

# Infrared LED



L12771 series

**Peak emission wavelength: 1.3  $\mu\text{m}$**

The L12771 series is a long wavelength LED using InGaAs material. Peak emission wavelength is 1.3  $\mu\text{m}$ , making the L12771 series suitable as a reference light source for detection of moisture.

## Features

- Peak emission wavelength: 1.3  $\mu\text{m}$
- High radiant output power

## Applications

- Reference light source for moisture meter
- Light source for detecting photosensitive material

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

| Parameter                           | Symbol | Condition                                     | Value  | Unit  |
|-------------------------------------|--------|---|--|-------|
| Reverse voltage                     | VR     |   | 1  | V     |
| Forward current                     | IF     |   | 80   | mA    |
| Forward current derating rate       | -      | Ta > 25 °C                                    | 1.1  | mA/°C |
| Pulse forward current               | IFP    | Pulse width=10 $\mu\text{s}$<br>Duty ratio=1% | 1.0  | A     |
| Pulse forward current derating rate | -      | Ta > 25 °C                                    | 13   | mA/°C |
| Power dissipation                   | P      |   | 150  | mW    |
| Operating temperature               | Topr   | No condensation                               | -30 to +85   | °C    |
| Storage temperature                 | Tstg   | No condensation                               | -40 to +100  | °C    |
| Soldering conditions                | -      |   | 260 °C or less, within 5 s, at least 1 mm away from lead roots | -     |

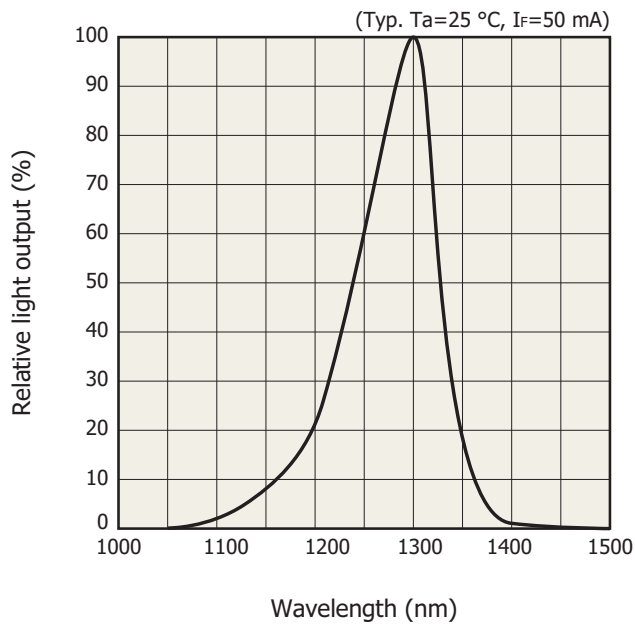
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

| Parameter                | Symbol          | Condition               | L12771 |      |      | L12771-01 |      |      | Unit          |
|--------------------------|-----------------|-------------------------|--------|------|------|-----------|------|------|---------------|
|                          |                 |                         | Min.   | Typ. | Max. | Min.      | Typ. | Max. |               |
| Peak emission wavelength | $\lambda_p$     | IF=50 mA                | 1.25   | 1.3  | 1.35 | 1.25      | 1.3  | 1.35 | $\mu\text{m}$ |
| Spectral half width      | $\Delta\lambda$ | IF=50 mA                | -      | 90   | 140  | -         | 90   | 140  | nm            |
| Radiant flux             | $\phi_e$        | IF=50 mA                | 2.0    | 2.8  | -    | 2.2       | 3.1  | -    | mW            |
| Forward voltage          | VF              | IF=50 mA                | -      | 1.0  | 1.5  | -         | 1.0  | 1.5  | V             |
| Pulse forward voltage    | VFP             | IF=1 A                  | -      | 1.9  | 2.8  | -         | 1.9  | 2.8  | V             |
| Reverse current          | IR              | VR=1 V                  | -      | -    | 10   | -         | -    | 10   | $\mu\text{A}$ |
| Cutoff frequency*1       | fc              | IF=50 mA $\pm$ 10 mAp-p | 10     | 15   | -    | 10        | 15   | -    | MHz           |

