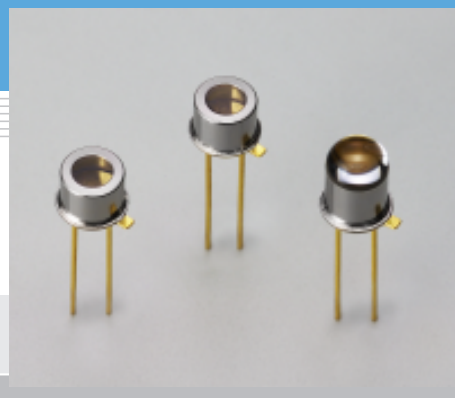


Red LED L7868 series

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

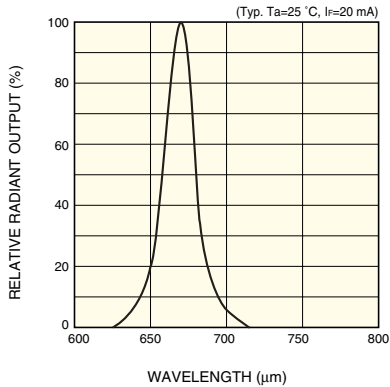
■ Absolute maximum ratings ($T_a=25^\circ\text{C}$, unless otherwise noted)

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 ($T_a=25^\circ\text{C}$)

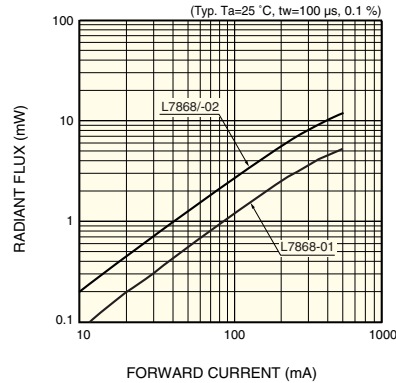
Parameter	Symbol	Condition	L7868			L7868-01			L7868-02			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λ_p	$I_F=20 \text{ mA}$	650	670	700	650	670	700	650	670	700	nm
Spectral half width (FWHM)	$\Delta\lambda$	$I_F=20 \text{ mA}$	-	20	-	-	20	-	-	20	-	nm
Radiant flux	ϕ_e	$I_F=20 \text{ mA}$	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



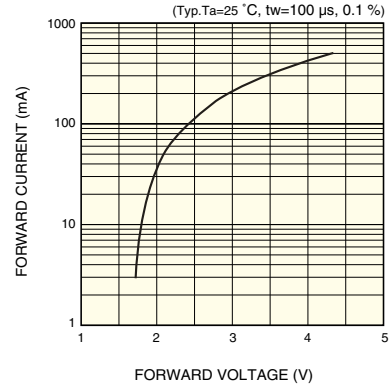
KLEDB0238EA

Radiant flux vs. forward current



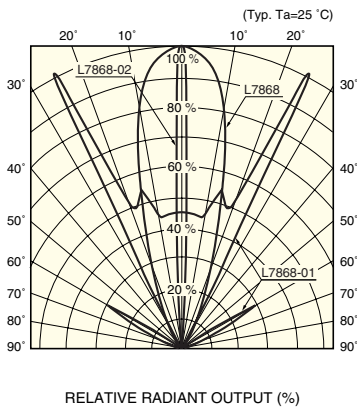
KLEDB0242EA

Forward current vs. forward voltage



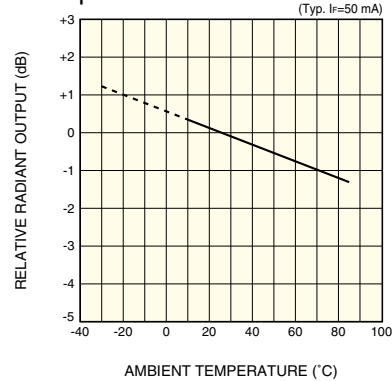
KLEDB0243EA

Directivity



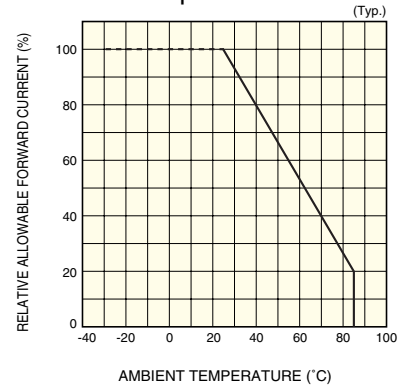
KLEDB0244EA

Radiant output vs. ambient temperature



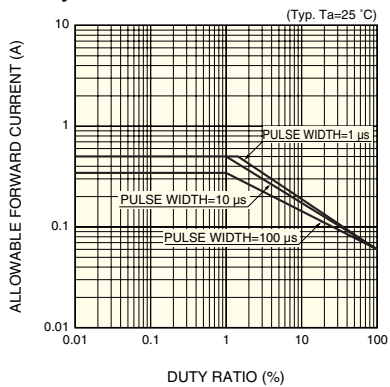
KLEDB0245EA

Allowable forward current vs. ambient temperature



KLEDB0027EB

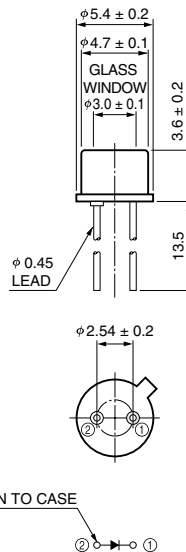
Allowable forward current vs. duty ratio



KLEDB0246EA

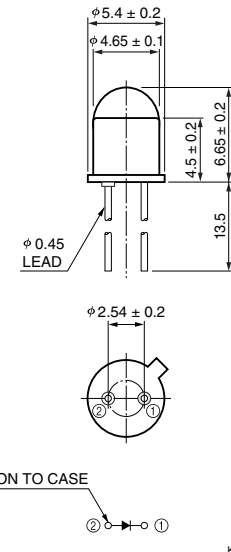
Dimensional outlines (unit: mm)

L7868-01



KLEDA0075EA

L7868-02



KLEDA0076EA

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HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184, <http://www.hamamatsu.com>

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741