



L12771 series

Peak emission wavelength: 1.3 μm

The L12771 series is an infrared LED using InGaAs material. Peak emission wavelength is 1.3 μm, making the L12771 series suitable as a reference light source for detection of moisture.

Features

- High output
- High reliability
- Compact, surface mount type package (1.6 × 0.8 × 0.7^t mm): L12771-0130G
- Supports lead-free reflow soldering

Applications

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

Structure

| Type no. | Package | Window material |
|--------------|--------------------------------|------------------------------|
| L12771 | Metal | Borosilicate glass |
| L12771-01 | Metal | Lens type borosilicate glass |
| L12771-0130G | Surface mount type glass epoxy | Silicone resin |

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

| Type no. | Reverse voltage VR (V) | Forward current IF (mA) | Forward current decrease rate Ta > 25 °C (mA/°C) | Pulse forward current IFP*1 (A) | Pulse forward current decrease rate Ta > 25 °C (mA/°C) | Power dissipation P (mW) | Operating temperature Topr*2 (°C) | Storage temperature Tstg*2 (°C) | Soldering temperature Tsol (°C) |
|--------------|------------------------|-------------------------|--|---------------------------------|--|--------------------------|-----------------------------------|---------------------------------|---------------------------------|
| L12771 | 1 | 80 | 1.1 | 1.0 | 13 | 150 | -30 to +85 | -40 to +100 | - |
| L12771-01 | | | | 0.5 | 6.7 | | | | 250 (twice)*3 |
| L12771-0130G | | | | | | | | | |

*1: Pulse width=10 μs, duty ratio=1%

*2: No dew condensation

When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

*3: Reflow soldering, JEDEC J-STD-020 MSL 2a, see P.7

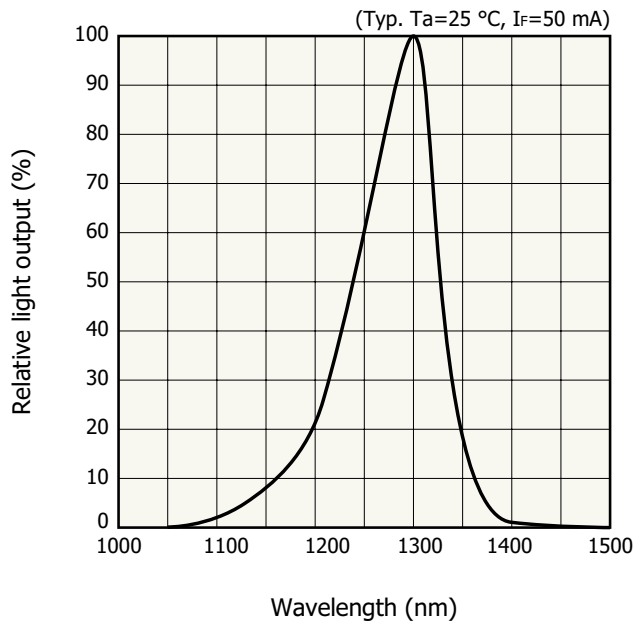
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C)

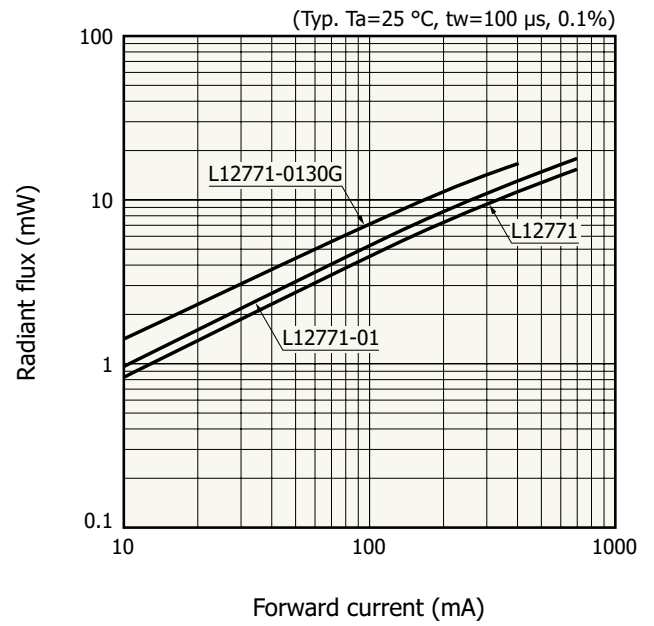
| Type no. | Peak emission wavelength λp IF=50 mA | | | Spectral half width Δλ IF=50 mA | Radiant flux φc IF=50 mA | | Forward voltage VF IF=50 mA | | Reverse current IR VR=1V | Cutoff frequency fc*4 | |
|--------------|--------------------------------------|-----------|-----------|---------------------------------|--------------------------|-----------|-----------------------------|----------|--------------------------|-----------------------|------------|
| | Min. (nm) | Typ. (nm) | Max. (nm) | Typ. (nm) | Min. (mW) | Typ. (mW) | Typ. (V) | Max. (V) | Max. (μA) | Min. (MHz) | Typ. (MHz) |
| L12771 | 1250 | 1300 | 1350 | 90 | 2.0 | 2.8 | 1.0 | 1.5 | 10 | 10 | 15 |
| L12771-01 | | | | | 2.2 | 3.1 | | | | | |
| L12771-0130G | | | | | 3.2 | 4.4 | | | | | |

