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HL8318G

Laser Diode

Description

HL8318G is a high-power 0.8 μm GaAlAs laser diode with double heterojunction structure.

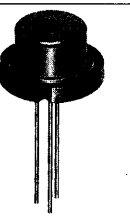
It is suitable as a light source in optical disc memories and various other types of optical equipment.

Single positive power supply is available for LD and PD.

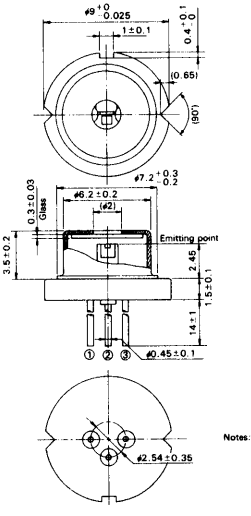
Hermetic sealing of the package achieves high reliability.

Features

- Infrared light output: λ_p = 810–850 nm
- 40 mW (CW), 50 mW (pulse) operation at room temperature
- Built-in photodiode for monitoring laser output
- Single longitudinal mode

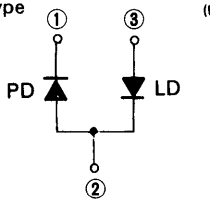


Package Dimensions



G-type (Unit: mm)

Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

Items	Symbols	Values	Units
Optical output power	P_O	40	mW
Pulse optical output power	$P_{O(pulse)}$	50*	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	V
Photodiode reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	−10 to +60	°C
Storage temperature	T_{stg}	−40 to +85	°C

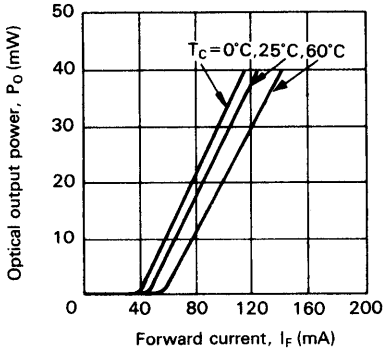
*PW ≦ 1 μs, duty 50%

The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing a circuit to its absolute maximum rating for extended periods of time may affect the device's reliability.

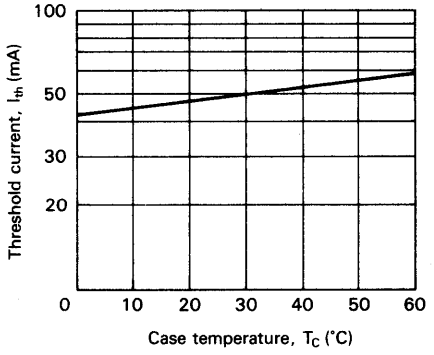
Optical and Electrical Characteristics (T_C = 25°C)

Items	Symbols	min.	typ.	max.	Units	Test conditions
Threshold current	I_{th}		40	70	mA	
Optical output power	P_O	40			mW	Kink free
Slope efficiency	η	0.4	0.5	0.9	mW/mA	$\frac{24(mW)}{I\,(32\,mW) - I\,(8\,mW)}$
Lasing wavelength	λ_p	810	830	850	nm	P_O = 40 mW
Beam divergence parallel to the junction	$\theta_{//}$	8	11	14	deg.	P_O = 40 mW
Beam divergence perpendicular to the junction	$\theta_{\perp}$	18	25	32	deg.	P_O = 40 mW
Monitor current	I_S	40	100	240	μA	$V_{R(PD)}$ = 5 V, P_O = 4mW

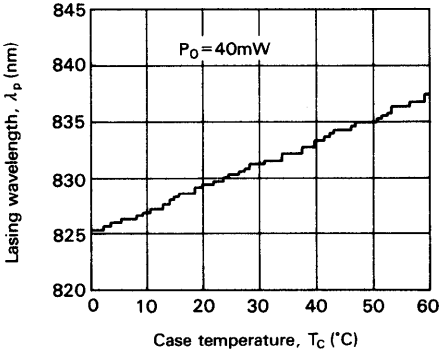
Optical Output Power vs. Forward Current



Threshold Current vs. Case Temperature

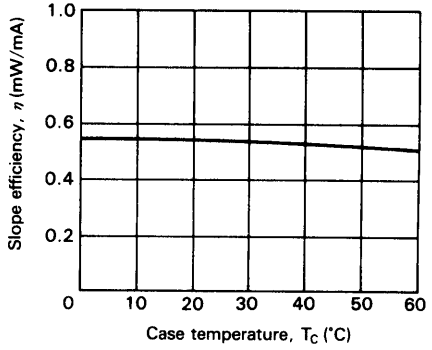


Temperature Dependence of Lasing Wavelength

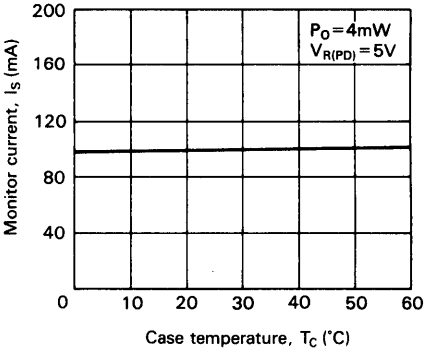


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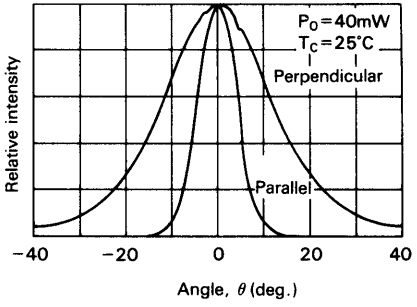
Temperature Dependence of Slope Efficiency



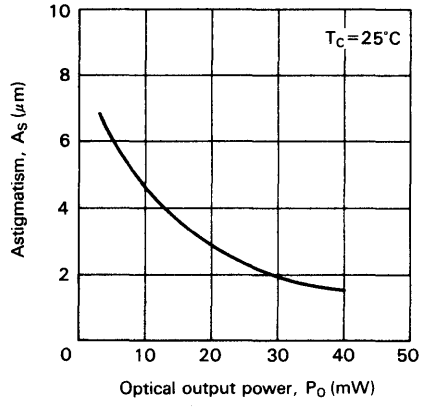
Monitor Current vs. Case Temperature



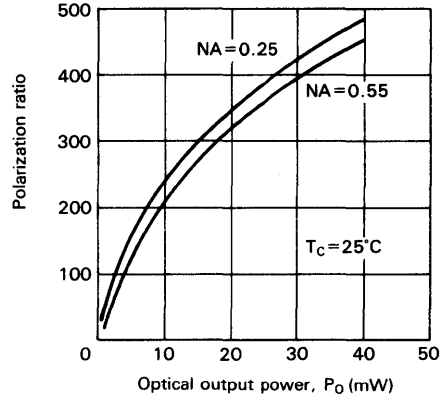
Far Field Pattern



Optical Output Power Dependence of Astigmatism



Optical Output Power Dependence of Polarization Ratio



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