Si PIN photodiode
S5821 series

High performance, high reliability Si PIN photodiodes

S5821 series is a high-speed Si PIN photodiode having high sensitivity over a wide spectral range from visible to near infrared light. S5821 series provides high performance and reliability at a low cost.

Features
- High-speed response
- Wide spectral response
- Low dark current
- Low terminal capacitance

Applications
- Optical switch
- Automobile optical sensor
- General photometry

General ratings / Absolute maximum ratings

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Dimensional outline/Window material *</th>
<th>Package</th>
<th>Active area size</th>
<th>Effective active area</th>
<th>Reverse voltage VR Max. (V)</th>
<th>Power dissipation P (mW)</th>
<th>Operating temperature Topr °C</th>
<th>Storage temperature Tstg °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5821</td>
<td>➀/K</td>
<td>TO-18</td>
<td>φ1.2</td>
<td>1.1</td>
<td>20</td>
<td>50</td>
<td>-40 to +100</td>
<td>-55 to +125</td>
</tr>
<tr>
<td>S5821-01</td>
<td>➁/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S5821-02</td>
<td>⃀/K</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S5821-03</td>
<td>⃁/L</td>
<td></td>
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</tbody>
</table>

Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Spectral response range λ (nm)</th>
<th>Peak sensitivity wavelength λp (nm)</th>
<th>Photo sensitivity S (A/W)</th>
<th>Short circuit current Isc 100 /μA</th>
<th>Dark current Id VR=10 V (nA)</th>
<th>Temp. coefficient of Id TCID (times/°C)</th>
<th>Cut-off frequency fc VR=10 V f=1 MHz (MHz)</th>
<th>Terminal capacitance Ct VR=10 V f=1 MHz (pF)</th>
<th>NEP VR=10 V λ=λp (W/Hz 1/2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5821</td>
<td>320 to 1100</td>
<td>660</td>
<td>0.6</td>
<td>0.05</td>
<td>2</td>
<td>1.15</td>
<td>25</td>
<td>3</td>
<td>6.7 × 10^-15</td>
</tr>
<tr>
<td>S5821-01</td>
<td></td>
<td>660</td>
<td>0.6</td>
<td>1.1</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S5821-02</td>
<td></td>
<td>660</td>
<td>0.6</td>
<td>1.1</td>
<td>12</td>
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* Window material K: borosilicate glass, L: lens type borosilicate glass
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- Spectral response

![Spectral response graph](image1.png)

- Directivity

![Directivity graph](image2.png)

- Photo sensitivity temperature characteristic

![Photo sensitivity temperature characteristic graph](image3.png)

- Frequency response

![Frequency response graph](image4.png)
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- Cut-off frequency vs. reverse voltage

- Dark current vs. reverse voltage

- Terminal capacitance vs. reverse voltage
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Dimensional outline (unit: mm)

1. S5821
2. S5821-01
3. S5821-02
4. S5821-03