

HL8312E

Laser Diode

Description

HL8312E 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.

A screw-on type package facilitates the adjustment of optical components. Hermetic sealing of the package achieves high reliability.

Features

- Infrared light output: $\lambda_p = 810\text{--}850\text{ nm}$
- 20 mW CW operation at room temperature
- Built-in photodiode for monitoring laser output
- Single longitudinal mode

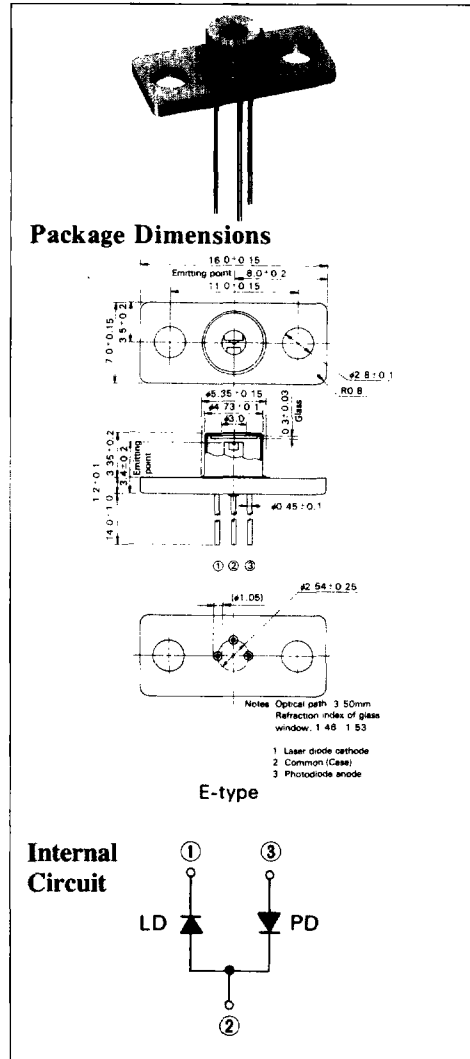
Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Items	Symbols	Values	Units
Optical output power	P_O	20	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	V
Photodiode reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	-10 to +50	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +80	$^\circ\text{C}$

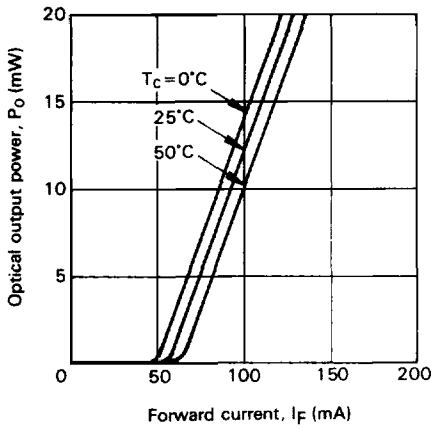
The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing a circuit to its absolute maximum rating for extended periods of time may affect the device's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

Optical and Electrical Characteristics ($T_c = 25^\circ\text{C}$)

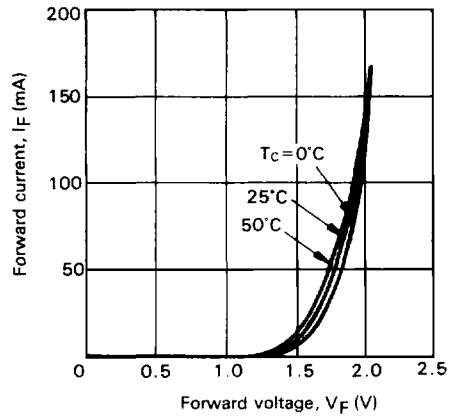
Items	Symbols	min.	typ.	max.	Units	Test conditions
Threshold current	I_{th}		60	90	mA	
Optical output power	P_O	20			mW	Kink free
Slope efficiency	η	0.16	0.28		mW/mA	$\frac{I(16\text{ mW}) - I(4\text{ mW})}{12(\text{mW})}$
Lasing wavelength	λ_p	810	830	850	nm	$P_O = 10\text{ mW}$
Beam divergence parallel to the junction	$\theta_{//}$	8	11	14	deg.	$P_O = 10\text{ mW}$
Beam divergence perpendicular to the junction	θ_{\perp}	18	25	35	deg.	$P_O = 10\text{ mW}$
Monitor current	I_S	0.2		3.0	mA	$V_{R(PD)} = 5\text{ V}, P_O = 10\text{ mW}$



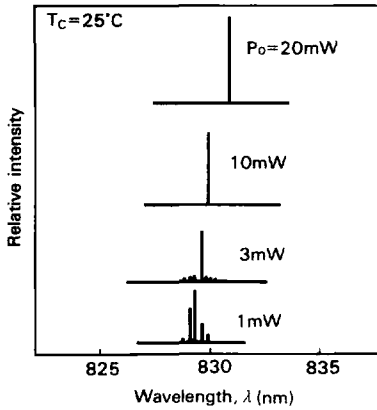
Optical Output Power vs. Forward Current



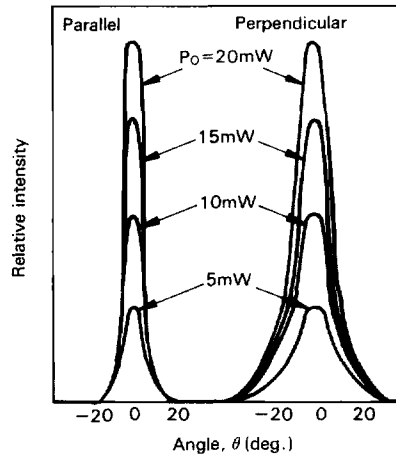
Forward Current vs. Forward Voltage



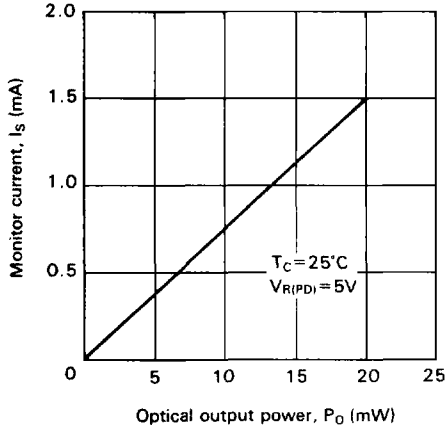
Lasing Spectrum



Far Field Pattern



Monitor Current vs. Optical Output Power



Threshold Current vs. Case Temperature

