

SiC-Photodiode with integrated UV-A filter JEA0,1A-S · JEA0,1A-350-S · JEA0,1A-365-S

Characteristics :

- ◆ full range UV-A sensor up to 400 nm
- ◆ active area: 0,1 mm²
- ◆ different filter shapes for the UV-A range
- ◆ further UV-A filter options available
- ◆ hermetically sealed TO18-package
- ◆ UT-option for extended operating temperature range 250°C
- ◆ RoHS, REACH and WEEE conform

Applications :

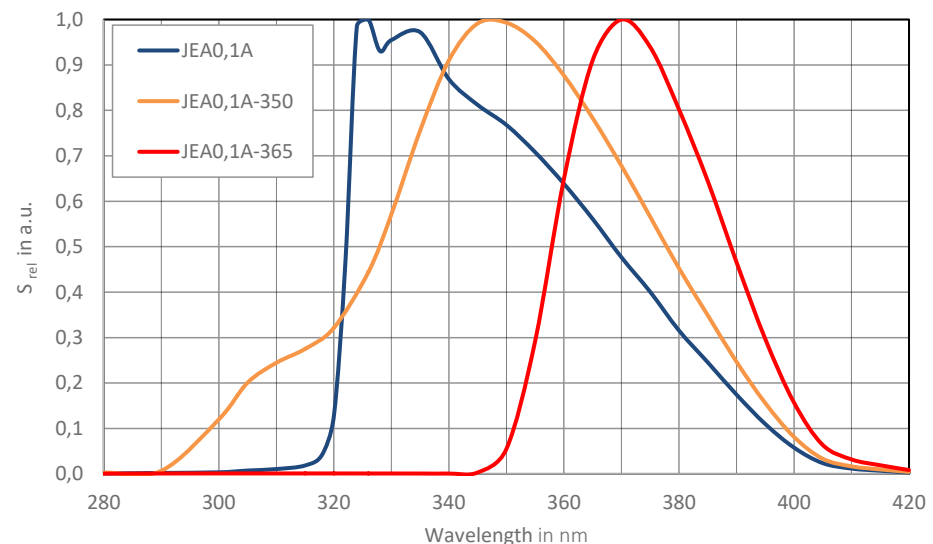
- ◆ general UV-A measurements
with optional bandwidth reduction and weighing
- ◆ control of epoxy hardening
- ◆ solar measurements



Absolute maximum ratings :

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

Relative Spectral Responsivity S_{rel} :



Rev. 2 (01/2021)

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Technical data:

Parameter	Measuring-Condition	UV-A	UV-A-350	UV-A-365	Unit	
active area		0,365 x 0,365			mm ²	
spectral range	S = 0,1 * S _{max}	λ_{short}	318	300	350	nm
		λ_{long}	395	400	400	nm
wavelength of maximum responsivity $\lambda_{S_{\text{max}}}$		330	350	365	nm	
maximum responsivity S _{max}	$\lambda = \lambda_{S_{\text{max}}}$	0,14	0,10	0,05	A/W	
dark current I _R	U _R = 1 V	10			fA	
junction capacitance C _J	f = 10 kHz	10			pF	
rise time t _r of photocurrent	10%/90% R _L = 50 Ω $\lambda = 266 \text{ nm}$	1			ns	
field of view	Anode isolated Cathode isolated A. + C. isolated	±20 ±25 ±30			degree	
mass		0,5			Gramm	
package drawing	Anode isolated Cathode isolated A. + C. isolated	TO18 TO18 TO18-isolated				

test conditions, as not otherwise specified: TA = 25 °C, U_R = 0 V, typical values

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-S	JEAC0,1A-S	JEA0,1A-ISZ	*-HT
UV-A-350	JEA0,1A-350-S	JEAC0,1A-350-S	JEA0,1A-350-ISZ	
UV-A-365	JEA0,1A-365-S	JEAC0,1 A-365-S	JEA0,1A-365-ISZ	

Further available packages:

Package	Partname	Datasheet
TO5	JEA0,1A/A-350/A-365	on request

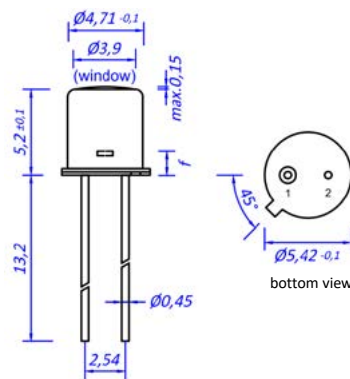
Further available UV-A filters:

Filter	Spectral-range	Part	Datasheet
UV-AB	280-395 nm	JEA0,1AB-S	on request
UV-AB-4H	280-355 nm	JEA0,1AB-4H-S	on request
UV-A-4H	318-355 nm	JEA0,1A-4H-S	on request

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Package dimensions:

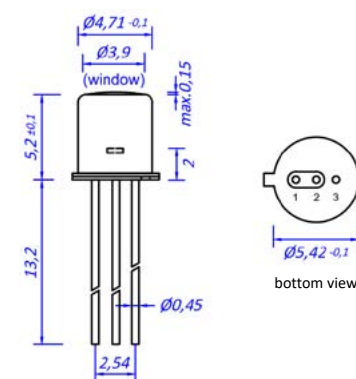
TO18



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

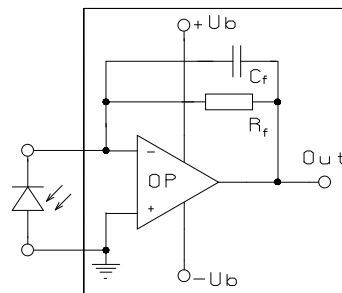
Cathode isolated: Pin 1: Cathode
Pin 2: Anode + Case
f = 1,75 mm

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 :

