

L13895 series

## High power LED, peak emission wavelength: 1.45 μm

The L13895 series is a high-power LED that emits infrared light at a peak of 1.45 μm. A bullet-shaped package (L13895-0145P) and a surface mount type (L13895-0145G) are available. It offers high output power, high reliability and low cost.

### Features

- High output
- Low cost
- High reliability
- Bullet-shaped package: **L13895-0145P**
- Small and surface mount type: **L13895-0145G**
- Compatible with lead-free reflow: **L13895-0145G**

### Applications

- Light sources for foreign object sorting
- Moisture meters

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

Parameter	Symbol	Condition	L13895-0145P	L13895-0145G	Unit
Reverse voltage	V <sub>R</sub> max		1	1	V
Forward current	I <sub>F</sub> max		100	80	mA
Forward current decrease rate	ΔI <sub>F</sub>	Ta>25 °C	1	0.8	mA/°C
Pulse forward current	I <sub>FP</sub> max	*1	1	0.5	A
Pulse forward current decrease rate	ΔI <sub>FP</sub>	Ta>25 °C	10	5	mA/°C
Power dissipation	P <sub>d</sub> max		0.15		W
Operating temperature	T <sub>opr</sub>	No dew condensation*2	-30 to +85	-30 to +85	°C
Storage temperature	T <sub>stg</sub>	No dew condensation*2	-30 to +100	-40 to +100	°C
Soldering conditions	-		230 °C, within 5 s, at least 2 mm away from resin bottom surface		-
Reflow soldering conditions	T <sub>sol</sub>	JEDEC level 2a	-	Peak temperature: 250 °C, 2 times	

\*1: Pulse width=10 μs, duty ratio=1%

\*2: 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.

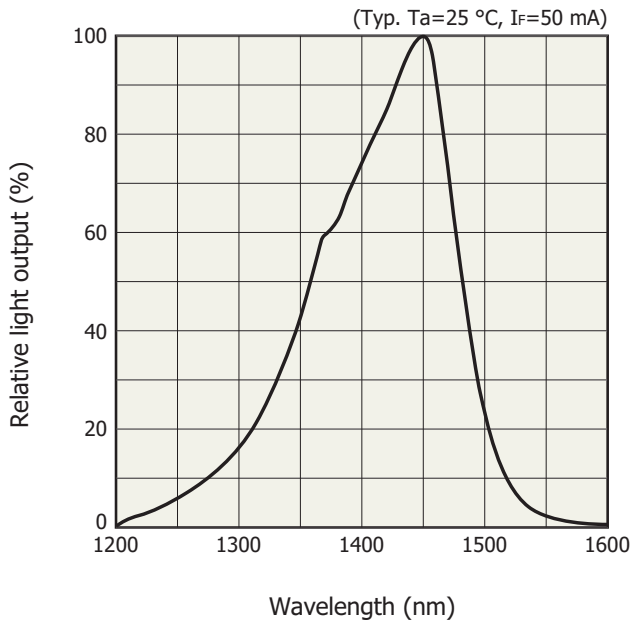
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

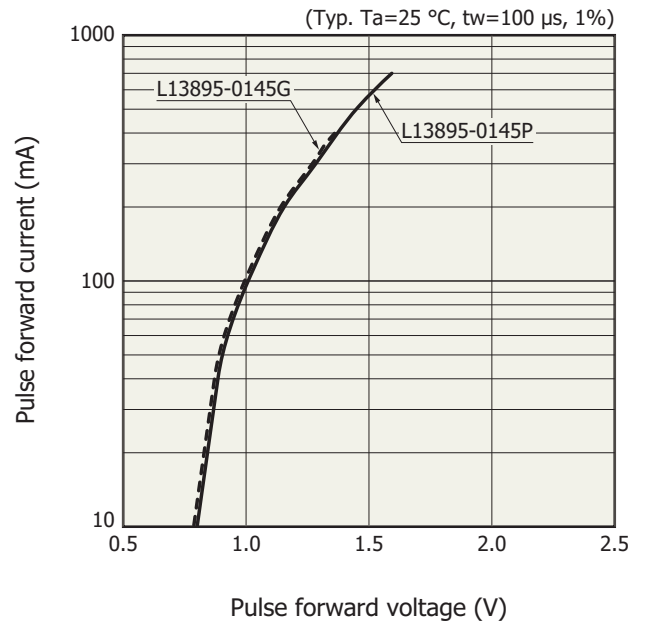
Parameter	Symbol	Condition	L13895-0145P			L13895-0145G			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Peak emission wavelength	λ <sub>p</sub>	I <sub>F</sub> =50 mA	1400	1450	1500	1400	1450	1500	nm
Spectral half width	Δλ	I <sub>F</sub> =50 mA	-	120	170	-	120	170	nm
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =50 mA	-	0.9	1.3	-	0.9	1.2	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =1 V	-	-	10	-	-	10	μA
Radiant flux	φ <sub>e</sub>	I <sub>F</sub> =50 mA	-	5	-	3	4	-	mW
Radiant intensity	I <sub>e</sub>	I <sub>F</sub> =50 mA	12	20	-	-	-	-	mW/sr
Cutoff frequency*2	f <sub>c</sub>	I <sub>F</sub> =50 mA ± 10 mAp-p	5	10	-	5	10	-	MHz

