

## SiC-Photodiode

### JEA1 · JEA1S · JEA1SS

#### Characteristics :

- ◆ medium size SiC-photodiode
- ◆ active area: 1 mm<sup>2</sup>
- ◆ spectral range: 215 ... 358 nm
- ◆ high UV-responsivity: 0,17 A/W
- ◆ hermetically sealed TO-package
- ◆ option for isolated assembly of photodiode
- ◆ UT-option for extended operating temperature range 250°C
- ◆ RoHS, REACH and WEEE conform

#### Applications :

- ◆ optical measurements in UV-range
- ◆ control of sterilization lamps
- ◆ flame control



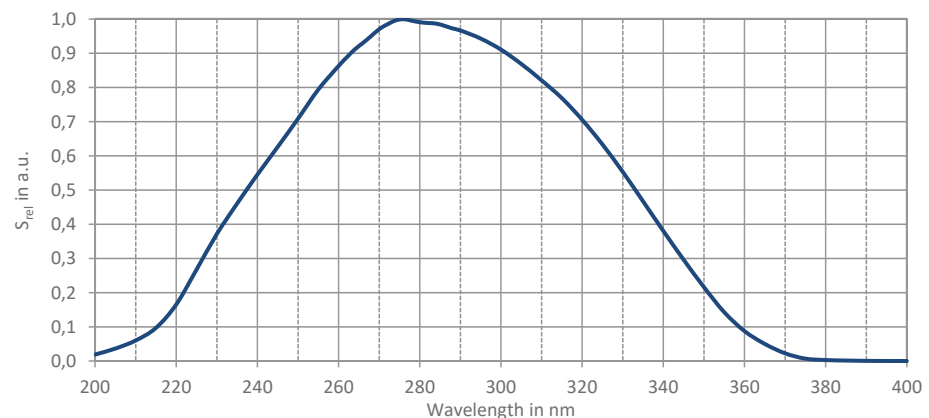
#### Absolute Maximum Ratings :

- ◆ 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

#### Versions:

Package	Anode: isolated Cathode: case-pin	Cathode: isolated Anode: case-pin	Anode, Cathode: isolated Additional case-pin	Operating Temperature up to 250 °C
TO5	JEA1	JEAC1	JEA1I	*-UT
TO18	JEA1S	JEAC1S	JEA1ISZ	
TO52	JEA1SS	JEAC1SS	JEA1ISSZ	

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



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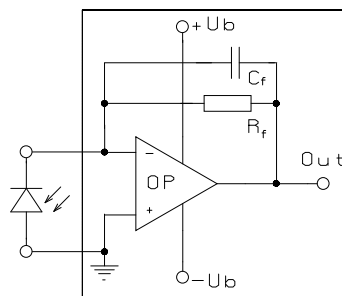
## SiC-Photodiode JEA1 · JEA1S · JEA1SS

**Technical Data :**

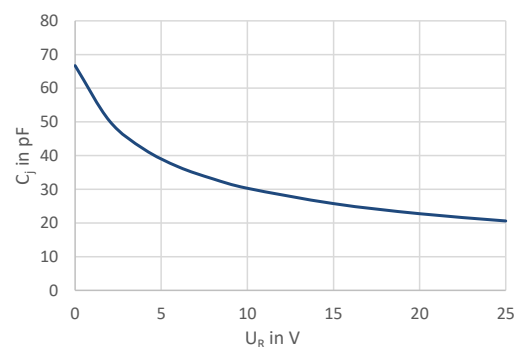
Parameter	Test condition	TO5	TO18	TO52	Unit
active area		1,04 x 1,04			mm <sup>2</sup>
spectral range	$\lambda_{short}$ $\lambda_{long}$ $S = 0,1 \times S_{max}$	215 358			nm nm
wavelength of peak response		276			nm
peak response $S_{max}$	$\lambda = 276 \text{ nm}$	0,17			A/W
spectral response $S_{254nm}$	$\lambda = 254 \text{ nm}$	0,135			A/W
dark current $I_R$	$U_R = 1 \text{ V}$	200			fA
junction capacitance $C_j$ (max.)	$f = 10 \text{ kHz}$	70			pF
rise time $t_r$ of photocurrent	10%/90% $R_L = 50 \Omega$ $\lambda = 266 \text{ nm}$	<1,3			ns
field of view (FOV)	Anode isolated	±48	±26	±40	degree
	Cathode isolated	±51	±27	±43	
	Both isolated	±52	±29	±46	
weight		0,8	0,3	0,3	gram
package drawing	Anode isolated	TO5	TO18	TO52	
	Cathode isolated	TO5	TO18	TO52	
	Both isolated	TO5 iso.	TO18 iso.	TO52 iso.	

