

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)

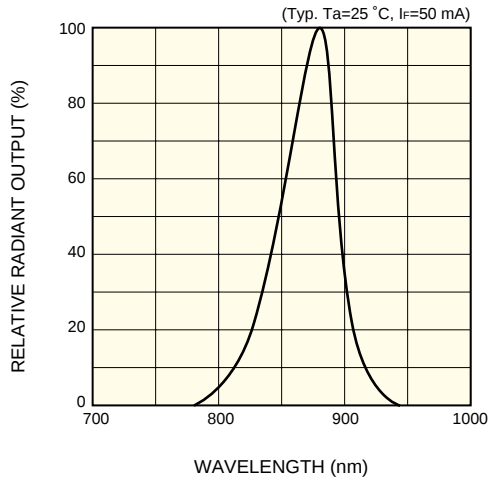
Parameter	Symbol	Condition	Value	Unit
Forward current	IF		80	mA
Reverse voltage	VR		3	V
Pulse forward current	IFP	Pulse width=10 μs Duty ratio=1 %	0.5	A
Operating temperature	Topr		-30 to +85	°C
Storage temperature	Tstg		-40 to +100 *	°C

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

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

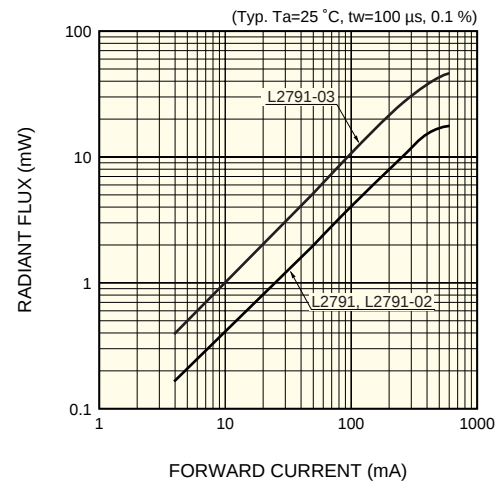
Parameter	Symbol	Condition	L2791			L2791-02			L2791-03			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λ_p	IF=50 mA	850	880	910	850	880	910	850	880	910	nm
Spectral half width	$\Delta\lambda$	IF=50 mA	-	60	-	-	60	-	-	60	-	nm
Forward voltage	VF	IF=50 mA	-	1.5	1.7	-	1.5	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	μA
Radiant flux	ϕ_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	-	-	-	-	mW/cm ²
Rise time	tr	IF=50 mA, 10 to 90 %	-	0.12	0.2	-	0.12	0.2	-	0.12	0.2	μs
Fall time	tf	IF=50 mA, 90 to 10 %	-	0.12	0.2	-	0.12	0.2	-	0.12	0.2	μs