*4: IF=50 mA ± 10 mAp-p, frequency at which the light output drops by 3 dB relative to the output at 100 kHz

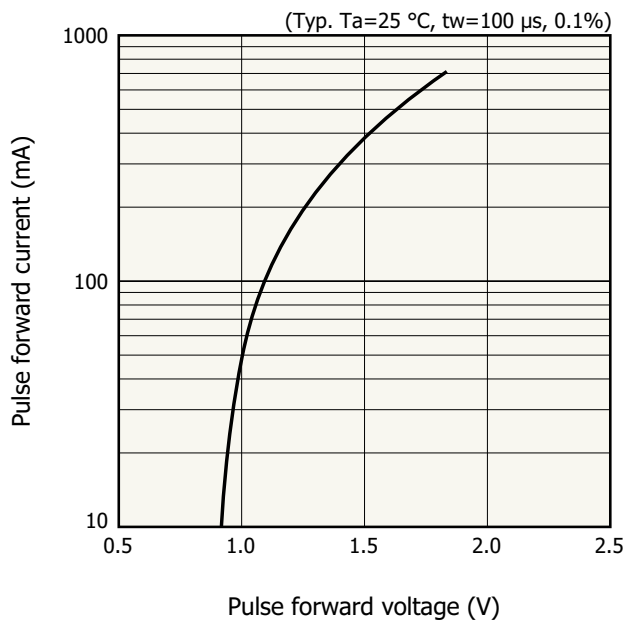
Emission spectrum



Radiant flux vs. pulse forward current

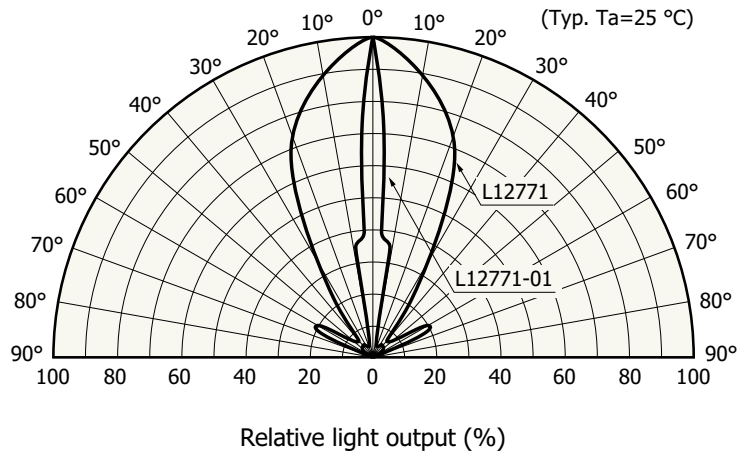


Pulse forward current vs. pulse forward voltage



