
HL7853MG

GaAlAs Laser Diode

HITACHI

Description

The HL7853MG is a high power 0.78 μm band GaAlAs laser diode with a multi-quantum well (MQW) structure. It is suitable as a light source for optical disk memories, and various other types of optical equipment.

Features

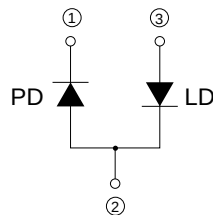
- High output power: 40 mW CW
- Visible light output: $\lambda_p = 785 \text{ nm}$ Typ.
- Small beam ellipticity: 9.5 : 23
- Built-in monitor photodiode
- Compact package ($\phi 5.6 \text{ mm}$)

Package Type

- HL7853MG: MG



Internal Circuit



HL7853MG

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

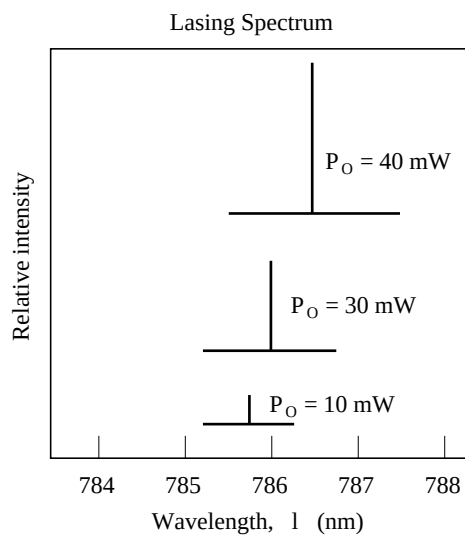
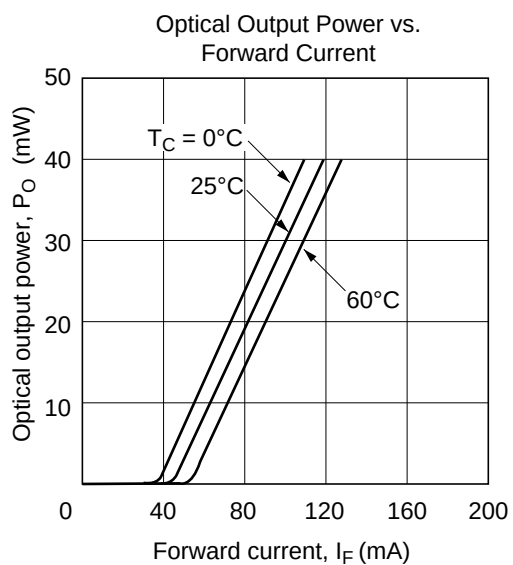
Item	Symbol	Rated Value	Unit
Optical output power	P_o	40	mW
Pulsed optical output power	$P_{o(pulse)}$	50*1	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	-10 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

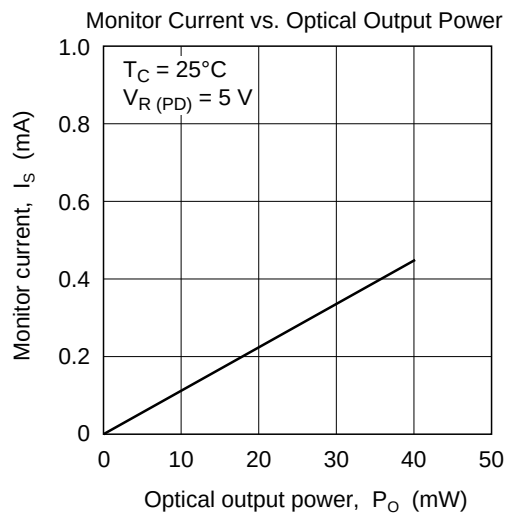
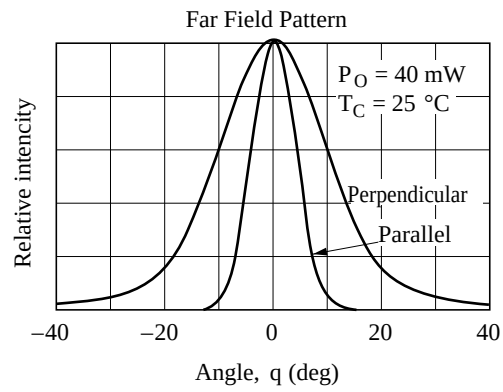
Note: 1. Maximum 50% duty cycle, maximum 1 μs pulse width

Optical and Electrical Characteristics ($T_c = 25 \pm 3^\circ\text{C}$)

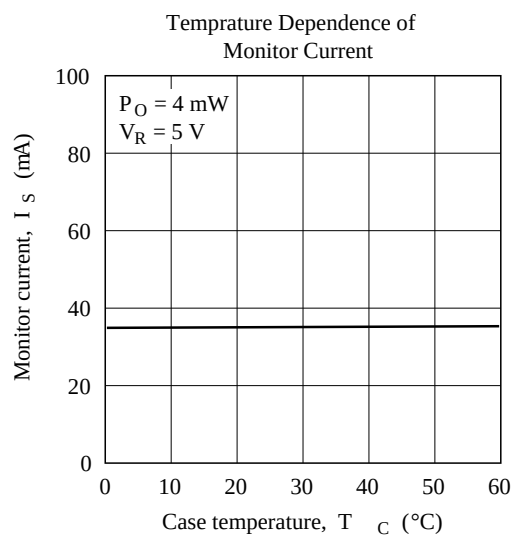
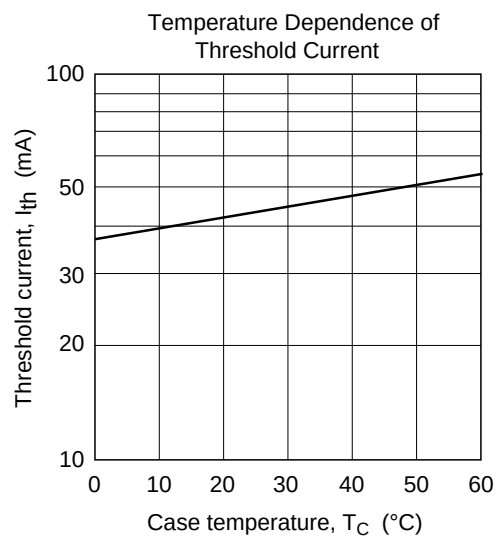
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_o	40	—	—	mW	Kink free
Threshold current	I_{th}	—	45	70	mA	
Slope efficiency	η	0.35	0.55	0.7	mW/mA	$24 \text{ mW} / \{ I_{(32 \text{ mW})} - I_{(8 \text{ mW})} \}$
LD operating voltage	V_{op}	—	2.3	2.7	V	$P_o = 40 \text{ mW}$
Lasing wavelength	λ_p	775	785	795	nm	$P_o = 40 \text{ mW}$
Beam divergence (parallel)	$\theta_{//}$	8	9.5	12	deg.	$P_o = 40 \text{ mW}$, FWHM
Beam divergence (perpendicular)	$\theta_{\perp}$	18	23	28	deg.	$P_o = 40 \text{ mW}$, FWHM
Monitor current	I_s	20	—	—	μA	$P_o = 4 \text{ mW}$, $V_{R(PD)} = 5 \text{ V}$
Astigmatism	A_s	—	5	—	μm	$P_o = 5 \text{ mW}$, $NA = 0.4$

Typical Characteristic Curves



Typical Characteristic Curves (cont)

Typical Characteristic Curves (cont)



Typical Characteristic Curves (cont)