HL1326GN

1.3 μm InGaAsP Laser Diode

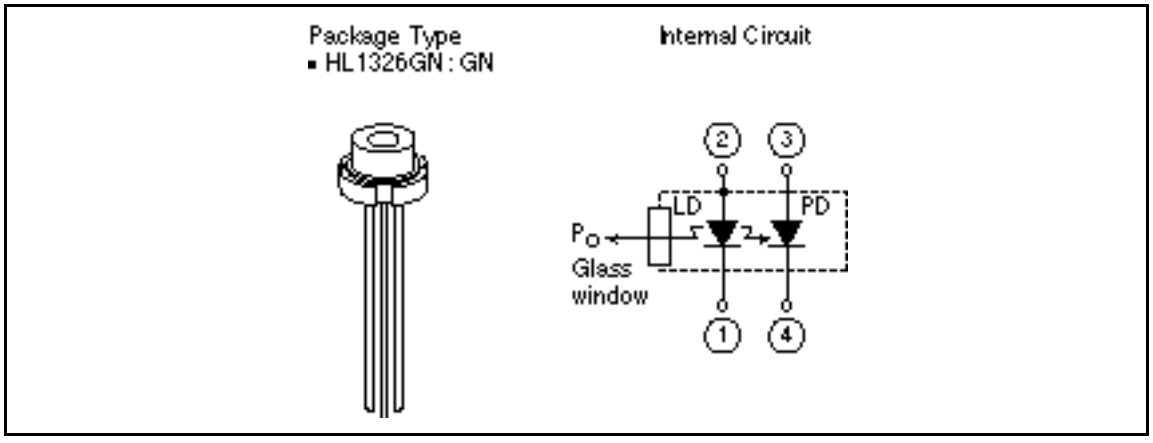
HITACHI

Description

The HL1326GN is a 1.3 μm InGaAsP Fabry-Perot laser diode with a multi-quantum well (MQW) structure. It is suitable as a light source in short and medium range fiberoptiic communication systems and other types of optical equipment. It has high optical power with low drive current and wide operating temperature range (–40 to +85°C). The compact package is suitable for module assembly.

Features

- Wide operating temperature range: Topr = –40 to +85°C
  High output power:10 mW(Pulse)
  5 mW(CW)
- Low operating current : Iop (P_O = 5mW) = 20 mA (typ. @Tc = 25°C)
  Iop (P_O = 5mW) = 40 mA (typ. @Tc = 85°C)



Absolute Maximum Ratings

Item	Symbol	Value	Unit
Optical output power	P_O	10(Pulse)[*1]	mW
		5(CW)	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	15	V
PD forward current	$I_{F(PD)}$	1	mA
Operating temperature	Topr	–40 to +85	°C
Storage temperature	Tstg	–40 to +100	°C

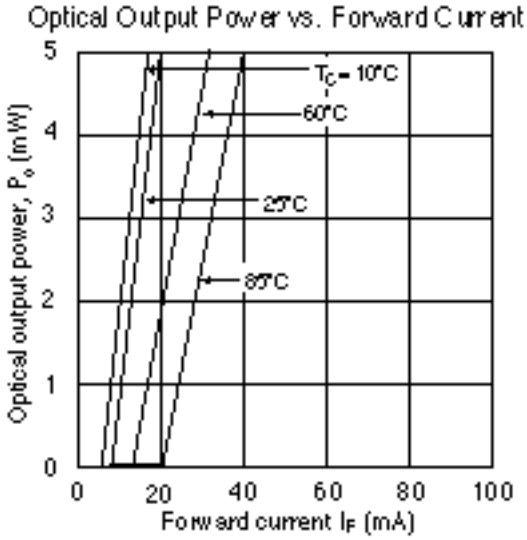
Note 1: Maximum 50% duty cycle, maximum 1µs pulse width.

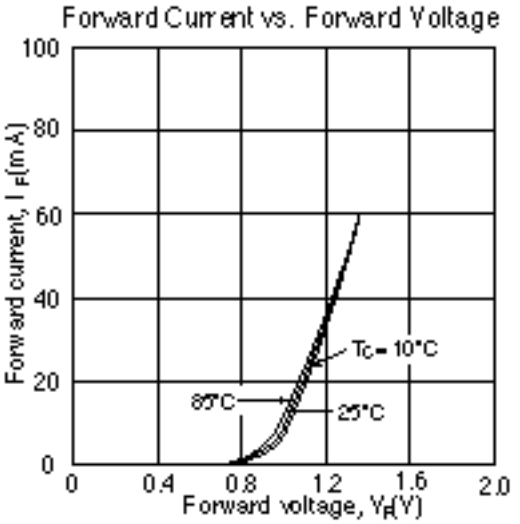
Optical and Electrical Characteristics (T_C = 25°C)

