

## Description

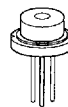
The HL7812G is a 0.78  $\mu\text{m}$  band GaAlAs laser diode with a double heterostructure. It is suitable as a light source for laser printers, laser leveler and various other types of optical equipment.

## Features

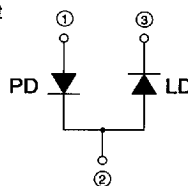
- Visible light output:  $\lambda_p = 770$  to  $795$  nm
- Built-in monitor photodiode
- High monitor current output: 4 mA Typ.
- Single longitudinal mode
- Low astigmatism:  $A_S = 3$   $\mu\text{m}$  Typ.

### Package Type

- HL7812G: G2



### Internal Circuit



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

Item	Symbol	Rated Value	Unit
Optical output power	$P_O$	10	mW
Pulsed optical output power	$P_{O(\text{pulse})}$	12 <sup>*1</sup>	mW
LD reverse voltage	$V_R(\text{LD})$	2	V
PD reverse voltage	$V_R(\text{PD})$	30	V
Operating temperature	$T_{\text{opr}}$	-10 to +60	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-40 to +85	$^\circ\text{C}$

Note: 1. Maximum 50% duty cycle, maximum 1  $\mu\text{s}$  pulse width

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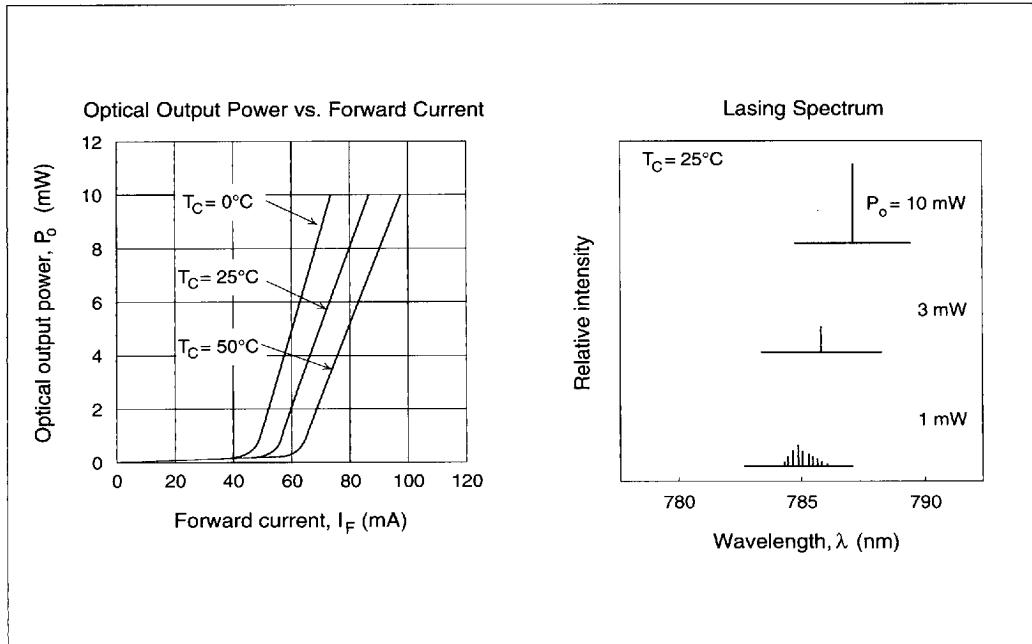
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Optical and Electrical Characteristics ( $T_C = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	$I_{th}$	—	50	90	mA	
Optical output power	$P_O$	10	—	—	mW	Kink free
LD operating voltage	$V_{op}$	—	1.8	2.5	V	$P_O = 10 \text{ mW}$
Slope efficiency	$\eta$	0.13	0.25	—	mW/mA	$6 \text{ mW} / (I_{(8 \text{ mW})} - I_{(2 \text{ mW})})$
Lasing wavelength	$\lambda_p$	770	785	795	nm	$P_O = 10 \text{ mW}$
Beam divergence (parallel)	$\theta_{//}$	7	11	18	deg.	$P_O = 10 \text{ mW}$
Beam divergence (perpendicular) $\theta_{\perp}$		20	30	40	deg.	$P_O = 10 \text{ mW}$
Monitor current	$I_S$	2.0	4.0	6.0	mA	$P_O = 10 \text{ mW}$ , $V_R (PD) = 5 \text{ V}$
Astigmatism	$A_S$	—	3	—	$\mu\text{m}$	$P_O = 10 \text{ mW}$ , $NA = 0.4$

