

L13141-0085K, L13142-0085K/-0085L



High reliability LED

The L13141-0085K, L13142-0085K and L13142-0085L are current confinement type, high reliability infrared LEDs.

Features

- Reliability improved from the previous product
- Small light spot
L13141-0085K: $\phi 110 \mu\text{m}$
L13142-0085K: $\phi 400 \mu\text{m}$
- Light output power
L13141-0085K: 2.8 mW ($I_F=50 \text{ mA typ.}$)
L13142-0085K/-0085L: 3.0 mW ($I_F=50 \text{ mA typ.}$)
- L13142-0085K/-0085L: with microball lens
- Low cost

Applications

- Automatic control systems
- Optical switches
- Encoders

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

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R		3	V
Forward current	I_F		80	mA
Derating rate of forward current	-	$T_a > 25 \text{ }^\circ\text{C}$	0.93	mA/ $^\circ\text{C}$
Pulse forward current	I_{FP}	Pulse width=10 μs Duty ratio=1%	0.45	A
Derating rate of pulse forward current	-	$T_a > 25 \text{ }^\circ\text{C}$	5.3	mA/ $^\circ\text{C}$
Power dissipation	P_d		170	mW
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +100	$^\circ\text{C}$

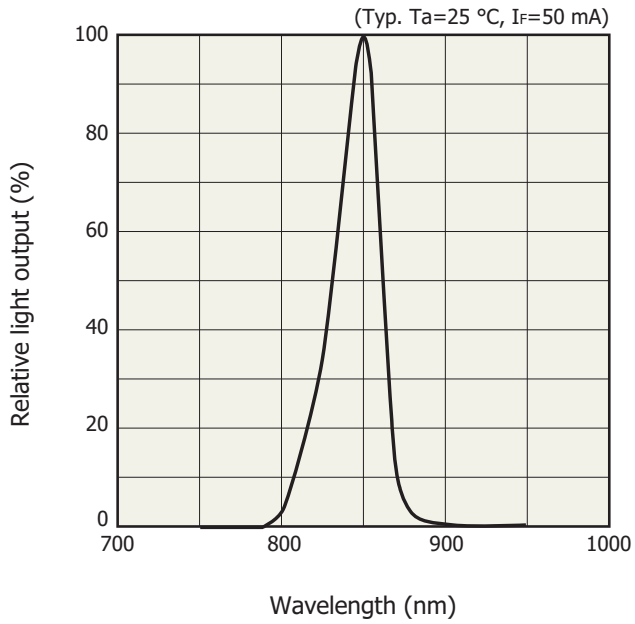
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

Parameter	Symbol	Condition	L13141-0085K			L13142-0085K			L13142-0085L			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λ_p	$I_F=50 \text{ mA}$	830	850	870	830	850	870	830	850	870	nm
Spectral half width	$\Delta\lambda$	$I_F=50 \text{ mA}$	-	30	50	-	35	50	-	30	50	nm
Forward voltage	V_F	$I_F=50 \text{ mA}$	-	1.7	2.0	-	1.7	2.0	-	1.7	2.0	V
Pulse forward voltage	V_{FP}	$I_F=0.45 \text{ A}$	-	3.5	4.5	-	3.5	4.5	-	3.5	4.5	V
Reverse current	I_R	$V_R=3 \text{ V}$	-	-	10	-	-	10	-	-	10	μA
Radiant flux	ϕ_e	$I_F=50 \text{ mA}$	2.1	2.8	-	2.1	3.0	-	2.1	3.0	-	mW
Cutoff frequency*1	f_c	$I_F=50 \text{ mA} \pm 10 \text{ mAp-p}$	15	25	-	15	25	-	15	25	-	MHz

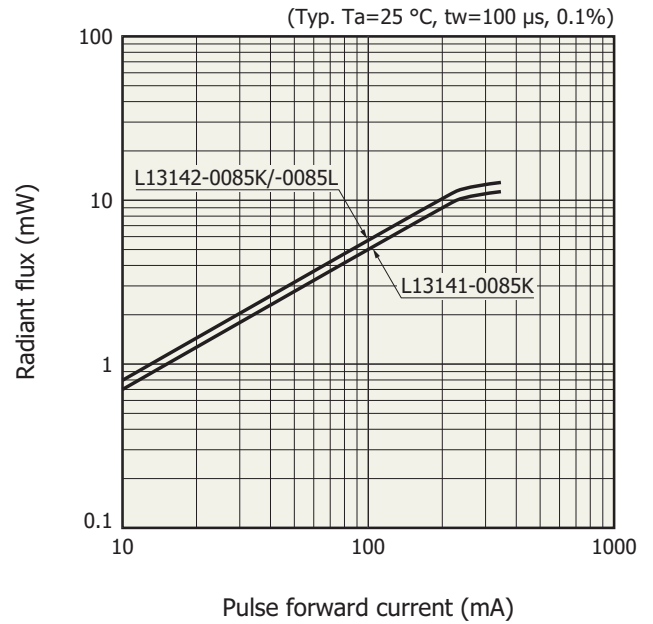
*1: Frequency at which the optical output drops by 3 dB relative to the output at 100 kHz

