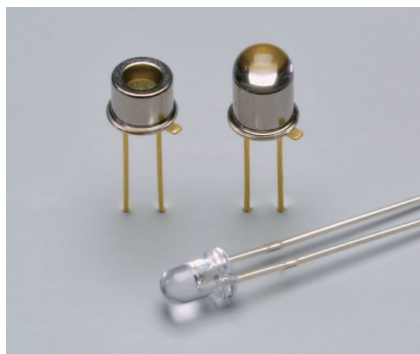


Infrared LED

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	VR			1	V
Forward current	IF		80	100	mA
Derating rate of forward current	-	Ta > 25 °C	1.1	1.0	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	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.

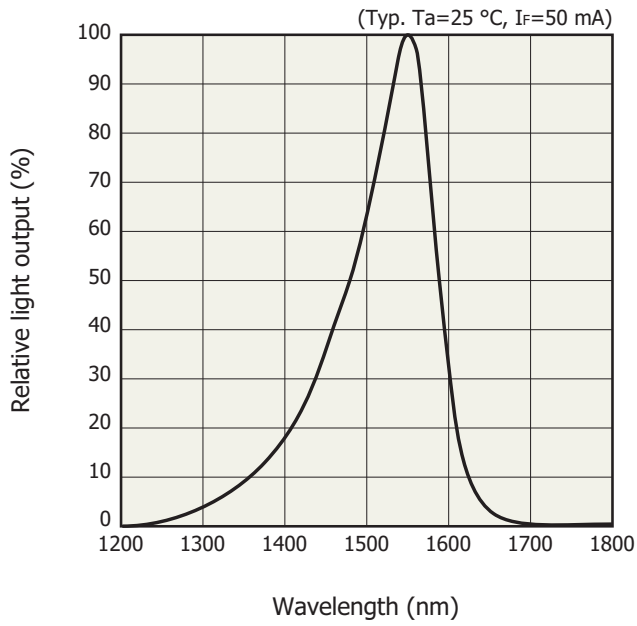
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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	IF=50 mA	1500	1550	1600	1500	1550	1600	1500	1550	1600	nm
Spectral half width (FWHM)	Δλ	IF=50 mA	-	120	-	-	120	-	-	120	-	nm
Radiant flux	φe	IF=50 mA	1.3	1.9	-	1.8	2.7	-	-	3.8	-	mW
Radiant intensity	Ie	IF=50 mA	-	-	-	-	-	-	10	16	-	mW/sr
Forward voltage	VF	IF=50 mA	-	0.8	1.3	-	0.8	1.3	-	0.8	1.2	V
Reverse current	IR	VR=1 V	-	-	10	-	-	10	-	-	10	μA
Cutoff frequency*2	fc	IF=50 mA ± 10 mAp-p	10	15	-	10	15	-	10	15	-	MHz

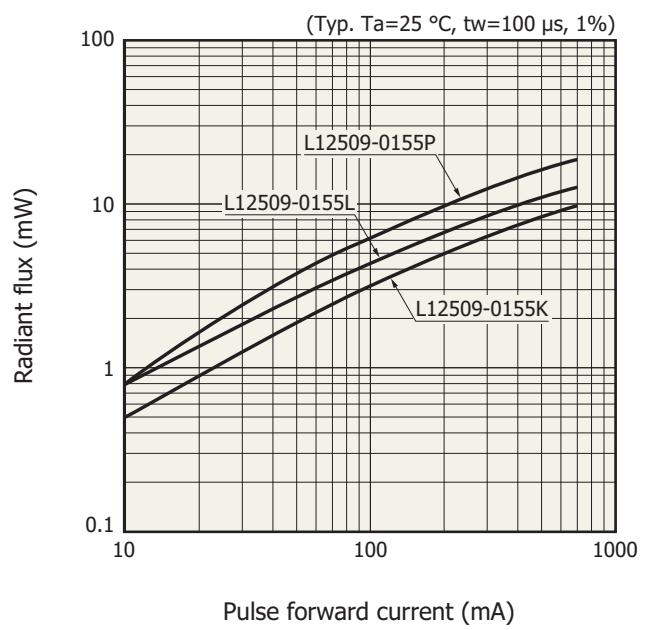
*2: Frequency at which the light output drops by 3 dB based on light output at 100 kHz.

