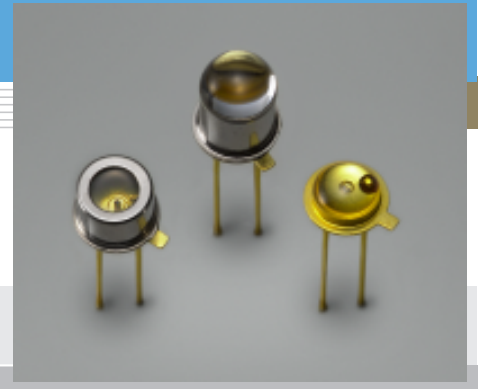


# Infrared LED

## L2791 series

Small emission spot LED using current confined chip



L2791 is infrared LED with a microball lens cemented to the current confined chip surface. This combination ensures high directivity and improved emission uniformity. In particular, L2791-02 uses a lens cap that delivers even narrower directivity. As a variant type not using a microball lens, L2791-03 is also available with the LED chip potted with resin, which gives a small emission spot of  $\phi 160 \mu\text{m}$ .

### Features

- Small emission spot  
L2791 :  $\phi 400 \mu\text{m}$   
L2791-03:  $\phi 160 \mu\text{m}$
- Uniform emission: L2791/-02
- Narrow directivity: L2791/-02

### Applications

- Automatic control systems
- Optical switches
- Auto-focus

### ■ Absolute maximum ratings (Ta=25 °C)

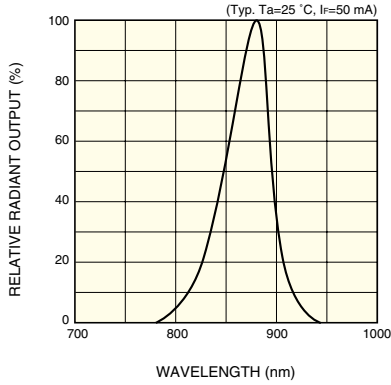
| Parameter             | Symbol | Condition                                      | Value         | Unit |
|-----------------------|--------|--|---------------|------|
| Forward current       | IF     |  | 80            | mA   |
| Reverse voltage       | VR     |  | 3             | V    |
| Pulse forward current | IFP    | Pulse width=10 $\mu\text{s}$<br>Duty ratio=1 % | 0.5           | A    |
| Operating temperature | Topr   |  | -30 to +85    | °C   |
| Storage temperature   | Tstg   |  | -40 to +100 * | °C   |

\* L2791-03 is guaranteed to resist temperature cycle test of up to 5 cycles.

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

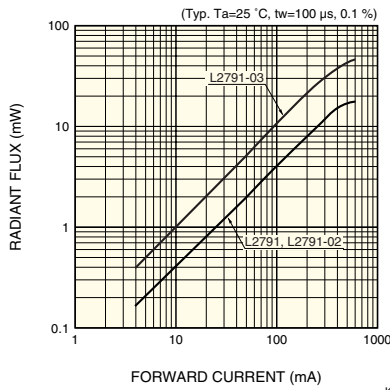
| Parameter                | Symbol          | Condition            | L2791 |      |      | L2791-02 |      |      | L2791-03 |      |      | Unit                    |
|--------------------------|-----------------|----------------------|-------|------|------|----------|------|------|----------|------|------|-------------------------|
|                          |                 |                      | Min.  | Typ. | Max. | Min.     | Typ. | Max. | Min.     | Typ. | Max. |                         |
| Peak emission wavelength | $\lambda_p$     | IF=50 mA             | 850   | 880  | 910  | 850      | 880  | 910  | 850      | 880  | 910  | nm                      |
| Spectral half width      | $\Delta\lambda$ | IF=50 mA             | -     | 60   | -    | -        | 60   | -    | -        | 60   | -    | nm                      |
| Forward voltage          | VF              | IF=50 mA             | -     | 1.5  | 1.7  | -        | 1.5  | 1.7  | -        | 1.5  | 1.7  | V                       |
| Pulse forward voltage    | VFP             | IF=0.5 A             | -     | 3.2  | 4.0  | -        | 3.2  | 4.0  | -        | 3.2  | 4.0  | V                       |
| Reverse current          | IR              | VR=3 V               | -     | -    | 10   | -        | -    | 10   | -        | -    | 10   | $\mu\text{A}$           |
| Radiant flux             | $\phi_e$        | IF=50 mA             | 1.6   | 2.0  | -    | 1.6      | 2.0  | -    | 4.0      | 5.0  | -    | mW                      |
| Radiant illuminance      | PE              | IF=50 mA             | -     | 1.3  | -    | -        | 2.0  | -    | -        | -    | -    | $\text{mW}/\text{cm}^2$ |
| Rise time                | tr              | IF=50 mA, 10 to 90 % | -     | 0.12 | 0.2  | -        | 0.12 | 0.2  | -        | 0.12 | 0.2  | $\mu\text{s}$           |
| Fall time                | tf              | IF=50 mA, 90 to 10 % | -     | 0.12 | 0.2  | -        | 0.12 | 0.2  | -        | 0.12 | 0.2  | $\mu\text{s}$           |