Emission spectrum



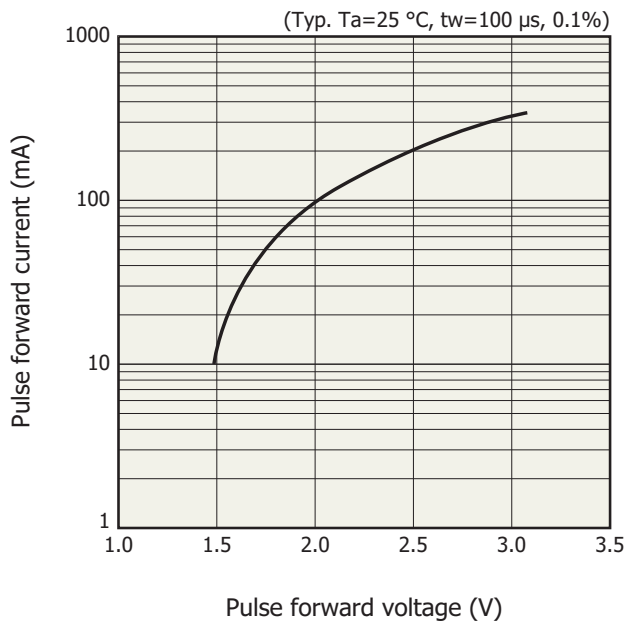
KLEDB0419EA

Radiant flux vs. pulse forward current



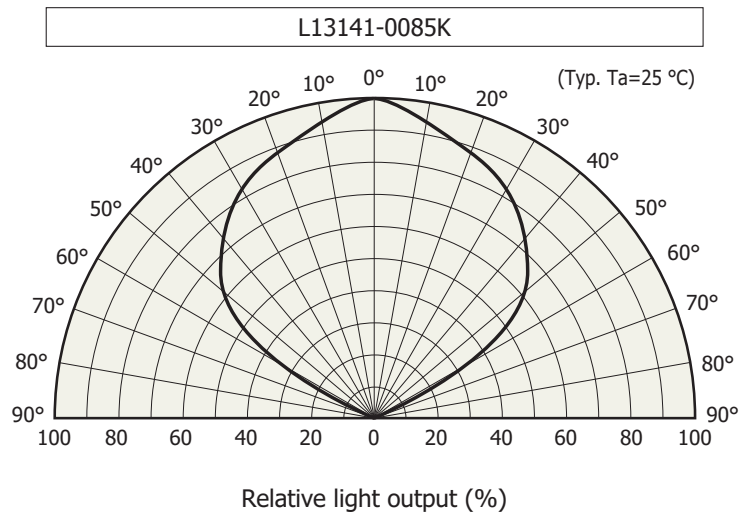
KLEDB0420EB

Pulse forward current vs. pulse forward voltage



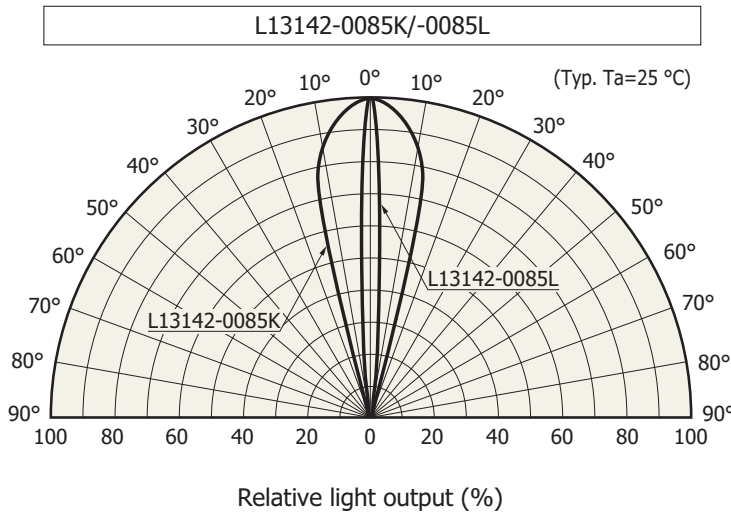
KLEDB0421EA

Directivity



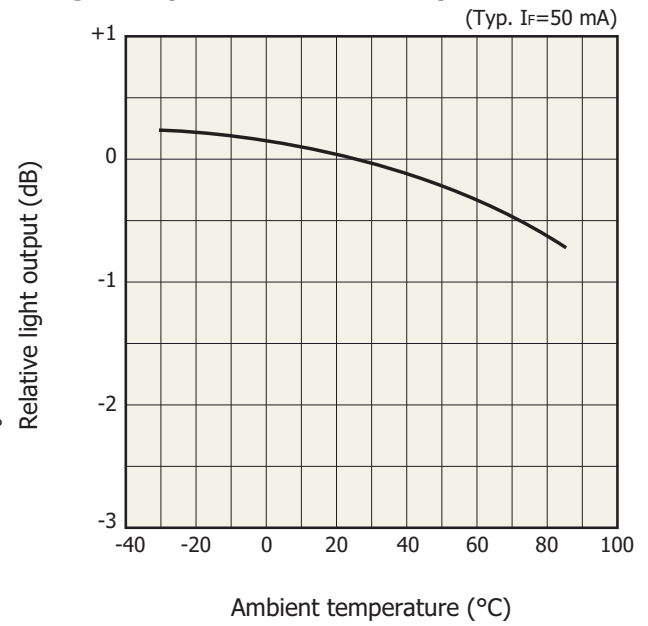
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Directivity



