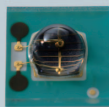


Infrared LED

L14097-0094GL



Surface mount type infrared LED with lens

The L14097-0094GL is an LED available in a surface mount type COB package with lens. High output was realised by using a large chip and heat dissipation board.

Features

- High output
- Compact, surface mount type package with lens (2.8 × 2.8 × 1.45^t mm)
- High reliability
- Supports lead-free reflow soldering

Application

- Optical switches
- Near infrared lighting

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

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	VR max		5	V
Forward current	IF max		1	A
Forward current decrease rate	ΔIF	Ta > 25 °C	8	mA/°C
Pulse forward current	IFP max	Pulse width=10 μs Duty ratio=1%	3	A
Pulse forward current decrease rate	ΔIFP	Ta > 25 °C	24	mA/°C
Power dissipation	Pd max		150	mW
Operating temperature	Topr	No dew condensation*1	-30 to +100	°C
Storage temperature	Tstg	No dew condensation*1	-40 to +125	°C
Junction temperature	Tj	*2	145	°C
Reflow soldering conditions	-	JEDEC level 2a	Peak temperature 250 °C, twice	-

*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

*2: Please allow sufficient heat dissipation on the mounting side.

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.

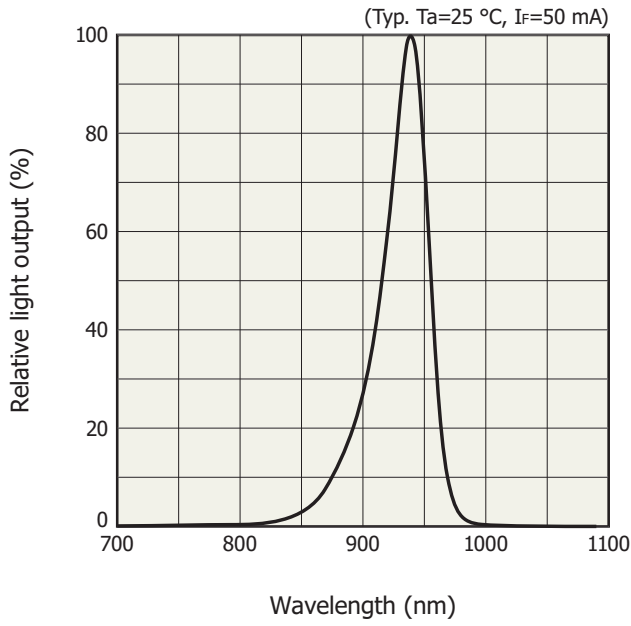
Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak emission wavelength	λp	IF=50 mA	910	940	970	nm
Spectral half width	Δλ	IF=50 mA	-	40	-	nm
Radiant flux	φe	IF=50 mA	42	60	-	mW
		IF=1000 mA*4	850	1200	-	
Radiant intensity	Ie	IF=50 mA	13	18	-	mW/sr
		IF=1000 mA*4	240	360	-	
Forward voltage	VF	IF=50 mA	-	2.5	3.0	V
		IF=1000 mA*4	-	3.0	4.0	
Reverse current	IR	VR=5 V	-	-	10	μA
Thermal resistance	Rth		-	15	-	°C/W
Cutoff frequency*3	fc	IF=50 mA ± 1 mAp-p	5	10	-	MHz

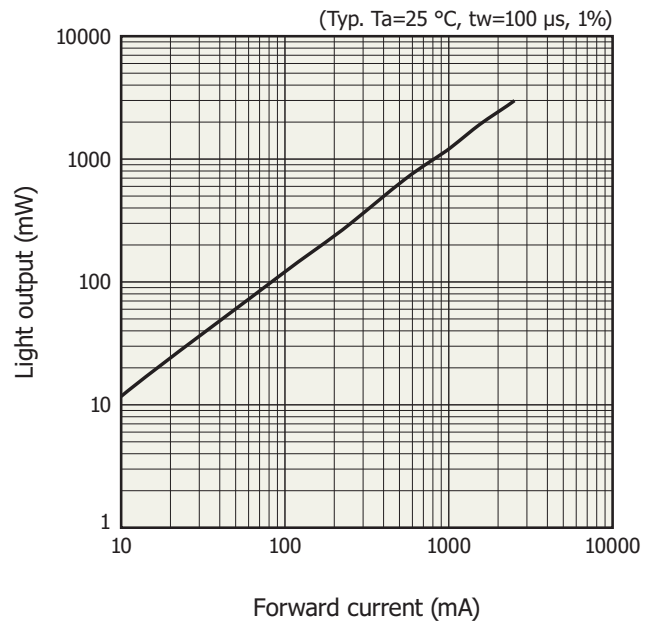
*3: Frequency at which the optical output drops by 3 dB relative to the output at 100 kHz

