

HL7806G/MG**GaAlAs LD**

T-41-05

Description

The HL7806G/MG are 0.78 μm band GaAlAs laser diodes with a double heterojunction structure. They are suitable as light sources for laser printers, laser levelers and various other types of optical equipment.

Features

- Visible light output: $\lambda_p \approx 775$ to 795 nm
- Built-in monitor photodiode
- Low astigmatism: $A_s = 2 \mu\text{m}$ Typ.
- Small beam ellipticity: $\theta_{//} = 14$ deg, $\theta_{\perp} = 27$ deg Typ.
- Single longitudinal mode

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

Item	Symbol	Rated Value	Units
Optical output power	P_O	5	mW
Pulse optical output power	$P_{O(pulse)}$	6*	mW
LD reverse voltage	$V_R(LD)$	2	V
PD reverse voltage	$V_R(PD)$	30	V
Operating temperature	T_{opr}	-10 to +60	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^{\circ}\text{C}$

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

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

Item	Symbol	Min	Typ	Max	Units	Test Conditions
Threshold current	I_{th}	—	40	65	mA	
Optical output power	P_O	5	—	—	mW	Kink free
Slope efficiency	η	0.15	0.25	0.40	mW/mA	$\frac{3 \text{ (mW)}}{I_{(4 \text{ mW})} - I_{(1 \text{ mW})}}$
Lasing wavelength	λ_p	775	785	795	nm	$P_O = 5 \text{ mW}$
Beam divergence (parallel)	$\theta_{//}$	8	14	20	deg.	$P_O = 5 \text{ mW}$, FWHM
Beam divergence (perpendicular)	θ_{\perp}	20	27	45	deg.	$P_O = 5 \text{ mW}$, FWHM
Monitor current	HL7806G HL7806MG	I_S	0.35 0.2	1.0 0.5	1.65 0.8	mA $P_O = 5 \pm 0.05 \text{ mW}$

HITACHI

Part

Internal Circuit

T-41-05

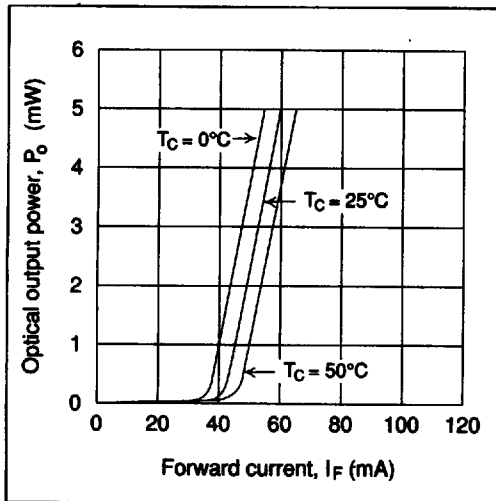
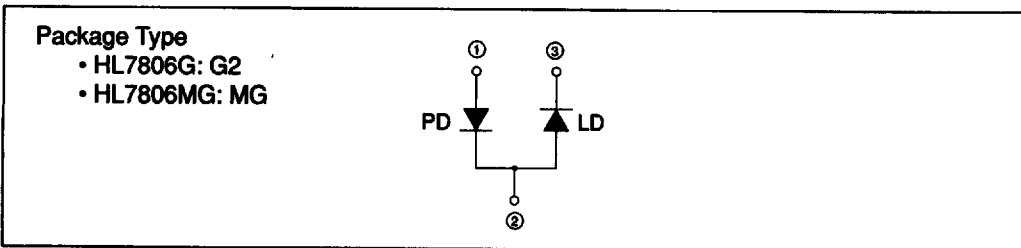


