
HL1327CF/CN/SN/PF

InGaAsP Laser Diodes

HITACHI

Description

The HL1327CF/CN/SN/PF are 1.3 μm InGaAsP Fabry-Perot laser diodes with a multi-quantum well (MQW) structure. They are suitable as light sources in short and medium range fiberoptic communication systems. Laser output is delivered from the coaxial package through an attached single mode fiber. A built-in photodiode provides monitor current output.

Features

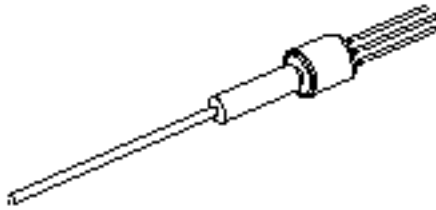
- Wide operating temperature range: $T_{opr} = -40$ to $+85^{\circ}\text{C}$
- High output power: 0.6 mW (Pulse)
0.4 mW (CW)
- Low operating current: I_{op} (Pf = 0.4 mW) = 18 mA (Typ @ $T_c = 25^{\circ}\text{C}$)
 I_{op} (Pf = 0.4 mW) = 38 mA (Typ @ $T_c = 85^{\circ}\text{C}$)

Fiber Specifications

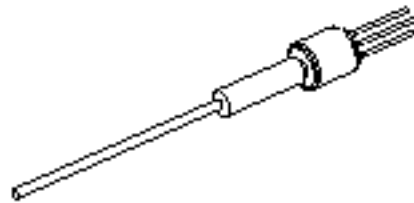
- Mode field diameter: $9.5 \pm 1.0 \mu\text{m}$
- Cutoff wavelength: 1.10 to 1.27 μm
- Outer diameter: 125 μm
- Jacket diameter: 900 μm
- Fiber minimum Bend Radius: 25mm
- Fiber length: More than 1000 mm



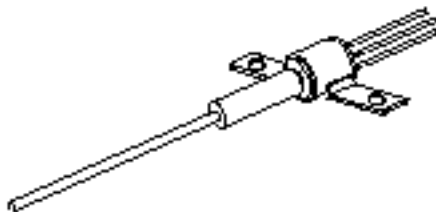
Package Type
+ HL1327CF: CF2



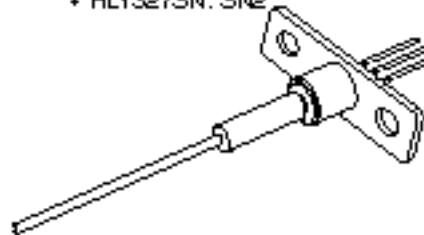
Package Type
+ HL1327CN: CN2



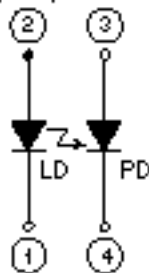
Package Type
+ HL1327PF: PF2



Package Type
+ HL1327SN: SN2



Internal Circuit
(case)



