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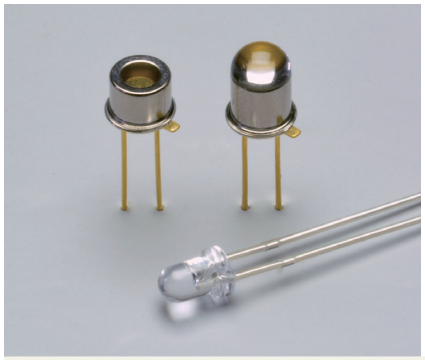
Infrared LED



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**
- **Package**
  L12509-0155K: TO-46
  L12509-0155L: TO-46 with lens
  L12509-0155P: bullet-shaped

Application

- **Gas detection**
- **Analytical instruments**
- **Near infrared lighting**

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

Parameter	Symbol	Condition	L12509-0155K/-0155L	L12509-0155P	Unit
Reverse voltage	V_R		1		V
Forward current	I_F		80	100	mA
Derating rate of forward current	-	Ta > 25 °C	1.1	1.0	mA/°C
Pulse forward current	I_{FP}	Pulse width=10 µs Duty ratio=1%	1.0		A
Derating rate of pulse forward current	-	Ta > 25 °C	13	10	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	-30 to +100	°C
Soldering conditions	-		260 °C or less, within 5 s, at least 1 mm away from lead roots	230 °C or less, within 5 s, at least 2 mm away from resin bottom face	-

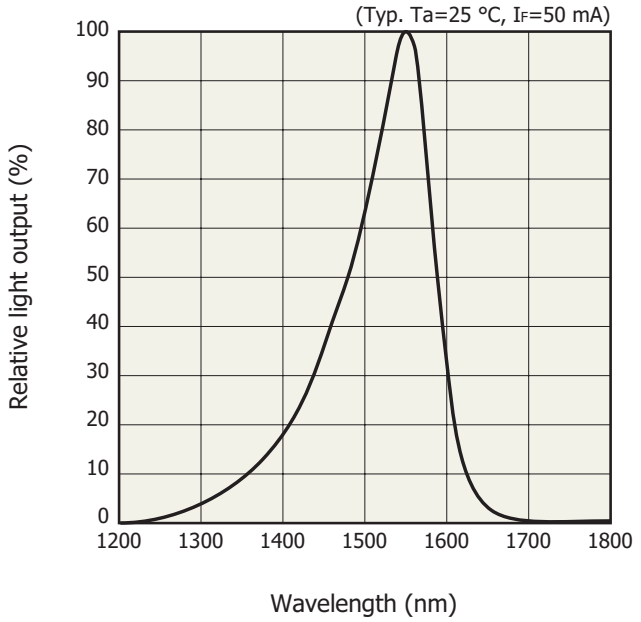
*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings 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			L12509-0155P			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λp	I_F=50 mA	1500	1550	1600	1500	1550	1600	1500	1550	1600	nm
Spectral half width (FWHM)	Δλ	I_F=50 mA	-	120	-	-	120	-	-	120	-	nm
Radiant flux	ϕe	I_F=50 mA	1.3	1.9	-	1.8	2.7	-	-	3.8	-	mW
Radiant intensity	Ie	I_F=50 mA	-	-	-	-	-	-	10	16	-	mW/sr
Forward voltage	V_F	I_F=50 mA	-	0.8	1.3	-	0.8	1.3	-	0.8	1.2	V
Reverse current	I_R	V_R=1 V	-	-	10	-	-	10	-	-	10	µA
Cutoff frequency*2	fc	I_F=50 mA ± 10 mAp-p	10	15	-	10	15	-	10	15	-	MHz