Figure 1 Optical Output Power vs. Forward Current

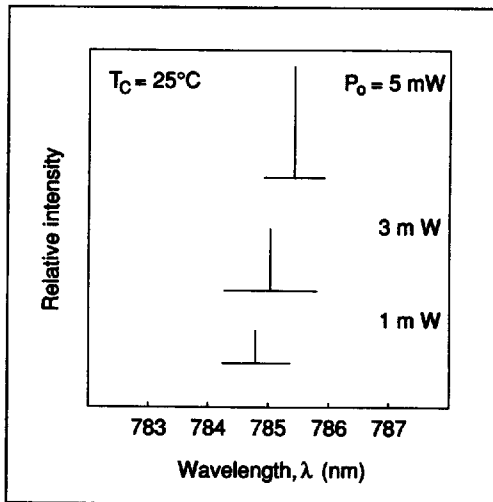


Figure 2 Lasing Spectrum

HL7806G/MG

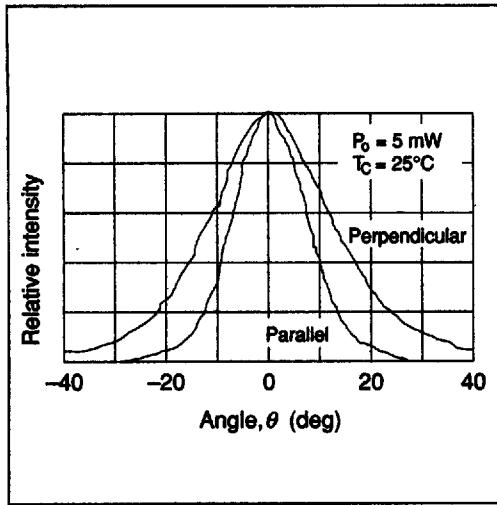


Figure 3 Far Field Pattern

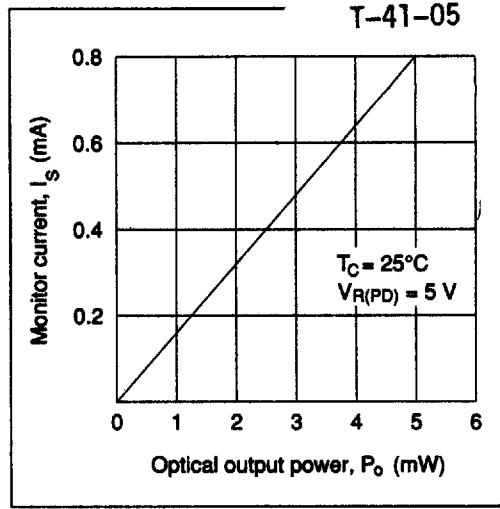


Figure 4 Monitor Current vs. Optical Output Power (HL7806G)

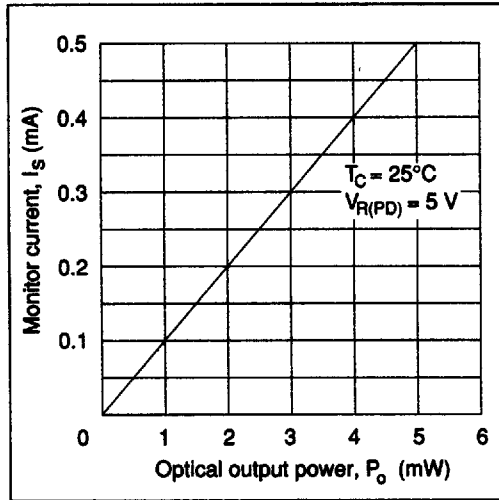


Figure 5 Monitor Current vs. Optical Output Power (HL7806MG)

