

L12171-0087G

## Compact SMD type high output LED

The L12171-0087G is a small-size LED available in a surface mount COB package. Its size is drastically reduced compared to the previous premolded type.

### Features

- ➔ High output
- ➔ Compact, surface mount type package (1.6 × 0.8 × 0.7<sup>t</sup> mm)
- ➔ High reliability
- ➔ Low cost
- ➔ Compatible with lead-free solder reflow

### Applications

- ➔ Optical switches

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

Parameter	Symbol	Condition	Rating	Unit
Reverse voltage	V <sub>R</sub> max		5	V
Forward current	I <sub>F</sub> max		80	mA
Forward current decrease rate	ΔI <sub>F</sub>	T <sub>a</sub> > 25 °C	0.7	mA/°C
Pulse forward current	I <sub>FP</sub> max	Pulse width=10 μs Duty ratio=1%	0.5	A
Pulse forward current decrease rate	ΔI <sub>FP</sub>	T <sub>a</sub> > 25 °C	4.6	mA/°C
Power dissipation	P <sub>d</sub> max		150	mW
Operating temperature	T <sub>opr</sub>	No dew condensation*1	-30 to +90	°C
Storage temperature	T <sub>stg</sub>	No dew condensation*1	-40 to +115	°C
Reflow soldering conditions	-	JEDEC J-STD-020 MSL 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.

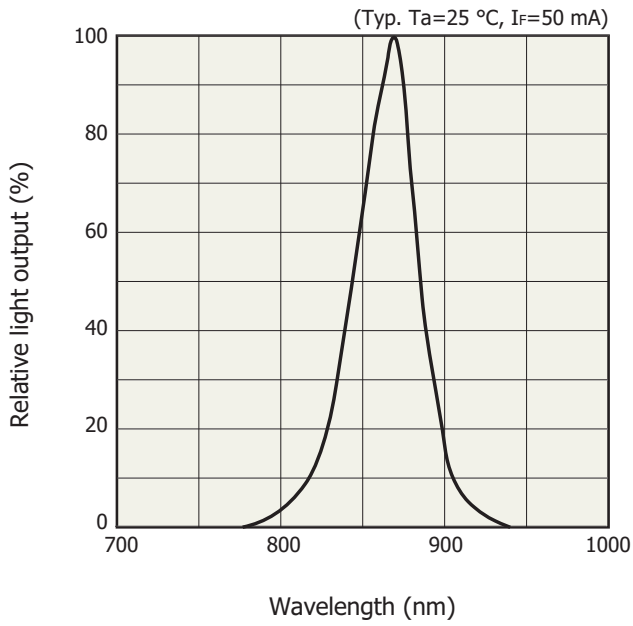
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

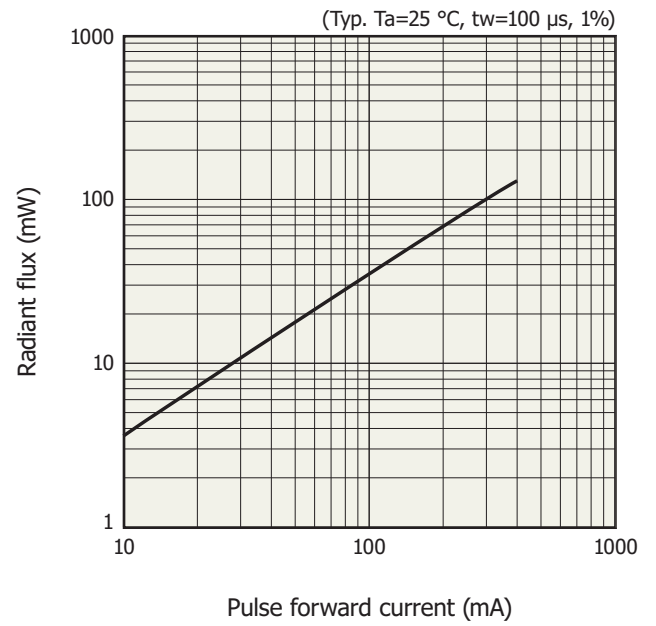
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak emission wavelength	λ <sub>p</sub>	I <sub>F</sub> =50 mA	840	870	900	nm
Spectral half width	Δλ	I <sub>F</sub> =50 mA	-	45	70	nm
Radiant flux	φ <sub>e</sub>	I <sub>F</sub> =50 mA	14	18	-	mW
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =50 mA	-	1.55	1.75	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =5 V	-	-	5	μA
Cutoff frequency*2	f <sub>c</sub>	I <sub>F</sub> =50 mA ± 1 mA <sub>p-p</sub>	25	40	-	MHz

\*2: Frequency at which the optical output drops by 3 dB relative to the output at 100 kHz