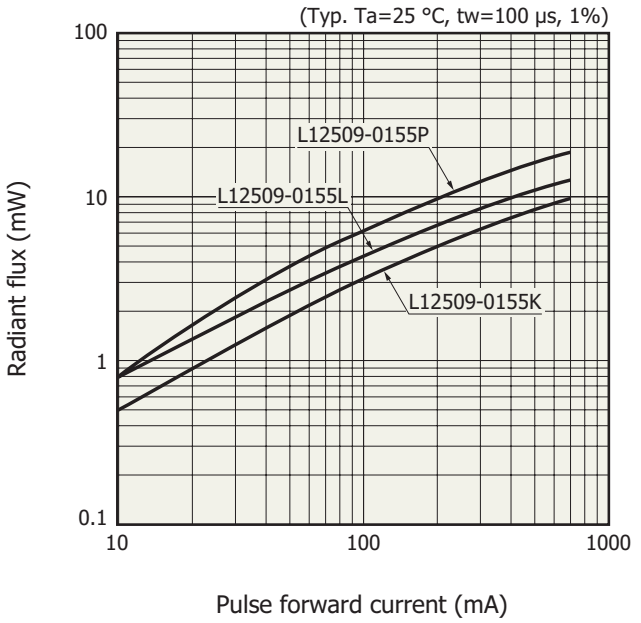
*2: Frequency at which the light output drops by 3 dB based on light output at 100 kHz.

Emission spectrum



KLEDB0435EA

Radiant flux vs. pulse forward current



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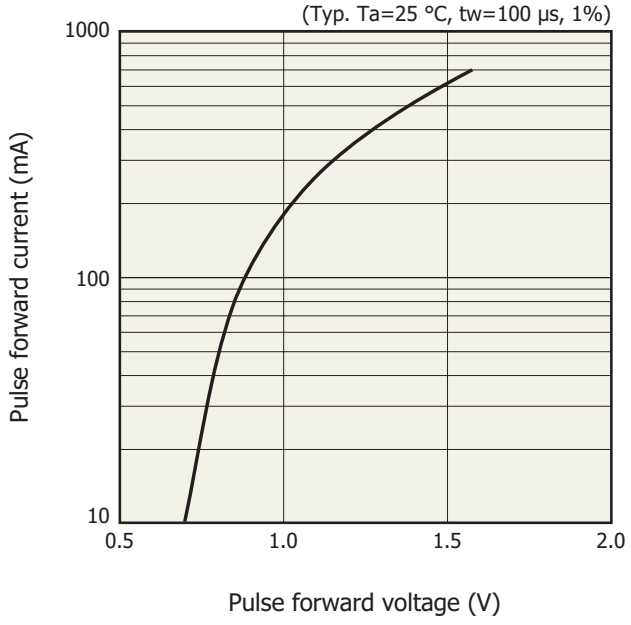
Pulse forward current vs. pulse forward voltage



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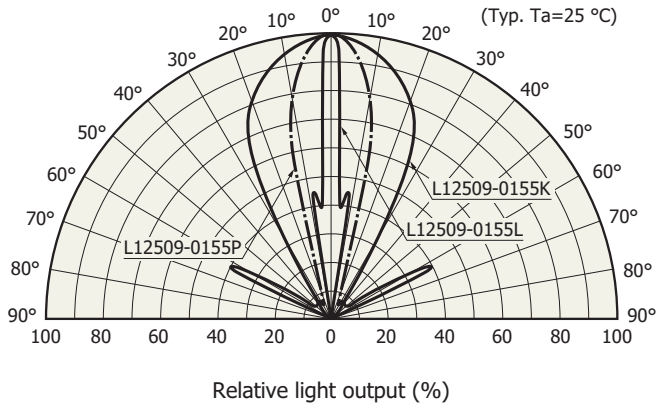
Directivity



