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

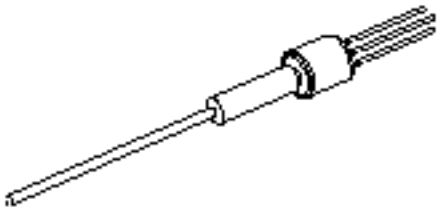
- Wide operating temperature range: Topr = –40 to +85°C
- High output power: 0.6 mW (Pulse)
  0.4 mW (CW)
- Low operating current: Iop (Pf = 0.4 mW) = 18 mA (Typ @T_C = 25°C)
  Iop (Pf = 0.4 mW) = 38 mA (Typ @T_C = 85°C)

Fiber Specifications

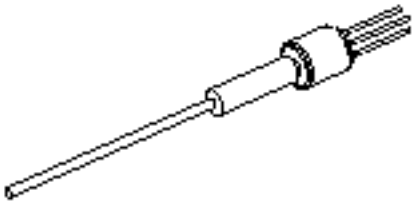
- Mode field diameter: 9.5 ±1.0 µm
- Cutoff wavelength: 1.10 to 1.27 µm
- Outer diameter: 125 µm
- Jacket diameter: 900 µm
- Fiber minimum Bend Radius: 25mm
- Fiber length: More than 1000 mm

Hitachi semiconductor

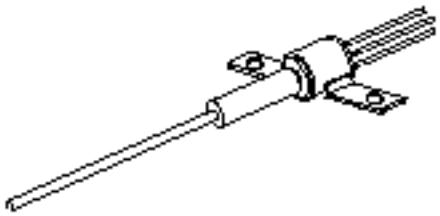
Package Type
• HL1327CF: CP2



Package Type
• HL1327CN: CN2

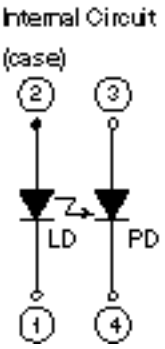


Package Type
• HL1327PF: PP2



Package Type
• HL1327SN: SN2

Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

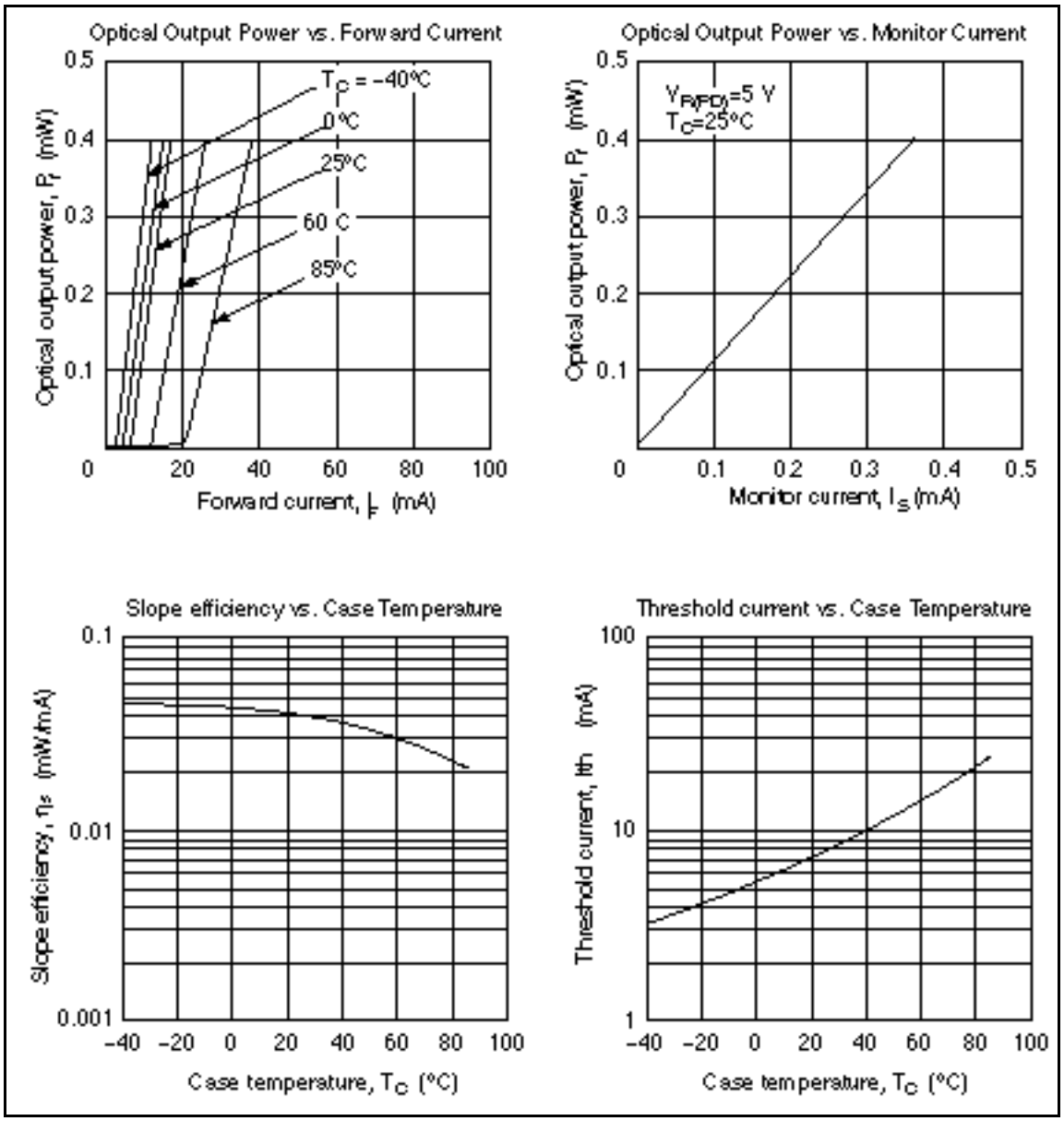
Item	Symbol	Rated Value	Unit
Fiber optical output power	$Pf_{(Pulse)}$	0.6 *[1]	mW
	$Pf_{(CW)}$	0.4	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	15	V
PD forward current	$I_{F(PD)}$	1	mA
Operating temperature	Topr	–40 to +85	°C
Storage temperature	Tstg	–40 to +85	°C