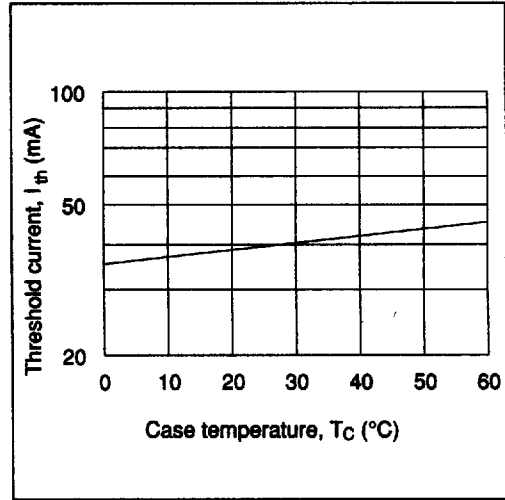


Figure 6 Temperature Dependence of Threshold Current

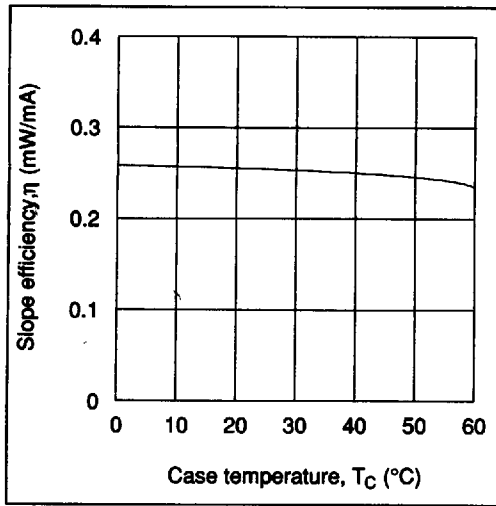


Figure 7 Temperature Dependence of Slope Efficiency

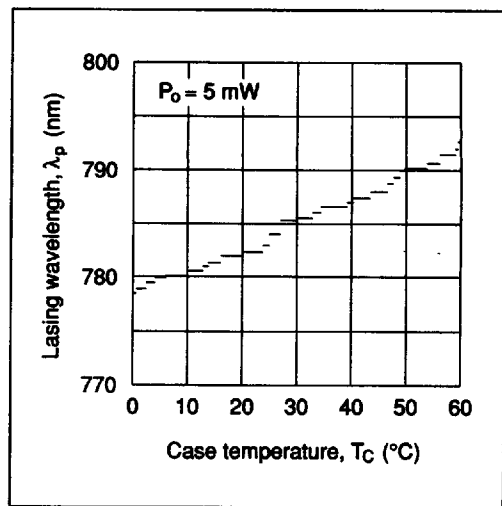


Figure 8 Temperature Dependence of Lasing Wavelength

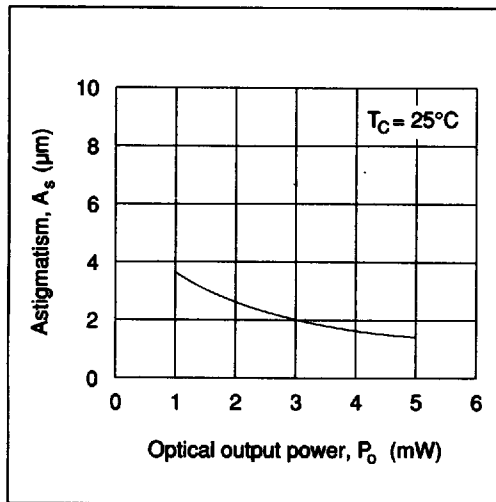


Figure 9 Optical Output Power Dependence of Astigmatism

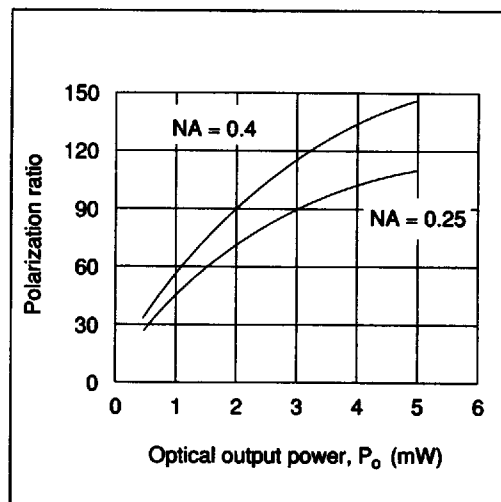


Figure 10 Optical Output Power Dependence of Polarization Ratio