
HL1362A/AC

InGaAsP Laser Diodes

HITACHI

Description

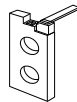
The HL1362A/AC are 1.3 μm InGaAsP $\lambda/4$ phase-shifted distributed-feedback laser diodes (DFB-LDs). They are suitable as light sources for high-bit-rate, long-haul fiberoptic communication systems and other applied optical equipment. The compact packages are suitable for module assembly.

Features

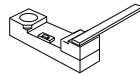
- Long wavelength output: 1290 to 1330 nm
- High-power output: 12 mW
- High quantum efficiency: $\eta_s \geq 0.2 \text{ mW/mA}$
- Fast pulse response: t_r and $t_f \leq 0.2 \text{ ns}$
- Dynamic single longitudinal mode: $S_r = 40 \text{ dB Typ.}$
- High frequency response: $f_r = 10 \text{ GHz Typ.}$

Package Type

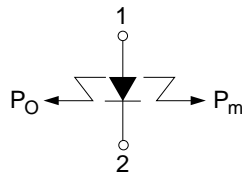
- HL1362A: A1



- HL1362AC: AC



Internal Circuit



HL1362A/AC

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

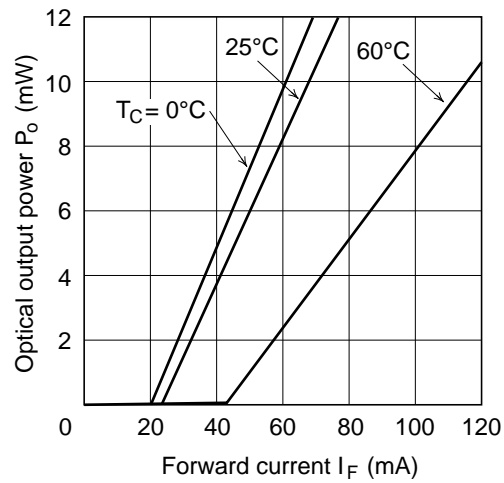
Item	Symbol	Value	Unit
Optical output power	P_o	12	mW
Reverse voltage	V_R	2	V
Operating temperature	T_{opr}	0 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	0 to +80	$^\circ\text{C}$

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

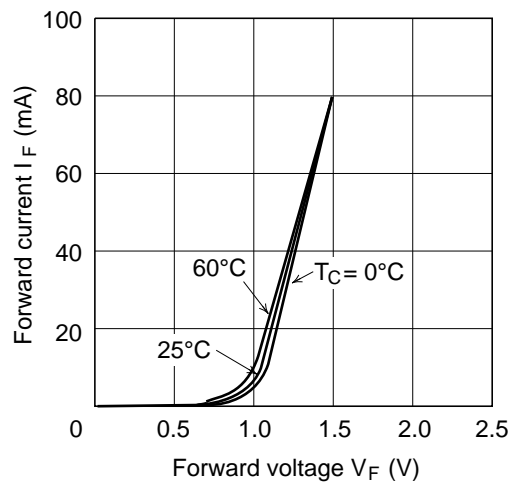
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I_{th}	—	25	50	mA	
Optical output power	P_o	12	—	—	mW	Kink free
Monitor optical output power	P_m	2	—	—	mW	$P_o = 8 \text{ mW}$
Slope efficiency	η_s	0.2	—	—	mW/ mA	
Lasing wavelength	λ_p	1290	1310	1330	nm	$P_o = 8 \text{ mW}$
Side-mode suppression ratio	S_r	30	40	—	dB	2.5 Gbps (NRZ)
Beam divergence (parallel)	$\theta_{//}$	—	30	—	deg.	$P_o = 8 \text{ mW}$, FWHM
Beam divergence (perpendicular)	θ_{\perp}	—	40	—	deg.	$P_o = 8 \text{ mW}$, FWHM
Rise time	t_r	—	0.1	—	ns	$P_o = 3 \text{ mW}$, $I_b = I_{th}$, 10 to 90%
Fall time	t_f	—	0.15	—	ns	$P_o = 3 \text{ mW}$, $I_b = I_{th}$, 90 to 10%