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

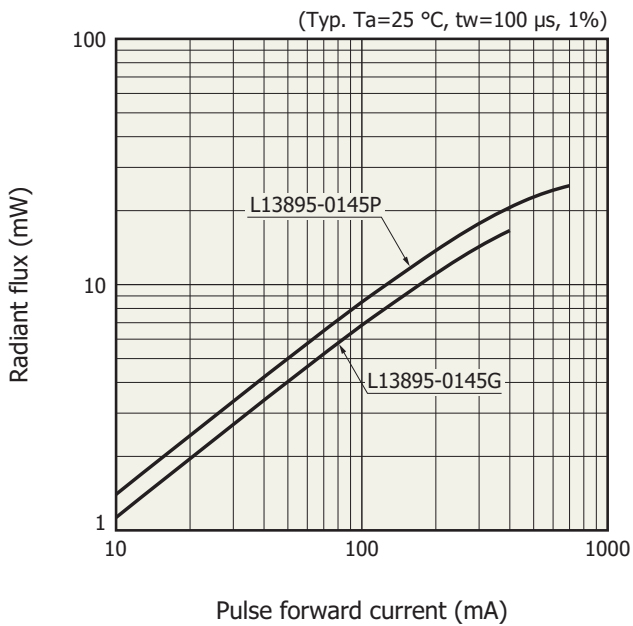
**Emission spectrum**



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

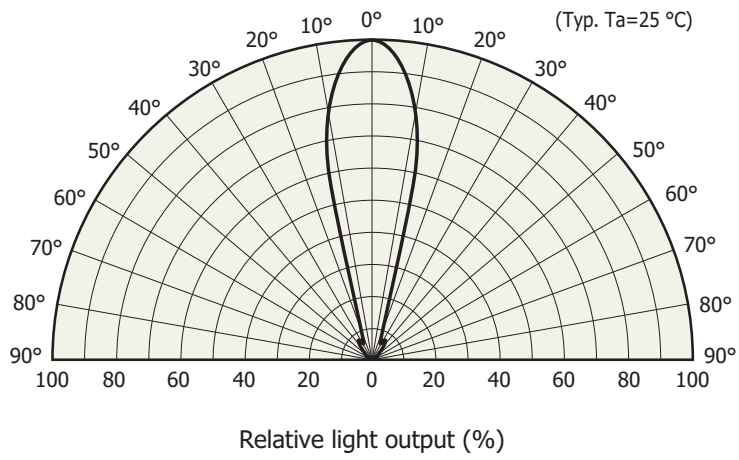


**Radiant flux vs. pulse forward current**



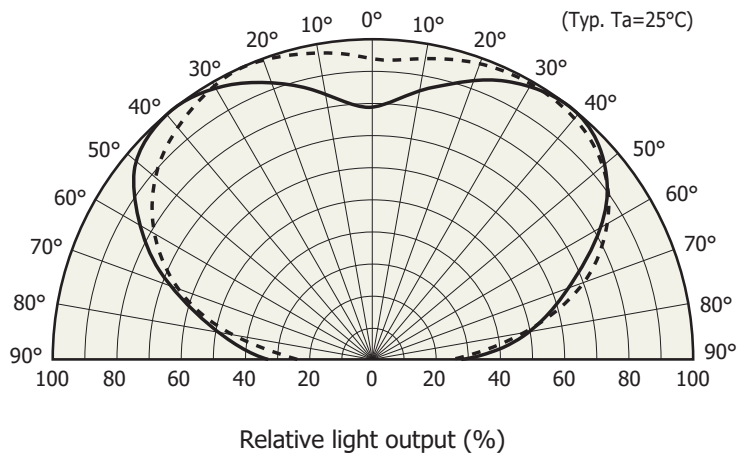
**Directivity**

L13895-0145P