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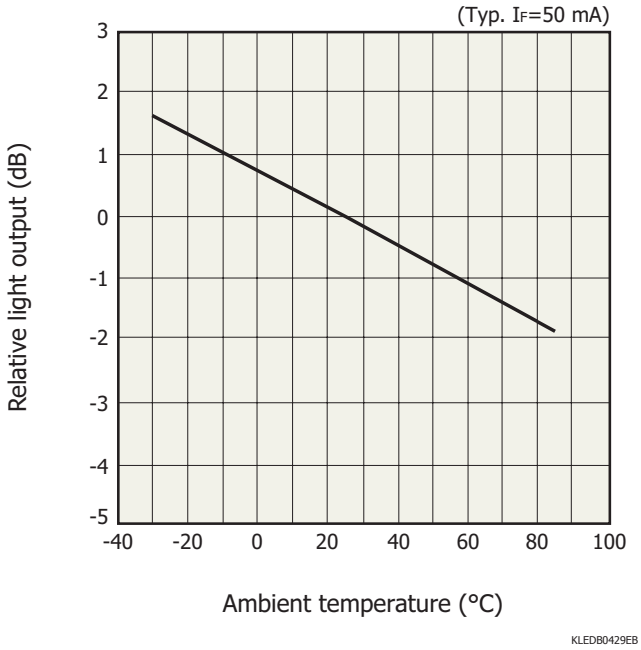
Light output vs. ambient temperature



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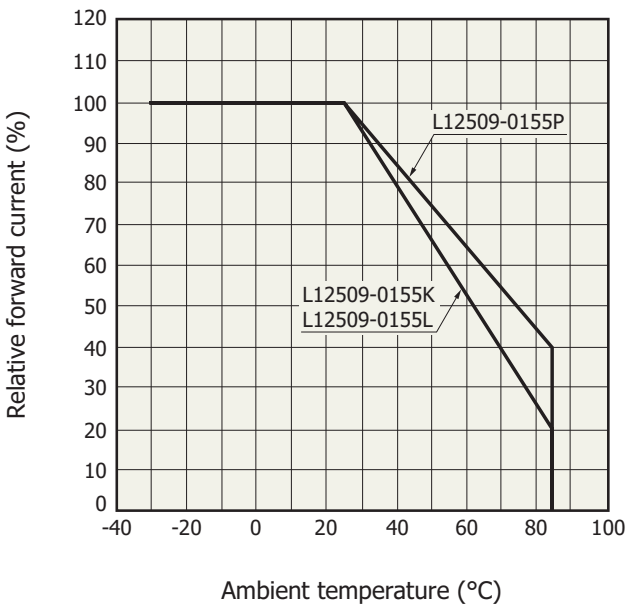
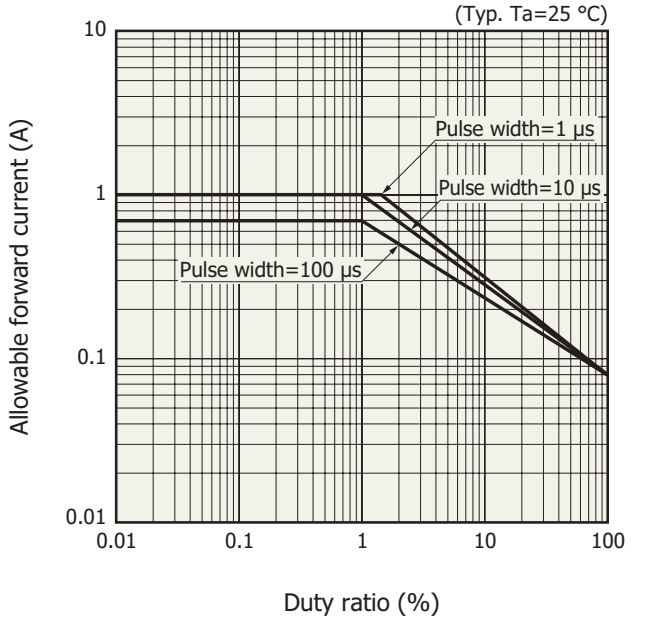
Allowable forward current vs. ambient temperature