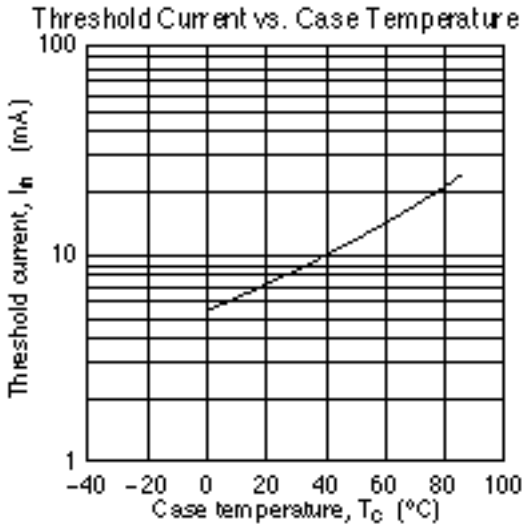
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	Ith	—	8	20	mA	
Optical output power	P_O	5	—	—	mW	Kink free[*2]
Slope efficiency	ηs	0.3	0.4	—	mW/mA	T_C = 25°C
		0.15	0.25	—		T_C = 85°C
Lasing wavelength	λc	1280	1310	1340	nm	P_O = 5 mW, RMS
Spectral width	σ	—	2	—	nm	P_O = 5 mW, RMS
Beam divergence (parallel)	θ //	—	30	—	deg.	P_O = 5 mW, FWHM
Beam divergence(perpendicular)	θ	—	40	—	deg.	P_O = 5 mW, FWHM
Rise time	tr	—	—	0.5	ns	10 to 90 %
Fall time	tf	—	—	0.5	ns	90 to 10 %
Monitor current	Is	100	—	—	µA	P_O = 5 mW, $V_{R(PD)}$ = 5 V
PD dark current	$I_{(DARK)}$	—	—	350	nA	$V_{R(PD)}$ = 5 V
PD capacitance	Ct	—	15	20	pF	$V_{R(PD)}$ = 5 V, f = 1 MHz
Photosensitivity saturation voltage	$V_{R(S)}$	—	—	2	V	

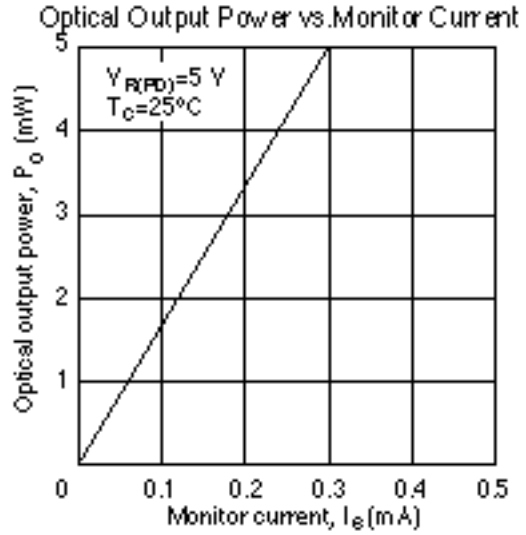
Note 2: Kink free up to 5mW is confirmed at the temperatures of 10°C, 25°C and 85°C.

