HAMAMATSU
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Infrared LED

L8957

Low cost LED ideal for optical encoders

L8957 is an infrared LED using a low-cost lens and available at a lower price than other products up to now.

Features

- **Low price**
  Uses low cost lens

Applications

- **Optical encoders**
- **Optical switches**

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	-		0.67	mA/°C
Pulse forward current	I_{FP}	Pulse width=10 µs Duty ratio=1 %	0.5	A
Pulse forward current reduction rate	-		4.2	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	°C

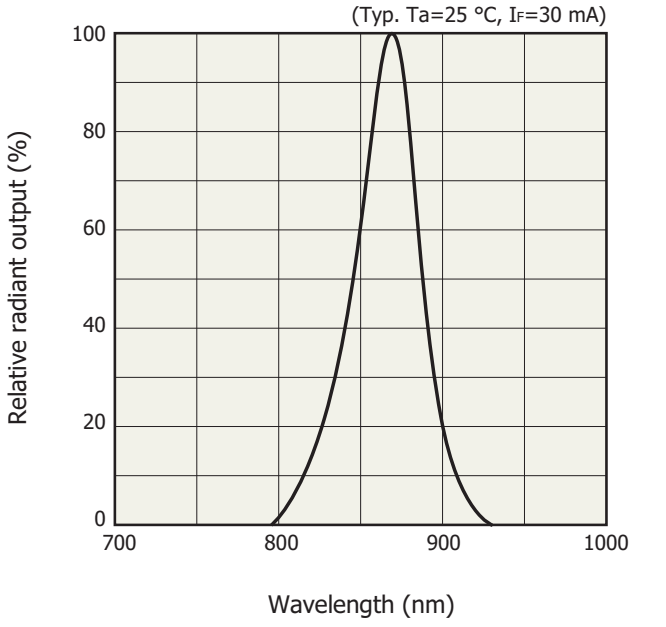
*1: When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings 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=30 mA	840	870	900	nm
Spectral half width	Δλ	I_F=30 mA	-	45	-	nm
Optical output *2	Pe	I_F=30 mA	1.5	2.1	-	mW
Forward voltage	V_F	I_F=30 mA	-	1.5	1.65	V
Reverse current	I_R	V_R=5 V	-	-	5	µA
Spot light size *3	Bw	I_F=30 mA	4.8 *4	5.4	-	mm
Cutoff frequency *5	fc	I_F=30 mA ± 4 mAp-p	25	40	-	MHz

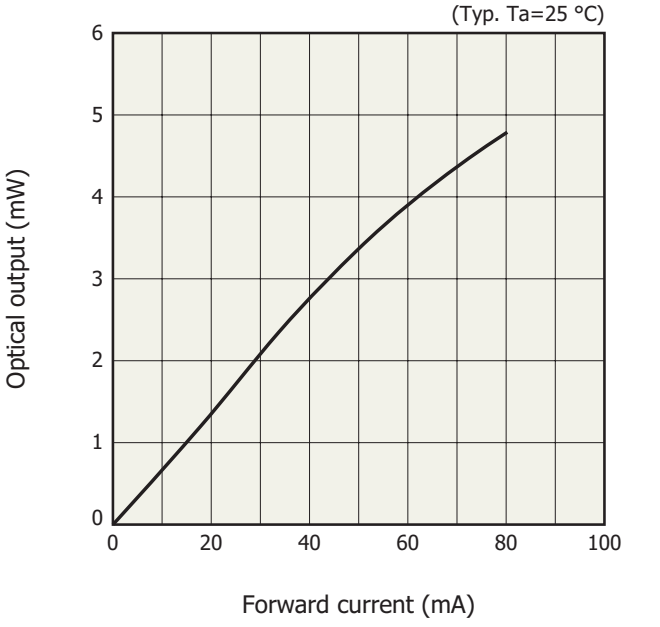
*2: Measured with a photodiode (active area: ϕ8 mm) installed 10 mm away from LED stem undersurface.
*3: Full width at half maximum of beam spot measured with an image sensor installed 13 mm away from LED stem undersurface.
*4: Reference value
*5: Frequency at which the optical output drops by -3 dB from that at 100 kHz.