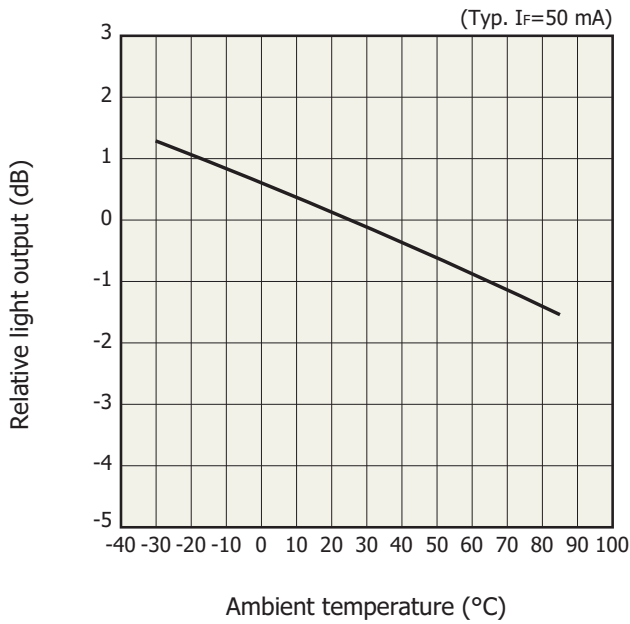
KLEDB0469EA

L13895-0145G



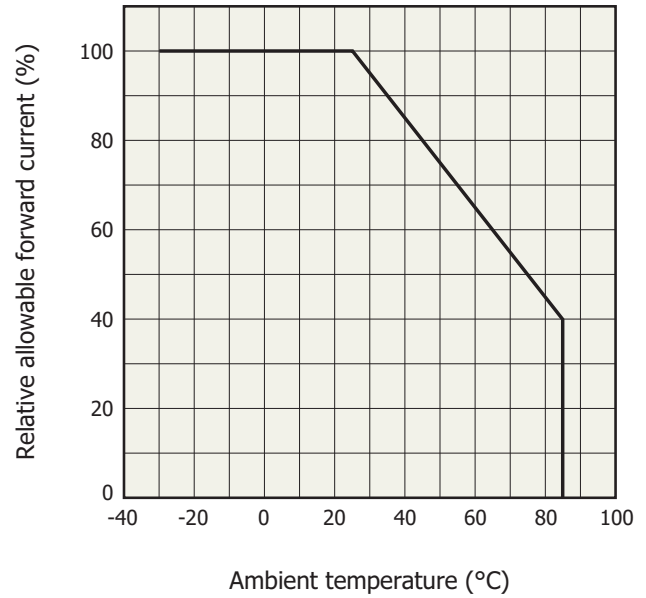
KLEDB0487EB

Light output vs. ambient temperature



KLEDB0470EA

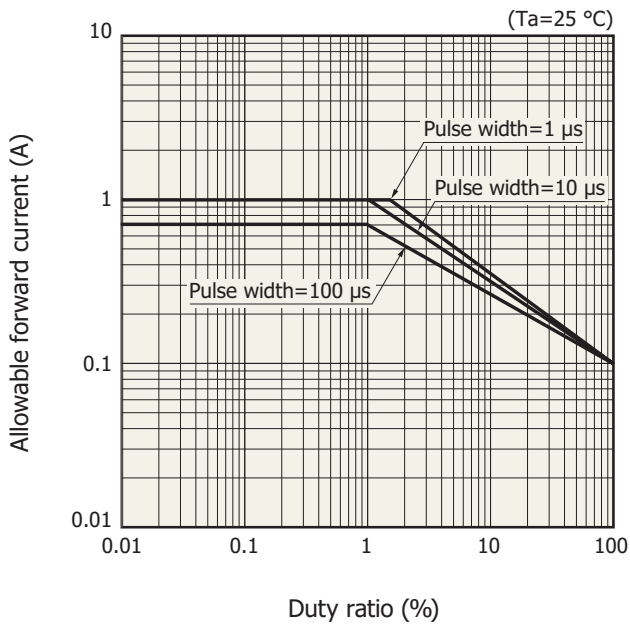
Allowable forward current vs. ambient temperature



KLEDB0471EA

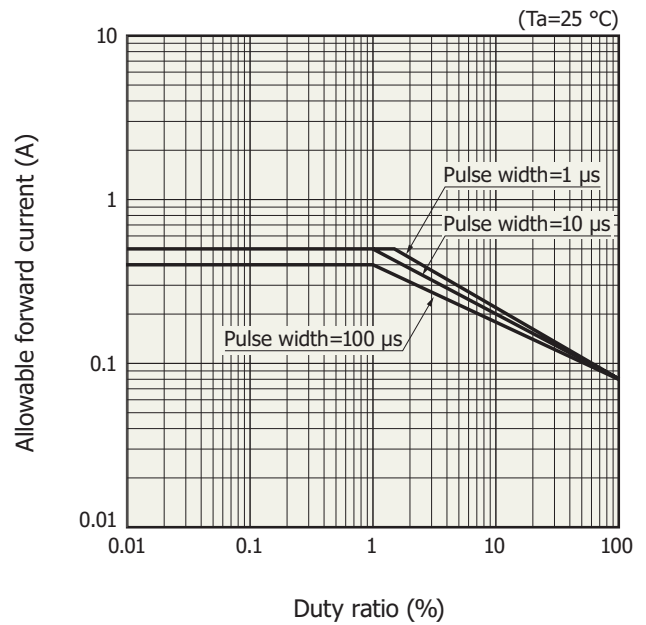
Allowable forward current vs. duty ratio