Emission spectrum



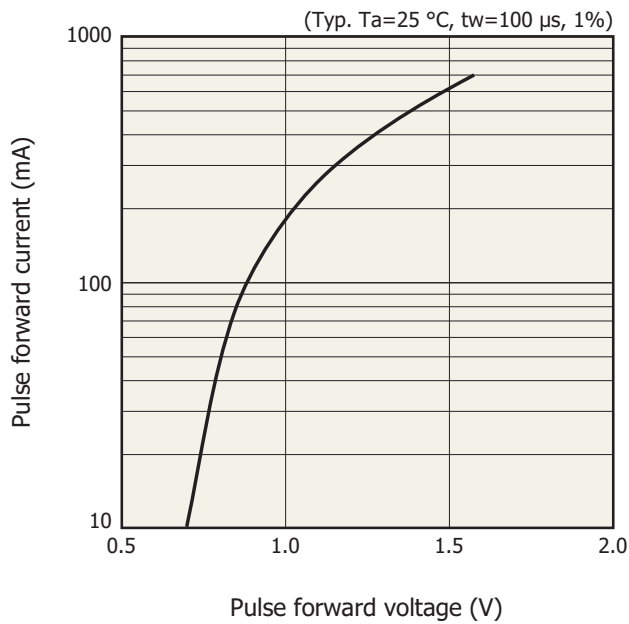
KLEDB0435EA

Radiant flux vs. pulse forward current



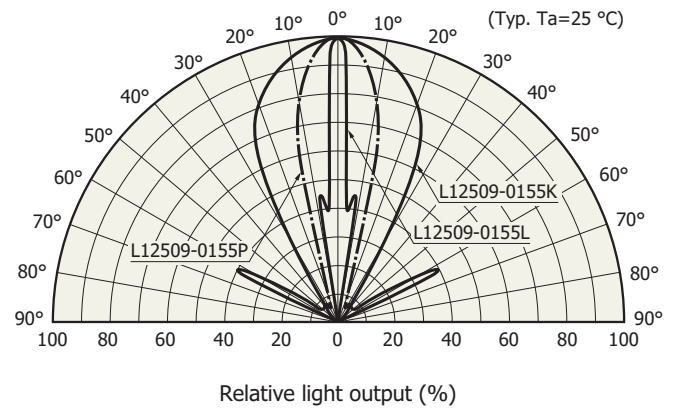
KLEDB0426EC

Pulse forward current vs. pulse forward voltage



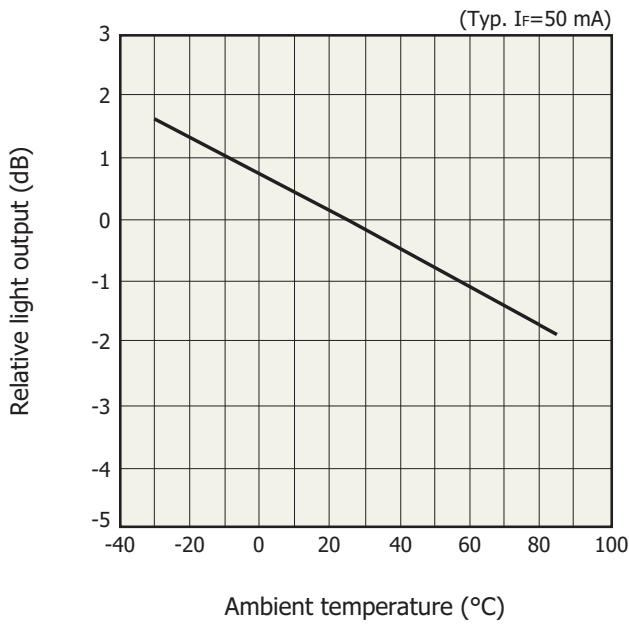
KLEDB0427EA

Directivity



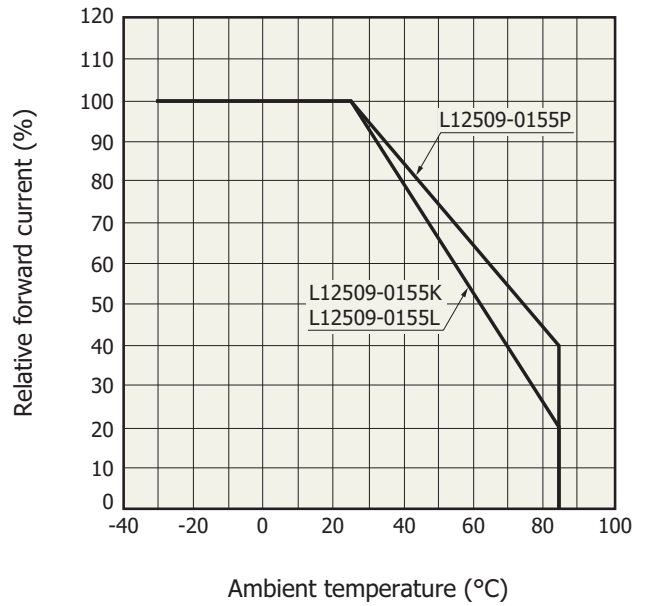
KLEDB0428EC

Light output vs. ambient temperature



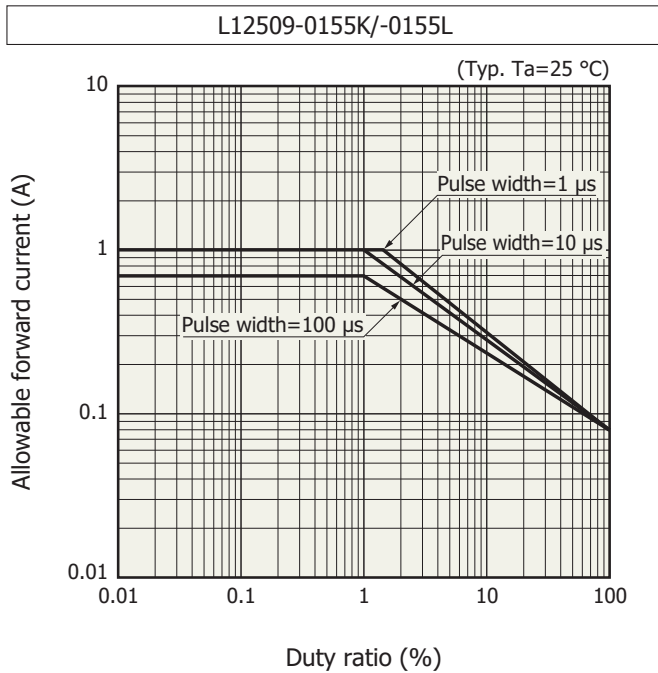
KLEDB0429EB

Allowable forward current vs. ambient temperature

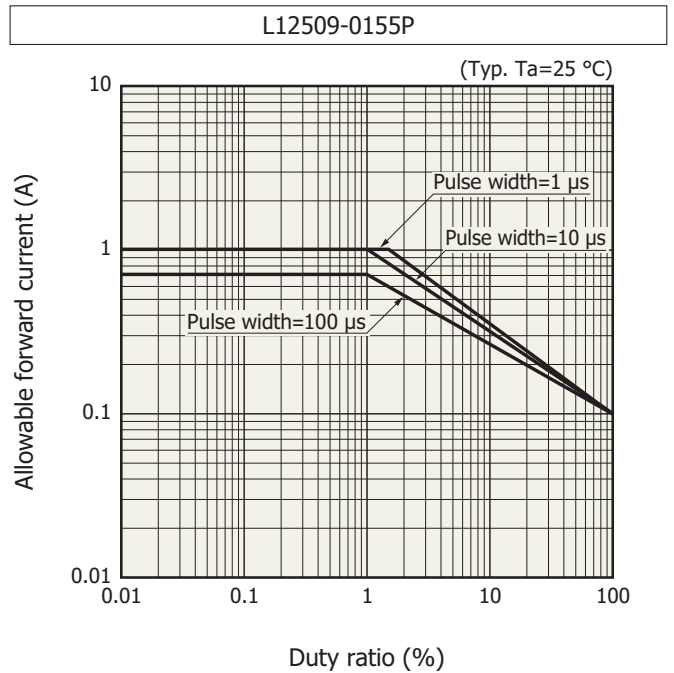


KLEDB0480EA

Allowable forward current vs. duty ratio



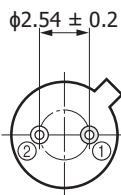
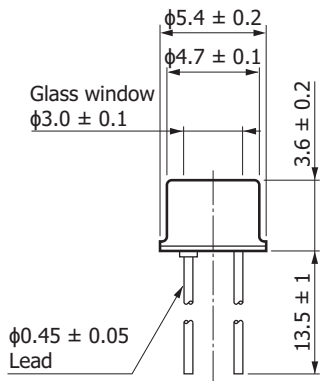
KLEDB0225EB



KLEDB0479EA