HL1327CF/CN/SN/PF

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

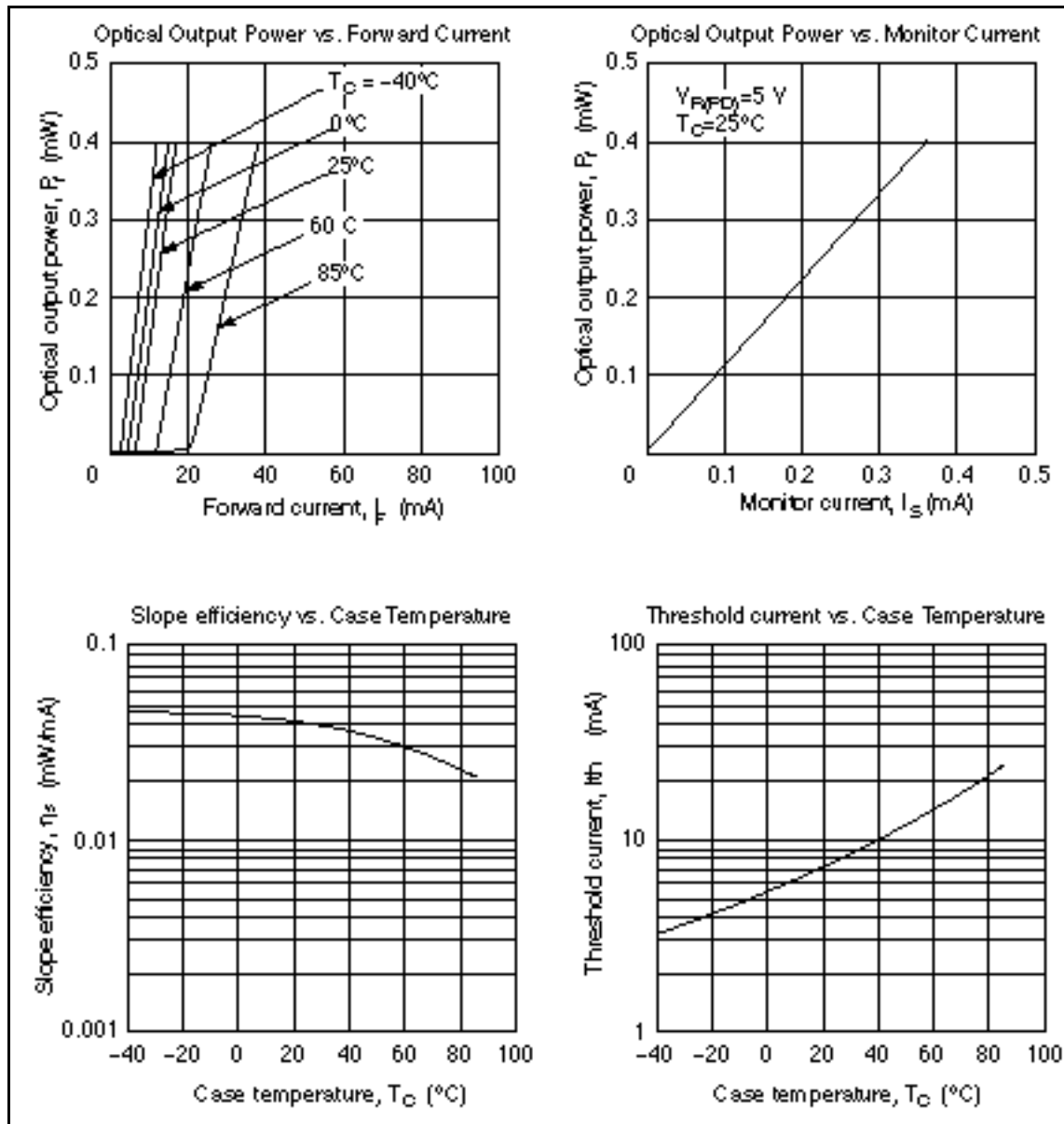
Item	Symbol	Rated Value	Unit
Fiber optical output power	$P_{f(Pulse)}$	0.6 * ¹	mW
	$P_{f(CW)}$	0.4	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	15	V
PD forward current	$I_{F(PD)}$	1	mA
Operating temperature	T_{opr}	-40 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

