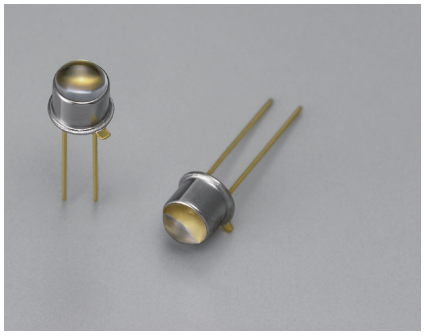
HAMAMATSU
PHOTON IS OUR BUSINESS

Infrared LED

L11913



LED emitting collimated light for optical encoder

The L11913 is an infrared LED developed for optical encoders. Its irradiance is three times that of the previous product L9437.

Features

- **Collimated light beam**
- **High output power**
- **High reliability**

Applications

- **Optical encoders**

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

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R		5	V
Forward current	I_F		80	mA
Forward current reduction rate	-	Ta>25 °C	0.8	mA/°C
Power dissipation	P		160	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 higher, within 5 s, at least 1 mm away from lead roots	-

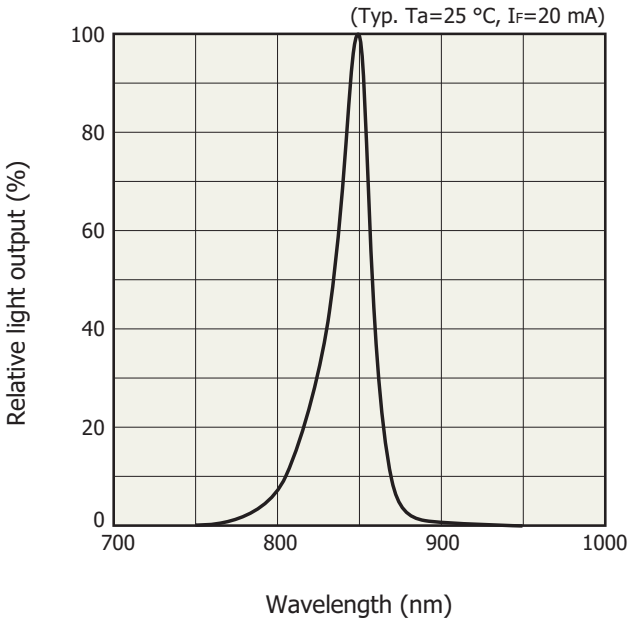
*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings 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	Min.	Typ.	Max.	Unit
Peak emission wavelength	λp	I_F=20 mA	820	850	880	nm
Spectral half width	Δλ	I_F=20 mA	-	25	-	nm
Light output*2	Pe	I_F=20 mA	2.5	3.4	-	mW
Forward voltage	V_F	I_F=20 mA	-	1.45	1.7	V
Reverse current	I_R	V_R=5 V	-	-	5	μA
Light spot size*3	Bw	I_F=20 ± 10 mA, L=13 mm, XY	3.8*4	4.3	6.0*4	mm
Cutoff frequency*5	fc	I_F=20 ± 1 mA	10	20	-	MHz

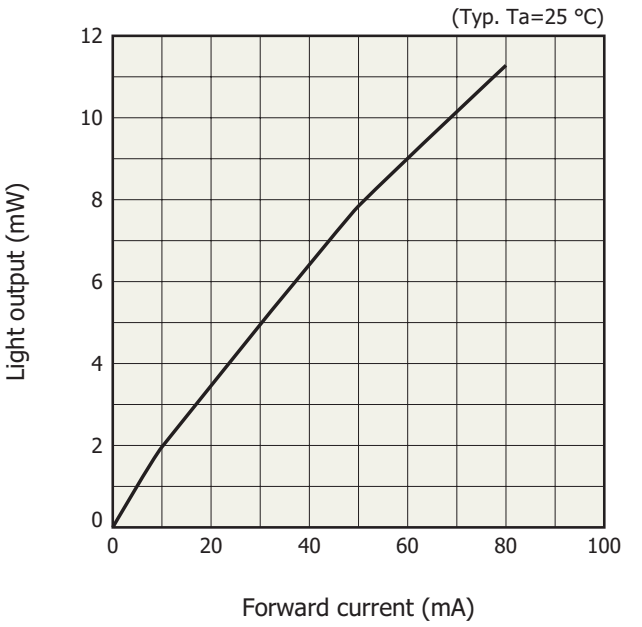
*2: Measured with a photodiode (photosensitive area: ϕ8 mm) installed 25 mm away from LED stem undersurface
*3: Full width at half maximum, measured with an image sensor installed 13 mm away from LED stem undersurface
*4: Sorter value
*5: Frequency at which the optical output drops by 3 dB from that at 100 kHz