L13895-0145P



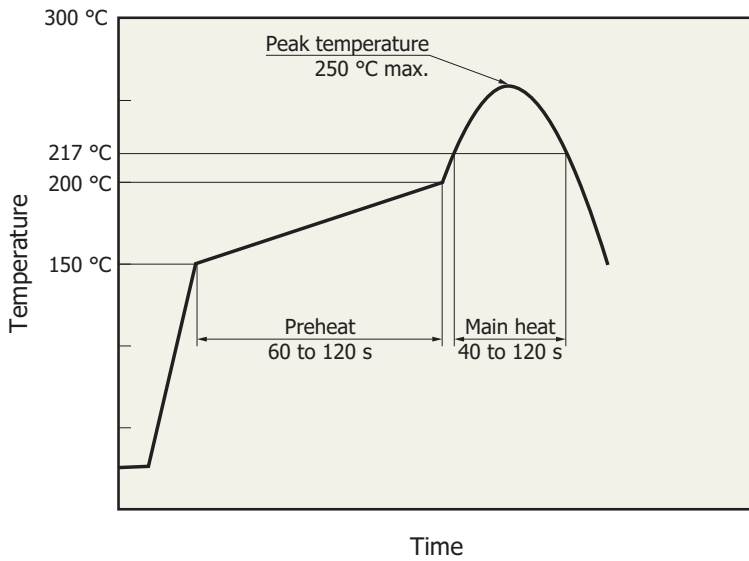
KLEDB0472EA

L13895-0145G



KLEDB0488EA

Recommended solder reflow conditions (Apply to L13895-0145G)

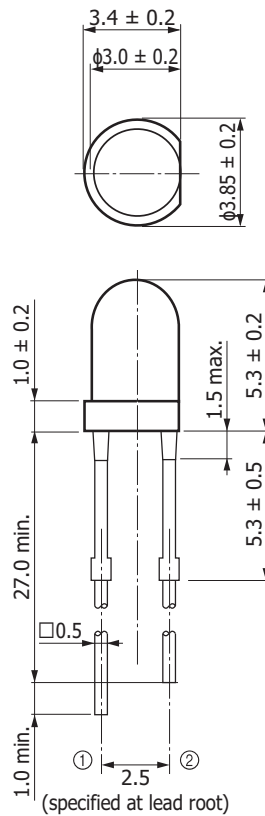


KLEDB0536EA

- 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)

L13895-0145P



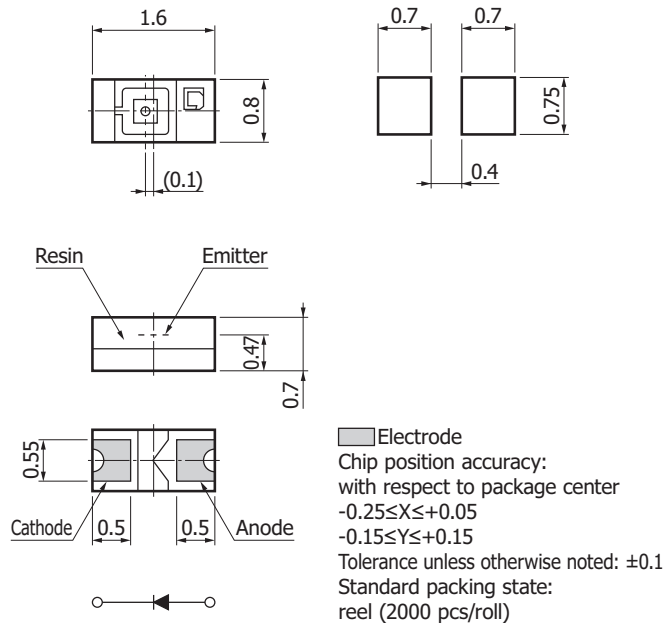
Standard packing state:  
anti-static bag  
(100 pcs/pack)

① ○ ▶ ○ ②

KLEDA0098EC

## L13895-0145G

Recommended land pattern



KLEDA0107EA

## 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
- Surface mount type products

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

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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, E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8, E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)

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, E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)

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, E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01, E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41, E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R.China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866, E-mail: [hpc@hamamatsu.com.cn](mailto:hpc@hamamatsu.com.cn)

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No. 158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081, E-mail: [info@hamamatsu.com.tw](mailto:info@hamamatsu.com.tw)