*4: Pulse width=10 μs, Duty ratio=1%

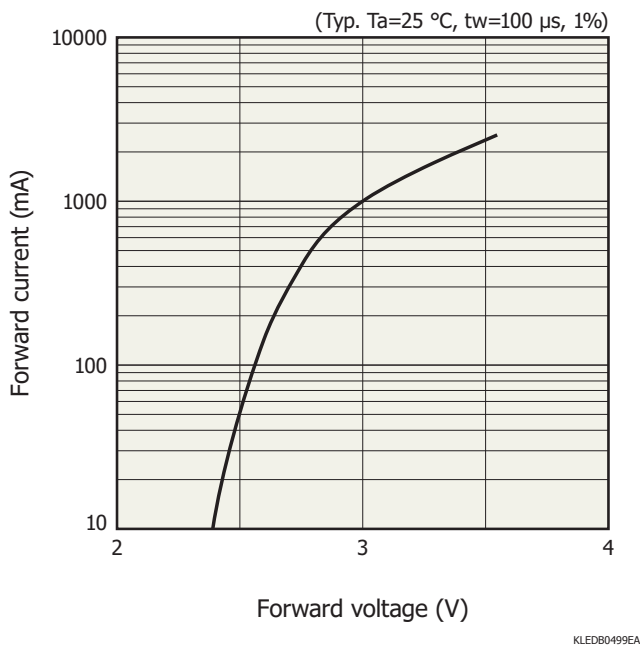
Emission spectrum



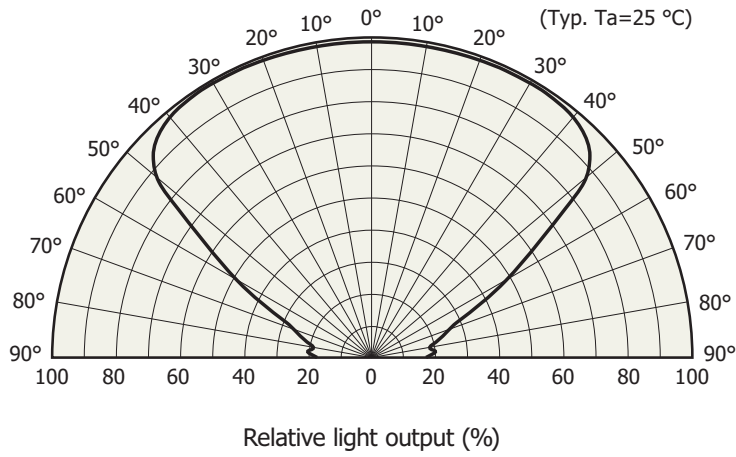
Radiant flux vs. pulse forward current



Pulse forward current vs. pulse forward voltage

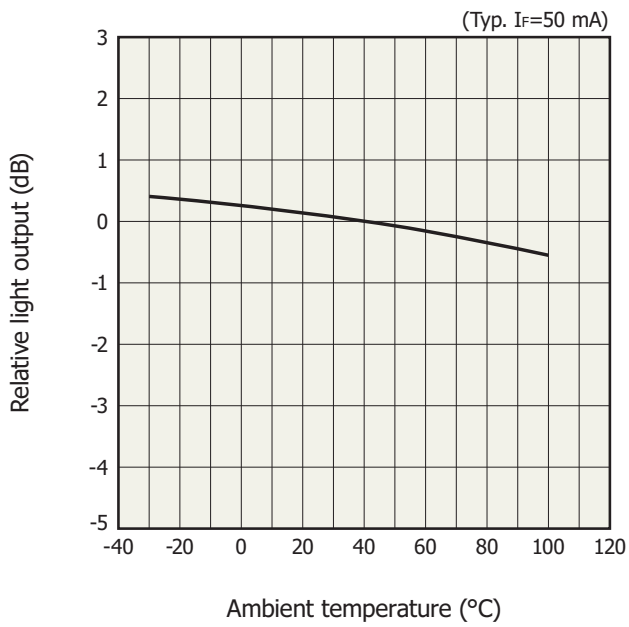


Directivity



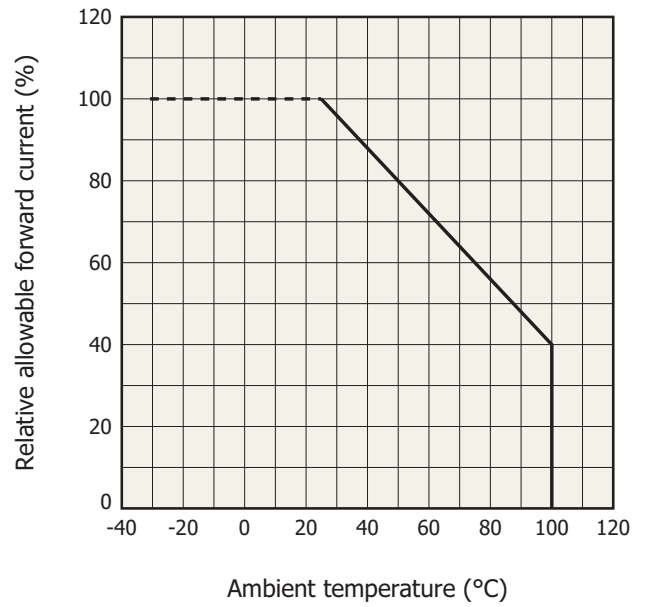
KLEDB0500EA

Light output vs. ambient temperature



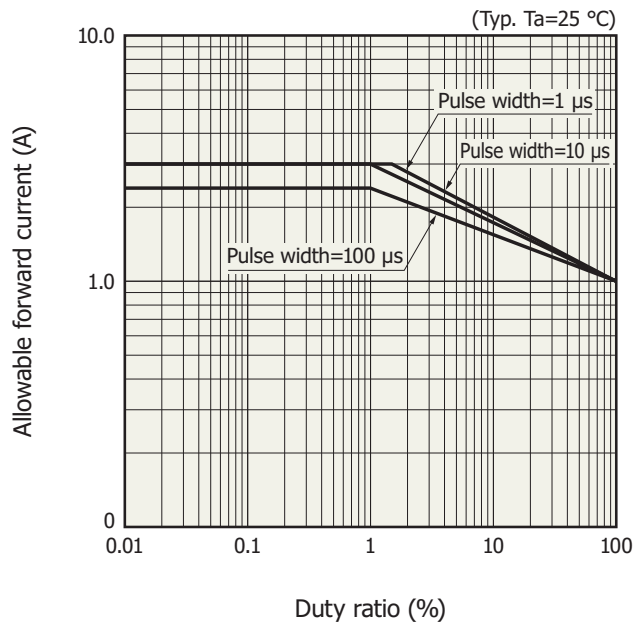
KLEDB0501EA

Allowable forward current vs. ambient temperature



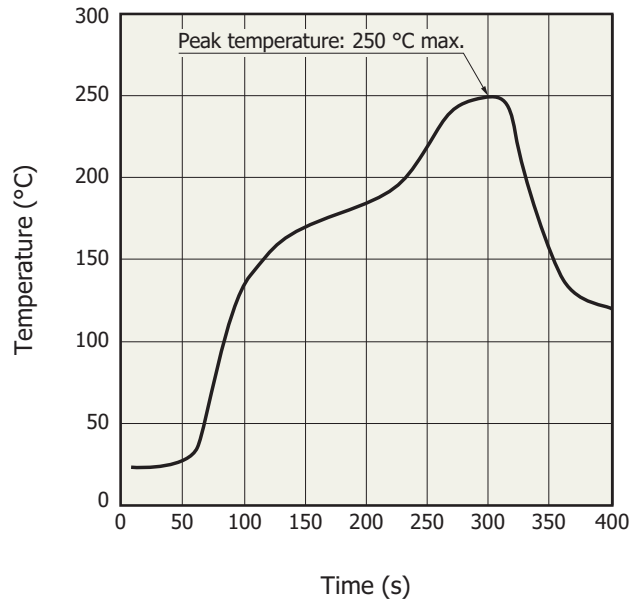
KLEDB0502EA

▣ Allowable forward current vs. duty ratio



KLEDB0503EA

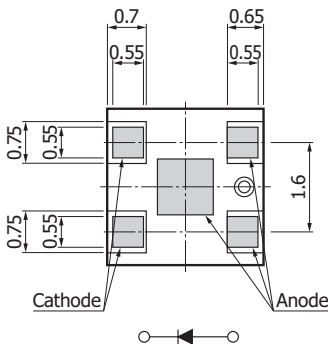
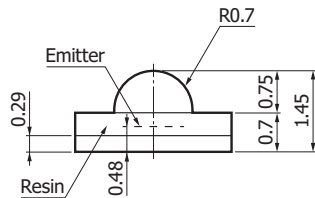
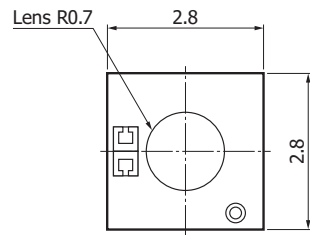
▣ Recommended solder reflow conditions



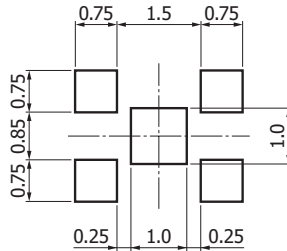
- After unpacking, store the device in an environment at a temperature range of 5 to 30 °C and a humidity of 60% or less, and perform reflow soldering within 4 weeks.
- The thermal stress applied to the device during reflow soldering varies depending on the circuit board and the reflow oven that are used.
- When setting the reflow conditions, verify that the reliability of the device is not compromised by the reflow soldering process.

KLEDB0504EA

Dimensional outline (unit: mm)



Recommended land pattern



■ Electrode

Chip position accuracy: with respect to package center

$-0.2 \leq X \leq +0.2$

$-0.2 \leq Y \leq +0.2$

Tolerance unless otherwise noted: ± 0.1

Standard packing type: reel (2000 pcs/roll)

KLED40109EA

Related information

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

■ Precautions

- Disclaimer
- Surface mount type products

■ Technical information

- LED technical information

Information described in this material is current as of July 2018.

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