GUVA-S12GM

- Digital UVA Sensor
- Gallium Nitride Based Material
- UVA, 220 – 370 nm
- I2C Slave Interface, up to 400 kHz
- 13 x 13 x 3 mm, 8-pin

Description

GUVA-S12GM is a UVA Sensor working in the spectral range of 220 – 370 nm. It contains a GaN based SMD photodiode, amplifier, ADC, digital control logic and I2C interface circuit for UV measurement, on a 13x13 mm 8-pin PCB. GUVA-S12GM can acquire the intensity of UVA, respectively and outputs digital count according to each intensity. By using available power management mode, the power consumption can be reduced.

Features

- UV index measurement supported (1 ... 20)
- Programmable gain and integration time
- I2C slave interface, up to 400 kHz
- Power management modes
- Sleep current: 1 µA typical
- Supply voltage: 3.0 – 3.6 V

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>$T_{CASE}$</td>
<td>-30 – +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>-40 – +90</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature *</td>
<td>$T_{SLD}$</td>
<td>260</td>
<td>°C</td>
</tr>
</tbody>
</table>

* must be completed within 10 seconds

Electro-Optical Characteristics

$T_{CASE} = 25^\circ C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Output</td>
<td>1 (UVA)</td>
<td>Channel</td>
</tr>
<tr>
<td>Output Resolution</td>
<td>10</td>
<td>bits</td>
</tr>
<tr>
<td>UV Index Range</td>
<td>0 – 20</td>
<td></td>
</tr>
<tr>
<td>Configurable Gain</td>
<td>x1 – x128</td>
<td></td>
</tr>
<tr>
<td>Sleep Mode Control</td>
<td>Enable</td>
<td></td>
</tr>
<tr>
<td>Power Management</td>
<td>Normal, Sleep</td>
<td></td>
</tr>
<tr>
<td>I2C Clock Frequency</td>
<td>up to 400 kHz</td>
<td></td>
</tr>
<tr>
<td>Operating Current (typical)</td>
<td>300</td>
<td>µA</td>
</tr>
<tr>
<td>Deep Sleep Current</td>
<td>&lt;1</td>
<td>µA</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>3.0 – 3.6</td>
<td>V</td>
</tr>
<tr>
<td>Chip Size</td>
<td>0.23 x 0.23</td>
<td>mm²</td>
</tr>
</tbody>
</table>
Package and Port Description

Outline Dimensions

Front View

Top View

Bottom View

Solder Pattern

14,8
9,2
0,8
9,2
1,7
1,7
0,8
1,9
14,8
9,2

13 x 13 x 3 mm
Function Block Diagram

Application Circuit

Pin Description

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Pin Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>VDD</td>
<td>Supply Voltage</td>
</tr>
<tr>
<td>3, 4</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>5, 6</td>
<td>SCL</td>
<td>I2C clock line</td>
</tr>
<tr>
<td>7, 8</td>
<td>SDA</td>
<td>I2C data line</td>
</tr>
</tbody>
</table>

Caution

ESD can damage the device hence please avoid ESD.

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