Description

The HL6411G is a 0.63 μm band AlGaInP laser diode with a multi-quantum well (MQW) structure. It is suitable as a light source for laser pointers, laser levelers and various other types of optical equipment. Hermetic sealing of the package assures high reliability.

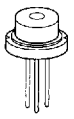
Application

- Laser pointer

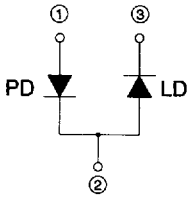
Features

- Visible light output at wavelengths up to 640 nm. (nearly equal to He-Ne gas laser)
- Optical output power: 3 mW CW
- Low operating voltage: 2.8 V Max.
- Single longitudinal mode
- Low astigmatism: 10 μm Typ.
- Built-in monitor photodiode

Package Type
- HL6411G: G2



Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

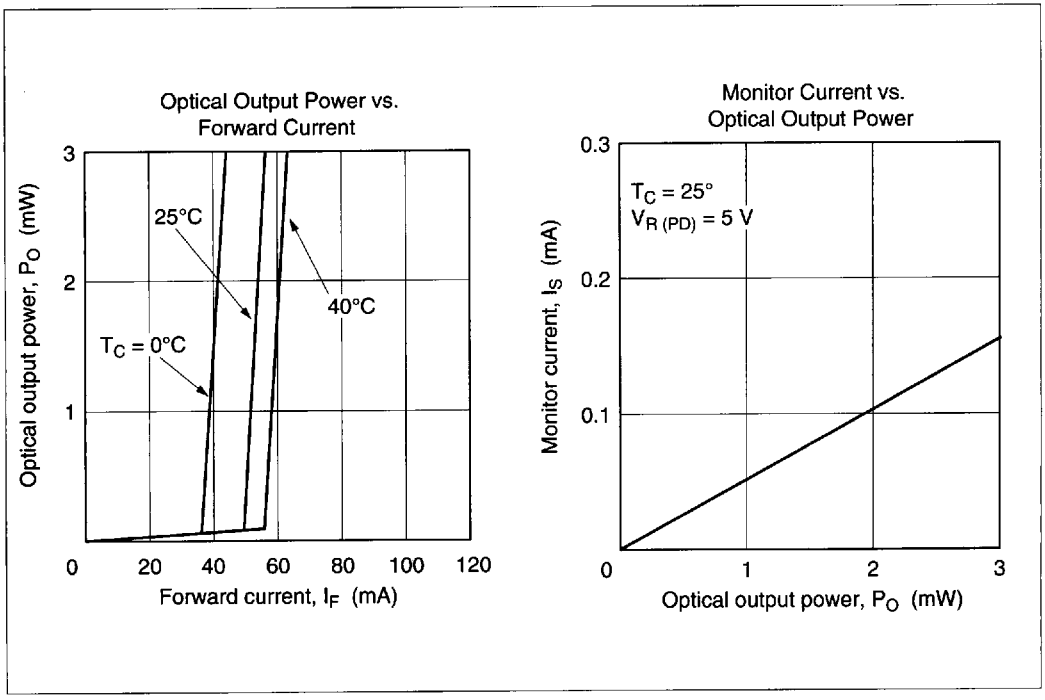
Item	Symbol	Rated Value	Unit
Optical output power	P_O	3	mW
Pulsed optical output power	$P_{O\ (pulse)}$	5*1	mW
LD reverse voltage	$V_{R\ (LD)}$	2	V
PD reverse voltage	$V_{R\ (PD)}$	30	V
Operating temperature	T_{opr}	−10 to +40	°C
Storage temperature	T_{stg}	−40 to +85	°C

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

Optical and Electrical Characteristics (T_C = 25°C)

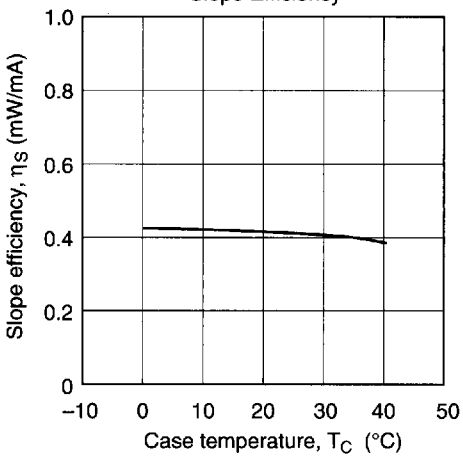
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I_{th}	20	55	70	mA	
Optical output power	P_O	3	—	—	mW	Kink free
Operating voltage	V_{op}	—	—	2.8	V	P_O = 3 mW
Operating current	I_{op}	—	65	85	mA	
Lasing wavelength	λ_p	625	633	640	nm	P_O = 3 mW
Beam divergence (parallel)	$\theta_{//}$	5	8	11	deg.	P_O = 3 mW, FWHM
Beam divergence (perpendicular)	$\theta_{\perp}$	25	31	37	deg.	P_O = 3 mW, FWHM
Monitor current	I_S	0.08	—	0.4	mA	P_O = 3 mW, $V_{R(PD)}$ = 5 V
Astigmatism	A_S	—	10	—	µm	P_O = 3 mW, NA = 0.4

Typical Characteristic Curves

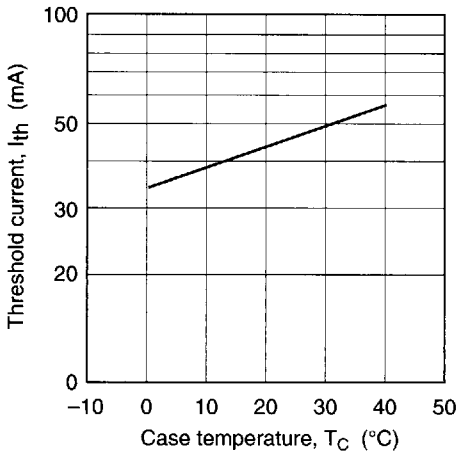


Typical Characteristic Curves (cont.)

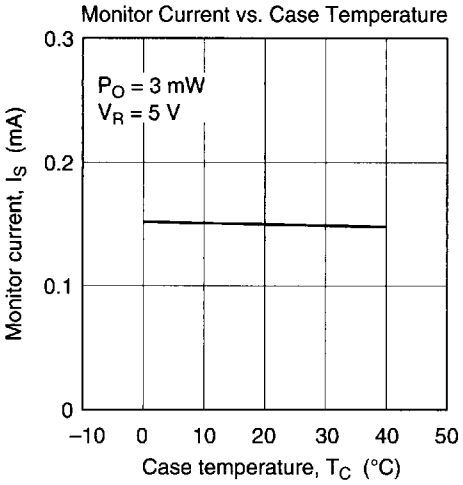
Temperature Dependence of Slope Efficiency



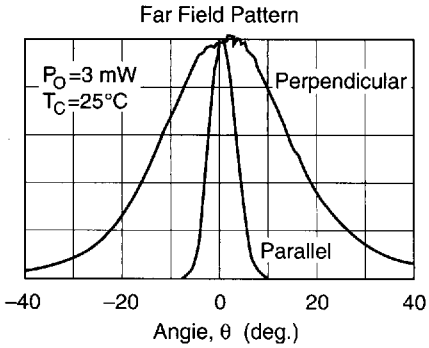
Temperature Dependence of Threshold Current



Monitor Current vs. Case Temperature



Far Field Pattern



Typical Characteristic Curves (cont.)