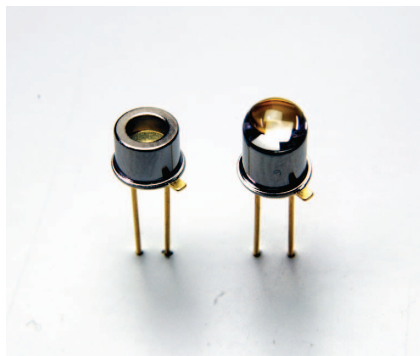


# Infrared LED

L12509 series



**Peak emission wavelength: 1.55 μm**

The L12509 series is a high-power LED that emits infrared light at a peak wavelength of 1.55 μm. The LED is suitable for applications requiring use of an infrared emitter with InGaAs photodiode.

## Features

- Peak emission wavelength: 1.55 μm
- High radiant output power
- TO-46 package  
L12509-0155L: with lens

## Application

- Gas detection
- Analytical instruments

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

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	VR		1	V
Forward current	IF		80	mA
Derating rate of forward current	-	Ta > 25 °C	1.1	mA/°C
Pulse forward current	IFP	Pulse width=10 μs Duty ratio=1%	1.0	A
Derating rate of pulse forward current	-	Ta > 25 °C	13	mA/°C
Power dissipation	P		150	mW
Operating temperature	Topr	No dew condensation*1	-30 to +85	°C
Storage temperature	Tstg	No dew condensation*1	-40 to +100	°C
Soldering conditions	-		260 °C or less, within 5 s, at least 1 mm away from lead roots	-

\*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.

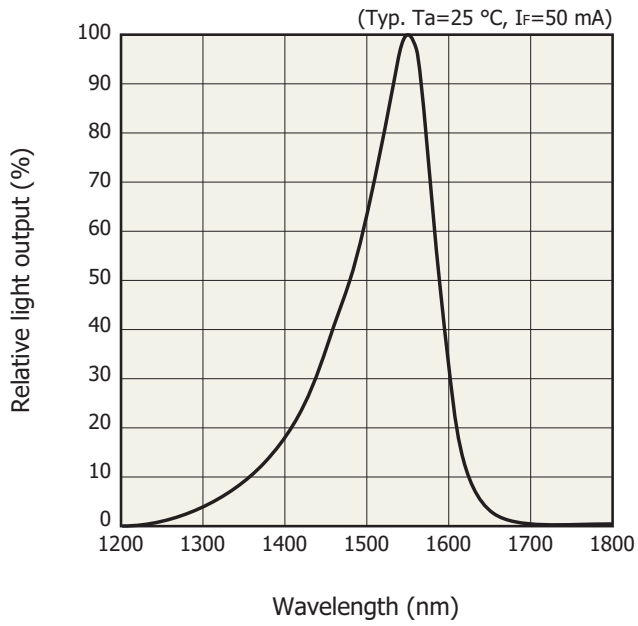
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

Parameter	Symbol	Condition	L12509-0155K			L12509-0155L			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λp	IF=50 mA	1500	1550	1600	1500	1550	1600	nm
Spectral half width (FWHM)	Δλ	IF=50 mA	-	120	-	-	120	-	nm
Radiant flux	φe	IF=50 mA	1.3	1.9	-	1.8	2.7	-	mW
Forward voltage	VF	IF=50 mA	-	0.8	1.3	-	0.8	1.3	V
Reverse current	IR	VR=1 V	-	-	10	-	-	10	μA
Cutoff frequency*2	fc	IF=50 mA ± 10 mAp-p	10	15	-	10	15	-	MHz

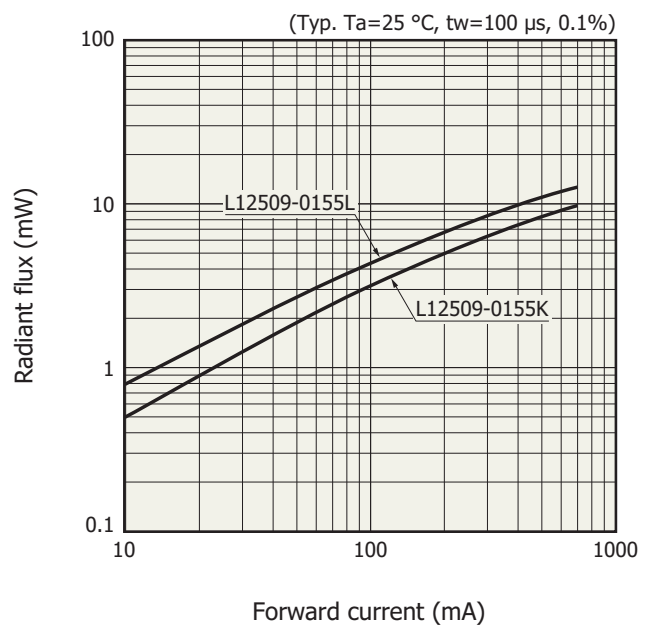
\*2: Frequency at which the light output drops by 3 dB based on light output at 100 kHz.

