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CW laser diode (CWLD)

L9277-42 L9418-42

High-power CW laser diode

This is a lateral multimode CW laser diode with watt-class radiant flux. The ϕ9.0 metal package is standard. Please consult with us regarding the built-in photodiode.

Features

- **Lateral multimode (wide stripe)**
- **Radiant flux (CW): 1 W typ.**
- **Peak emission wavelength:**
  830 nm typ. (L9277-42)
  980 nm typ. (L9418-42)
- **Emission area (design value):**
  50 × 1 μm (L9277-42)
  100 × 1 μm (L9418-42)

Applications

- **Infrared excitation light source, upconversion**
- **Medical (ICG)**
- **Light source for night vision**
- **Light source for measurement**

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

Parameter	Symbol	Rating	Unit
Radiant flux	ϕe	1.2	W
Forward current	I_F	1.4	A
Reverse voltage	V_R	2	V
Operating temperature (case)*1	Tcase	0 to +30	°C
Storage temperature*1	Tstg	-30 to +80	°C

*1: No dew condensation
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.

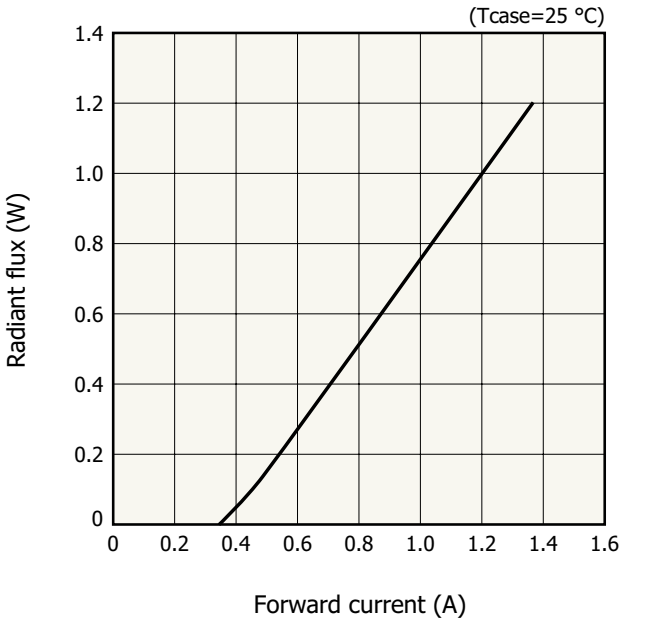
Electrical and optical characteristics (Tcase=25 °C, unless otherwise noted)

Parameter		Symbol	Condition	L9277-42			L9418-42			Unit
				Min.	Typ.	Max.	Min.	Typ.	Max.	
Radiant flux		ϕe	I_F=1.2 A	0.8	1.0	-	0.8	1.0	-	W
Operating current		Iop	ϕe=1 W	-	1.25	1.38	-	1.2	1.3	A
Operating voltage		Vop		-	2	3	-	1.6	2	V
Peak emission wavelength		λp		820	830	840	970	980	990	nm
Spectral half width		Δλ		-	2	3	-	2	3	nm
Beam spread angle	Horizontal	θ//		4.5	7	9.5	4.5	8	11.5	°
	Vertical	θ⊥		27	32	37	27.5	32	36.5	
Threshold current		Ith		-	0.35	0.45	-	0.25	0.4	A
Emission area		-	Design value	-	50 × 1	-	-	100 × 1	-	μm
Position accuracy of emission point*2		-	ΔX, ΔY, ΔZ	-0.2	-	0.2	-0.2	-	0.2	mm

*2: Position of emitter center with respect to package base center

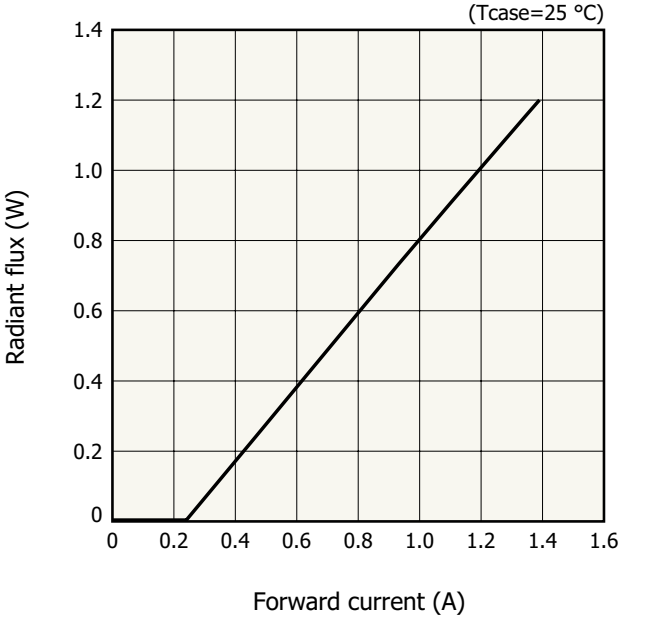
Radiant flux vs. forward current (typical example)

