Si APD
S8664 series
Short wavelength type APD

Features
- High sensitivity at visible range
- Low noise
- High gain
- Low capacitance

Applications
- Low-light-level measurement
- Analytical equipment

General ratings / Absolute maximum ratings

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Dimensional outline /Window material *1</th>
<th>Package</th>
<th>Effective *2 active area size</th>
<th>Effective active area</th>
<th>Absolute maximum ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(mm)</td>
<td>(mm²)</td>
<td>Operating temperature Topr (°C)</td>
</tr>
<tr>
<td>S8664-02K</td>
<td></td>
<td>TO-5</td>
<td>ø0.2</td>
<td>0.03</td>
<td>-20 to +60</td>
</tr>
<tr>
<td>S8664-05K</td>
<td></td>
<td>TO-5</td>
<td>ø0.5</td>
<td>0.19</td>
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<tr>
<td>S8664-10K</td>
<td></td>
<td>TO-5</td>
<td>ø1.0</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>S8664-20K</td>
<td></td>
<td>TO-5</td>
<td>ø2.0</td>
<td>3.14</td>
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</tr>
<tr>
<td>S8664-30K</td>
<td></td>
<td>TO-8</td>
<td>ø3.0</td>
<td>7.0</td>
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<tr>
<td>S8664-50K</td>
<td></td>
<td>TO-8</td>
<td>ø5.0</td>
<td>19.6</td>
<td></td>
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<tr>
<td>S8664-55</td>
<td></td>
<td>E</td>
<td>5 x 5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>S8664-1010</td>
<td></td>
<td>E</td>
<td>10 x 10</td>
<td>100</td>
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</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</th>
<th>Peak *3 sensitivity wavelength λp</th>
<th>Photo sensitivity S M=1 λ=420 nm (A/W)</th>
<th>Quantum efficiency QE M=1 ≈420 nm (%)</th>
<th>Breakdown voltage Vbr</th>
<th>Id=100 µA</th>
<th>Temperature coefficient of Vbr (V/°C)</th>
<th>Dark *3 current Id</th>
<th>Cut-off frequency fc (MHz)</th>
<th>Terminal *3 capacitance Ct (pF)</th>
<th>Excess Noise index λ=420 nm</th>
<th>Gain M λ=420 nm</th>
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<tbody>
<tr>
<td>S8664-02K</td>
<td>320 to 1000</td>
<td>600</td>
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<td>70</td>
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<td>500</td>
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<td>1.5</td>
<td>680</td>
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<td>0.2</td>
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<td>530</td>
<td>4</td>
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<td>3</td>
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<td>5</td>
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<td>40</td>
<td>80</td>
<td>5</td>
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<tr>
<td>S8664-1010</td>
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<td></td>
<td>10</td>
<td>100</td>
<td>11</td>
<td>270</td>
<td>10</td>
</tr>
</tbody>
</table>

*1: K: Borosilicate glass E: Epoxy resin
*2: Area in which a typical gain can be obtained.
*3: Values measured at a gain listed in the characteristics table.
- **Spectral response**

- **Quantum efficiency vs. wavelength**

- **Dark current vs. reverse voltage**

- **Gain vs. reverse voltage**

- **Terminal capacitance vs. reverse voltage**
Si APD S8664 series

■ Dimensional outlines (unit: mm)

1. S8664-02K/-05K/-10K/-20K

   - ACTIVE AREA
   - PHOTOSENSITIVE SURFACE
   - LEAD
   - CASE

   The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

2. S8664-30K/-50K

   - ACTIVE AREA
   - INDEX MARK
   - PHOTOSENSITIVE SURFACE
   - LEAD
   - CASE

   The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

3. S8664-55

   - ACTIVE AREA
   - PHOTOSENSITIVE SURFACE
   - EPOXY RESIN
   - INDEX MARK
   - LEAD
   - CASE

   General tolerance: ±0.2

4. S8664-1010

   - ACTIVE AREA
   - PHOTOSENSITIVE SURFACE
   - EPOXY RESIN
   - INDEX MARK
   - LEAD
   - CASE

   General tolerance: ±0.2

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