850nm 10mW Laser Diode, ⌀3.3mm Package
LD850A10A16

Data Sheet

Features

- 850nm Infrared laser diode
- Optical output power: 10mW CW
- Operating temperature: +60ºC
- Small perpendicular divergence angle
- Lateral single mode lasing
- Built-in photodiode for monitoring laser diode
- Package: TO-33 (dia. 3.3mm)

Applications

- Motion sensor
- 3D depth sensor
- Industry
- Medical application

Absolute Maximum Ratings (T_C = 25 ºC)

Parameter	Symbol	Rating	Unit
Optical output power	P_O	10	mW
LD reverse voltage	V_{RLD}	2	V
PD reverse voltage	V_{RPD}	30	V
Operating temperature	T_{opr}	-10 to +60	ºC
Storage temperature	T_{stg}	-40 to +85	ºC

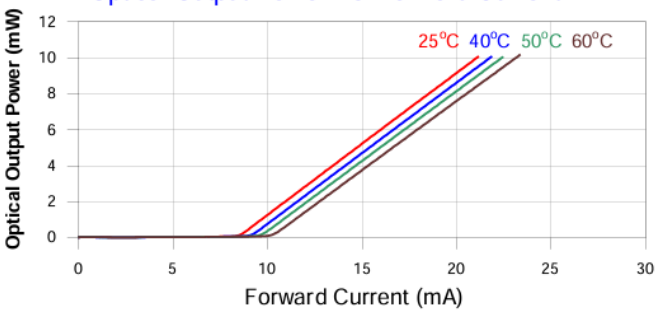
Electrical and Optical Characteristics (T_C = 25 ºC)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Lasing wavelength	λ	840	850	860	nm	P_O = 10mW
Threshold current	I_{th}	-	8	10	mA	P_O = 10mW
Operating current	I_{op}	-	21	25	mA	P_O = 10mW
Monitor Current	I_m	0.1	0.2	0.5	mA	P_O = 100mW
Slope Efficiency	η	-	0.75	-	mW/mA	P_O = 2.5-7.5mW
Operating voltage	V_{op}	-	1.8	2.1	V	P_O = 10mW
Parallel divergence angle	$\Theta_{//}$	-	11	16	deg	P_O = 10mW
Perpendicular divergence angle	$\Theta_{\perp}$	-	20	25	deg	P_O = 10mW

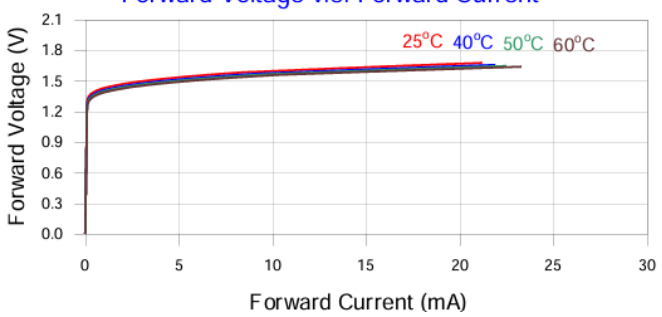
Note: $\Theta_{//}$ and $\Theta_{\perp}$ are defined as the angle within which the intensity is 50% of the peak value.

Typical Characteristics

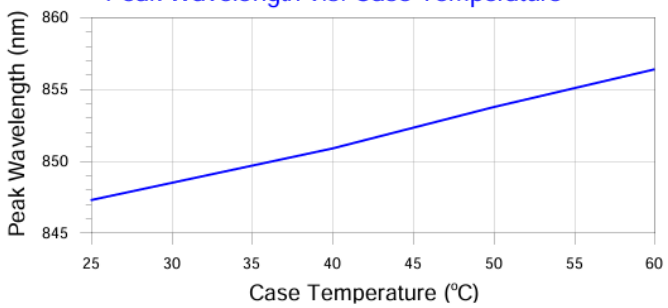
Optical Output Power v.s. Forward Current