Emission spectrum



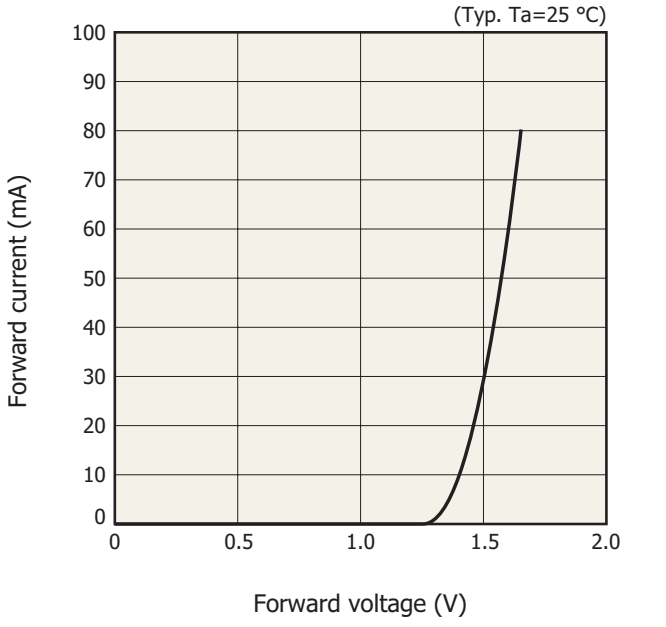
KLEDB0218EB

Optical output vs. forward current



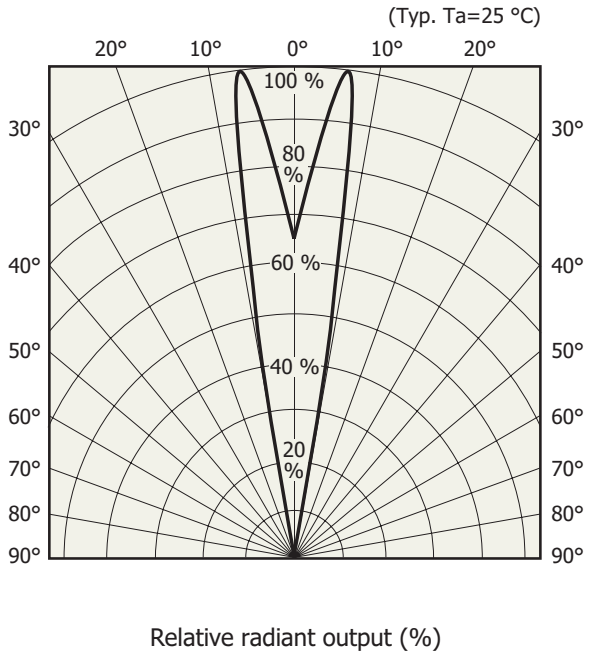
KLEDB0300EC

Forward current vs. forward voltage



KLEDB0227EC

Directivity



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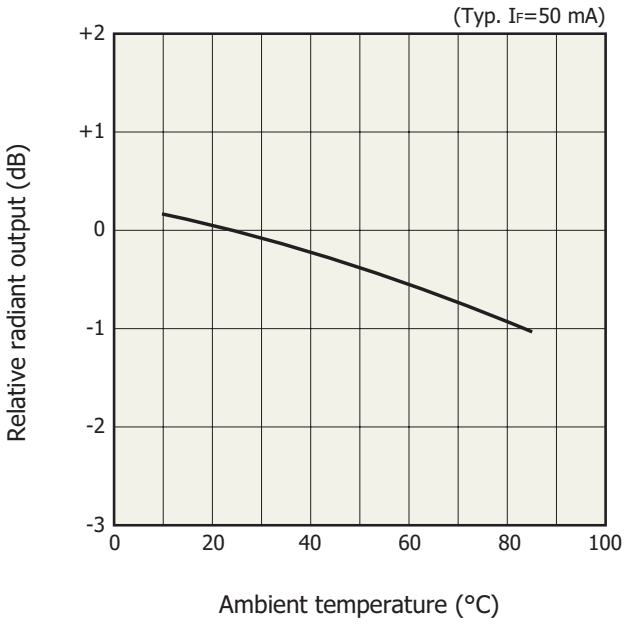
Radiant output vs. ambient temperature



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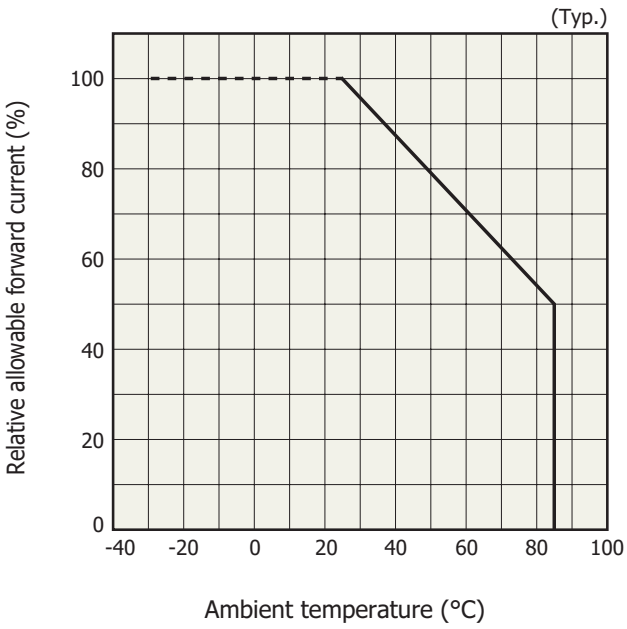
Allowable forward current vs. ambient temperature