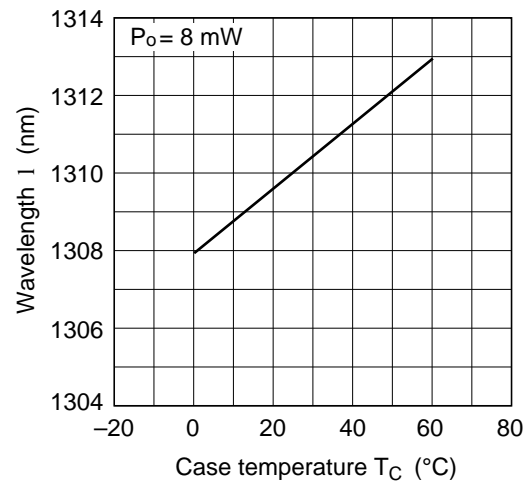
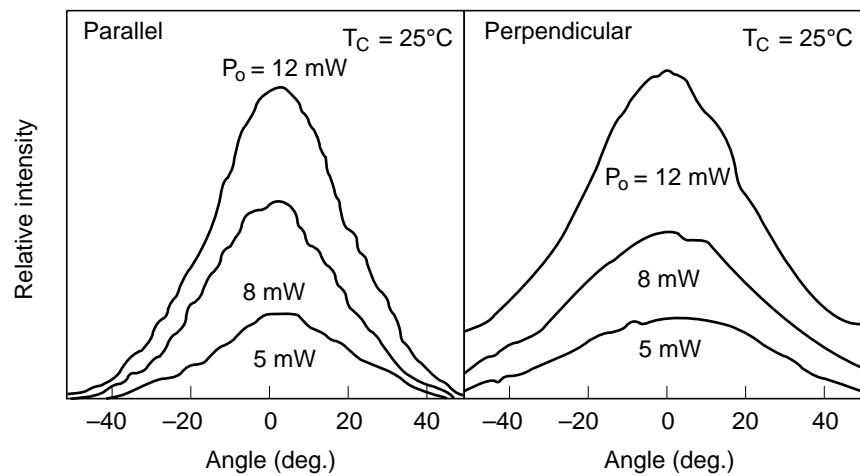
Typical Characteristic Curves

