

SiC-Photodiode – 0,1 mm² JEA0,1 · JEA0,1S · JEA0,1SS

Characteristics :

- ◆ low cost SiC-photodiode
- ◆ active area: 0,1 mm²
- ◆ spectral range: 210 ... 355 nm
- ◆ high UV-responsivity: 0,18 A/W
- ◆ hermetically sealed TO-package
- ◆ option for isolated assembly of photodiode
- ◆ UT-option for extended operating temperature range up to 250 °C
- ◆ RoHS, REACH and WEEE conform

Applications :

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



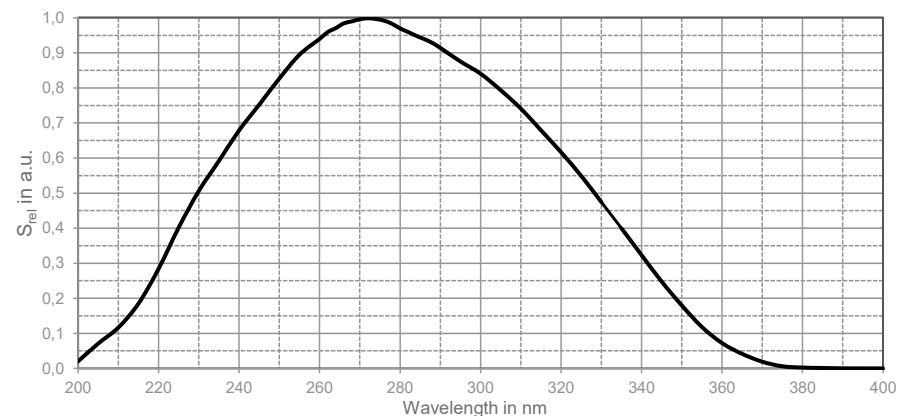
Absolute Maximum Ratings :

- ◆ 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	JEA0,1	JEACO,1	JEA0,1I	*-UT
TO18	JEA0,1S	JEACO,1S	JEA0,1ISZ	
TO52	JEA0,1SS	JEACO,1SS	JEA0,1ISSZ	

Relative Spectral Responsivity S_{rel} :



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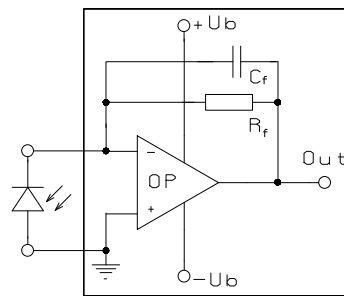
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Technical Data :

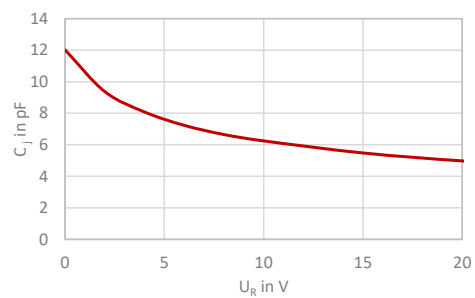
Parameter	Test condition	TO5	TO18	TO52	Unit
active area		0,365 x 0,365			mm ²
spectral range	λ_{short} λ_{long} $S = 0,1 \times S_{max}$	210 355			nm nm
wavelength of peak response		272			nm
peak response S_{max}	$\lambda = 272 \text{ nm}$	0,18			A/W
spectral response S_{254nm}	$\lambda = 254 \text{ nm}$	0,16			A/W
dark current I_R	$U_R = 1 \text{ V}$	10			fA
junction capacitance C_j (max.)	$f = 10 \text{ kHz}$	13 (20)			pF
rise time t_r of photocurrent	10%/90% $R_L = 50 \Omega$ $\lambda = 266 \text{ nm}$	1			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 :



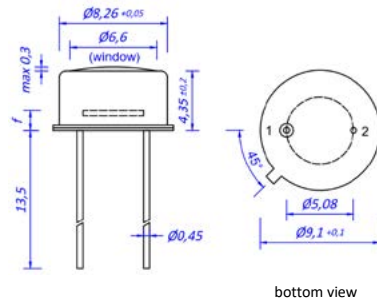
The application example shows a typical circuit. R_f is responsible for the gain of the circuit. C_f compensates the reverse junction capacitance of the photodiode and the input capacitance of the opamp. The exact value of C_f depends on R_f , used opamp and capacitance of the circuit. A typical value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

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

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Case Dimensions:

TO5

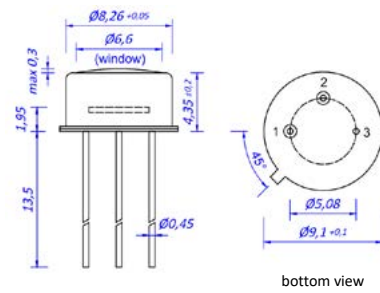


bottom view

JEA0,1: Pin 1: Anode
Pin 2: Cathode + Case
f = 1,6 mm

JEAC0,1: Pin 1: Cathode
Pin 2: Anode + Case
f = 1,85 mm

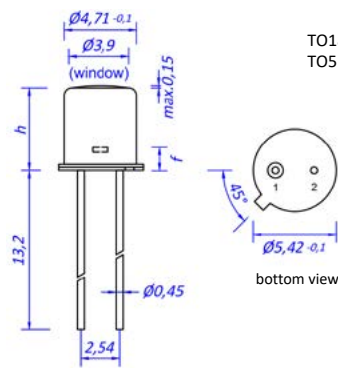
TO5 isolated



bottom view

JEA0,1i: Pin 1: Anode
Pin 2: Cathode
Pin 3: Case

TO18 / TO52



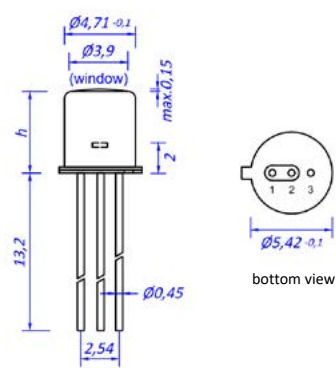
TO18: h = 5,2 mm ± 0,1 mm
TO52: h = 3,7 mm ± 0,1 mm

bottom view

JEA0,1S/SS: Pin 1: Anode
Pin 2: Cathode + Case
f = 1,5 mm

JEAC0,1S/SS: Pin 1: Cathode
Pin 2: Anode + Case
f = 1,75 mm

TO18 / TO52 isolated



bottom view

JEA0,1ISZ/ ISSZ: Pin 1: Anode
Pin 2: Cathode
Pin 3: Case