test conditions, as not otherwise specified:  $T_A = 25 \text{ }^\circ\text{C}$ ,  $U_R = 0 \text{ V}$

**Application Example**



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



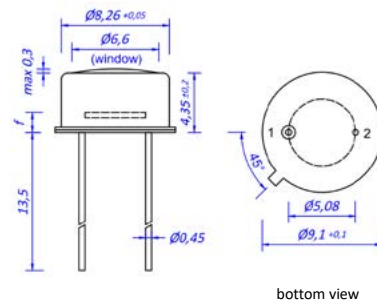
The application example shows a typical circuit  $R_f$  is responsible for the gain of the circuit  $C_f$  compensates the reverse junction capacitance of the photodiode and the input capacitance of the opamp. The exact value of  $C_f$  depends on  $R_f$ , used opamp and capacitance of the circuit. A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

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### Case Dimensions:

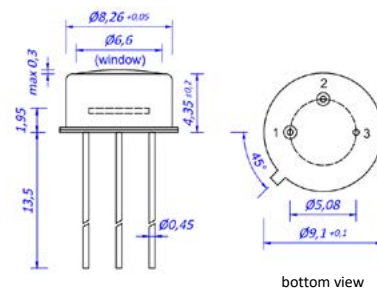
#### TO5



**JEA1:** Pin 1: Anode  
Pin 2: Cathode + Case  
f = 1,6 mm

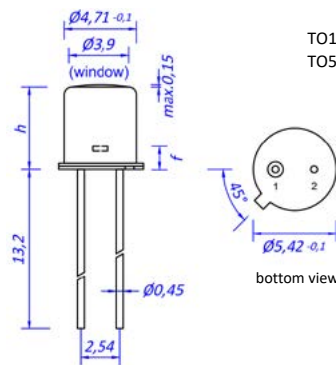
**JEA1S:** Pin 1: Cathode  
Pin 2: Anode + Case  
f = 1,85 mm

#### TO5 isolated



**JEA1I:** Pin 1: Anode  
Pin 2: Cathode  
Pin 3: Case

#### TO18 / TO52

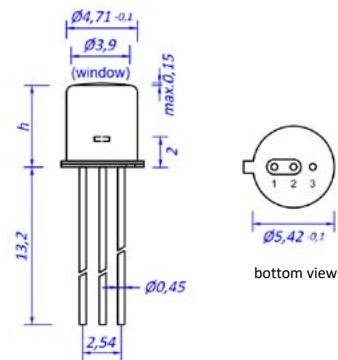


TO18: h = 5,2 mm ± 0,1 mm  
TO52: h = 3,7 mm ± 0,1 mm

**JEA1S/SS:** Pin 1: Anode  
Pin 2: Cathode + Case  
f = 1,5 mm

**JEA1S/SS:** Pin 1: Cathode  
Pin 2: Anode + Case  
f = 1,75 mm

#### TO18 / TO52 isolated



**JEA1ISZ/ ISSZ:** Pin 1: Anode  
Pin 2: Cathode  
Pin 3: Case