Typical Characteristic Curves



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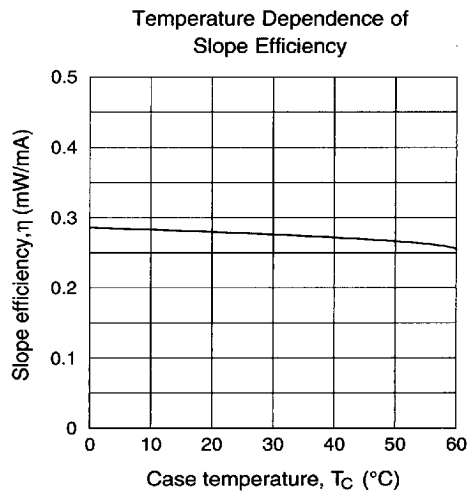
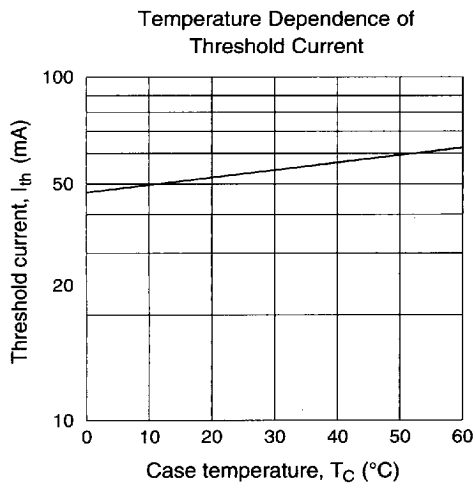
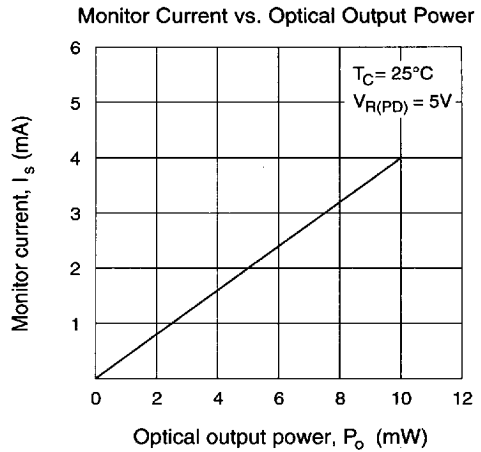
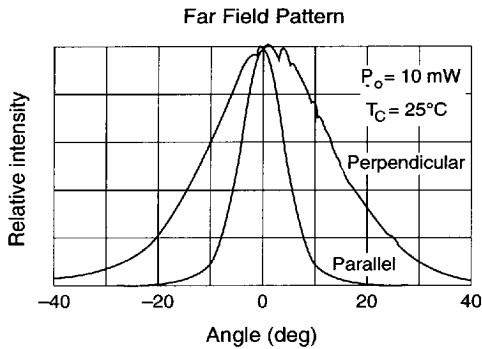
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## Typical Characteristic Curves (cont.)



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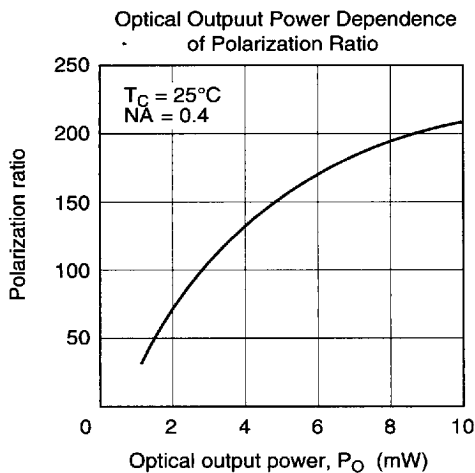
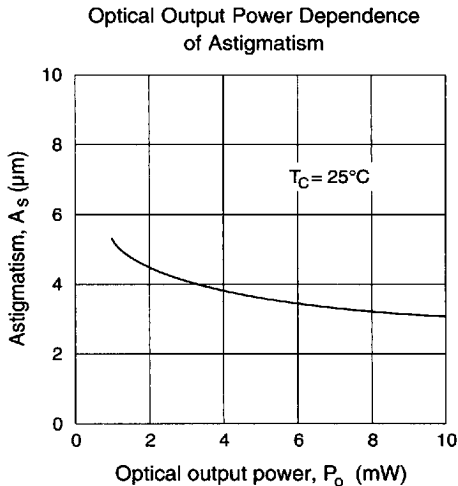
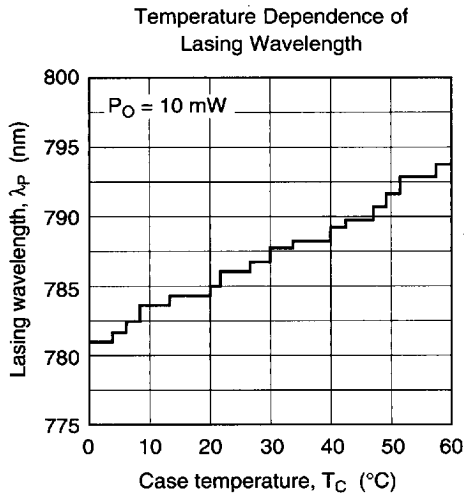
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