## ■ Emission spectrum



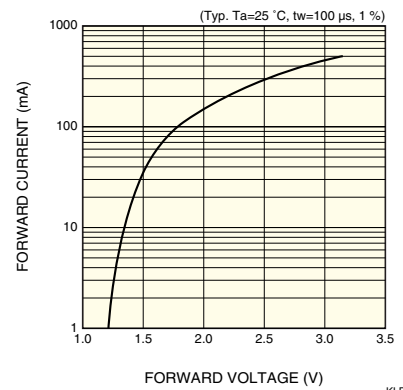
KLEDB0158EA

## ■ Radiant flux vs. forward current



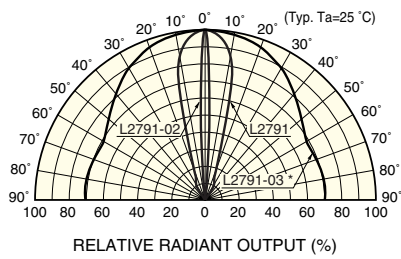
KLEDB0159EA

## ■ Forward current vs. forward voltage



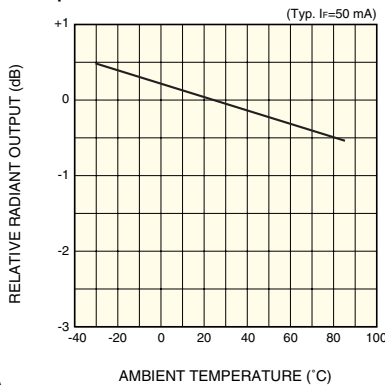
KLEDB0160EA

## ■ Directivity



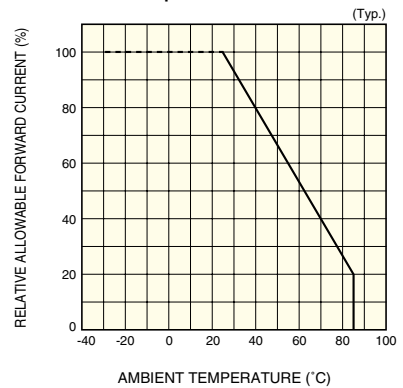
\* L2791-03: Except for reflection ingredient of the base.

## ■ Radiant output vs. ambient temperature



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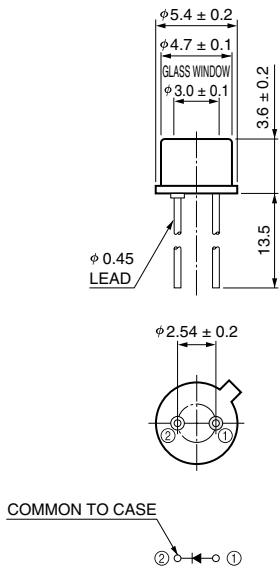
## ■ Allowable forward current vs. ambient temperature



KLEDB0027EB

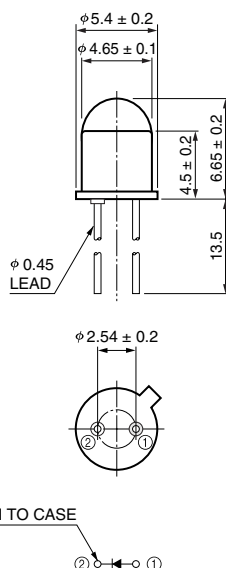
## ■ Dimensional outlines (unit: mm)

### ① L2791



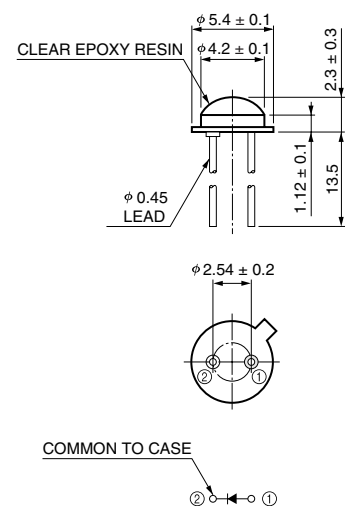
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### ② L2791-02



KLEDA0059EA

### ③ L2791-03



KLEDA0058EA

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