**Emission spectrum**



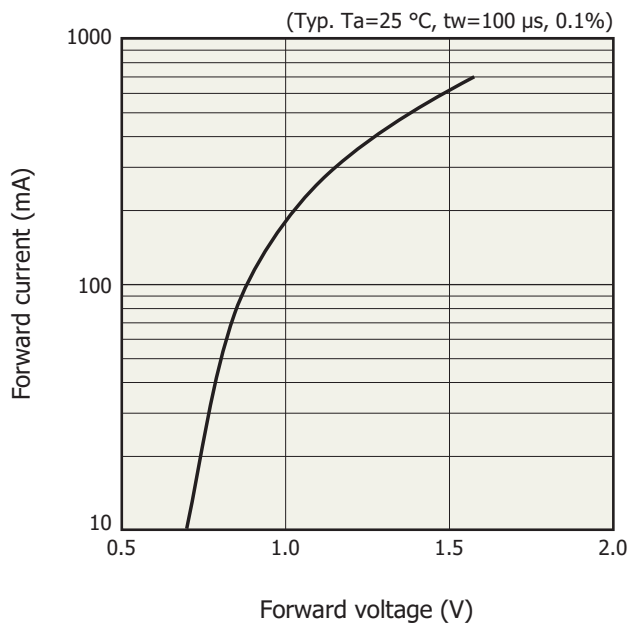
KLEDB0435EA

**Radiant flux vs. forward current**



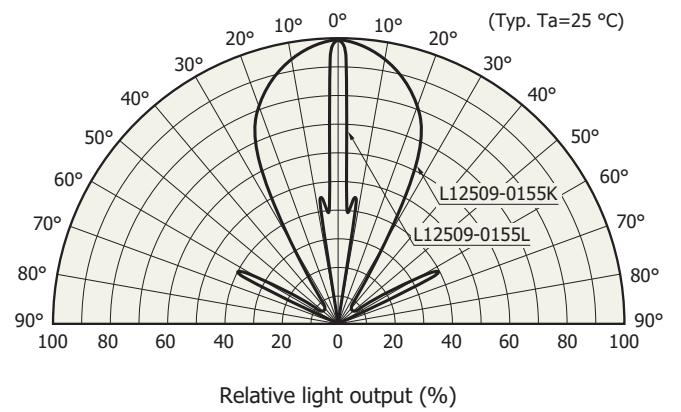
KLEDB0426EB

**Forward current vs. forward voltage**



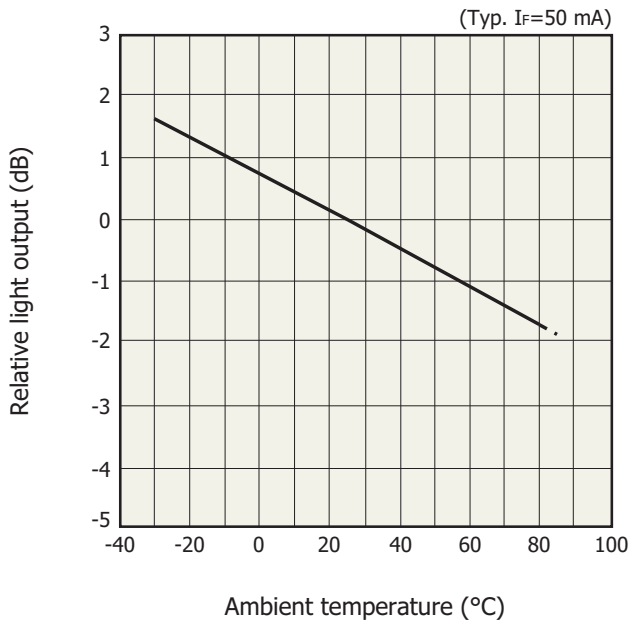
KLEDB0427EA

**Directivity**



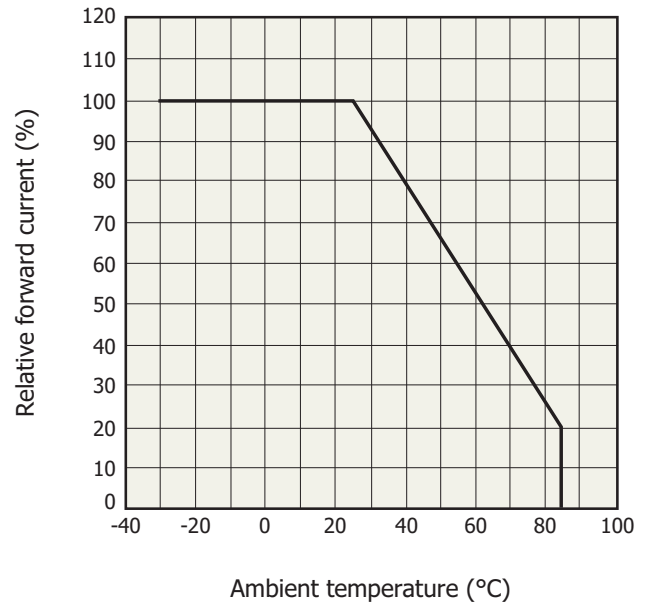
KLEDB0428EB

Light output vs. ambient temperature



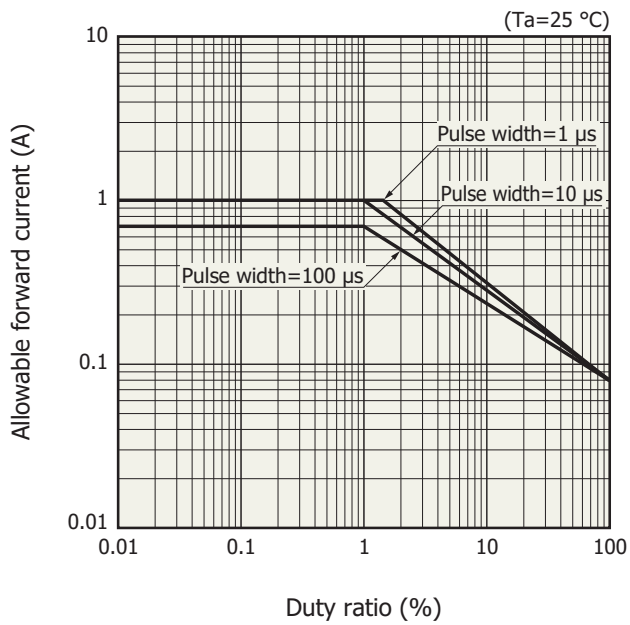
KLEDB0429EA

Allowable forward current vs. ambient temperature



KLEDB0328EB

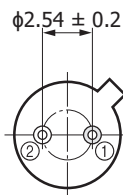
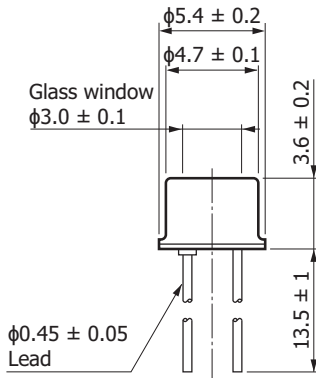
Allowable forward current vs. duty ratio



KLEDB0225EB

### Dimensional outlines (unit: mm)

L12509-0155K

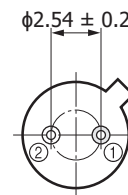
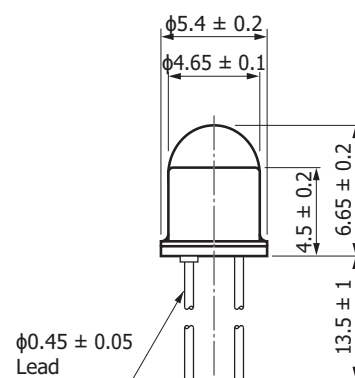


Common to case

Standard packing type:  
paper box (200 pieces/box)

KLEDA0090EB

L12509-0155L



Common to case

Standard packing type:  
paper box (200 pieces/box)

KLEDA0091EB

### Related information

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

#### Precautions

- Disclaimer
- Metal, ceramic, plastic packages

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

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.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

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