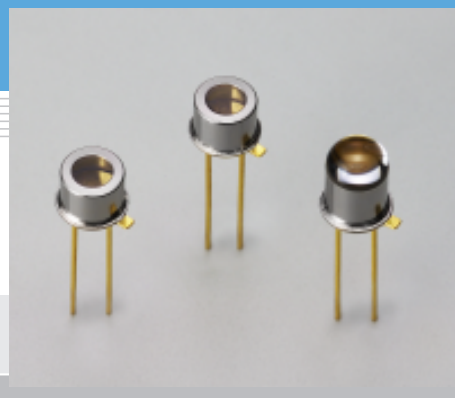


Red LED L7868 series

Small emission spot, red LED using current confined chip



L7868/-02 are red LEDs with a microball lens bonded to the current-confined structure chip surface. L7868-01 uses the same structure LED chip with no microball lens and provides a smaller emission spot of $\phi 150 \mu\text{m}$. L7868-02 uses a glass lens window for even narrower directivity (beam spread).

Features

- Small emission spot
L7868: $\phi 400 \mu\text{m}$
L7868-01: $\phi 150 \mu\text{m}$
- Uniform emission pattern
- Narrow directivity: L7868-02

Applications

- Optical switches
- Automatic control system

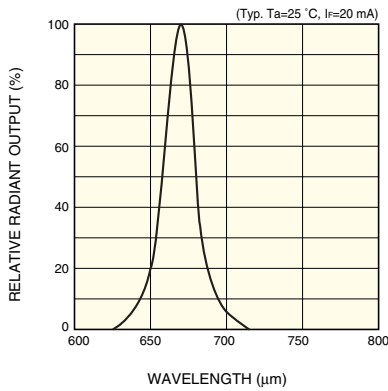
■ Absolute maximum ratings ($T_a=25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R		3	V
Forward current	I_F		60	mA
Forward current derating rate	-	$T_a > 25^\circ\text{C}$	0.8	mA/ $^\circ\text{C}$
Pulse forward current	I_{FP}	Pulse width=10 μs Duty ratio=1 %	0.5	A
Pulse forward current derating rate	-	$T_a > 25^\circ\text{C}$	7	mA/ $^\circ\text{C}$
Power dissipation	P		180	mW
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +100	$^\circ\text{C}$

■ Electrical and optical characteristics ($T_a=25^\circ\text{C}$)

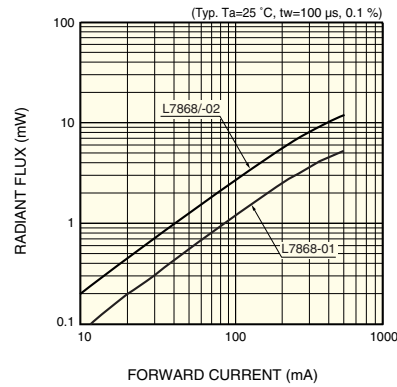
Parameter	Symbol	Condition	L7868			L7868-01			L7868-02			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λ_p	$I_F=20 \text{ mA}$	650	670	700	650	670	700	650	670	700	nm
Spectral half width (FWHM)	$\Delta\lambda$	$I_F=20 \text{ mA}$	-	20	-	-	20	-	-	20	-	nm
Radiant flux	ϕ_e	$I_F=20 \text{ mA}$	0.35	0.45	-	0.15	0.2	-	0.35	0.45	-	mW
Radiant illuminance	P_E	$I_F=20 \text{ mA}$	-	0.1	-	-	-	-	-	0.4	-	mW/cm ²
Forward voltage	V_F	$I_F=20 \text{ mA}$	-	1.9	2.2	-	1.9	2.2	-	1.9	2.2	V
Pulse forward voltage	V_{FP}	$I_F=0.5 \text{ A}$	-	4.3	5.5	-	4.3	5.5	-	4.3	5.5	V
Reverse current	I_R	$V_R=3 \text{ V}$	-	-	10	-	-	10	-	-	10	μA
Rise time	t_r	$I_F=20 \text{ mA}$, 10 % to 90 %	-	0.06	0.1	-	0.06	0.1	-	0.06	0.1	μs
Fall time	t_f	$I_F=20 \text{ mA}$, 90 % to 10 %	-	0.06	0.1	-	0.06	0.1	-	0.06	0.1	μs

