Si PIN photodiode
S5106, S5107, S7509, S7510

Chip carrier package for surface mount

S5106, S5107, S7509 and S7510 are Si PIN photodiodes sealed in chip carrier packages suitable for surface mount using automated solder reflow techniques. These photodiodes have large active areas, making them suitable for spatial light transmission where a wide field-of-view angle is required. Other applications include POS scanners, power meters and analytical instruments.

### Features
- Active area
  - S5106: 5 × 5 mm
  - S5107: 10 × 10 mm
  - S7509: 2 × 10 mm
  - S7510: 6 × 11 mm
- Ceramic chip carrier package for surface mount
- Suitable for solder reflow
- High sensitivity

### Applications
- Spatial light transmission
- Laser radar
- Power meter
- Bar-code reader

### General ratings / Absolute maximum ratings

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Dimensional outline/ Window material *</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>S5106</td>
<td>①/R</td>
<td>5 × 5</td>
<td>25</td>
<td>30</td>
<td>50</td>
<td>-40 to +100</td>
<td>-40 to +125</td>
</tr>
<tr>
<td>S5107</td>
<td>②/R</td>
<td>10 × 10</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S7509</td>
<td>③/R</td>
<td>2 × 10</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S7510</td>
<td>④/R</td>
<td>6 × 11</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</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 lx</th>
<th>Dark current Id</th>
<th>Temp. coefficient of Id Tcid</th>
<th>Cut-off frequency fc RL=50 Ω VR=10 V</th>
<th>Terminal capacitance Ct f=1 MHz VR=10 V</th>
<th>NEP VR=10 V λ=λp (W/Hz^{1/2})</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5106</td>
<td>320 to 1100</td>
<td>960</td>
<td>0.72</td>
<td>0.45</td>
<td>0.57</td>
<td>0.62</td>
<td>27 (μA)</td>
<td>0.4 (nA)</td>
<td>5 (nA)</td>
</tr>
<tr>
<td>S5107</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>110 (μA)</td>
<td>0.9 (nA)</td>
<td>10 (nA)</td>
</tr>
<tr>
<td>S7509</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22 (μA)</td>
<td>0.5 (nA)</td>
<td>5 (nA)</td>
</tr>
<tr>
<td>S7510</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72 (μA)</td>
<td>1.0 (nA)</td>
<td>10 (nA)</td>
</tr>
</tbody>
</table>

* Window R: Resin coating

Note) S5106, S7509: For mass production, order unit is 100 pieces.
S5107, S7510: For mass production, order unit is 50 pieces.
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■ Dimensional outlines (unit: mm)

① S5106

② S5107

③ S7509

④ S7510

NC (excluding pins ③⑤)
Burrs shall protrude no more than 0.3 mm on any side of package.

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Burrs shall protrude no more than 0.3 mm on any side of package.
The light input window of this product uses soft silicone resin. Avoid touching the window to keep it from grime and damage that can decrease sensitivity. External force applied to the resin surface may deform or cut off the wires, so do not touch the window to prevent such troubles.

- Use rosin flux when soldering, to prevent the terminal lead corrosion. Reflow oven temperature should be at 260 °C maximum for 5 seconds maximum time under the conditions that no moisture absorption occurs.
- Reflow soldering conditions differ depending on the type of PC board and reflow oven. Carefully check these conditions before use.
- Silicone resin swells when it absorbs organic solvent, so do not use any solvent other than alcohol.
- Avoid unpacking until you actually use this product to prevent the terminals from oxidation and dust deposits or the coated resin from absorbing moisture.

When the product is stored for 3 months while not unpacked or 24 hours have elapsed after unpacking, perform baking in nitrogen atmosphere at 150 °C for 3 to 5 hours or at 120 °C for 12 to 15 hours before use.