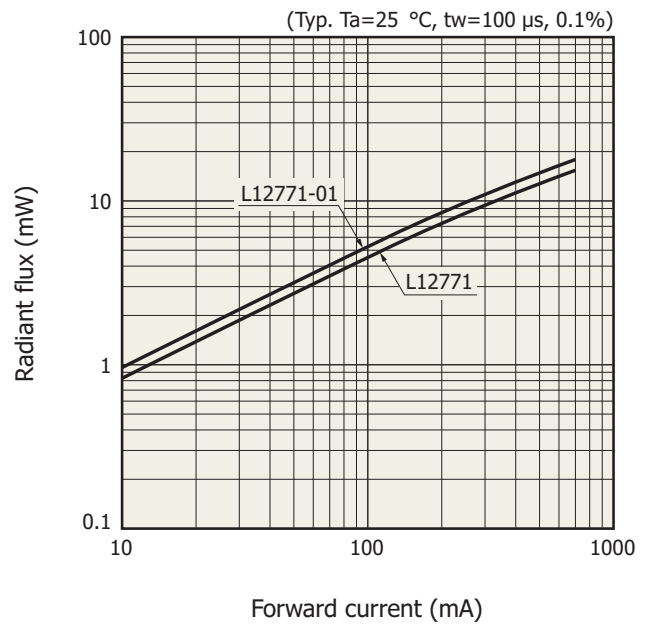
\*1: Frequency at which the light output decreases by 3 dB from the light output at 100 kHz