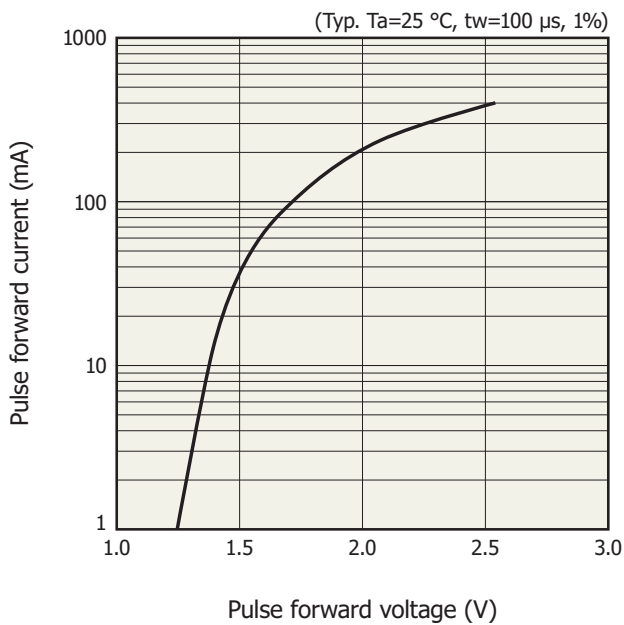
**Emission spectrum**



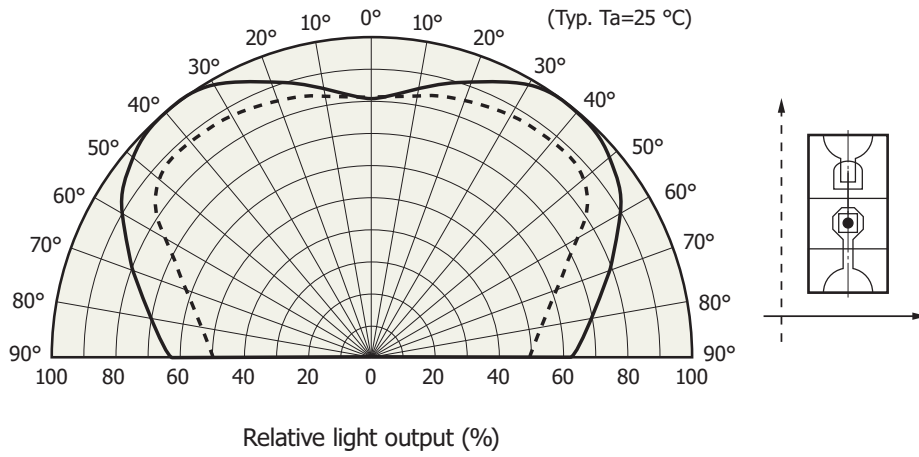
**Radiant flux vs. pulse forward current**



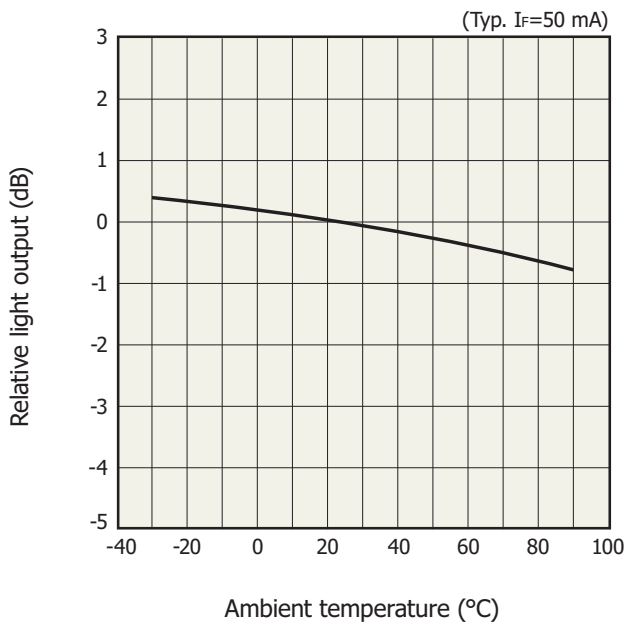
**Pulse forward current vs. pulse forward voltage**



