

## SiC-Photodiode with integrated Filter JEA0,1A-S · JEA0,1B-S · JEA0,1C-S

### Characteristics :

- ◆ active area: 0,1 mm<sup>2</sup>
- ◆ optical filter for UVA-, UVB- oder UVC-range
- ◆ further filter options on request
- ◆ hermetically sealed TO18-package
- ◆ RoHS, REACH and WEEE conform

### Applications :

- ◆ general UV-measurements with limited spectral range
- ◆ sterilization lamp monitoring
- ◆ flame monitoring
- ◆ sun light measurements



### Maximum ratings :

- ◆ reverse voltage 10 V
- ◆ operating temperature range - 40 °C ... 125 °C
- ◆ storage temperature range - 40 °C ... 125 °C
- ◆ solder temperature (3s) 260 °C

### Variants:

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-S	JEACO,1A-S	JEA0,1A-ISZ	*-HT
UV-B	JEA0,1B-S	JEACO,1B-S	JEA0,1B-ISZ	
UV-C	JEA0,1C-S	JEACO,1C-S	JEA0,1C-ISZ	

### Further available optical filters:

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

### Further available active areas:

Active Area
0,05 mm <sup>2</sup>
0,25 mm <sup>2</sup>
1 mm <sup>2</sup>
2 mm <sup>2</sup>
5 mm <sup>2</sup>

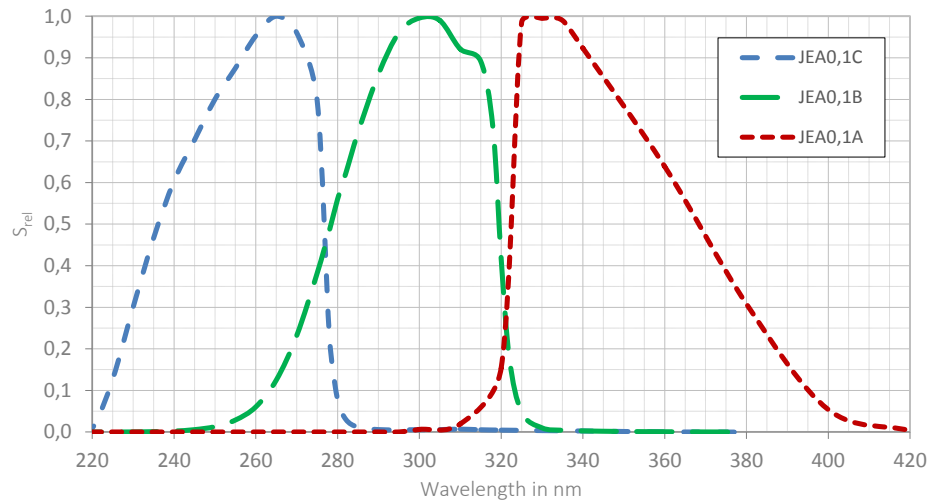
### Further available packages:

Package	Partname	Datasheet
TO5	JEA0,1A/B/C	<a href="#">Link</a>

Rev. 3 (08/2018)

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Relative spectral sensitivity  $S_{rel}$ :



Technical data:

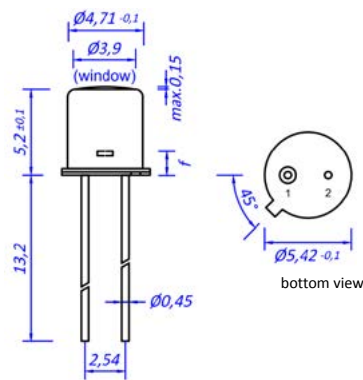
Parameter	Measuring-condition	UV-A	UV-B	UV-C	Unit
active area		0,365 x 0,365			mm <sup>2</sup>
spectral range	$\lambda_{low}$ $\lambda_{high}$ $S = 0,1 * S_{max}$	318 395	265 322	225 280	nm nm
wavelength of maximum responsivity	$S = S_{max}$	330	300	265	nm
maximum responsivity $S_{max}$		0,14	0,14	0,18	A/W
dark current $I_R$	$U_R = 1 V$	10			fA
junction capacitance $C_j$	$f = 10 kHz$	30			pF
field of view	Anode isolated Cathode isolated A. + C. isolated	$\pm 20$ $\pm 25$ $\pm 30$			degree
weight		0,5			Gramm
package drawing	Anode isolated Cathode isolated A. + C. isolated	TO18 TO18 TO18-isolated			

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

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Package dimensions:

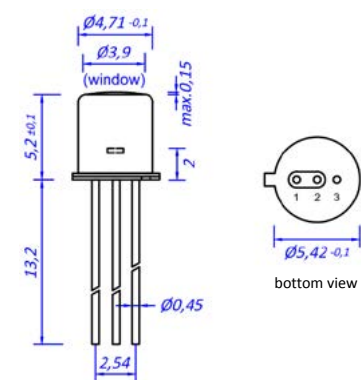
**TO18**



**Anode isolated:** Pin 1: Anode  
Pin 2: Cathode + Case  
f = 1,5 mm

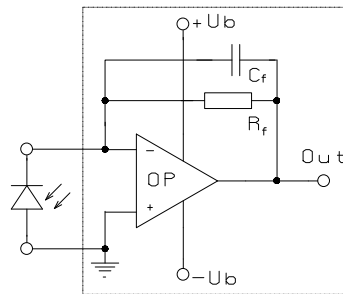
**Cathode isolated:** Pin 1: Cathode  
Pin 2: Anode + Case  
f = 1,75 mm

**TO18 isolated**



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

**Application Example:**



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.

**Junction Capacitance  $C_j$  vs. Reverse Voltage  $U_R$ :**

