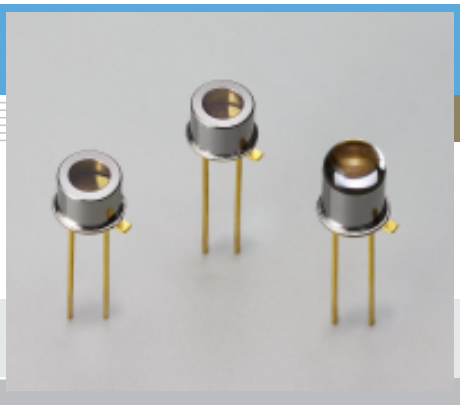
Red LED
L7868 series

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 ϕ150 µm. L7868-02 uses a glass lens window for even narrower directivity (beam spread).

Features

- Small emission spot
  L7868: ϕ400 µm
  L7868-01: ϕ150 µm
- Uniform emission pattern
- Narrow directivity: L7868-02

Applications

- Optical switches
- Automatic control system

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

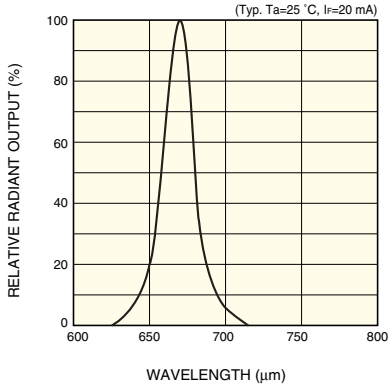
Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R		3	V
Forward current	I_F		60	mA
Forward current derating rate	-	Ta > 25 °C	0.8	mA/°C
Pulse forward current	I_{FP}	Pulse width=10 µs Duty ratio=1 %	0.5	A
Pulse forward current derating rate	-	Ta > 25 °C	7	mA/°C
Power dissipation	P		180	mW
Operating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

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

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

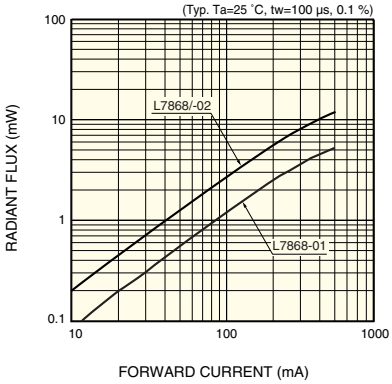
SOLID STATE DIVISION

■ Emission spectrum



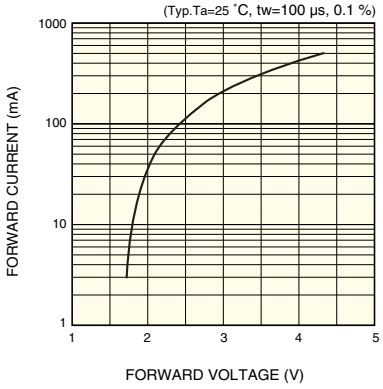
KLEDB0238EA

■ Radiant flux vs. forward current



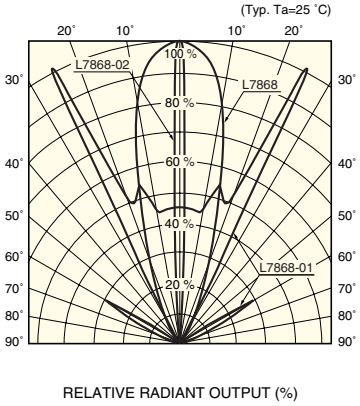
KLEDB0242EA

■ Forward current vs. forward voltage



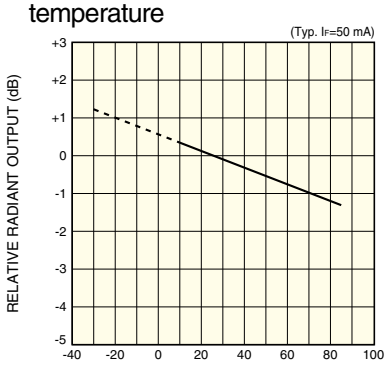
KLEDB0243EA

■ Directivity



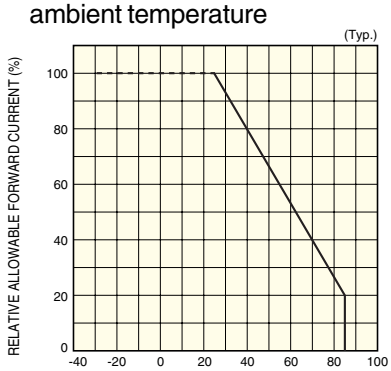
KLEDB0244EA

■ Radiant output vs. ambient temperature



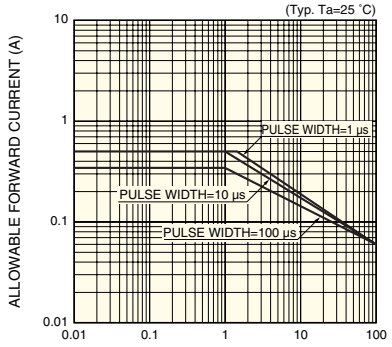
KLEDB0245EA

■ Allowable forward current vs. ambient temperature



KLEDB0027EB

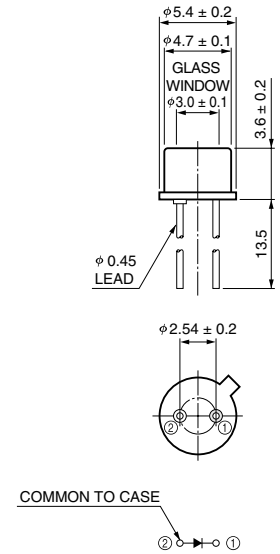
■ Allowable forward current vs. duty ratio



KLEDB0246EA

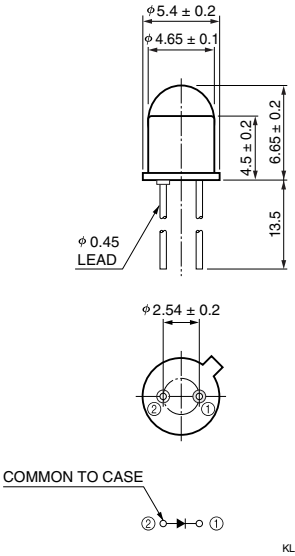
■ Dimensional outlines (unit: mm)

L7868/-01



KLEDA0075EA

L7868-02



KLEDA0076EA

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