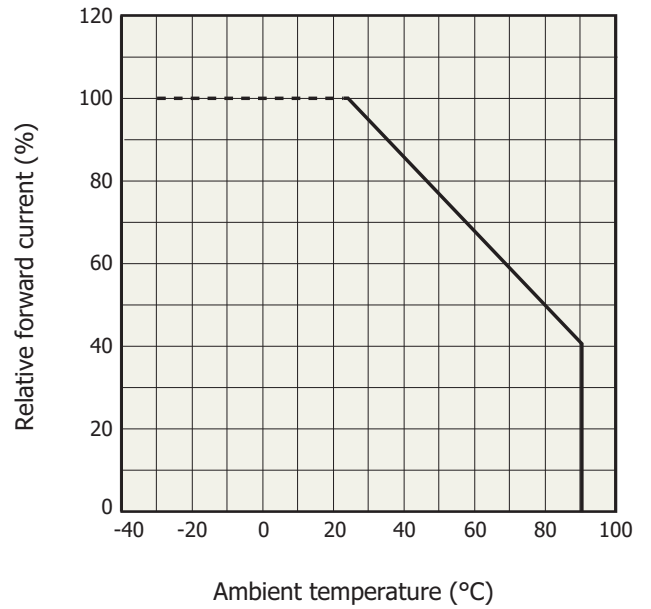
**Directivity**



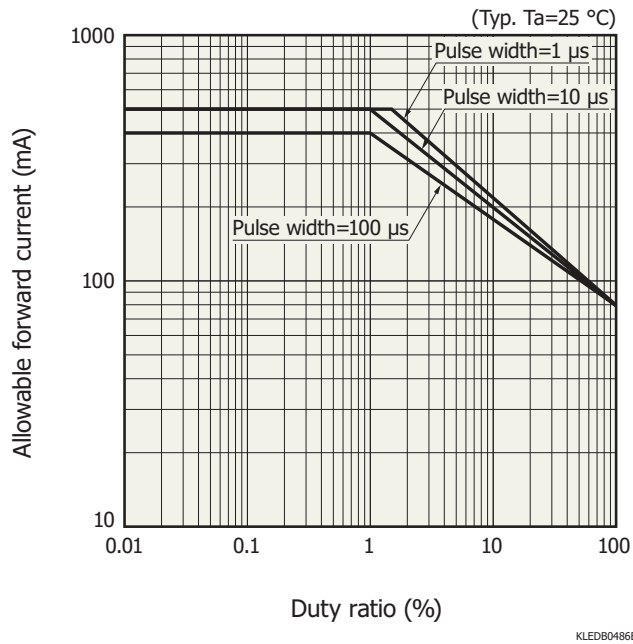
**Light output vs. ambient temperature**



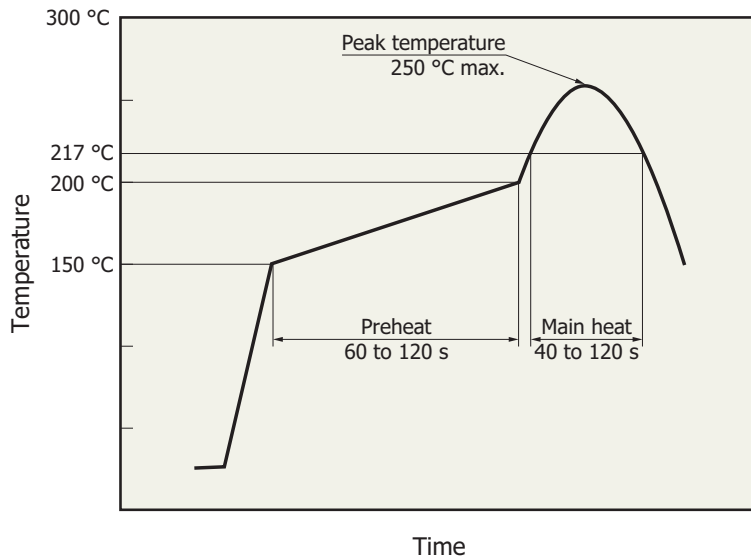
**Allowable forward current vs. ambient temperature**



**Allowable forward current vs. duty ratio**



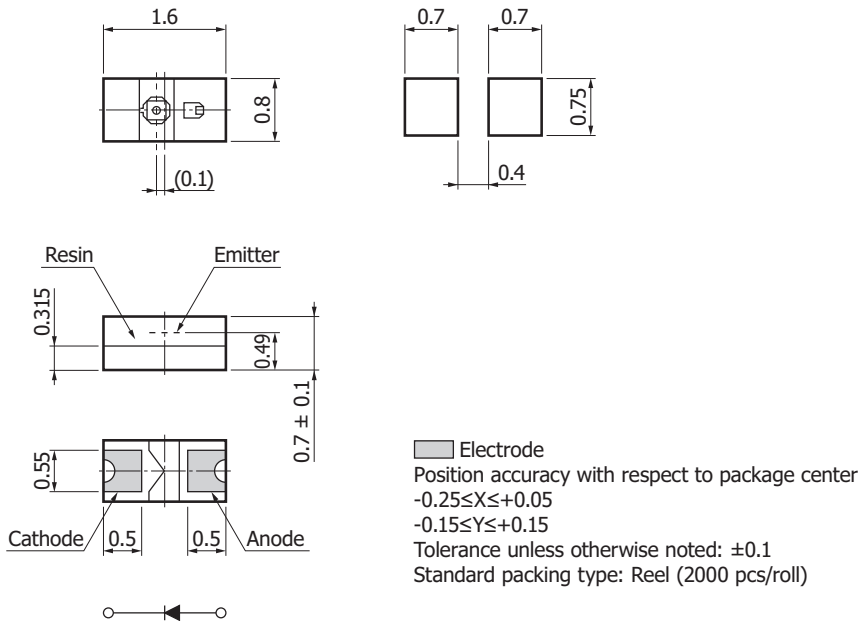
**Recommended soldering reflow conditions**



- After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 4 weeks.
- The effect that the product receives during reflow soldering varies depending on the circuit board and the 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.

## Dimensional outline (unit: mm)

Recommended land pattern



KLEDA0106EA

## Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

### Precautions

- Disclaimer
- Surface mount type products

### Technical information

- LED

Information described in this material is current as of August 2019.

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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