■ Emission spectrum



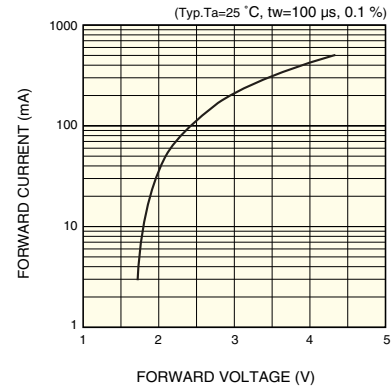
KLEDB0238EA

■ Radiant flux vs. forward current



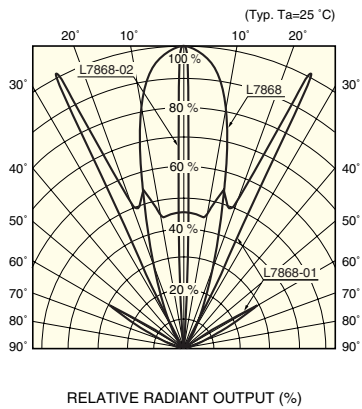
KLEDB0242EA

■ Forward current vs. forward voltage



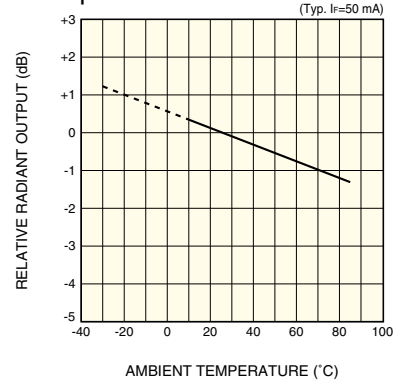
KLEDB0243EA

■ Directivity



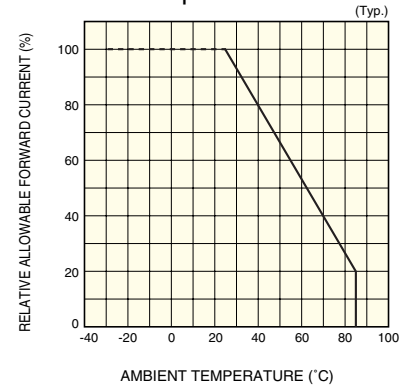
KLEDB0244EA

■ Radiant output vs. ambient temperature



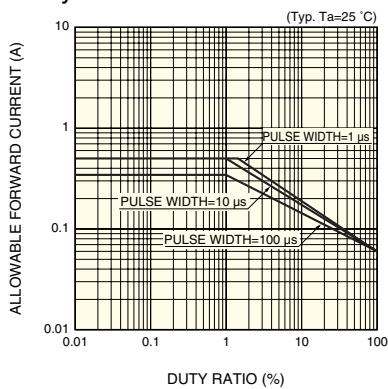
KLEDB0245EA

■ Allowable forward current vs. ambient temperature



KLEDB0027EB

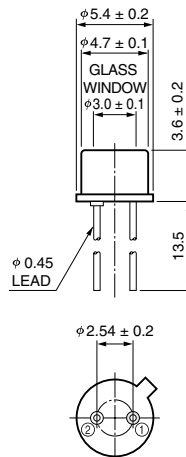
■ Allowable forward current vs. duty ratio



KLEDB0246EA

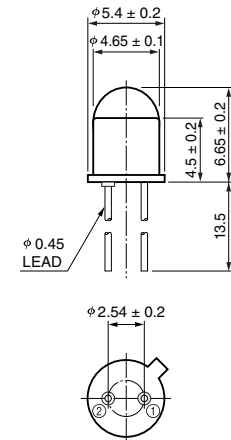
■ Dimensional outlines (unit: mm)

L7868-01



KLEDA0075EA

L7868-02



KLEDA0076EA

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