S_{max}$	$\lambda = \lambda_{Smax}$	0,09	0,12	0,16	A/W
dark current $I_R$	$U_R = 1 V$	200			fA
junction capacitance $C_j$ (max.)	$f = 10 kHz$	70			pF
rise time $t_r$ of photocurrent	10%/90% $R_L = 50 \Omega$ $\lambda = 266 nm$	<1,3			ns
field of view	Anode isolated	±30	±30	±45	degree
	Cathode isolated	±27			
	A. + C. isolated	±27			
weight		1,1			gramm
package/drawing	Anode isolated	TO5	TO5	TO5-flat	
	Cathode isolated	TO5			
	A. + C. isolated	TO5-isolated			

typical values; test conditions, as not otherwise specified:  $T_A = 25 ^\circ C$ ,  $U_R = 0 V$

### Versions:

Filter	Anode: isolated Cathode: case-pin	Cathode: isolated Anode: case-pin	Anode, Cathode: isolated Additional case-pin	Operating Temperature: 250 °C
UV-A	JEA1A	JEAC1A	JEA1A-I	*-UT
UV-B	JEA1B	JEAC1B	JEA1B-I	
UV-C	JEA1C	JEAC1C	JEA1C-I	

### Further available optical filters:

Filter	Spectral-range	Part
UV-AB	280-365 nm	JEA1AB
UV-BC	228-322 nm	JEA1BC
UV-DVGW	240-290 nm	JEA1DVGW
Erythema	CIE 87	JEA1E

### Further available active areas:

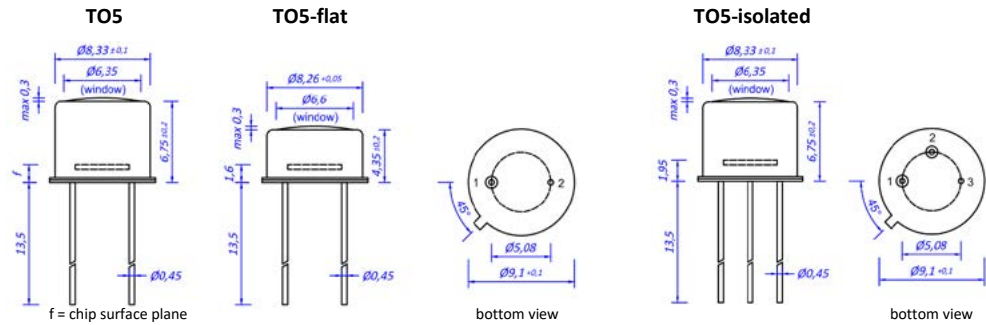
Active Area
0,1 mm <sup>2</sup>
0,25 mm <sup>2</sup>
2 mm <sup>2</sup>
5 mm <sup>2</sup>

### Further available packages:

Package	Parts	Datasheet
TO18	JEA1A/B/C-S	on request

### SiC-Photodiode with integrated UV-filter JEA1A · JEA1B · JEA1C

**Package Dimensions:**

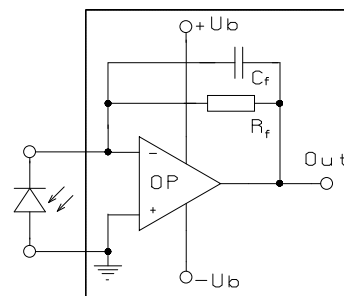


**Anode isolated:** Pin 1: Anode  
Pin 2: Cathode + Case  
f = 1,6 mm

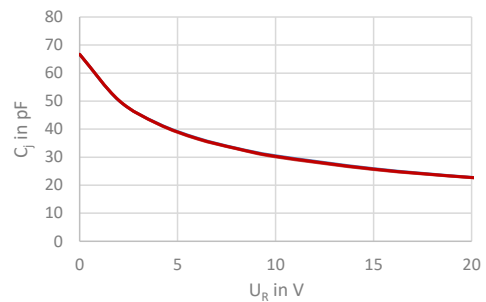
**Anode + Cathode isolated:** Pin 1: Anode  
Pin 2: Cathode  
Pin 3: Case

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

**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 reverse voltage  $U_R$ . Lower intrinsic capacitance can be used to increase the bandwidth (lower the rise time) in electric circuits.