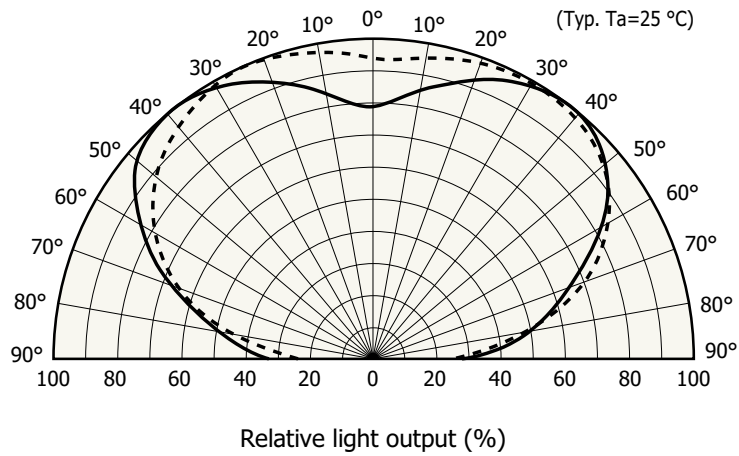
Directivity

L12771/-01



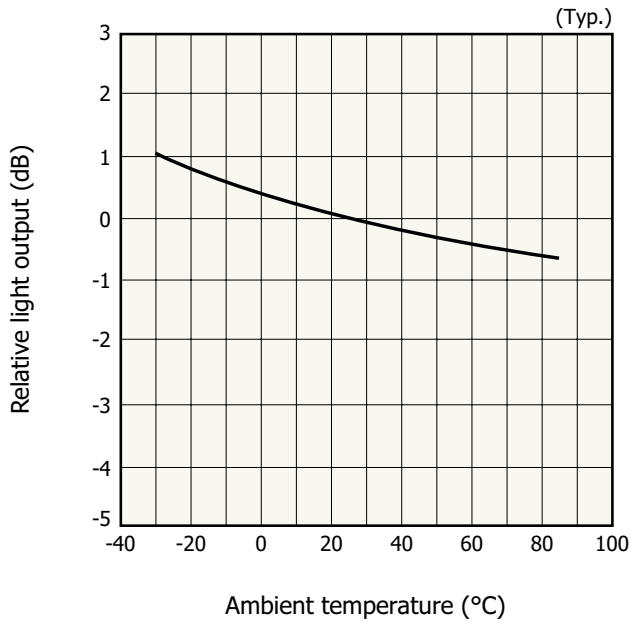
KLED00391EA

L12771-0130G



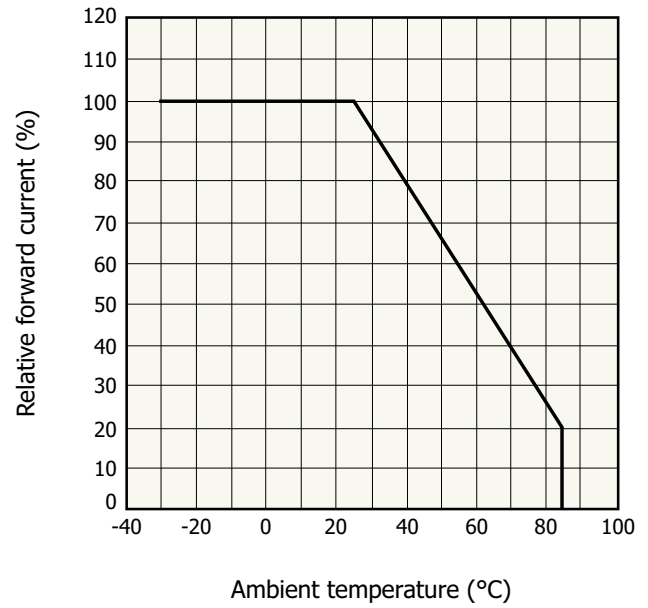
KLED00487EB

Light output vs. ambient temperature



KLEDB0392EB

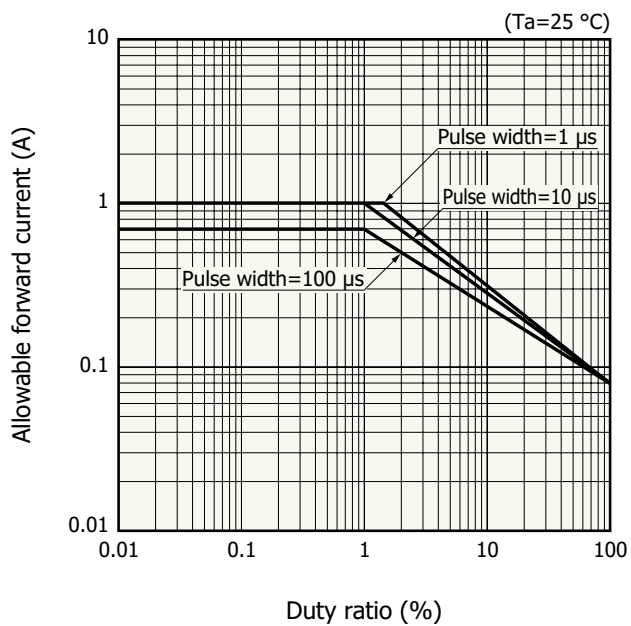
Allowable forward current vs. ambient temperature