**Emission spectrum**



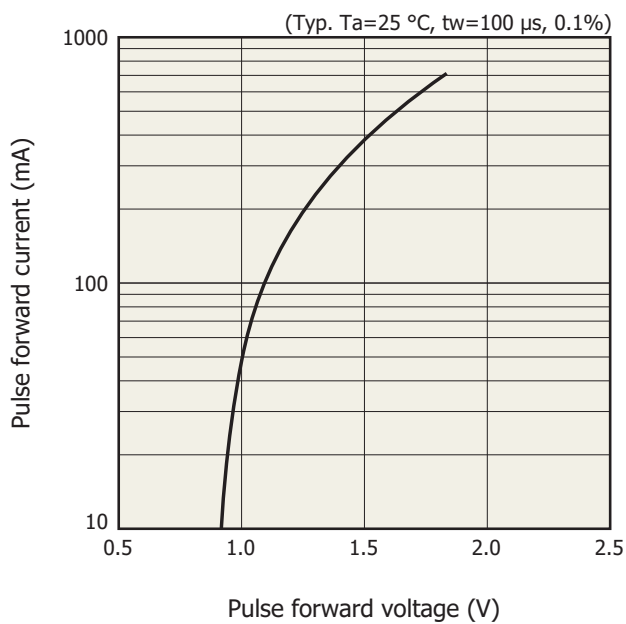
KLEDB0332EA

**Radiant flux vs. forward current**



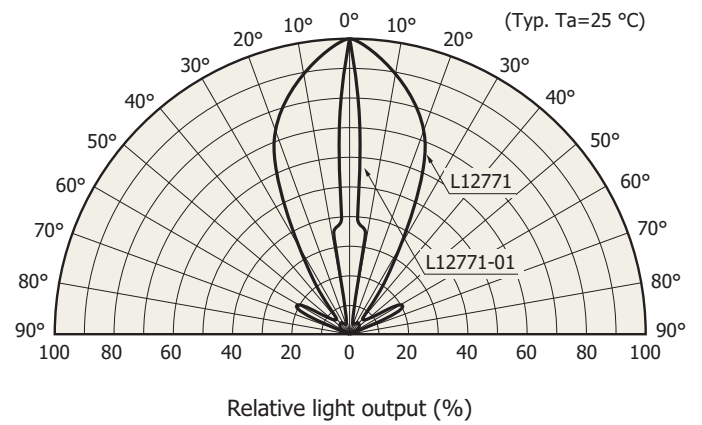
KLEDB0389EA

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



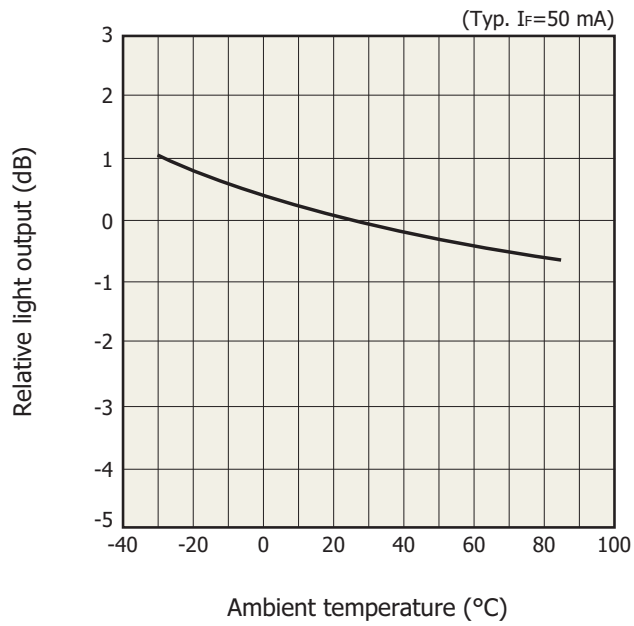
KLEDB0390EA

**Directivity**

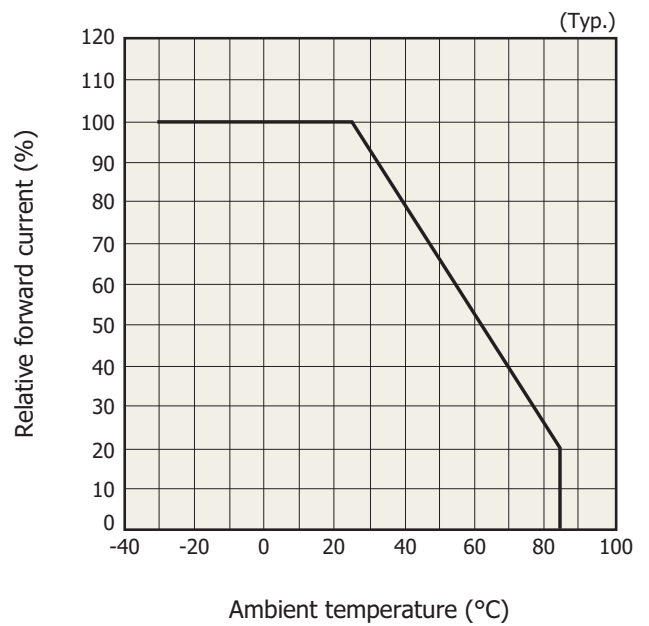


KLEDB0391EA

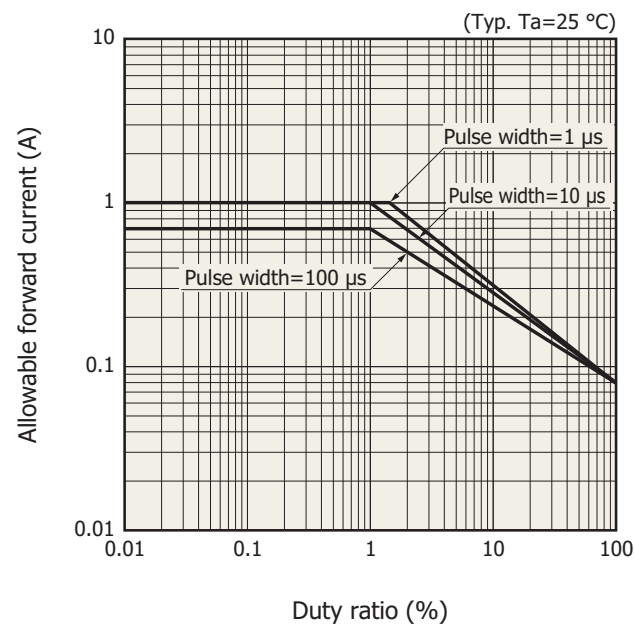
Light output vs. ambient temperature



Allowable forward current vs. ambient temperature

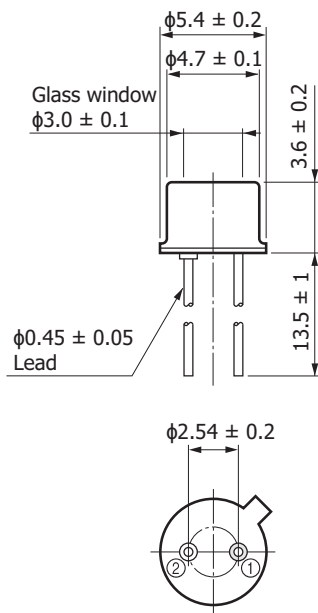


Allowable forward current vs. duty ratio



Dimensional outline (unit: mm)

L12771



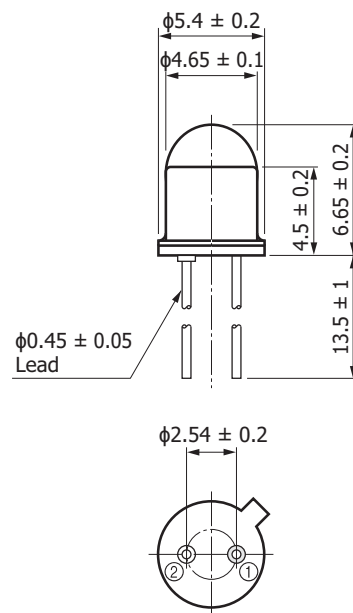
Common to case



Standard packing type:  
Paper box (200 pieces/box)

KLEDA0090EB

L12771-01



Common to case



Standard packing type:  
Paper box (200 pieces/box)

KLEDA0091EB

Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

Precautions

- Notice
- Metal, ceramic, plastic package / Precautions

Technical information

- LED / Technical information

Information described in this material is current as of April, 2014.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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

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**HAMAMATSU**

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