L9277-42



KLDB0011EA

L9418-42



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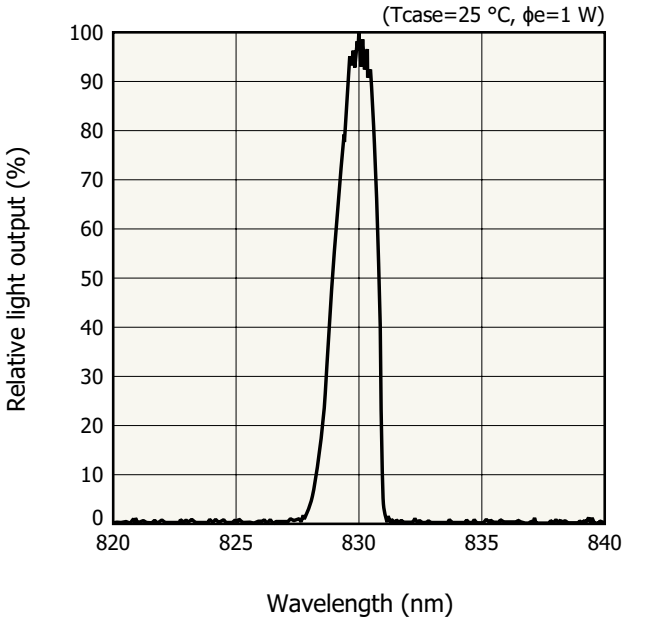
Emission spectrum (typical example)

L9277-42



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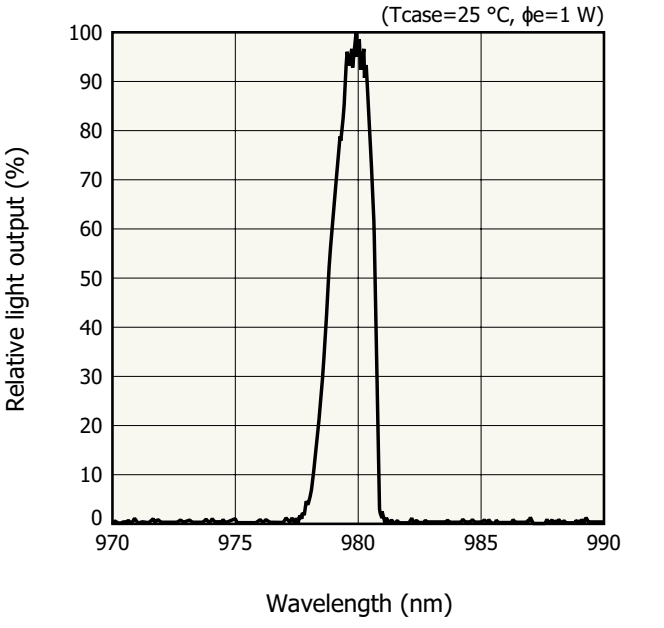

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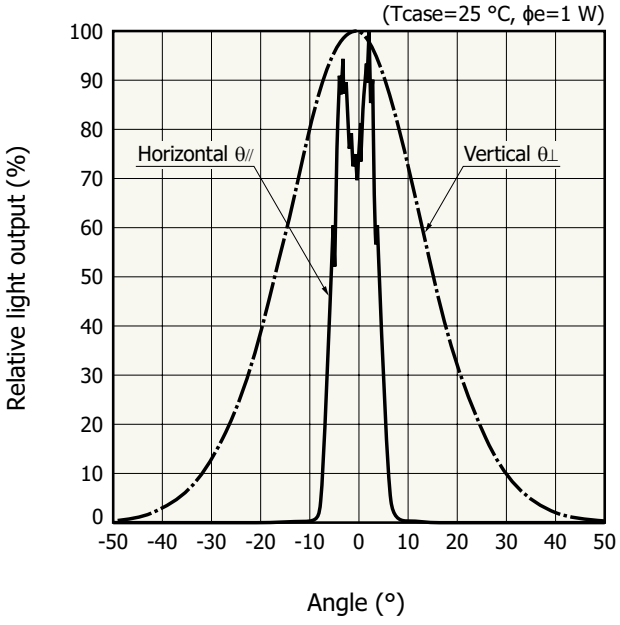
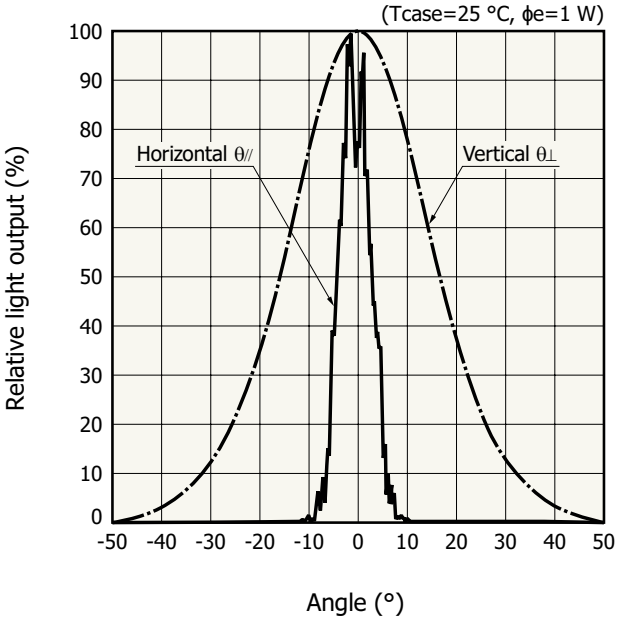
Directivity (typical example)