KLEDB0328EA

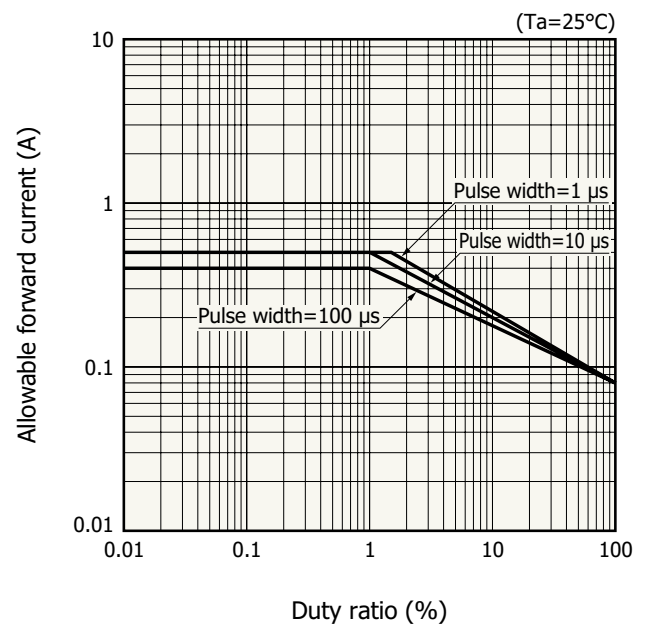
Allowable forward current vs. duty ratio

L12771/-01



KLEDB0225EA

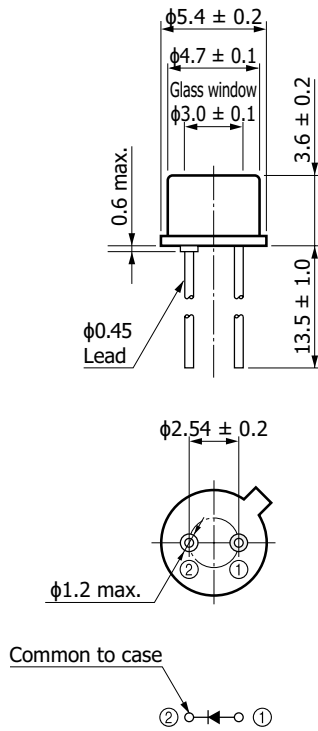
L12771-0130G



KLEDB0516EB

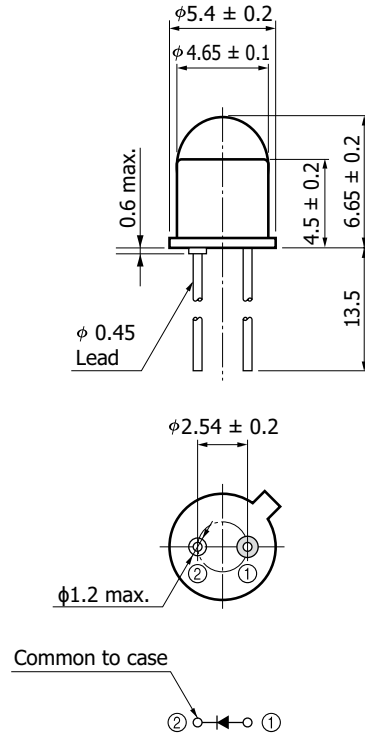
Dimensional outlines (unit: mm)