KLEDB0480EA

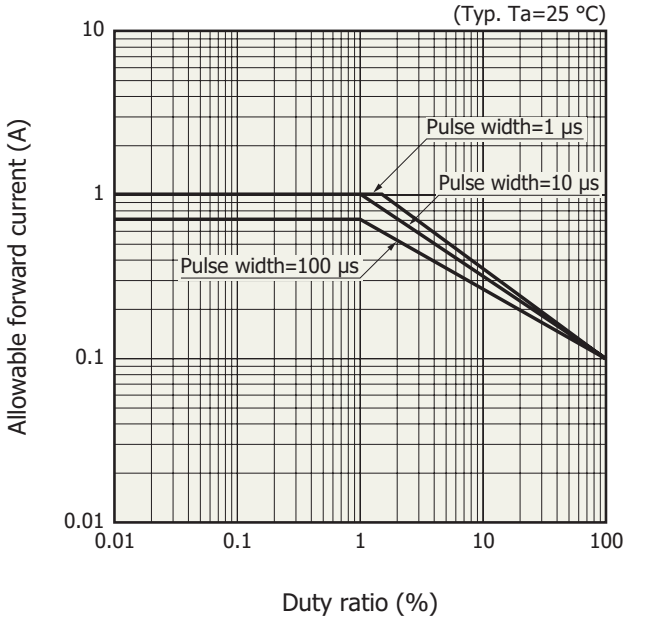
Allowable forward current vs. duty ratio

L12509-0155K/-0155L



KLEDB0225EB

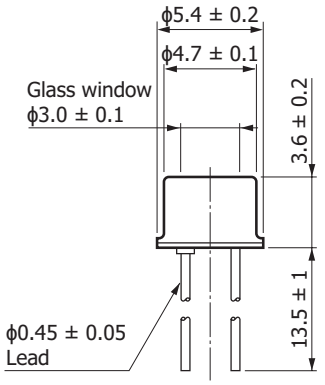
L12509-0155P

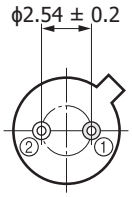


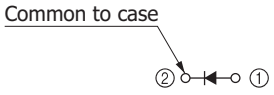
KLEDB0479EA

Dimensional outlines (unit: mm)

L12509-0155K



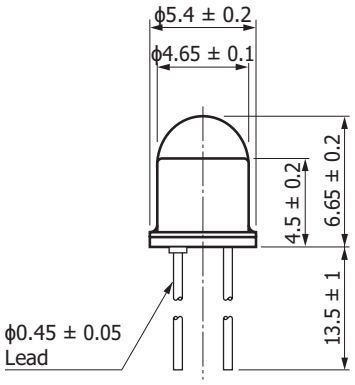


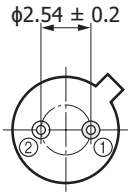


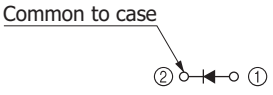
Standard packing type:
paper box (200 pieces/box)

KLEDA0090EB

L12509-0155L



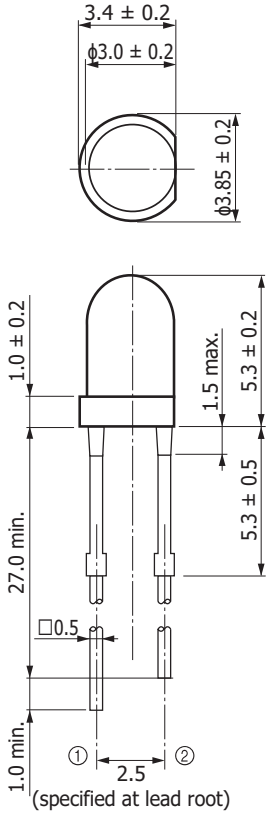


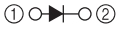


Standard packing type:
paper box (200 pieces/box)

KLEDA0091EB

L12509-0155P





Standard packing type:
anti-static bag (100 pcs/pack)

KLEDA0098EC

Related information

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

■ Precautions
· Disclaimer
· Metal, ceramic, plastic packages

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