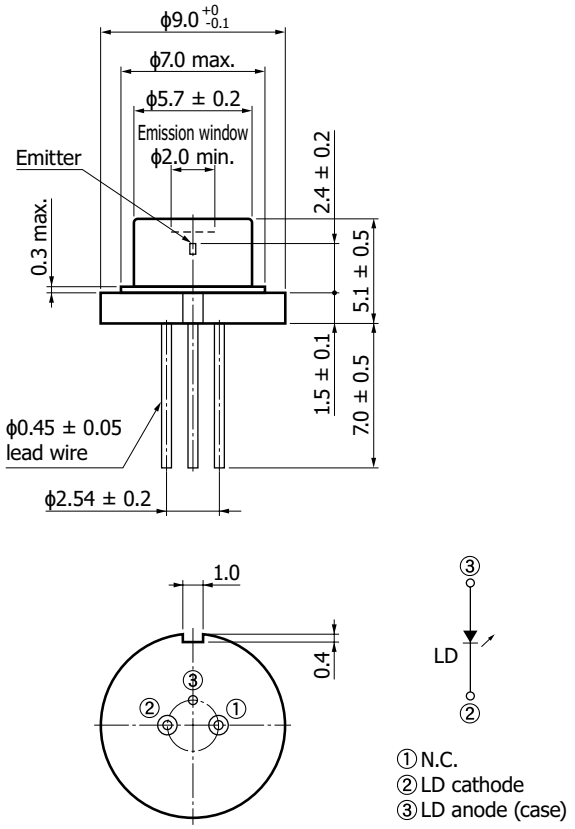
L9277-42



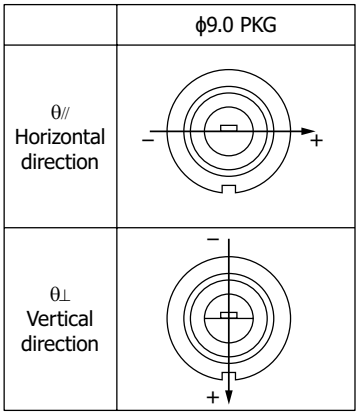
L9418-42



Dimensional outline (unit: mm)



FFP horizontal and vertical directions relative to the package (front view)



Recommended soldering conditions

· Soldering temperature: 260 °C or less, within 5 seconds (1 second or less if the lead terminal length is 2 mm or less)
Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Hazards (Class 4 laser)
Invisible laser emission: Avoid exposure of beams or scattered light to eyes or skin

This product falls under the "Class 4 laser" in the classification of laser products according to IEC 60825-01. The laser light emitted by this product is an invisible laser light that cannot be seen by the naked eye. Observation of laser light and exposure to the skin are very dangerous. Scattered light can also cause serious damage. In addition, there is a risk of fire, so be careful.
When using equipment incorporating this product, please classify it according to IEC 60825-01.

Warning label | Explanatory label
KLDC0004EA

Label for wearing protective goggles
KLDC0005EA

Note: For more detailed information, please see [IEC 60825-1:2014].

Precautions

(1) Electrostatic countermeasures
To prevent damage due to static electricity, take electrostatic countermeasures such as grounding of workers, work benches, and work tools. For details, please refer to the related information "Precautions / Compound opto-semiconductors (photosensors, light emitters)". Also protect this device from surge voltages which might be caused by peripheral equipment.

(2) Reflected light
The product will be destroyed if it is irradiated with laser light, such as by regular reflection. When using this product, use extra caution to avoid irradiation of reflected light.

Related information

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

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

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