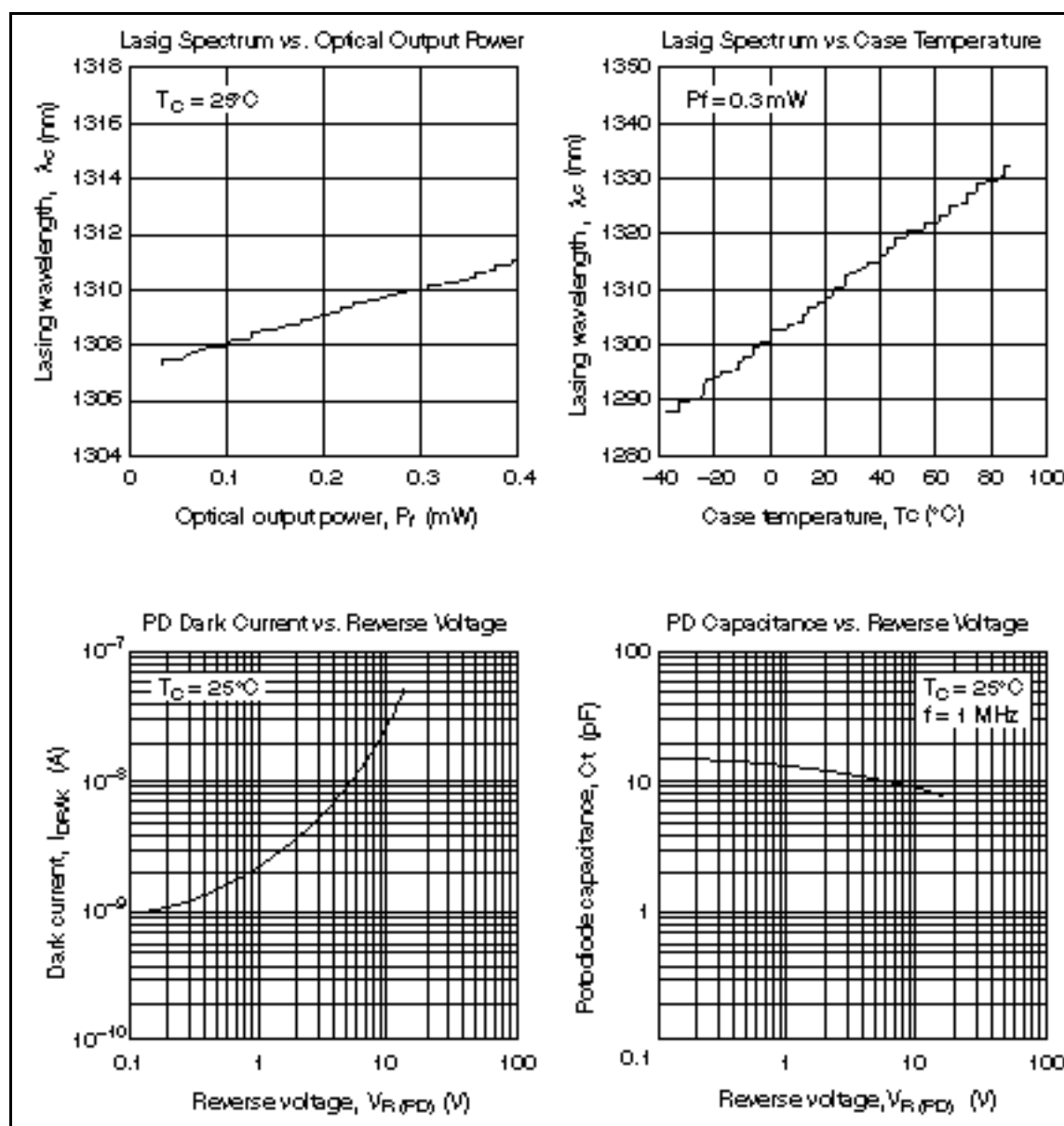
Note: 1. Maximum 50% duty cycle, maximum 1 μs pulse width

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

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I_{th}	—	8	20	mA	
Fiber optical output power	P_f	0.4	—	—	mW	Kink free
Slope efficiency	s	0.008	0.040	—	mW/mA	$T_C = 25^\circ\text{C}$
		0.004	0.020	—		$T_C = 85^\circ\text{C}$
Lasing wavelength	c	1280	1310	1340	nm	$P_f = 0.3 \text{ mW, RMS}$
Spectral width		—	2	—	nm	$P_f = 0.3 \text{ mW, RMS}$
Rise time	t_r	—	—	0.5	ns	10 to 90%
Fall time	t_f	—	—	0.5	ns	90 to 10%
Monitor current	I_s	100	—	—	μA	$P_f = 0.3 \text{ mW, } V_{R(PD)} = 5 \text{ V}$
PD dark current	$I_{(DARK)}$	—	—	350	nA	$V_{R(PD)} = 5 \text{ V}$
PD capacitance	C_t	—	15	20	pF	$V_{R(PD)} = 5 \text{ V, } f = 1 \text{ MHz}$
Photosensitivity saturation voltage	$V_{R(S)}$	—	—	2	V	

Typical Characteristic Curves



Typical Characteristic Curves (cont)


Typical Characteristic Curves (cont)

