HL8315E

GaAlAs LD

T-41-05

Description

The HL8315E is a high-power 0.8 μm band GaAlAs laser diode with a double heterojunction structure. It is suitable as a light source for optical disk memories and various other types of optical equipment.

Features

- Infrared light output: λp = 800 to 850 nm
- Standard continuous operation at 20 mW (CW)
- Built-in monitor photodiode
- Fast photodiode pulse response: t_r and t_f = 50 ns Typ.
- Single longitudinal mode
- Low astigmatism: A_S = 3 μm Typ.

Absolute Maximum Ratings (T_C = 25°C)

Item	Symbol	Rated Value	Units
Optical output power	P_O	20	mW
Pulse optical output power	$P_{O\ (pulse)}$	24*	mW
LD reverse voltage	$V_{R\ (LD)}$	2	V
PD reverse voltage	$V_{R\ (PD)}$	30	V
Operating temperature	T_{opr}	−10 to +50	°C
Storage temperature	T_{stg}	−40 to +80	°C

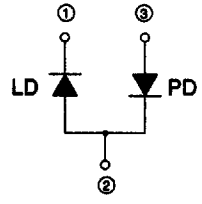
* Maximum 50% duty cycle, maximum 1 μs pulse width

Optical and Electrical Characteristics (T_C = 25°C)

Item	Symbol	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	0.3	—	mW/mA	$\frac{12\ (mW)}{I_{(16\ mW)} - I_{(4\ mW)}}$
Lasing wavelength	λ_P	800	830	850	nm	P_O = 10 mW
Beam divergence (parallel)	$\theta_{//}$	7	11	15	deg.	P_O = 10 mW, FWHM
Beam divergence (perpendicular)	$\theta_{\perp}$	19	25	35	deg.	P_O = 10 mW, FWHM
Monitor current	I_S	1.0	—	3.5	mA	$V_{R\ (PD)}$ = 5 V, P_O = 10 mW