Optical Output Power vs. Forward Current



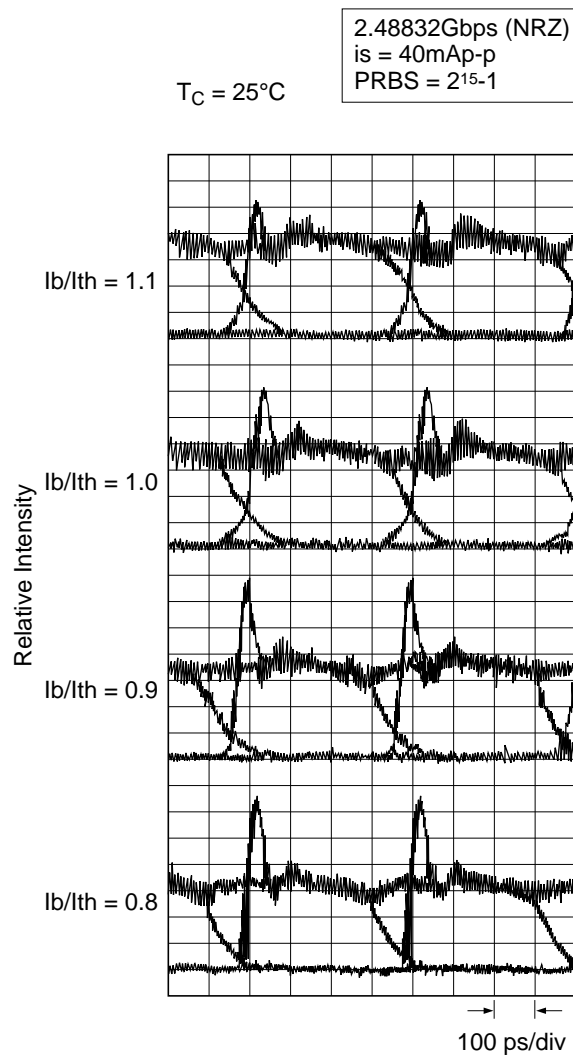
Forward Current vs. Forward Voltage



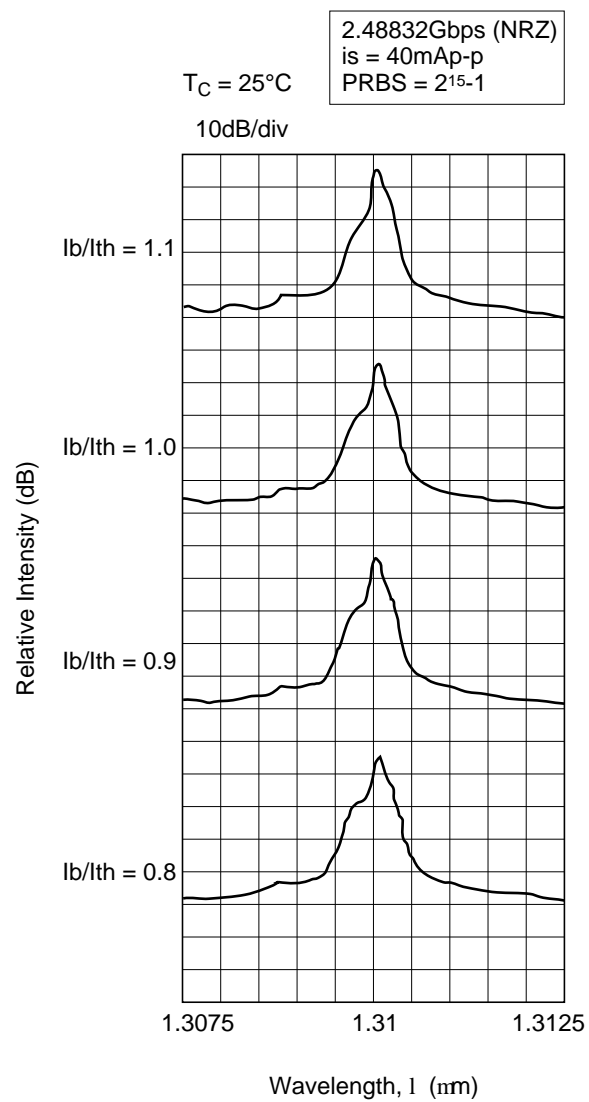
Typical Characteristic Curves (cont)**Lasing Wavelength Temperature Dependence****Far Field Pattern**

Typical Characteristic Curves (cont)

Bias Dependence of Optical Pulse Response

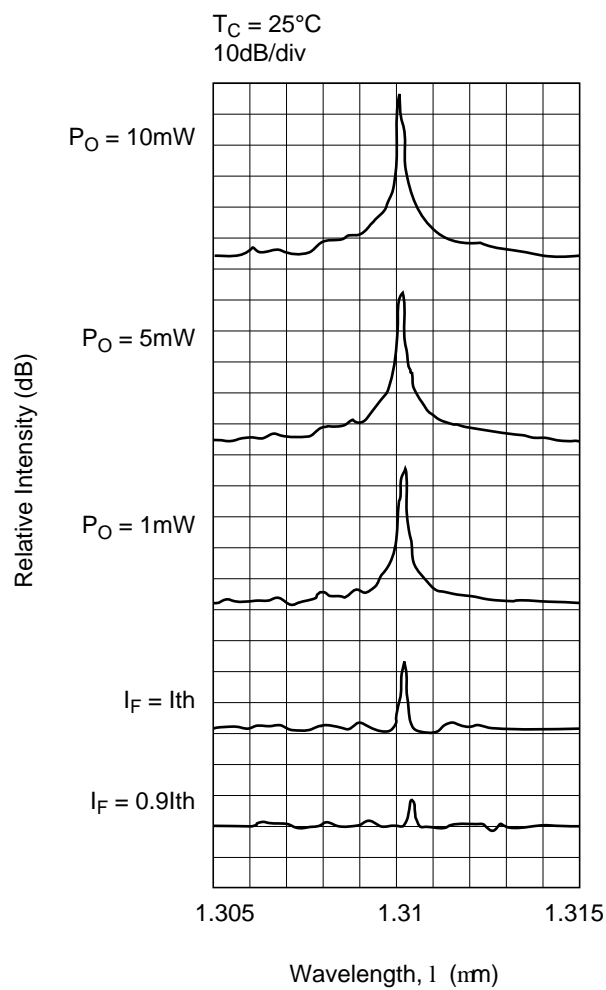


Bias Dependence of Lasing Spectrum

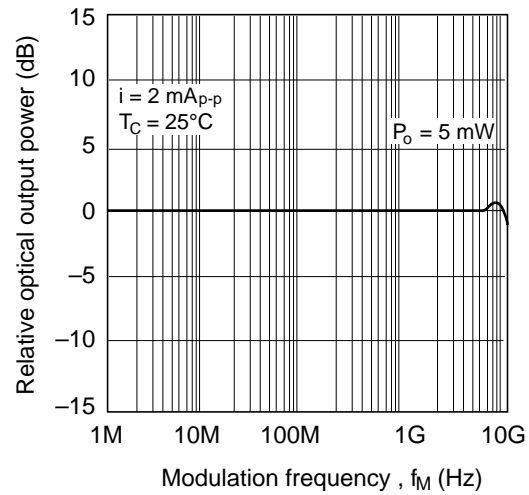


Typical Characteristic Curves (cont)

Optical Output Power Dependence of Lasing Spectrum



Frequency Response of Laser Diode



Threshold Current vs. Case Temperature

