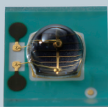


L14097-0094GL



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 realized 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		3.5	W
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
Soldering temperature	Tsol		250 (twice)*3	°C

*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.

*3: Reflow soldering, JEDEC J-STD-020 MSL 2a, see P.6

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.

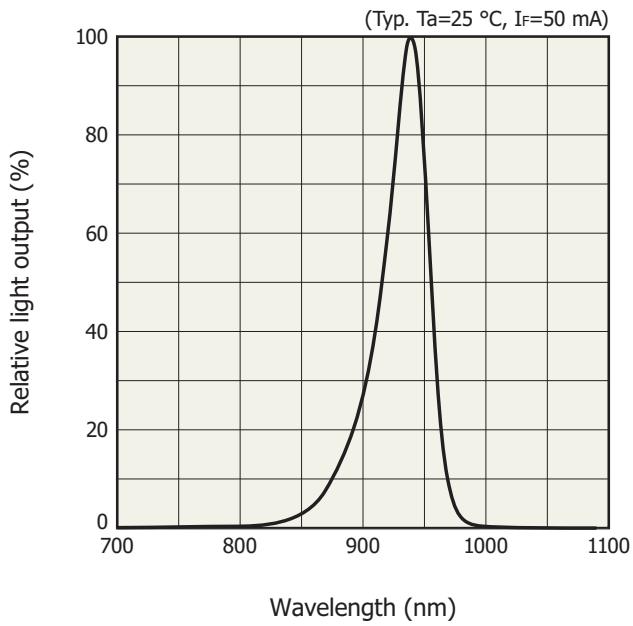
Electrical and optical characteristics (Ta=25 °C)

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*5	850	1200	-	
Radiant intensity	Ie	IF=50 mA	13	18	-	mW/sr
		IF=1000 mA*5	240	360	-	
Forward voltage	VF	IF=50 mA	-	2.5	3.0	V
		IF=1000 mA*5	-	3.0	4.0	
Reverse current	IR	VR=5 V	-	-	10	μA
Thermal resistance	Rth		-	15	-	°C/W
Cutoff frequency*4	fc	IF=50 mA ± 1 mAp-p	5	10	-	MHz

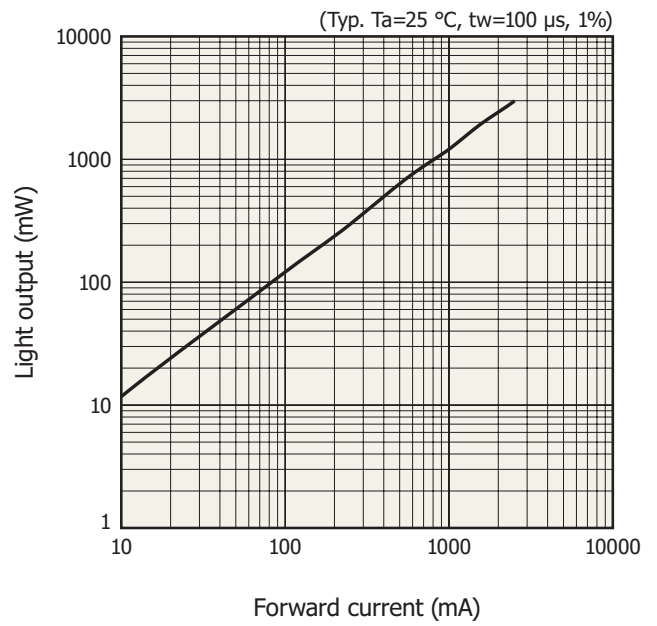
*4: Frequency at which the optical output drops by 3 dB relative to the output at 100 kHz

