InGaAs PIN photodiodes
G6849 series

Quadrant type

Features
- Photosensitive area
  - G6849: 2 mm quadrant element
  - G6849-01: 1 mm quadrant element
- Low noise
- High reliability

Applications
- Light spot position detection
- Measurement equipment

Structure

<table>
<thead>
<tr>
<th>Parameter</th>
<th>G6849</th>
<th>G6849-01</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute maximum ratings (Ta=25 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse voltage</td>
<td>VR</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature*</td>
<td>Topr</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature*</td>
<td>Tstg</td>
<td>-55 to +125</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering condition</td>
<td></td>
<td>260 °C or less, within 10 s</td>
<td></td>
</tr>
</tbody>
</table>

*1: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C, per 1 element)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>G6849</th>
<th>G6849-01</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral response range</td>
<td>λ</td>
<td></td>
<td>Min.</td>
<td>Typ.</td>
<td>Max.</td>
</tr>
<tr>
<td>Peak sensitivity wavelength</td>
<td>λp</td>
<td></td>
<td>0.8</td>
<td>0.9</td>
<td>-</td>
</tr>
<tr>
<td>Photosensitivity</td>
<td>S</td>
<td>λ=1.3 µm</td>
<td>0.8</td>
<td>0.9</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>λ=1.55 µm</td>
<td>0.85</td>
<td>0.95</td>
<td>-</td>
</tr>
<tr>
<td>Dark current</td>
<td>Ip</td>
<td>VR=1 V</td>
<td>0.5</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Temperature coefficient of Ip</td>
<td>ΔIp</td>
<td>VR=1 V</td>
<td>1.09</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cutoff frequency</td>
<td>fc</td>
<td>VR=1 V, RL=50 Ω</td>
<td>15</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>Terminal capacitance</td>
<td>Ct</td>
<td>VR=1 V, f=1 MHz</td>
<td>-</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>Shunt resistance</td>
<td>Rsh</td>
<td>VR=10 mV</td>
<td>10</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>Detectivity</td>
<td>D*</td>
<td>λ=λp</td>
<td>1 × 10^12</td>
<td>5 × 10^12</td>
<td>-</td>
</tr>
<tr>
<td>Noise equivalent power</td>
<td>NEP</td>
<td>λ=λp</td>
<td>2 × 10^{-14}</td>
<td>6 × 10^{-14}</td>
<td>-</td>
</tr>
</tbody>
</table>

The G6849 series may be damaged by Electro Static Discharge. Be careful when using the G6849 series.
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**Spectral response**

![Spectral response graph](image1)

**Photosensitivity temperature characteristics**

![Photosensitivity temperature characteristics graph](image2)

**Dark current vs. reverse voltage**

![Dark current vs. reverse voltage graph](image3)

**Terminal capacitance vs. reverse voltage**

![Terminal capacitance vs. reverse voltage graph](image4)
InGaAs PIN photodiodes
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Shunt resistance vs. ambient temperature

- Dimensional outlines (unit: mm)

- Details of photodiode

- Photosensitive area

- Window

- Lead

- Anode A

- NC

- Anode B

- NC

- Anode C

- NC

- Anode D

- Cathode (common)
InGaAs PIN photodiodes

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Related information
www.hamamatsu.com/sp/ssf/doc_en.html

- Precautions
  - Notice
  - Metal, ceramic, plastic products

- Technical information
  - Compound semiconductor photosensors / Technical note

Information described in this material is current as of July, 2021.

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