L12771



KLEDA0103EB

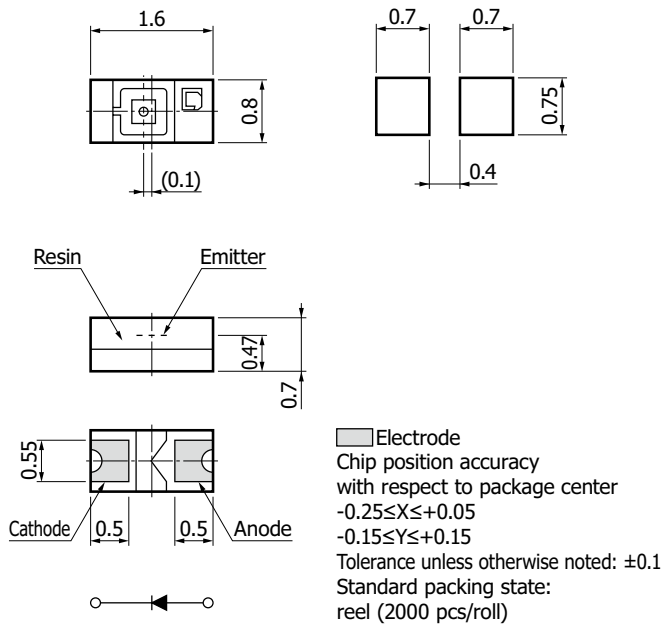
L12771-01



KLEDA0092EB

L12771-0130G

Recommended land pattern



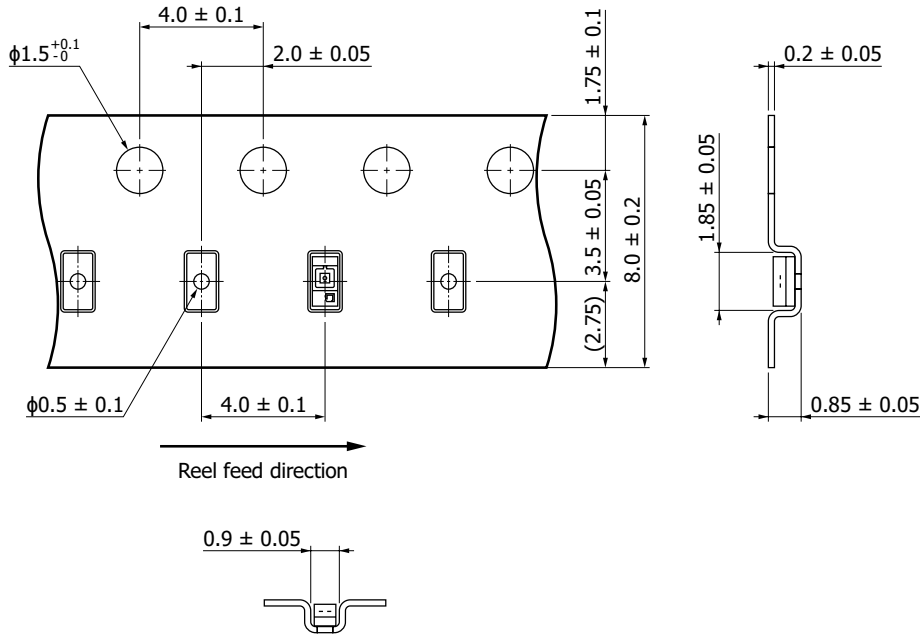
KLEDA0107EB

Standard packing specifications (L12771-0130G)

■ Reel (conforms to JEITA ET-7200)

| Outer diameter | Hub diameter | Tape width | Material | Electrostatic characteristics |
|----------------|--------------|------------|----------|-------------------------------|
| φ180 mm | φ60 mm | 8 mm | PS | Conductive |

■ Embossed tape (unit: mm, material: PS, conductive)



KLEDC0063EA

■ Packing quantity

2000 pcs/reel

■ Packing stage

Reel and desiccant in moisture-proof packaging (vacuum-sealed)

Recommended soldering conditions

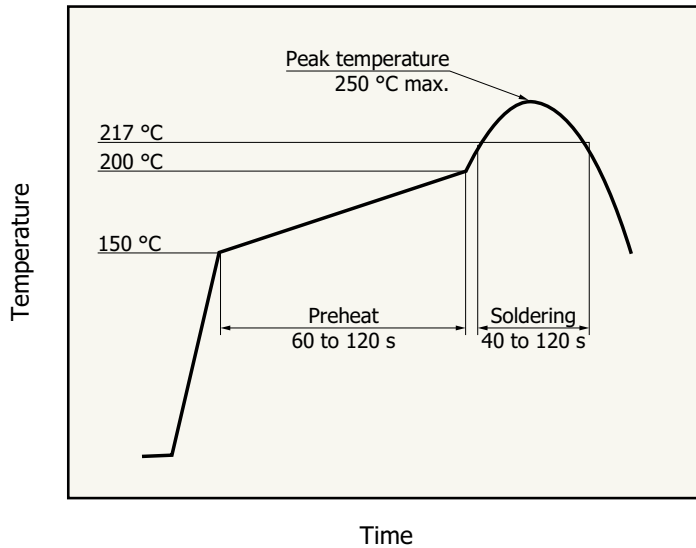
L12771/-01

· Solder temperature: 260 °C (5 s or less, once)

Solder the leads at a point at least 1 mm away from the package body.

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

L12771-0130G



· After unpacking, store the device in an environment at a temperature range of 5 to 30 °C and a humidity of 60% or less, and perform reflow soldering within 4 weeks.

· The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. When you set reflow soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

KLED80536EC

Baking (L12771-0130G)

If more than 12 months have passed in the unopened state or storage conditions are exceeded after opening the package, baking is required to remove moisture before reflow soldering. For the baking, refer to "Precautions / Surface mount type products" in the related information.

Recommended baking conditions

· Temperature: 150 °C (3 hours, once)

Note: When you set baking conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Safety consideration / Opto-semiconductors
- Precautions / Surface mount type products
- Precautions / Compound opto-semiconductors (photosensors, light emitters)

■ Catalogs

- Selection guide / LED
- Technical note / LED

Information described in this material is current as of November 2024.

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.

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