The L9337 series is an infrared LED developed for optical switches. Because a high-power LED chip is mounted, the L9337 series provides higher radiant output power than previous devices, moreover it is available at a low cost due to the improved manufacturing process. The L9337-01/-02 use a high reliability package making them suitable for automobile applications.

### Features
- High radiant output power
- High reliability
- Low price

### Applications
- Optical switches
- Automobiles

### Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

<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>V&lt;sub&gt;r&lt;/sub&gt;</td>
<td></td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Forward current</td>
<td>I&lt;sub&gt;f&lt;/sub&gt;</td>
<td></td>
<td>80</td>
<td>mA</td>
</tr>
<tr>
<td>Forward current decrease</td>
<td>-</td>
<td>Ta &gt; 25 °C</td>
<td>1.1</td>
<td>mA/°C</td>
</tr>
<tr>
<td>Pulse forward current</td>
<td>I&lt;sub&gt;FP&lt;/sub&gt;</td>
<td>Pulse width=10 μs Duty ratio=1%</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td>Pulse forward current</td>
<td>-</td>
<td>Ta &gt; 25 °C</td>
<td>13</td>
<td>mA/°C</td>
</tr>
<tr>
<td>Power dissipation</td>
<td>P</td>
<td></td>
<td>150</td>
<td>mW</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Topr</td>
<td></td>
<td>-30 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td></td>
<td>-40 to +100&lt;sup&gt;1&lt;/sup&gt;</td>
<td>°C</td>
</tr>
</tbody>
</table>

<sup>1</sup>: The L9337 is guaranteed to resist temperature cycle test of up to 5 cycles.

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.

### Electrical and optical characteristics (Ta=25 °C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Condition</th>
<th>L9337</th>
<th>L9337-01</th>
<th>L9337-02</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak emission wavelength</td>
<td>λ&lt;sub&gt;p&lt;/sub&gt;</td>
<td>If=50 mA</td>
<td>840</td>
<td>870</td>
<td>900</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral half width</td>
<td>Δλ</td>
<td>If=50 mA</td>
<td>-</td>
<td>45</td>
<td>-</td>
<td>nm</td>
</tr>
<tr>
<td>Forward voltage</td>
<td>V&lt;sub&gt;f&lt;/sub&gt;</td>
<td>If=50 mA</td>
<td>-</td>
<td>1.42</td>
<td>1.5</td>
<td>V</td>
</tr>
<tr>
<td>Pulse forward voltage</td>
<td>V&lt;sub&gt;FP&lt;/sub&gt;</td>
<td>If=1 A</td>
<td>-</td>
<td>2.7</td>
<td>3.4</td>
<td>V</td>
</tr>
<tr>
<td>Reverse current</td>
<td>I&lt;sub&gt;r&lt;/sub&gt;</td>
<td>V&lt;sub&gt;r&lt;/sub&gt;=5 V</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>μA</td>
</tr>
<tr>
<td>Radiant flux</td>
<td>φ&lt;sub&gt;e&lt;/sub&gt;</td>
<td>If=50 mA</td>
<td>18</td>
<td>23</td>
<td>10</td>
<td>mW</td>
</tr>
<tr>
<td>Cut-off frequency&lt;sup&gt;2&lt;/sup&gt;</td>
<td>fc</td>
<td>If=50 mA ± 4 mAp-p</td>
<td>25</td>
<td>40</td>
<td>25</td>
<td>40</td>
</tr>
</tbody>
</table>

<sup>2</sup>: Frequency at which the optical output drops by -3 dB from that at 100 kHz.
Infrared LED

**Emission spectrum**

(Typ. Ta=25 °C, Ir=50 mA)

- Relative radiant output (%)
  - Wavelength (nm): 810, 830, 850, 870, 890, 910, 930

**Radiant flux vs. pulse forward current**

(Typ. Ta=25 °C, tw=100 μs, 0.1%)

- Radiant flux (mW)
  - Pulse forward current (mA):
    - 10, 100, 1000

**Pulse forward current vs. pulse forward voltage**

(Typ. Ta=25 °C, tw=100 μs, 0.1%)

- Pulse forward current (mA)
  - Pulse forward voltage (V):
    - 0, 10, 100, 1000

**Directivity**

(Typ. Ta=25 °C)

- Relative radiant output (%)
  - Directivity angles: 20°, 10°, 10°, 20°, 90°, 80°, 50°, 40°, 30°, 70°, 60°, 90°
Radiant output vs. ambient temperature

![Graph showing radiant output vs. ambient temperature](image1)

Allowable forward current vs. ambient temperature

![Graph showing allowable forward current vs. ambient temperature](image2)

Allowable forward current vs. duty ratio

![Graph showing allowable forward current vs. duty ratio](image3)
## Dimensional outlines (unit: mm)

<table>
<thead>
<tr>
<th>L9337</th>
<th>L9337-01</th>
<th>L9337-02</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Dimensional outlines" /></td>
<td><img src="image" alt="Dimensional outlines" /></td>
<td><img src="image" alt="Dimensional outlines" /></td>
</tr>
</tbody>
</table>

**Common to case**
- Lead: 2.54 ± 0.2
- Φ0.45

**KLEDA0081E0A**
- Clear epoxy resin: 5.5 ± 0.1
- Φ4.2 ± 0.1
- Φ2.54 ± 0.2

**KLEDA0092E0A**
- Clear epoxy resin: 5.4 ± 0.2
- Φ4.65 ± 0.1
- Φ2.54 ± 0.2

**KLEDA0093E0A**
- Clear epoxy resin: 5.4 ± 0.2
- Φ4.7 ± 0.1
- Φ2.54 ± 0.2

### Related information


#### Precautions
- **Notice**
- Metal, ceramic, plastic package products / Precautions

#### Technical information
- **LED / Technical information**

Information described in this material is current as of January, 2016.

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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 within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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