*5: Pulse width=10 μs, Duty ratio=1%

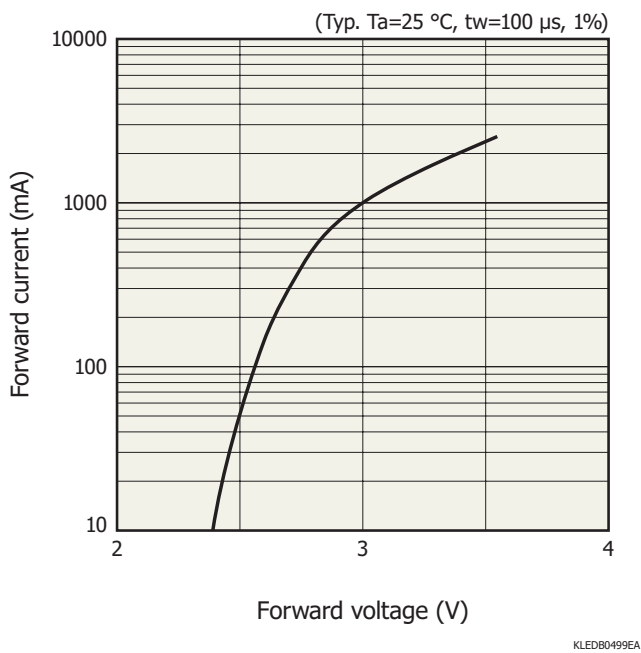
Emission spectrum



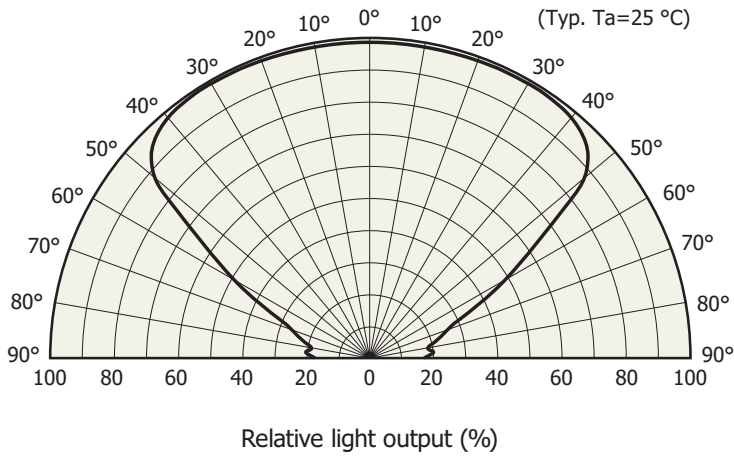
Radiant flux vs. pulse forward current



Pulse forward current vs. pulse forward voltage

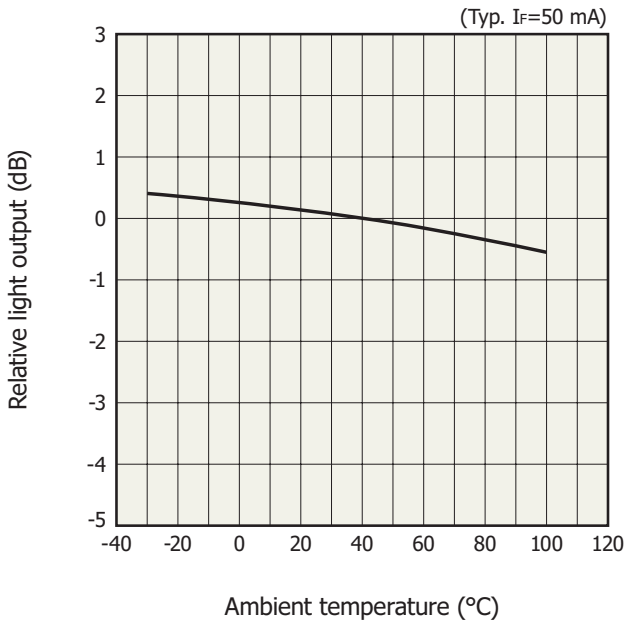


Directivity



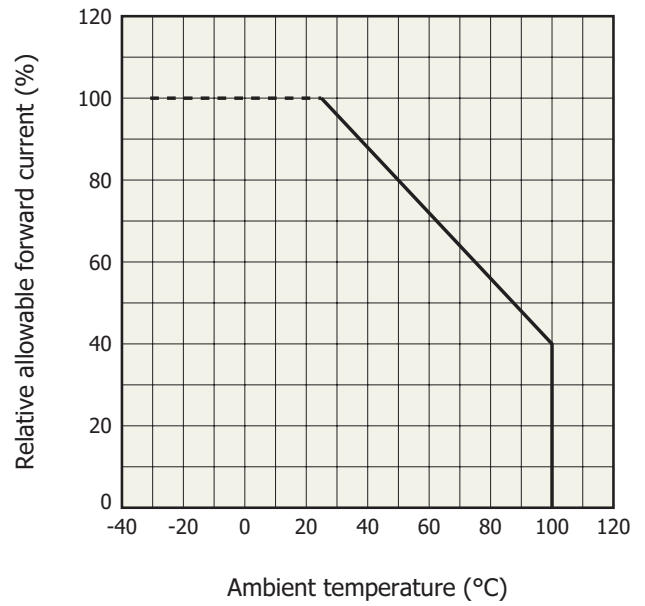
KLEDB0500EA

Light output vs. ambient temperature



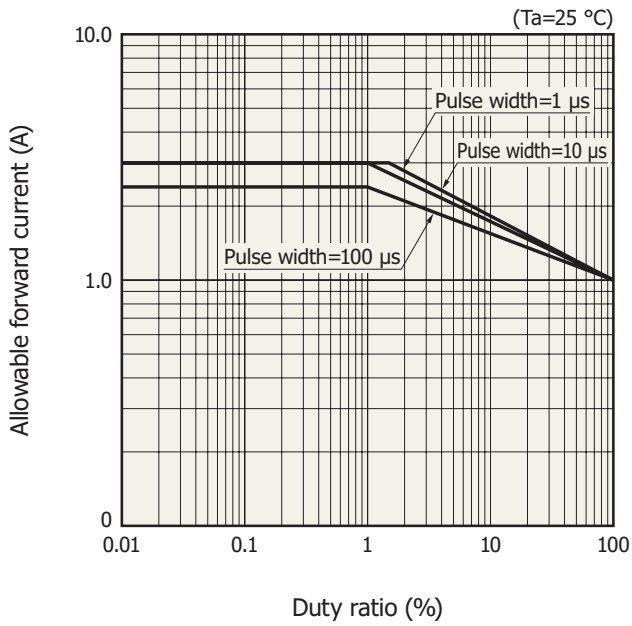
KLEDB0501EA

Allowable forward current vs. ambient temperature



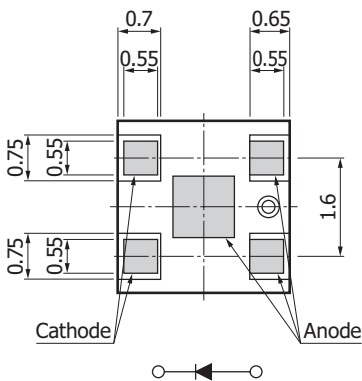
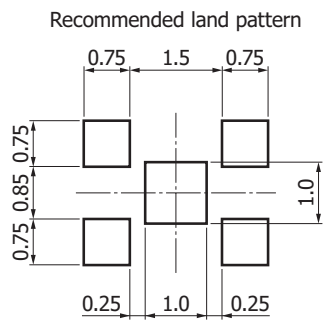
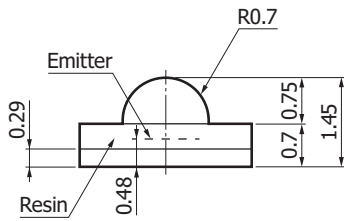
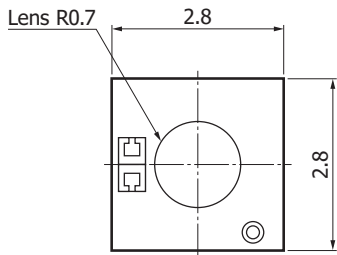
KLEDB0502EA

▣ Allowable forward current vs. duty ratio



KLEDB0503EA

▣ Dimensional outline (unit: mm)



■ Electrode

Chip position accuracy: with respect to package center

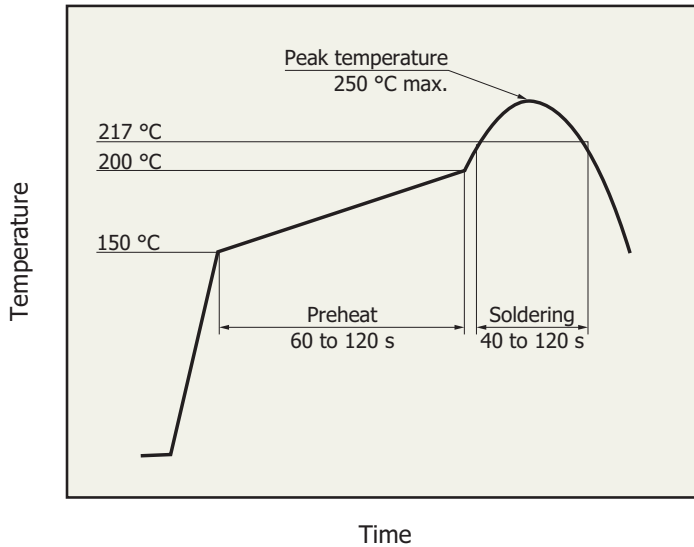
-0.2 ≤ X ≤ +0.2

-0.2 ≤ Y ≤ +0.2

Tolerance unless otherwise noted: ±0.1

KLEDA0109EB

Recommended reflow soldering 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 week.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. When you set reflow soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

KLED80536EC

Baking

If more than 3 months have passed in the unopened state or storage conditions are exceeded after opening the package, baking is required to remove moisture before reflow soldering. For the baking, refer to "Surface mount type products / precautions".

Recommended baking conditions

- Temperature: 150 °C, 3 hours, once

Note: Before you set baking conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

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

Precautions

- Disclaimer
- Surface mount type products

Technical information

- LED / Technical note

Information described in this material is current as of June 2021.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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