Dimensional outlines (unit: mm)

L12509-0155K



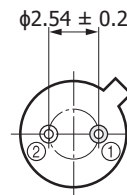
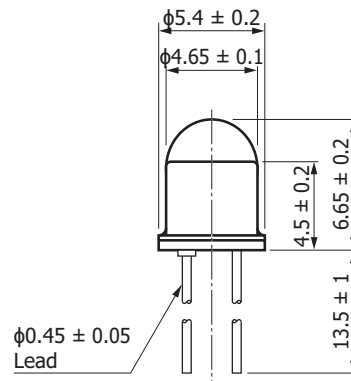
Common to case



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

KLEDA0090EB

L12509-0155L



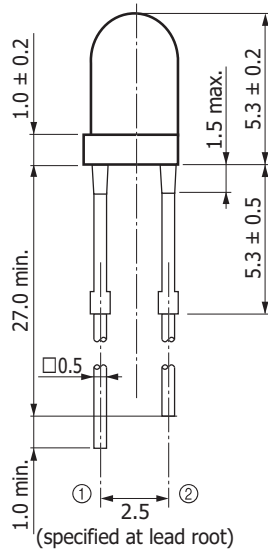
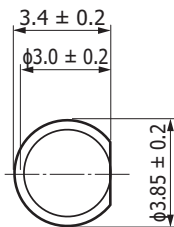
Common to case



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

KLEDA0091EB

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

Information described in this material is current as of June 2017.

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HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39) 02-93581733, Fax: (39) 02-93581741

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866