The S10625-01CT is a Si photodiode for visible to near infrared range and is compatible with lead-free solder reflow processes. The small and thin leadless package allows reducing the mount area on a printed circuit board.

**Features**

- COB type
- Small package: 3.2 × 2.7 × 1.1 mm
- Applicable to lead-free solder reflow
- Photosensitive area: 1.3 × 1.3 mm

**Applications**

- Optical switches

**Structure**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photosensitive area</td>
<td>1.3 × 1.3</td>
<td>mm</td>
</tr>
<tr>
<td>Package</td>
<td>Glass epoxy</td>
<td>-</td>
</tr>
<tr>
<td>Seal material</td>
<td>Epoxy resin</td>
<td>-</td>
</tr>
</tbody>
</table>

**Absolute maximum ratings**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse voltage</td>
<td>Vr max</td>
<td>Ta=25 °C</td>
<td>10</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Topr</td>
<td></td>
<td>-25 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td></td>
<td>-40 to +100</td>
<td>°C</td>
</tr>
<tr>
<td>Reflow soldering conditions*1</td>
<td>Tsol</td>
<td>Peak temperature 240 °C max., 1 time (see page 5)</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

*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.

*1: JEDEC level 4

**Electrical and optical characteristics (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>320 to 1100</td>
<td>-</td>
<td>nm</td>
</tr>
<tr>
<td>Peak sensitivity wavelength</td>
<td>λp</td>
<td></td>
<td>-</td>
<td>940</td>
<td>-</td>
<td>nm</td>
</tr>
<tr>
<td>Photosensitivity</td>
<td>S</td>
<td>λ=λp</td>
<td>-</td>
<td>0.54</td>
<td>2.4</td>
<td>A/W</td>
</tr>
<tr>
<td>Short circuit current</td>
<td>Isc</td>
<td>100 Hz, 2856K</td>
<td>1.4</td>
<td>1.9</td>
<td>2.4</td>
<td>μA</td>
</tr>
<tr>
<td>Dark current</td>
<td>Id</td>
<td>Vr=1 V</td>
<td>-</td>
<td>1</td>
<td>10</td>
<td>nA</td>
</tr>
<tr>
<td>Temperature coefficient of Id</td>
<td>Tcd</td>
<td></td>
<td>-</td>
<td>1.12</td>
<td>-</td>
<td>times/°C</td>
</tr>
<tr>
<td>Rise time</td>
<td>tr</td>
<td>Vr=0 V, RL=1 KΩ</td>
<td>-</td>
<td>0.5</td>
<td>-</td>
<td>μs</td>
</tr>
<tr>
<td>Terminal capacitance</td>
<td>Ct</td>
<td>Vr=0 V, f=10 kHz</td>
<td>-</td>
<td>200</td>
<td>400</td>
<td>pF</td>
</tr>
</tbody>
</table>
Si photodiode

Spectral response

![Spectral response graph](Typ. Ta=25 °C)

- Photosensitivity (A/W)
- Wavelength (nm)
- QE=100%

Short circuit current vs. light level

![Short circuit current vs. light level graph](Typ. Ta=25 °C, V_l=0 V, light source: 2856 K)

- Short circuit current
- Light level (lx)

Directivity

![Directivity graph](Typ. Ta=25 °C, light source: tungsten lamp)

- Relative sensitivity (%)

X direction
- Y direction

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### Dark current vs. reverse voltage

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

**Dark current vs. reverse voltage**

- **Graph Details:**
  - **X-axis:** Reverse voltage (V)
  - **Y-axis:** Dark current (mA), Terminal capacitance (pF)
  - **Data Points:**
    - **Dark current:**
      - 0.01 nA to 100 nA
    - **Terminal capacitance:**
      - 1 pF to 1 nF

### Terminal capacitance vs. reverse voltage

![Terminal capacitance vs. reverse voltage graph](image)

**Terminal capacitance vs. reverse voltage**

- **Graph Details:**
  - **X-axis:** Reverse voltage (V)
  - **Y-axis:** Terminal capacitance (pF)
  - **Data Points:**
    - **Terminal capacitance:**
      - 1 pF to 1 nF

### Dimensional outlines (unit: mm)

![Dimensional outlines](image)

- **Photosensitive area:** 1.3 x 1.3 mm
- **Photosensitive surface:**
  - \( (2.3) \)
- **Index mark:**
  - \( (4 \times) \) \( \text{(R0.25)} \)

### Recommended land pattern (unit: mm)

![Recommended land pattern](image)

- **Dimensions:**
  - Anode (common)
  - Cathode (common)
  - Tolerance unless otherwise noted: ±0.2
  - Chip position accuracy with respect to package dimensions marked *
  - \( X_Y \leq \pm 0.3 \)
  - Electrode

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Si photodiode | S10625-01CT

**Standard packing specifications**

- Reel (conforms to JEITA ET-7200)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Hub diameter</th>
<th>Tape width</th>
<th>Material</th>
<th>Electrostatic characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>178 mm</td>
<td>60 mm</td>
<td>8 mm</td>
<td>PS</td>
<td>-</td>
</tr>
</tbody>
</table>

- Embossed tape (unit: mm, material: PC)

- Packing quantity
  2000 pcs/reel

- Packing type
  Reel and desiccant in moisture-proof packaging (vacuum-sealed)
This product supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 72 hours. The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. Before actual reflow soldering, check for any problems by testing out the reflow soldering methods in advance.

Measured example of temperature profile with our hot-air reflow oven for product testing

![Temperature profile diagram](image)

- Preheat: 70 to 90 s
- Soldering: 40 s max.
- 240 °C max.

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

- Precautions
- Notice
- Surface mount type products / Precautions

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

- Technical information
- Si photodiode / Application circuit examples

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The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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