UV - Photodetector with integrated amplifier

characteristics:
- spectral range 210 ... 390 nm
- active area 0,22 mm²
- responsivity, decadic staggering 1,2/12/120 mV/nW
- extra sensor pin for external adjustment of gain and bandwidth
- single supply voltage
- sensor assembly isolated to ground
- hermetically welded TO5-metal/glass package
- components are in conformity with RoHS and WEEE

applications:
- selective UV-measurement
- control of sterilization lamps
- flamedetection and flamecontrol
- control of irradiancy in varnish and adhesive hardening

absolute maximum ratings:
- operating voltage +5,5 V
- operating temperature range -25 °C ... +85 °C
- storage temperature range -40 °C ... +100 °C
- soldering temperature (5s) 300 °C

technical data:
common test conditions, as not otherwise specified:  \( T_A = 25 \, ^\circ\text{C}, \, V_S = +5 \, \text{V} \)
typ. values, maximum values in brackets

<table>
<thead>
<tr>
<th>parameters</th>
<th>test condition</th>
<th>JIC 137</th>
<th>JIC 138</th>
<th>JIC 139</th>
<th>unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>feed back resistor</td>
<td></td>
<td>10</td>
<td>100</td>
<td>1.000</td>
<td>MΩ</td>
</tr>
<tr>
<td>dark offset voltage</td>
<td>( E = 0 , \text{lx} )</td>
<td>± 1</td>
<td>± 2</td>
<td>± 3</td>
<td>mV</td>
</tr>
<tr>
<td>noise voltage</td>
<td>( B = 10 , \text{kHz} )</td>
<td>0,5</td>
<td>1</td>
<td>2</td>
<td>mV\text{rms}</td>
</tr>
<tr>
<td>max. of spectral responsivity</td>
<td>( \lambda = 280 , \text{nm} )</td>
<td>1,2</td>
<td>12</td>
<td>120</td>
<td>mV/nW</td>
</tr>
<tr>
<td>risetime</td>
<td></td>
<td>30</td>
<td>150</td>
<td>600</td>
<td>( \mu\text{s} )</td>
</tr>
<tr>
<td>bandwidth</td>
<td>- 3 dB</td>
<td>10</td>
<td>2</td>
<td>0,5</td>
<td>kHz</td>
</tr>
<tr>
<td>saturation voltage</td>
<td>( R_s = 2 , \text{kΩ} )</td>
<td>+ 4,95</td>
<td>(+ 4,8)</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>shortcurrent</td>
<td></td>
<td>± 50</td>
<td></td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>operation voltage</td>
<td></td>
<td>+ 2,7...+ 5</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>current consumption</td>
<td></td>
<td>750 (1100)</td>
<td></td>
<td></td>
<td>( \mu\text{A} )</td>
</tr>
</tbody>
</table>

rev. 2 (03/2009)
relative spectral responsivity

pin configuration

package dimensions

1  $R_f$
2  Out
3  $V_S$
4  GND
5  Case

application hints:

- If an external resistor for reduction of gain is used, please make sure that length of connectors is as short as possible to reduce noise and capacitative interference.

- If internally adjusted gain is used only, please cut pin “1”.