

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	-	T _a >25 °C	0.8	mA/°C
Power dissipation	P		160	mW
Operating temperature	T _{opr}	No dew condensation*1	-30 to +85	°C
Storage temperature	T _{stg}	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	λ _p	I _F =20 mA	820	850	880	nm
Spectral half width	Δλ	I _F =20 mA	-	25	-	nm
Light output*2	P _e	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	B _w	I _F =20 ± 10 mA, L=13 mm, XY	3.8*4	4.3	6.0*4	mm
Cutoff frequency*5	f _c	I _F =20 ± 1 mA	10	20	-	MHz

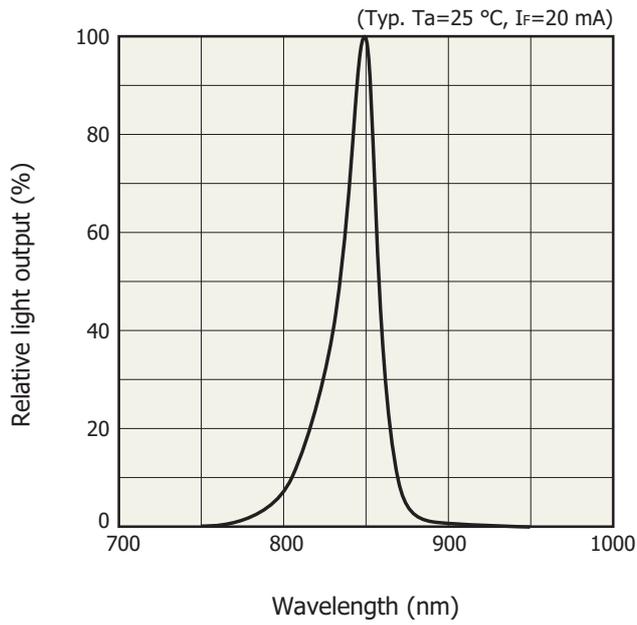
*2: Measured with a photodiode (photosensitive area: φ8 mm) installed 25 mm away from LED stem undersurface

*3: Full width at half maximum, measured with an image sensor installed 13 mm away from LED stem undersurface

*4: Sorter value

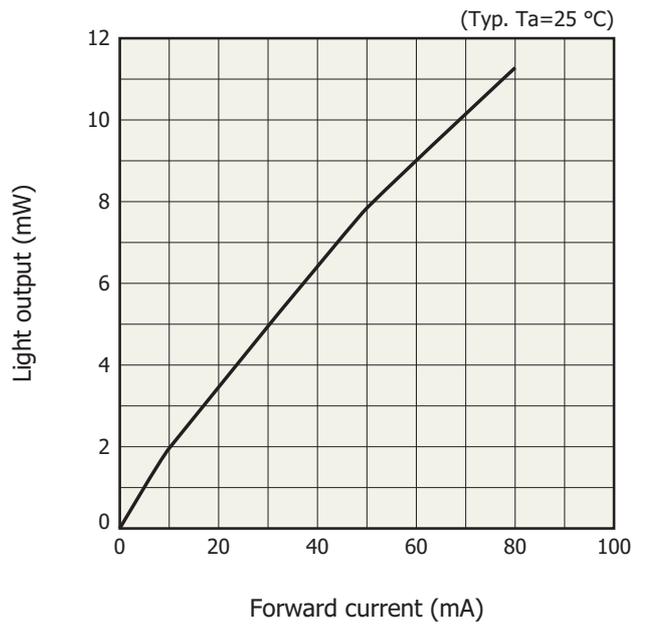
*5: Frequency at which the optical output drops by 3 dB from that at 100 kHz