Internal Circuit

Package Type
• HL8315E: E



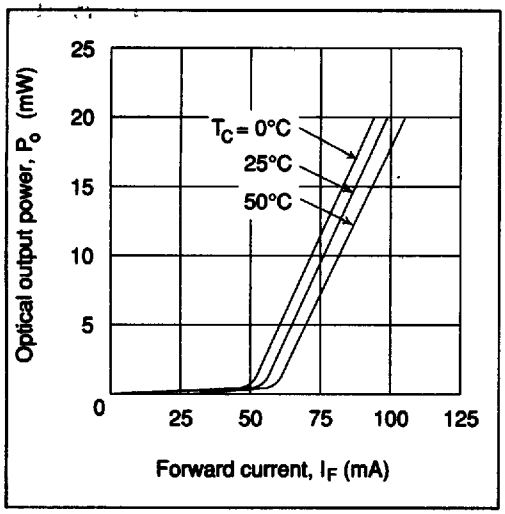


Figure 1 Optical Output Power vs. Forward Current

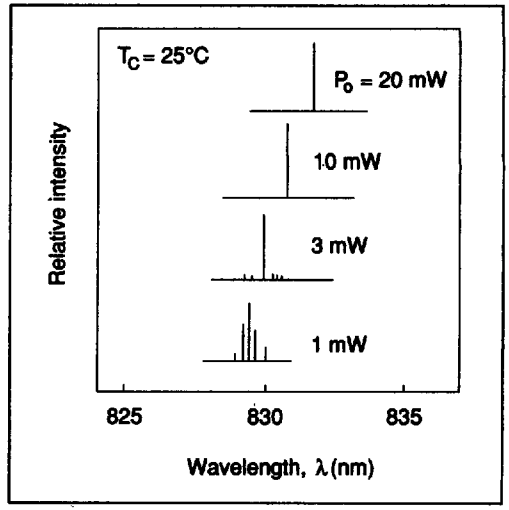


Figure 2 Lasing Spectrum

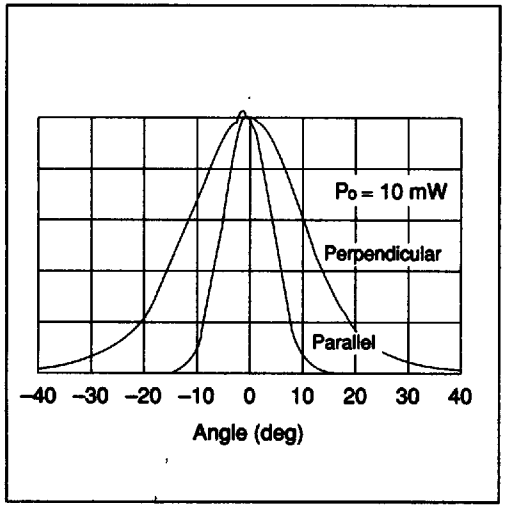


Figure 3 Far Field Pattern

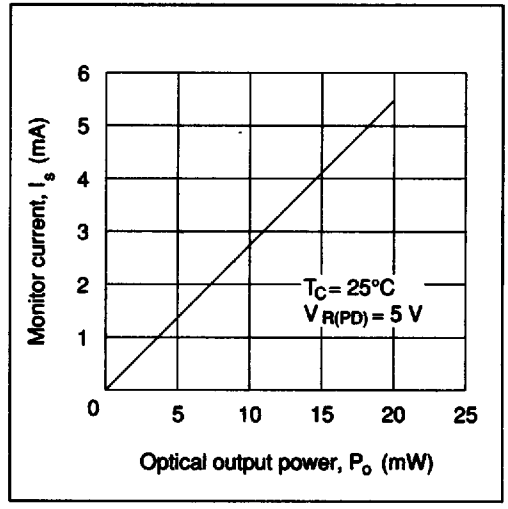


Figure 4 Monitor Current vs. Optical Output Power

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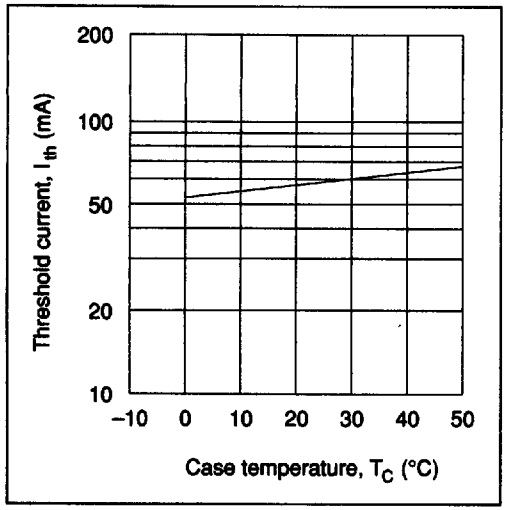