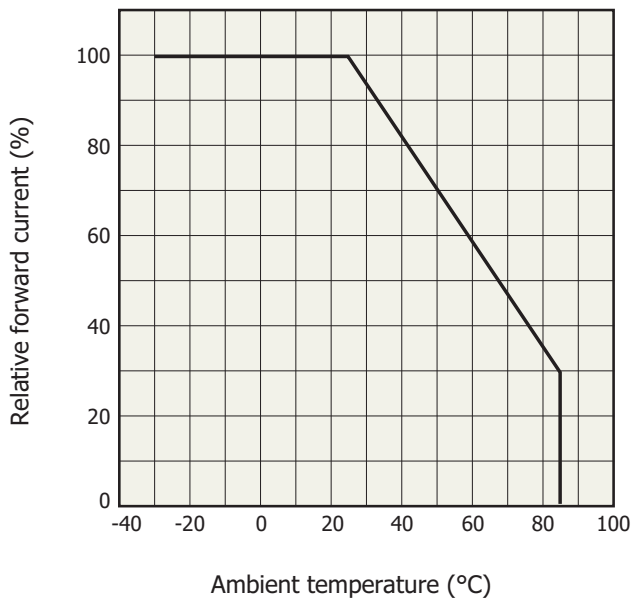
KLEDB0423EB

Light output vs. ambient temperature



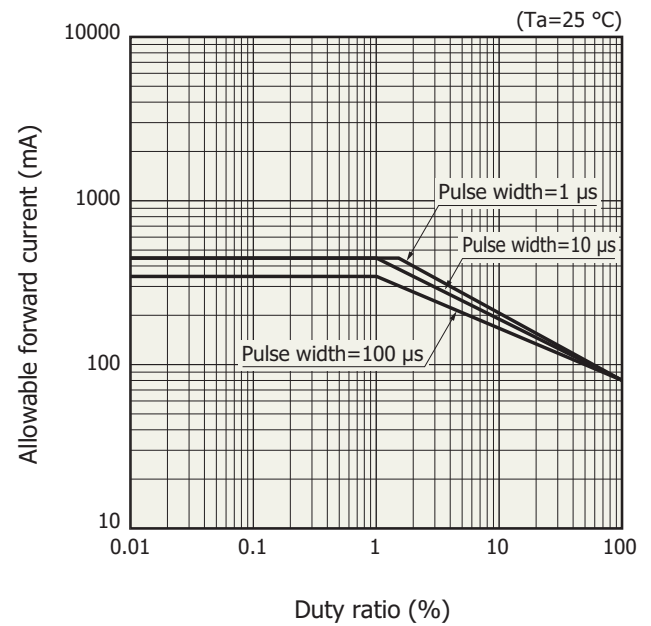
KLEDB0424EA

Allowable forward current vs. ambient temperature



KLEDB0425EA

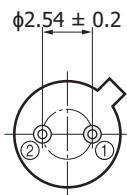
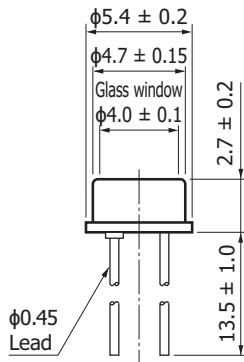
Allowable forward current vs. duty ratio



KLEDB0310EA

Dimensional outlines (unit: mm)

L13141-0085K

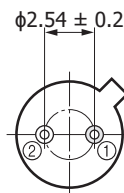
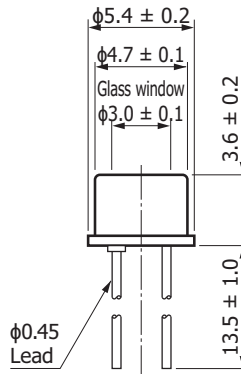


Common to case



KLEDA0102EA

L13142-0085K

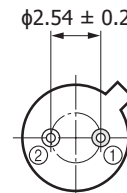
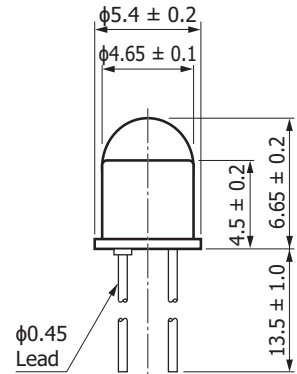


Common to case



KLEDA0103EA

L13142-0085L



Common to case



KLEDA0059EA

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Disclaimer
- Metal, ceramic, plastic package products

Information described in this material is current as of December 2016.

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