Typical Characteristics Curves

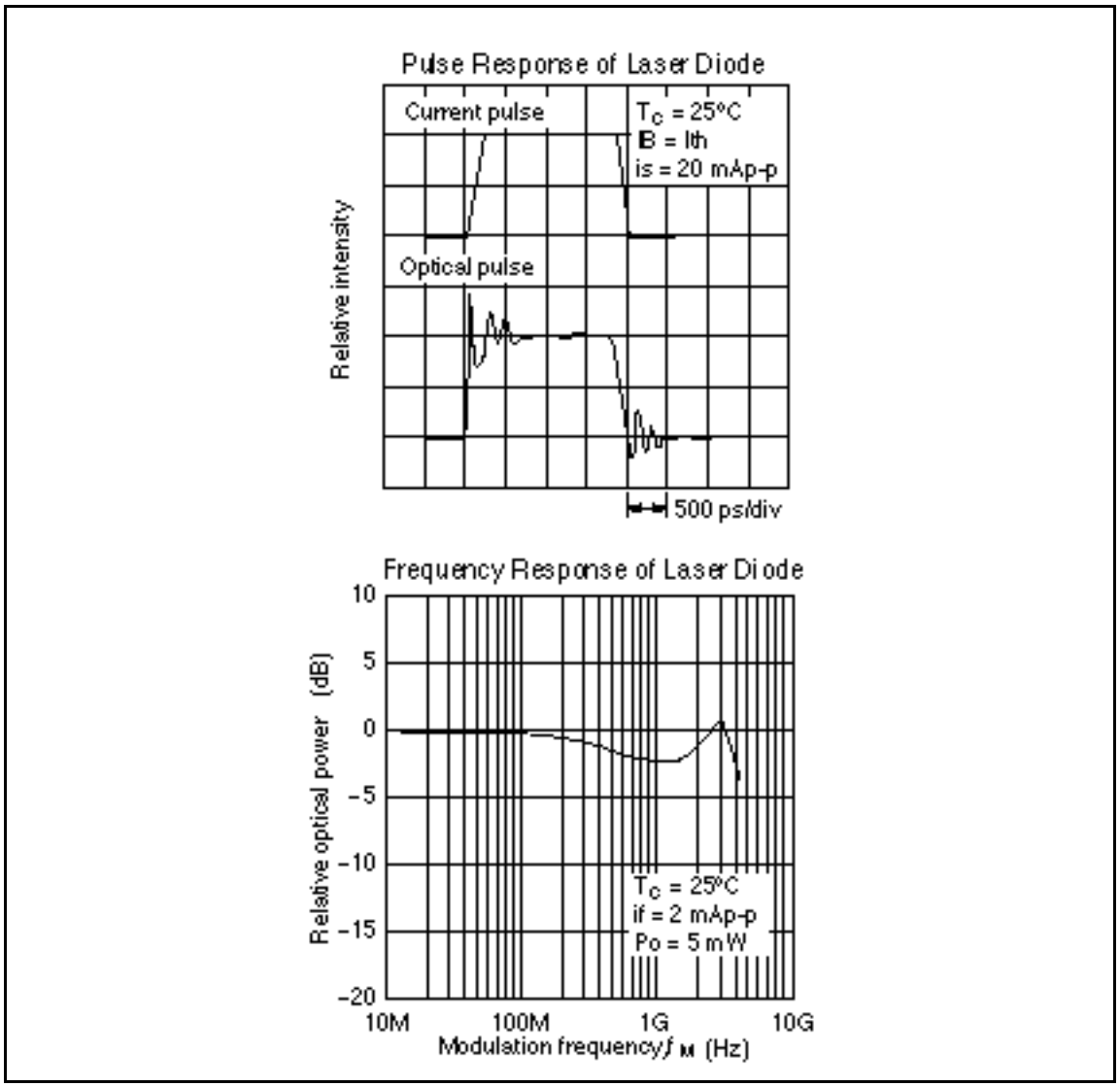


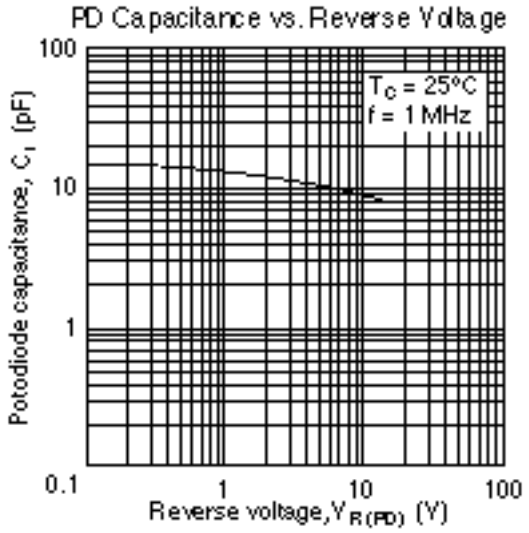


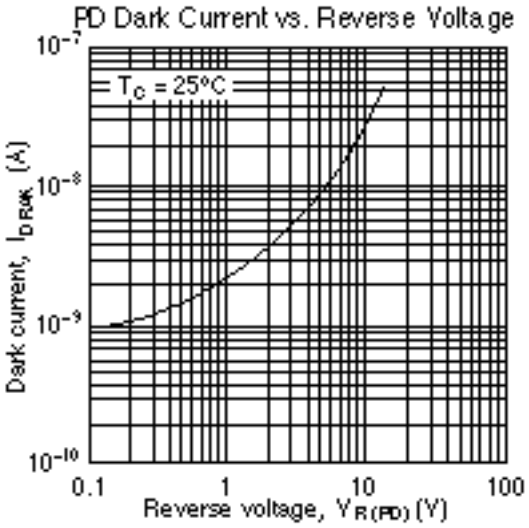

Threshold Current vs. Case Temperature
100
10
1
Threshold current, I_{th} (mA)
-40 -20 0 20 40 60 80 100
Case temperature, T_C (°C)


Optical Output Power vs.Monitor Current
$V_{R(PD)}$=5 V
T_C=25°C
Optical output power, P_O (mW)
5
4
3
2
1
0
0 0.1 0.2 0.3 0.4 0.5
Monitor current, I_S (mA)

Typical Characteristics Curves




PD Capacitance vs. Reverse Voltage
100
10
1
0.1
1
10
100
T_C = 25°C
f = 1 MHz
Potodiode capacitance, C_t (pF)
Reverse voltage, $V_{R(PD)}$ (V)


PD Dark Current vs. Reverse Voltage
10^{-7}
10^{-8}
10^{-9}
10^{-10}
0.1
1
10
100
T_C = 25°C
Dark current, $I_{D\,R(K}$ (A)
Reverse voltage, $V_{R(PD)}$ (V)

Typical Characteristics Curves