Emission spectrum



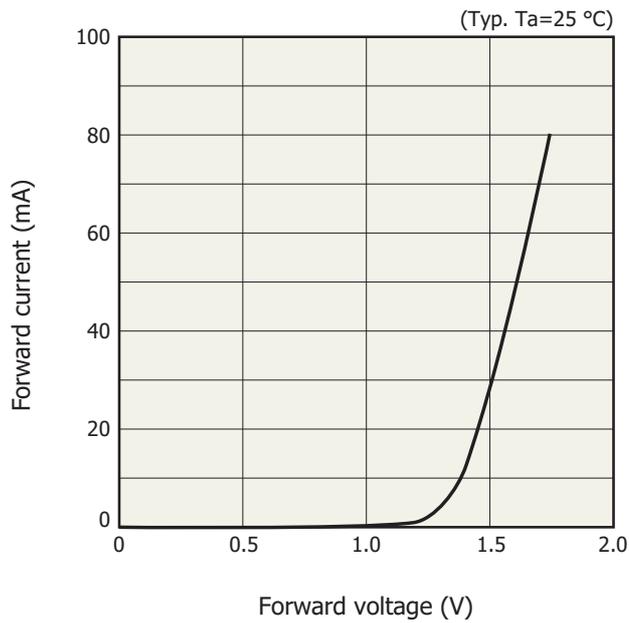
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Light output vs. forward current



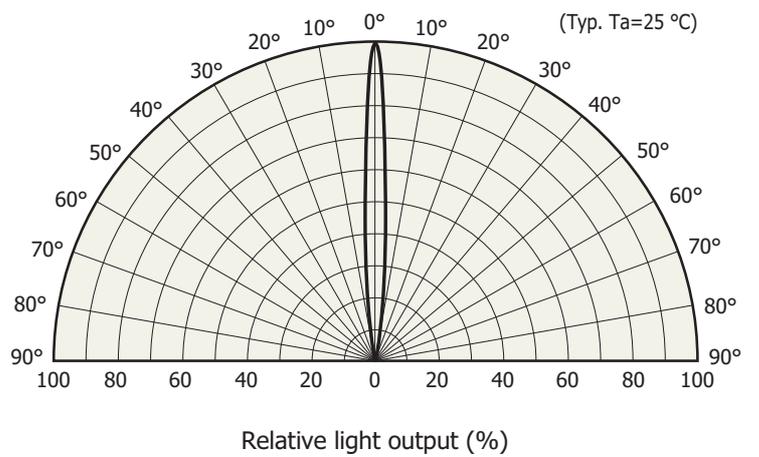
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Forward current vs. forward voltage



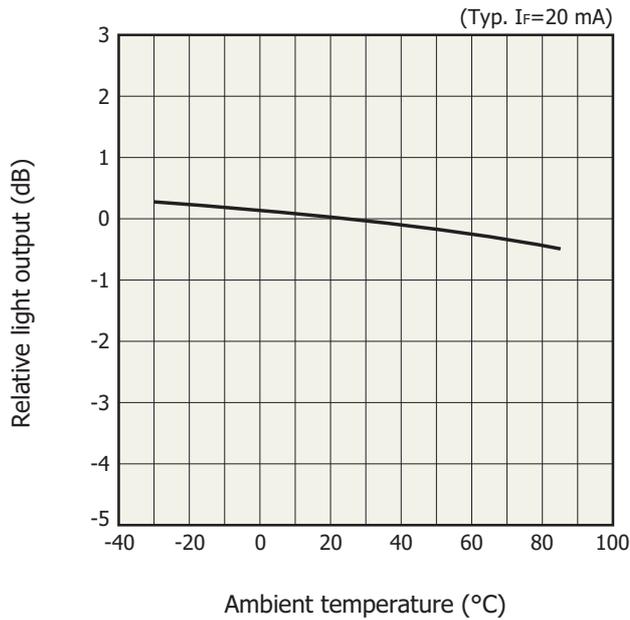
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Directivity