Figure 5 Temperature Dependence of Threshold Current

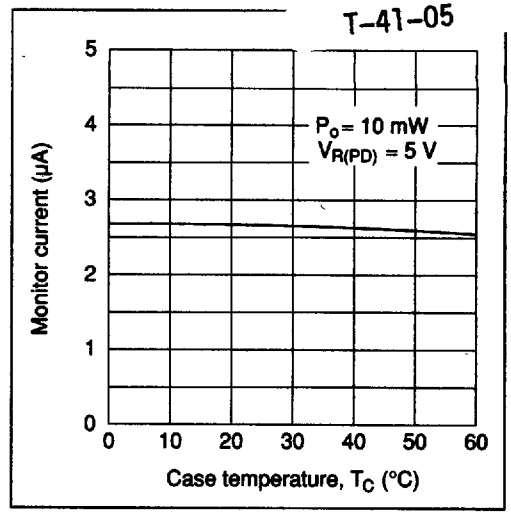

Figure 6 Temperature Dependence of Monitor Current

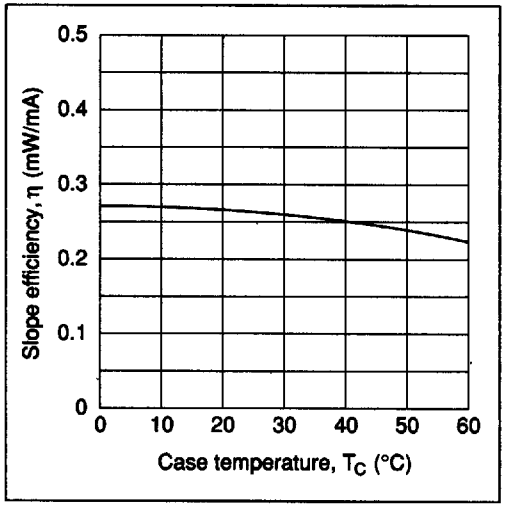

Figure 7 Temperature Dependence of Slope Efficiency

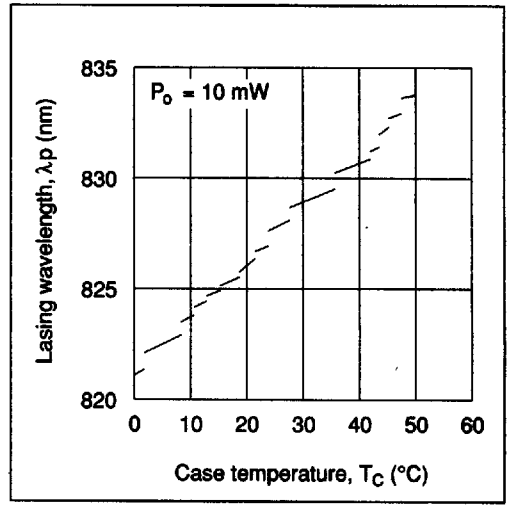

Figure 8 Temperature Dependence of Lasing Wavelength

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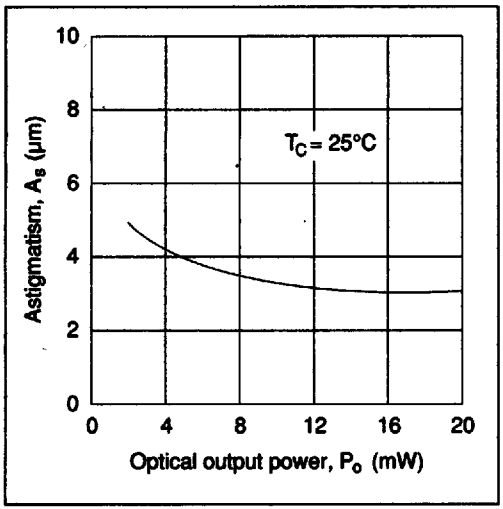

Figure 9 Optical Output Power Dependence of Astigmatism

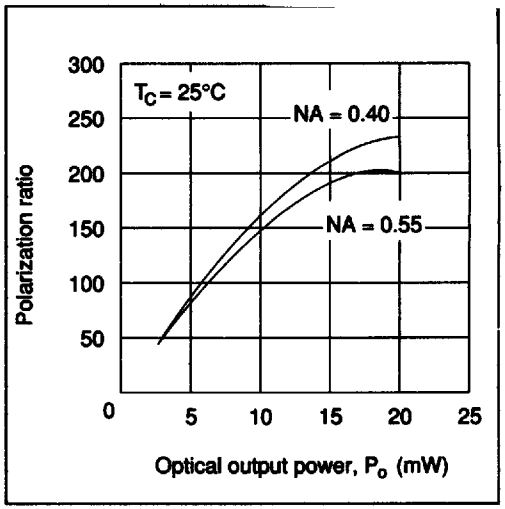

Figure 10 Optical Output Power Dependence of Polarization Ratio

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