Si photodiode

S8193

Detector for X-ray monitors

Features
- High sensitivity, high reliability photodiode with ceramic scintillator
- High X-ray sensitivity: 1.8 times that of CWO
- Less afterglow than CsI: <0.1%/3 ms, <0.01%/30 ms
- Unlike CsI, has no deliquescence

Applications
- X-ray analysis, X-ray detection

Absolute maximum ratings (Ta=25 °C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse voltage</td>
<td>VR max</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Topr</td>
<td>-10 to +60</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td>-20 to +70</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical and optical characteristics (without scintillator, Ta=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral response range</td>
<td>λ</td>
<td></td>
<td>-</td>
<td>190 to 1000</td>
<td>-</td>
<td>nm</td>
</tr>
<tr>
<td>Peak sensitivity wavelength</td>
<td>λp</td>
<td></td>
<td>-</td>
<td>720</td>
<td>-</td>
<td>nm</td>
</tr>
<tr>
<td>Photosensitivity</td>
<td>S</td>
<td>λ=500 nm</td>
<td>-</td>
<td>0.26</td>
<td>-</td>
<td>A/W</td>
</tr>
<tr>
<td></td>
<td></td>
<td>λ=λp</td>
<td>-</td>
<td>0.5</td>
<td>-</td>
<td>A/W</td>
</tr>
<tr>
<td>Dark current</td>
<td>Id</td>
<td>VR=10 mV</td>
<td>-</td>
<td>2</td>
<td>50</td>
<td>pA</td>
</tr>
<tr>
<td>Terminal capacitance</td>
<td>Ct</td>
<td>VR=0 V, f=10 kHz</td>
<td>-</td>
<td>950</td>
<td>-</td>
<td>pF</td>
</tr>
</tbody>
</table>

X-ray sensitivity (reference value, tube current: 1.0 mA, aluminum filter: t=6 mm, distance=830 mm)

<table>
<thead>
<tr>
<th>X-ray tube voltage</th>
<th>Typ.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 keV</td>
<td>30</td>
<td>nA</td>
</tr>
</tbody>
</table>

Note: Depends on equipment and measurement conditions
**Dark current vs. reverse voltage**

(Typ. Ta=25 °C)

**Terminal capacitance vs. reverse voltage**

(Typ. Ta=25 °C)

**Dimensional outline (unit: mm)**
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Related information
www.hamamatsu.com/sp/ssd/doc_en.html

- Precautions
- Disclaimer
- Metal, ceramic, plastic package products

Information described in this material is current as of September 2016.
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