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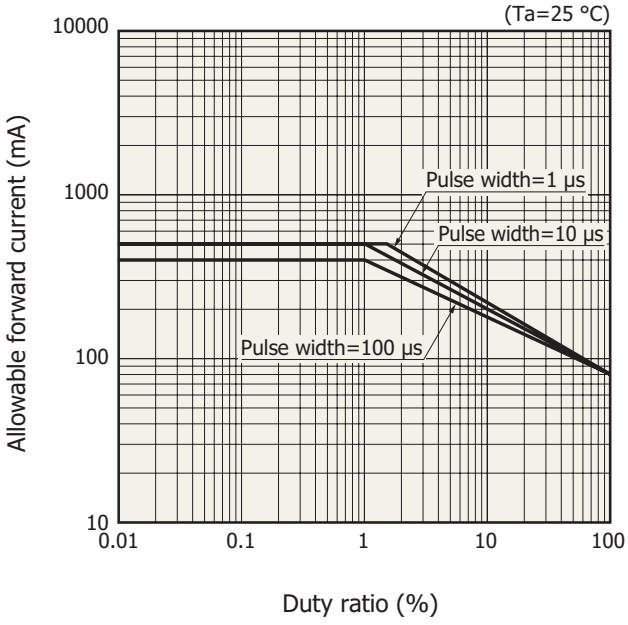
Allowable forward current vs. duty ratio



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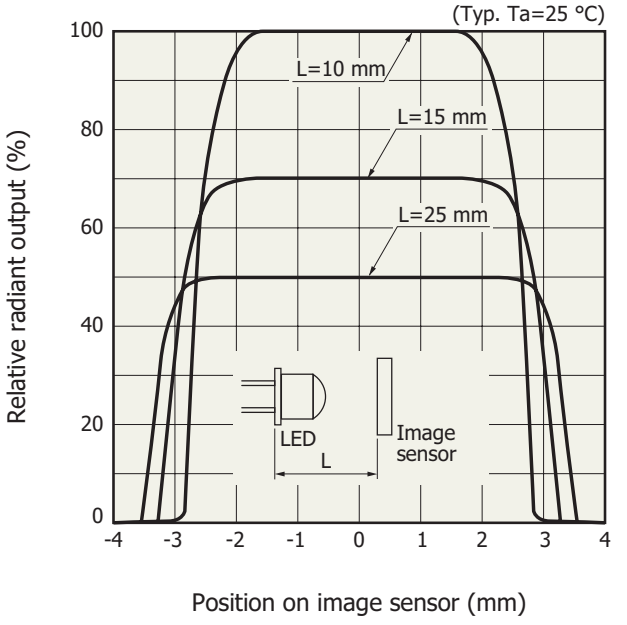
Light intensity distribution



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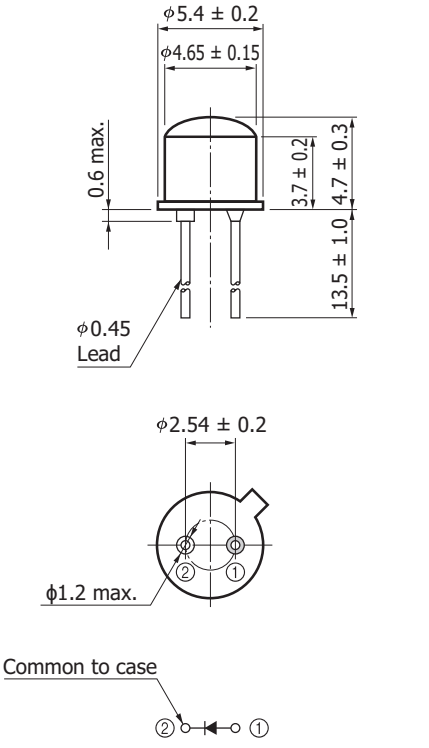
Dimensional outline (unit: mm)



Related information

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

■ Precautions
· Disclaimer
· Safety consideration
· Compound opto-semiconductors (photosensors, light emitters)

■ Technical information
· LED / Technical note

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