SiC-Photodiode
JEAO,1X · JEAO,1X-S · JEAO,1X-SS

- preliminary datasheet -

Characteristics:

♦ SiC-photodiode with extended wavelength range
♦ active area: 0,1 mm²
♦ spectral range: 210 ... 390 nm
♦ high UV-responsivity: 0,18 A/W
♦ hermetically sealed TO-package
♦ option for isolated assembly of photodiode
♦ HT-option for extended operating temperature range 150°C
♦ RoHS, REACH and WEEE conform

Applications:

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

Absolute Maximum Ratings:

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

Versions:

<table>
<thead>
<tr>
<th>Package</th>
<th>Isolated Pin: Anode</th>
<th>Isolated Pin: Cathode</th>
<th>Anode, Kathode: isolated Extra Ground Pin</th>
<th>Operating Temperature up to 150 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO5</td>
<td>JEAO,1X</td>
<td>JEAC0,1X</td>
<td>JEAO,1XI</td>
<td></td>
</tr>
<tr>
<td>TO18</td>
<td>JEAO,1X-S</td>
<td>JEAC0,1X-S</td>
<td>JEAO,1XISZ</td>
<td></td>
</tr>
<tr>
<td>TO52</td>
<td>JEAO,1X-SS</td>
<td>JEAC0,1X-SS</td>
<td>JEAO,1XISSZ</td>
<td>*-HT</td>
</tr>
</tbody>
</table>

Relative Spectral Responsivity:
SiC-Photodiode
JEA0,1X · JEA0,1X-S · JEA0,1X-SS

Technical Data:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test condition</th>
<th>TOS</th>
<th>TO18</th>
<th>TO52</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>active area</td>
<td></td>
<td>0,365 x 0,365</td>
<td></td>
<td></td>
<td>mm²</td>
</tr>
<tr>
<td>spectral range</td>
<td></td>
<td>210</td>
<td>390</td>
<td></td>
<td>nm</td>
</tr>
<tr>
<td>wavelength of peak response</td>
<td></td>
<td>290</td>
<td></td>
<td></td>
<td>nm</td>
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<tr>
<td>peak response λ_{max}</td>
<td></td>
<td>0,18</td>
<td></td>
<td></td>
<td>A/W</td>
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<tr>
<td>spectral response λ_{254nm}</td>
<td></td>
<td>0,12</td>
<td></td>
<td></td>
<td>A/W</td>
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<tr>
<td>dark current I_{R}</td>
<td>V_{R} = 1 V</td>
<td>10</td>
<td></td>
<td></td>
<td>fA</td>
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<tr>
<td>junction capacitance C_{J}</td>
<td>f = 10 kHz</td>
<td>30</td>
<td></td>
<td></td>
<td>pF</td>
</tr>
<tr>
<td>field of view (FOV)</td>
<td>Anode isolated</td>
<td>±48</td>
<td>±26</td>
<td>±40</td>
<td>degree</td>
</tr>
<tr>
<td></td>
<td>Cathode isolated</td>
<td>±51</td>
<td>±27</td>
<td>±43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both isolated</td>
<td>±52</td>
<td>±29</td>
<td>±46</td>
<td></td>
</tr>
<tr>
<td>weight</td>
<td></td>
<td>0,8</td>
<td>0,3</td>
<td>0,3</td>
<td>gram</td>
</tr>
<tr>
<td>package drawing</td>
<td>Anode isolated</td>
<td>TOS</td>
<td>TO18</td>
<td>TO52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cathode isolated</td>
<td>TO5</td>
<td>TO18</td>
<td>TO52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both isolated</td>
<td>TO5 iso.</td>
<td>TO18 iso.</td>
<td>TO52 iso.</td>
<td></td>
</tr>
</tbody>
</table>

Test conditions, as not otherwise specified: \( T_{A} = 25 \, ^{\circ}C \), \( V_{R} = 0 \, V \)

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 dependence of amplitude of the application circuit with opamp = AD795, \( R_{f} = 10 \, \text{M} \Omega \) and \( C_{f} = 1 \, \text{pF} \).
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Case Dimensions:

**TO5**

![](image1)

**JEAO,1X**:
- Pin 1: Anode
- Pin 2: Cathode + Case
- \( f = 1.6 \text{ mm} \)

**JEAC0,1X**:
- Pin 1: Cathode
- Pin 2: Anode + Case
- \( f = 1.85 \text{ mm} \)

**TO5 isolated**

![](image2)

**JEAO,1XI**:
- Pin 1: Anode
- Pin 2: Cathode
- Pin 3: Case

**TO18 / TO52**

![](image3)

**JEAO,1S/SS**:
- Pin 1: Anode
- Pin 2: Cathode + Case
- \( f = 1.5 \text{ mm} \)

**JEAC0,1X-S/SS**:
- Pin 1: Cathode
- Pin 2: Anode + Case
- \( f = 1.75 \text{ mm} \)

**TO18 / TO52 isolated**

![](image4)

**JEAO,1XSZ/ISSZ**:
- Pin 1: Anode
- Pin 2: Cathode
- Pin 3: Case

**JEAC0,1XSZ/ISSZ**:
- Pin 1: Cathode
- Pin 2: Anode + Case
- Pin 3: Case