Emission spectrum



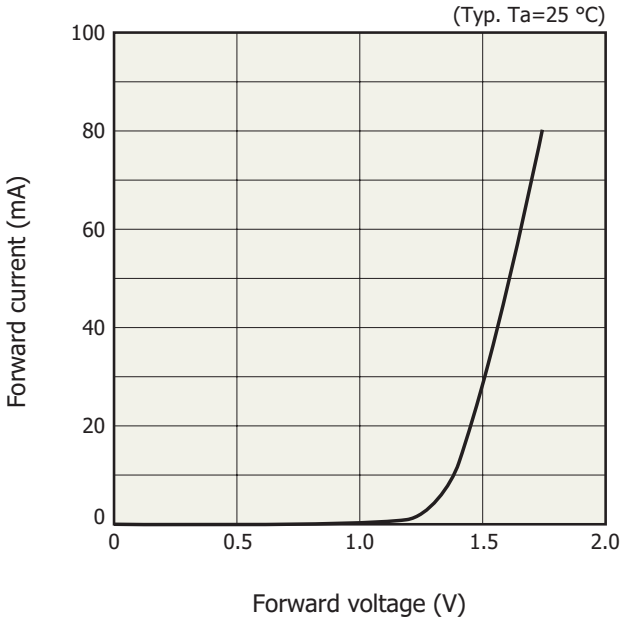
KLEDB0393EA

Light output vs. forward current



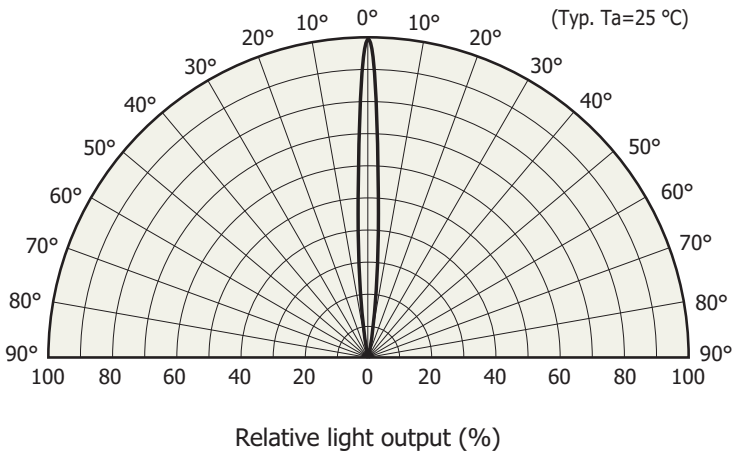
KLEDB0394EA

Forward current vs. forward voltage



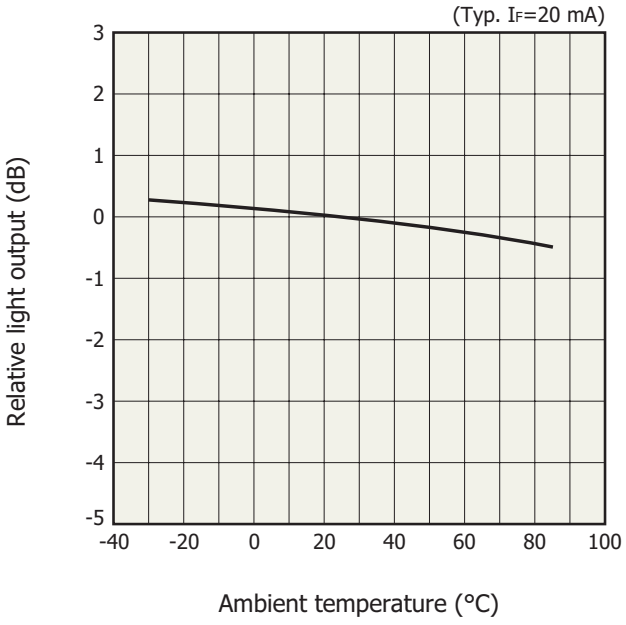
KLEDB0395EA

Directivity



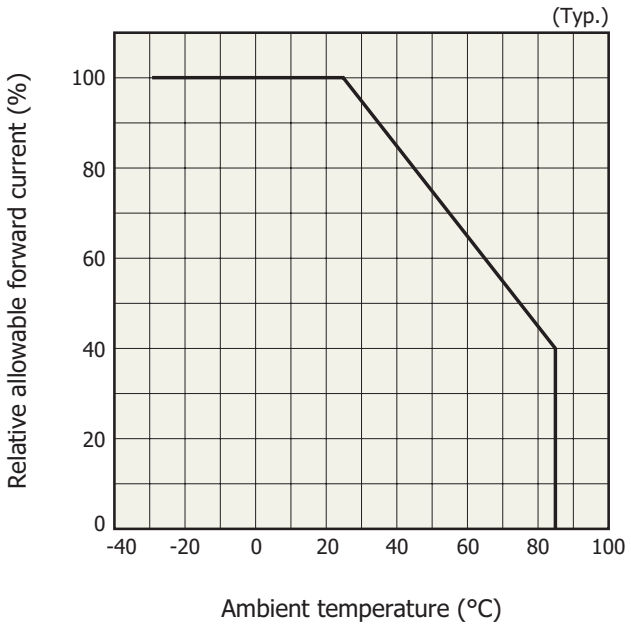
KLEDB0396EA

Light output vs. ambient temperature



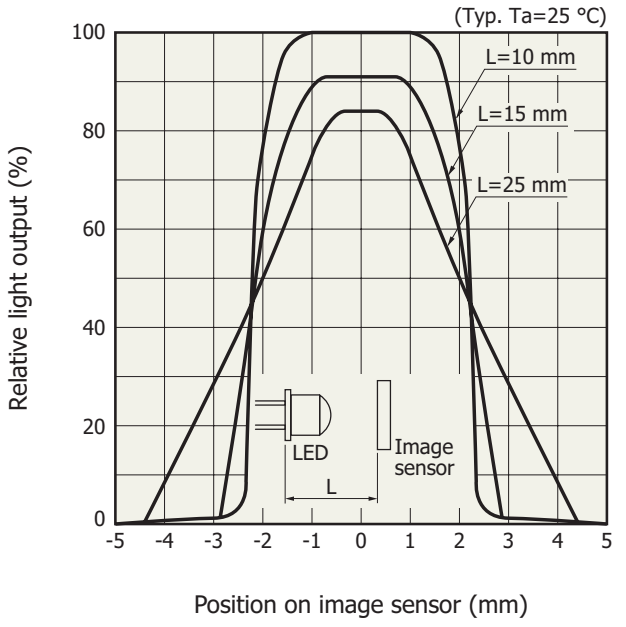
KLEDB0397EA

Allowable forward current vs. ambient temperature



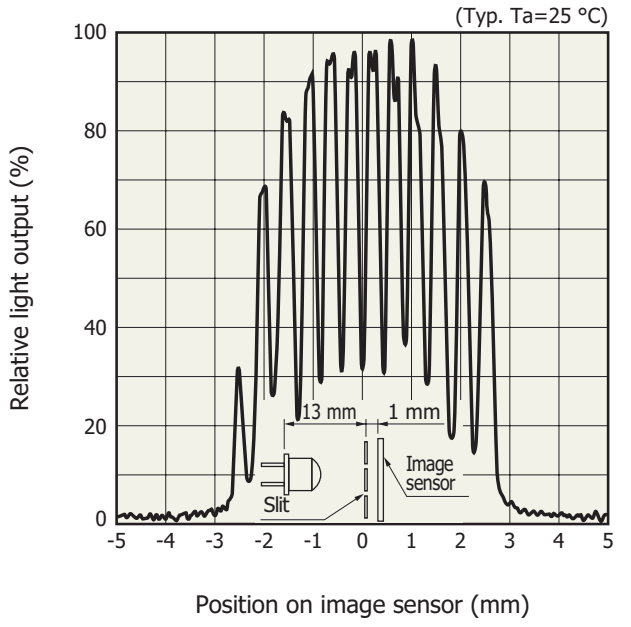
KLEDB0408EA

Light intensity distribution



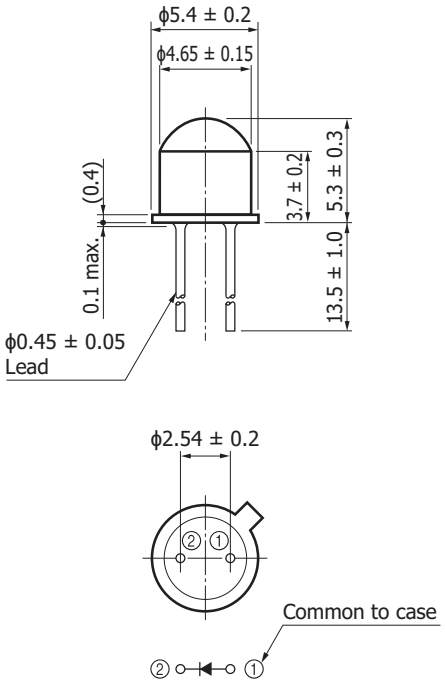
KLEDB0263EB

Light intensity distribution (when slit is used)



KLEDB0399EA

Dimensional outline (unit: mm)



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

KLEDA0099EB

Related information

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

■ Precautions
· Disclaimer
· Metal, ceramic, plastic products

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, E-mail: 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
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
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
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
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
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, E-mail: 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)03-659-0080, Fax: (886)03-659-0081, E-mail: info@hamamatsu.com.tw