■ Emission spectrum



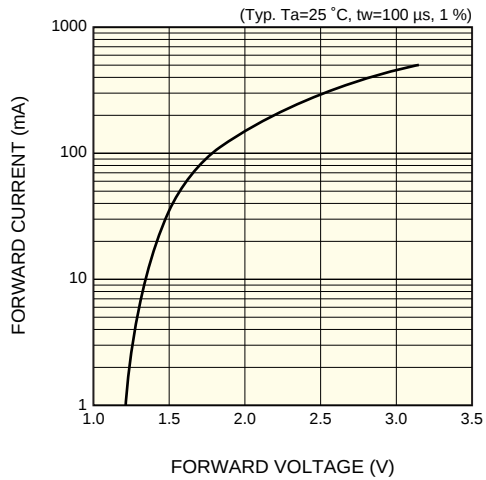
KLEDB0158EA

■ Radiant flux vs. forward current



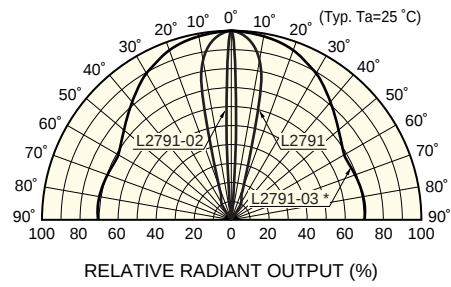
KLEDB0159EA

■ Forward current vs. forward voltage



KLEDB0160EA

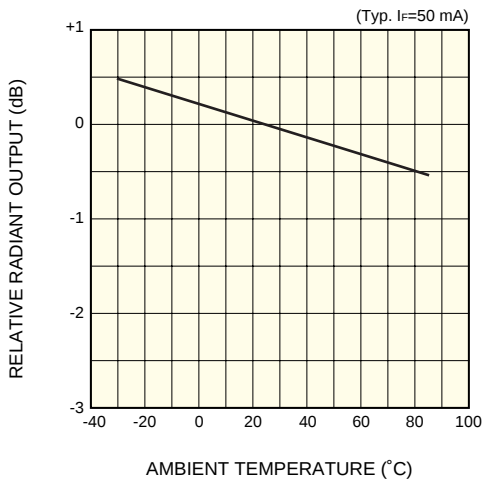
■ Directivity



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

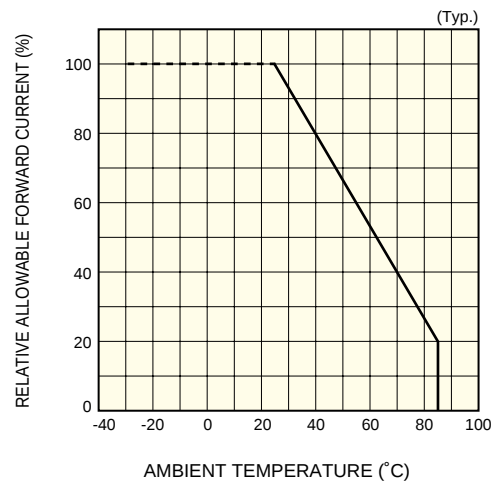
KLEDB0161EA

■ Radiant output vs. ambient temperature



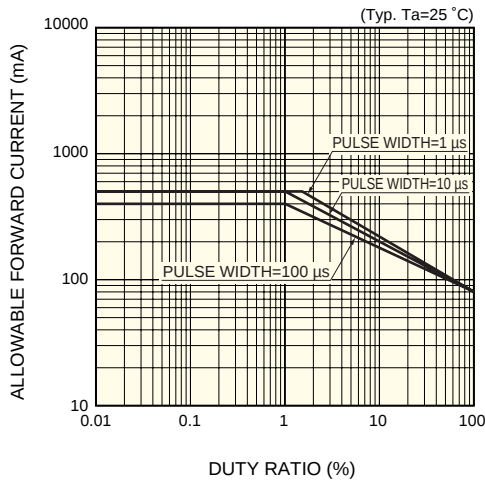
KLEDB0162EA

■ Allowable forward current vs. ambient temperature



KLEDB0027EB

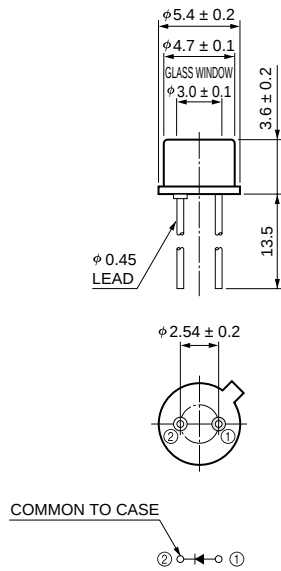
■ Allowable forward current vs. duty ratio



KLEDB0288EA

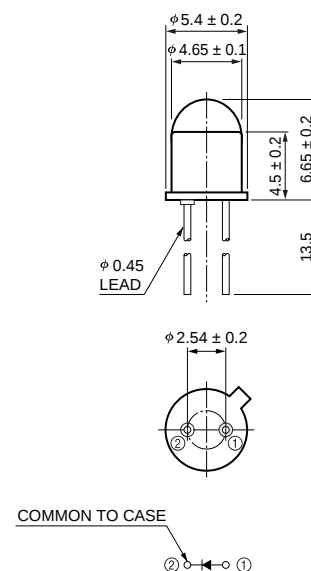
■ Dimensional outlines (unit: mm)

① L2791



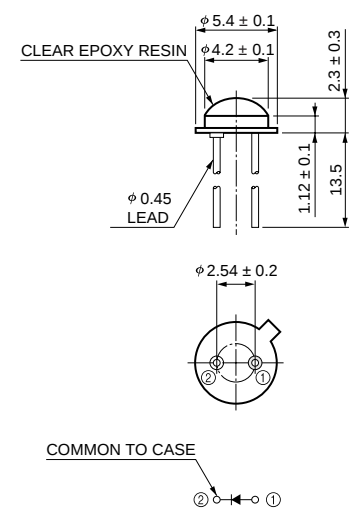
KLEDA0060EA

② L2791-02



KLEDA0059EA

③ L2791-03



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