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

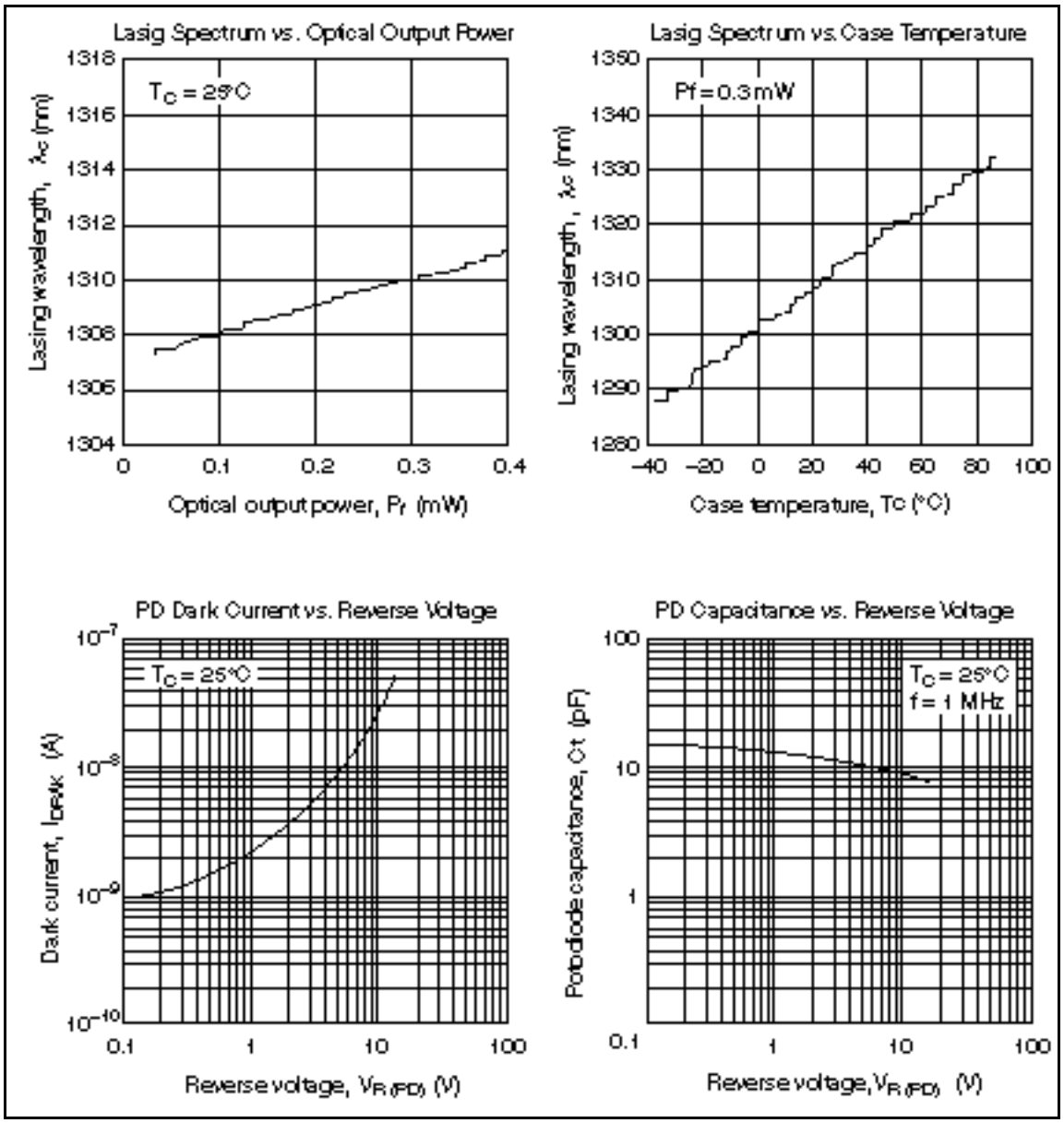
Optical and Electrical Characteristics (T_C = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	Ith	—	8	20	mA	
Fiber optical output power	Pf	0.4	—	—	mW	Kink free
Slope efficiency	ηs	0.008	0.040	—	mW/mA	T_C = 25°C
		0.004	0.020	—		T_C = 85°C
Lasing wavelength	λc	1280	1310	1340	nm	Pf = 0.3 mW, RMS
Spectral width	σ	—	2	—	nm	Pf = 0.3 mW, RMS
Rise time	tr	—	—	0.5	ns	10 to 90%
Fall time	tf	—	—	0.5	ns	90 to 10%
Monitor current	Is	100	—	—	µA	P_f = 0.3 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	

Typical Characteristic Curves



Typical Characteristic Curves (cont)



Typical Characteristic Curves (cont)