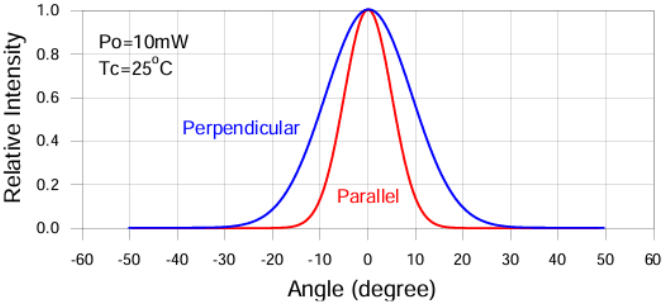
Forward Voltage v.s. Forward Current



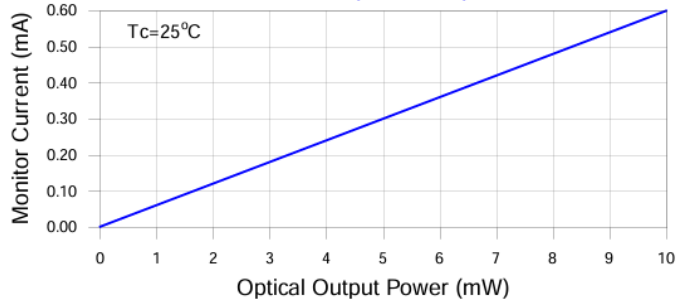
Peak Wavelength v.s. Case Temperature



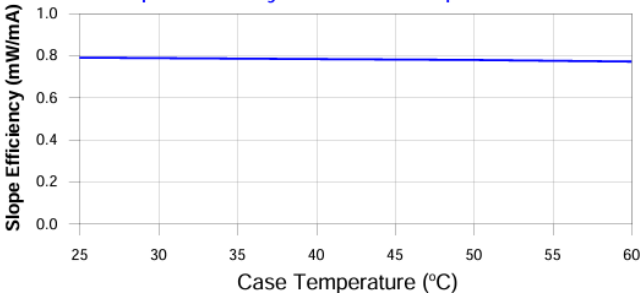
Far-Field Pattern



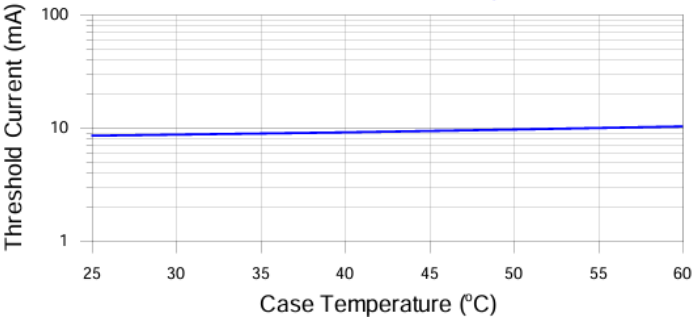
Monitor Current v.s. Optical Output Power



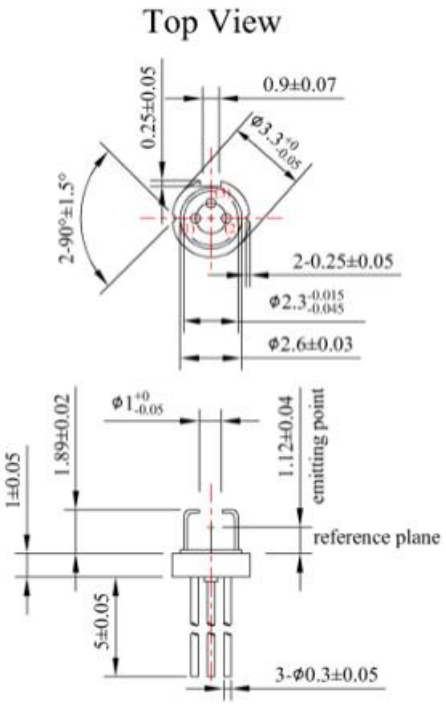
Slope Efficiency v.s. Case Temperature

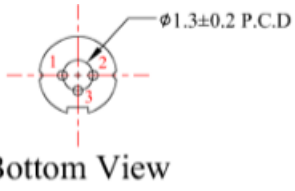


Threshold Current v.s. Case Temperature

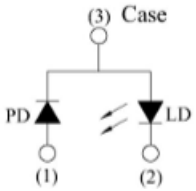


Mechanical Outline (unit: mm)





PIN CONFIGURATION



Additional Notes

- Do not operate the device above maximum ratings. Doing so may cause unexpected and permanent damage to the device.
- Take precautions to avoid electrostatic discharge and/or momentary power spikes. A change in the characteristics of the laser or premature failure may result.
- Proper heat sinking of the device assures stability and lifetime. Always ensure that maximum operating temperatures are not exceeded.
- Observing visible or invisible laser beams with human eye directly, or indirectly, can cause permanent damage. Use a camera to observe the laser.
- No laser device should be used in any application or situation where life or property is at risk in the event of device failure.
- Specifications are subject to change without notice. Ensure that you have the latest specification by contacting us prior to purchase or use of the product.