0.8mm Height Flat Top Infrared LED
HIR19-21C/L11/TR8

Features
- High reliability
- Small double-end package
- Peak wavelength $\lambda = 850$nm
- Package in 8mm tape on 7” diameter reel
- Low forward voltage
- Pb free
- The product itself will remain within RoHS compliant version.

Descriptions
- HIR19-21C/L11/TR8 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with flat top view lens.
- The device is spectrally matched with silicon photodiode and phototransistor.

Applications
- PCB mounted infrared sensor
- Infrared remote control units with high power requirement
- Smoke detector
- Infrared applied system

Device Selection Guide

<table>
<thead>
<tr>
<th>Part Category</th>
<th>Chip Material</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIR</td>
<td>GaAlAs</td>
<td>Water clear</td>
</tr>
</tbody>
</table>
Data Sheet
0.8mm Height Flat Top Infrared LED
HIR19-21C/L11/TR8

Package Dimensions

![Package Dimensions Diagram]

Notes:
1. All dimensions are in millimeters
2. Tolerances unless dimensions ±0.1mm

Absolute Maximum Ratings (Ta=25 °C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Forward Current</td>
<td>I_F</td>
<td>65</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>V_R</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>T_opr</td>
<td>-25 ~ +85°C</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T_stg</td>
<td>-40 ~ +85°C</td>
<td></td>
</tr>
<tr>
<td>Soldering Temperature *1</td>
<td>T_sol</td>
<td>260</td>
<td></td>
</tr>
<tr>
<td>Power Dissipation at(or below) 25 °C Free Air Temperature</td>
<td>P_d</td>
<td>130 mW</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
*1: Soldering time 5 seconds.
## Electro-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>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiant Intensity</td>
<td>I_{e}</td>
<td>I_{F}=20mA</td>
<td>0.2</td>
<td>0.8</td>
<td>--</td>
<td>mW /sr</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>ǃp</td>
<td>I_{F}=20mA</td>
<td>--</td>
<td>850</td>
<td>--</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth</td>
<td>ℙǃ</td>
<td>I_{F}=20mA</td>
<td>--</td>
<td>45</td>
<td>--</td>
<td>nm</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>V_{F}</td>
<td>I_{F}=20mA</td>
<td>--</td>
<td>1.45</td>
<td>1.65</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>I_{R}</td>
<td>V_{R}=5V</td>
<td>--</td>
<td>--</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td>View Angle</td>
<td>2 ǃ1/2</td>
<td>I_{F}=20mA</td>
<td>--</td>
<td>145</td>
<td>--</td>
<td>deg</td>
</tr>
</tbody>
</table>
**Typical Electro-Optical Characteristics Curves**

**Fig.1 Forward Current vs. Ambient Temperature**

**Fig.2 Spectral Distribution**

![Forward Current vs. Ambient Temperature](image1)

![Spectral Distribution](image2)

**Fig.3 Forward Current vs. Forward Voltage**

**Fig.4 Relative Intensity vs. Forward Current**

![Forward Current vs. Forward Voltage](image3)

![Relative Intensity vs. Forward Current](image4)
Typical Electro-Optical Characteristics Curves

Fig. 5 Relative Radiant Intensity vs. Angular Displacement
Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.
2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.
2.3 The LEDs should be used within a year.
2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.
2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   
   Baking treatment: 60°C for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.
3.3 When soldering, do not put stress on the LEDs during heating.
3.4 After soldering, do not warp the circuit board.
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350 °C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
Package Dimensions

Note: The tolerances unless mentioned are ±0.1, unit = mm.

Carrier Taping Dimensions: Loaded Quantity Per Reel 3000PCS/Reel

Note: The tolerances unless mentioned is ±0.1mm, Unit = mm
Label Form Specification

CPN: Customer’s Production Number
P/N: Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number

Notes
1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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