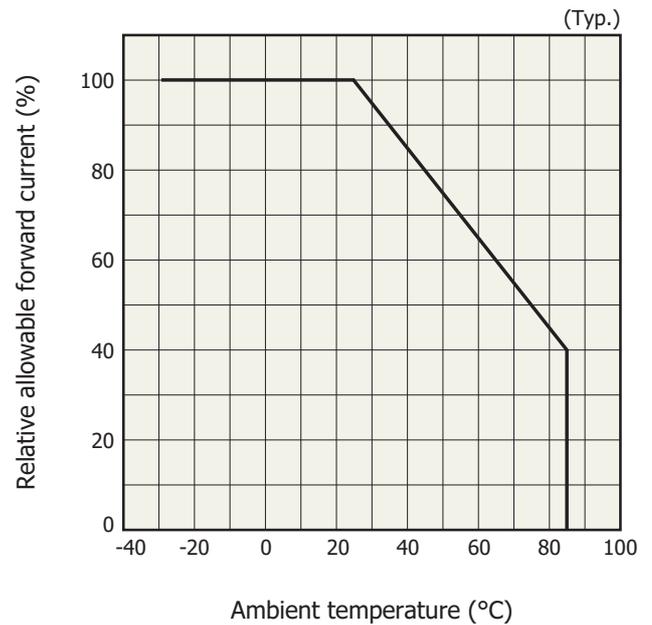


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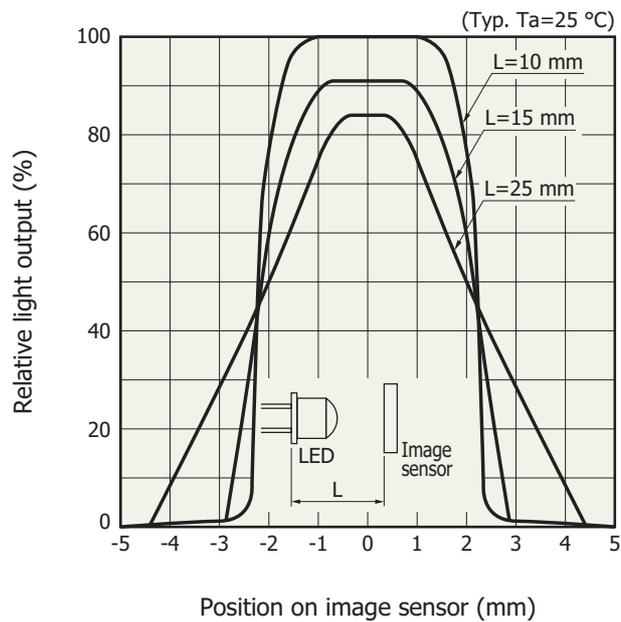
Light output vs. ambient temperature



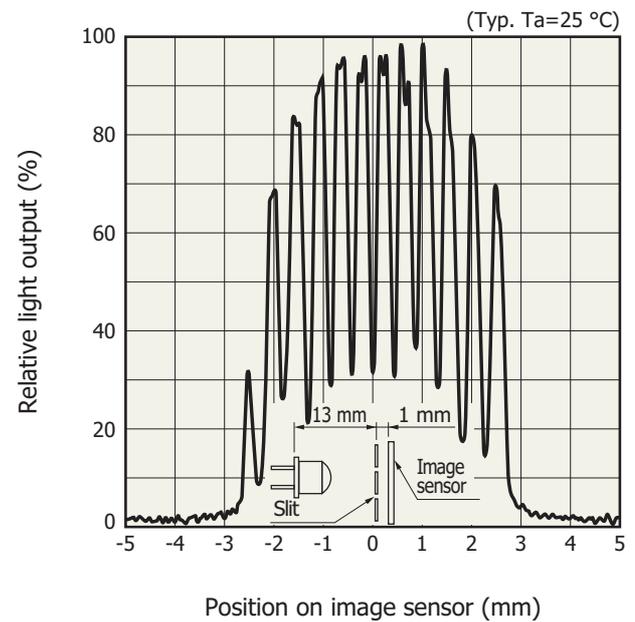
Allowable forward current vs. ambient temperature



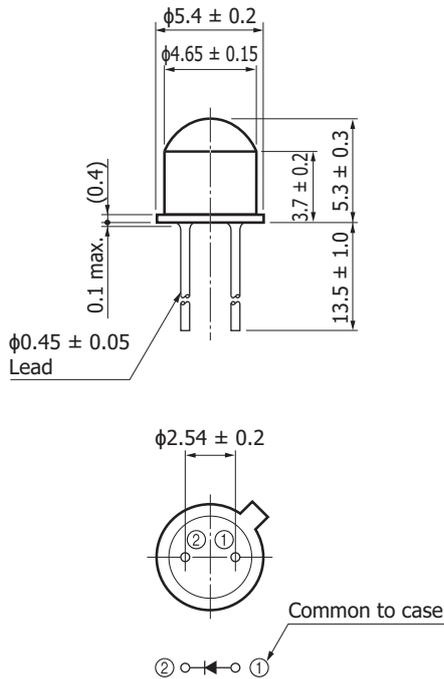
Light intensity distribution



Light intensity distribution (when slit is used)



Dimensional outline (unit: mm)



KLEDA0099EB

Related information

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

Precautions

- Disclaimer
- Metal, ceramic, plastic products

Information described in this material is current as of October 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.

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