

# 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	Value	Unit
Reverse voltage	V <sub>R</sub>	5	V
Forward current	I <sub>F</sub>	80	mA
Forward current reduction rate	-	0.67	mA/°C
Pulse forward current	I <sub>FP</sub>	0.5	A
Pulse forward current reduction rate	-	4.2	mA/°C
Power dissipation	P	150	mW
Operating temperature	T <sub>opr</sub>	-30 to +85	°C
Storage temperature	T <sub>stg</sub>	-40 to +100	°C

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

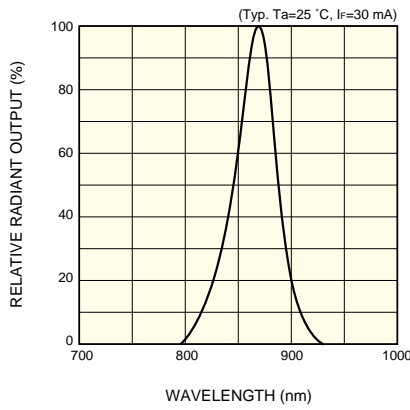
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak emission wavelength	λ <sub>p</sub>	I <sub>F</sub> =50 mA	840	870	900	nm
Spectral half width	Δλ	I <sub>F</sub> =50 mA	-	45	-	nm
Radiant flux	φ <sub>e</sub>	I <sub>F</sub> =50 mA	3.4	5.8	-	mW
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =50 mA	-	1.6	1.75	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =5 V	-	-	5	μA
Spot light size *1	B <sub>w</sub>	I <sub>F</sub> =30 mA	4.5	5.0	-	mm
Optical output *2	P <sub>e</sub>	I <sub>F</sub> =30 mA	1.0	2.0	-	mW
Cut-off frequency *3	f <sub>c</sub>	I <sub>F</sub> =30 mA ± 4 mA <sub>p-p</sub>	25	40	-	MHz

\*1: Full width at half maximum, measurement distance (from the image sensor to the bottom surface of L8957's base)=10 mm

\*2: Measurement distance [from the photodiode (active area: φ8 mm) to the bottom surface of L8957's base]=10 mm

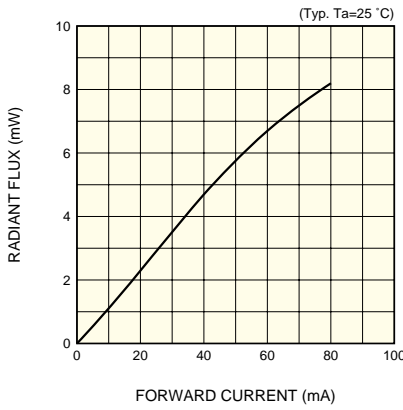
\*3: Frequency at which the optical output drops by -3 dB from that at 100 kHz.

## ■ Emission spectrum



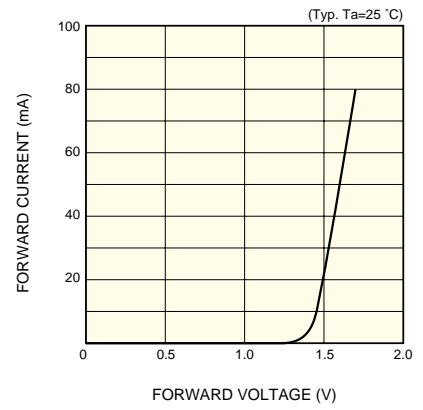
KLEDB0218EA

## ■ Radiant flux vs. forward current



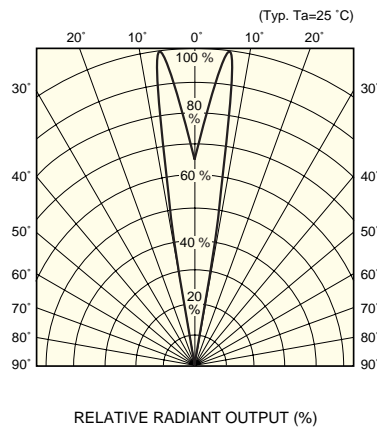
KLEDB0300EA

## ■ Forward current vs. forward voltage



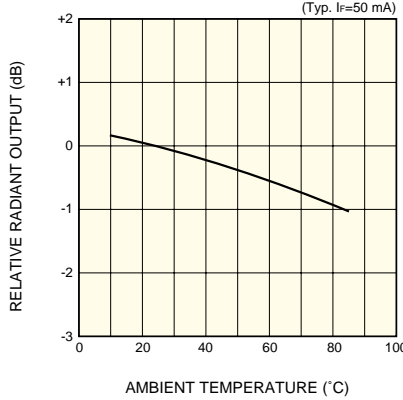
KLEDB0227EA

## ■ Directivity



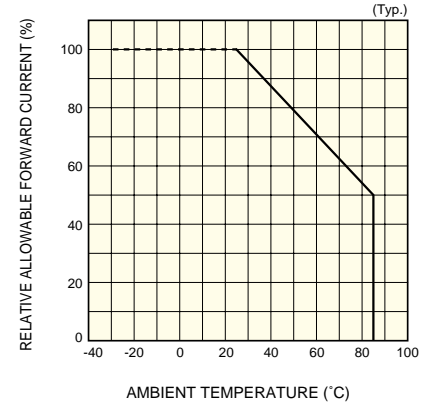
KLEDB0247EA

## ■ Radiant output vs. ambient temperature



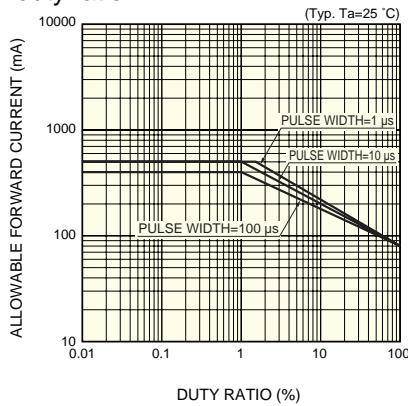
KLEDB0228EA

## ■ Allowable forward current vs. ambient temperature



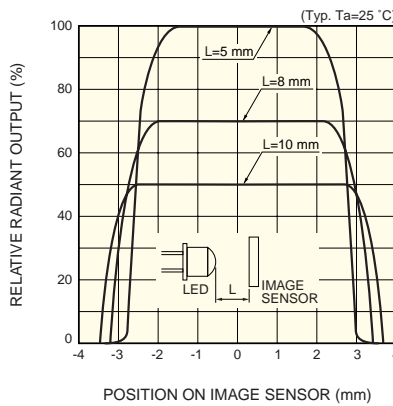
KLEDB0228EB

## ■ Allowable forward current vs. duty ratio



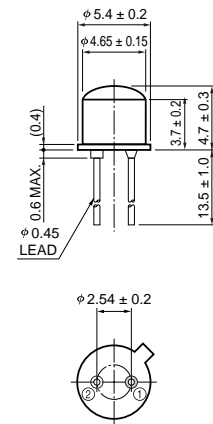
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## ■ Light intensity distribution



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## ■ Dimensional outline (unit: mm)



COMMON TO CASE  
② ← ①

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