HL1330DFS

1.3 μm InGaAsP Laser Diode

HITACHI

Preliminary
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Description

The HL1330DFS 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 155 Mb/s or 622 Mb/s short haul fiberoptic communication systems and other types of optical equipment. Laser output is delivered from the miniature DIL package through optical fiber pigtail. A built-in photodiode provides monitor current output.

Features

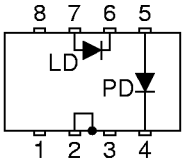
- Wide operating temperature range: Topr = –40 to +85°C
- Optical output power: 0.4 mW
- Miniature ceramic DIL package

Fiber Specifications

- Mode field diameter: 9.85±0.65 μm
- Cutoff wavelength: 1.10 to 1.22 μm
- Outer diameter: 125 μm nominal
- Jacket diameter: 900 μm nominal
- Fiber minimum bend radius: 30 mm

Package Type
• HL1330DFS: DFS

Internal Circuit



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Value	Unit	Condition
LD forward current	I_F(LD)	Ith + 60	mA	
LD reverse voltage	V_R(LD)	2	V	
PD reverse voltage	V_R(PD)	20	V	
Operating temperature	Topr	–40 to +85	°C	
Storage temperature	Tstg	–40 to +85	°C	

Optical and Electrical Characteristics (Ta = –40 to 85°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	Ith	—	8	—	mA	Ta = 25°C
		—	20	—		Ta = 85°C
Optical output power	P_o	0.4	—	—	mW	Kink free
Slope efficiency	ηs	—	0.03	—	mW/mA	Ta = 25°C
		—	0.02	—		Ta = 85°C
Operating voltage	V_{OP}	—	1.2	—	V	Pf = 0.4 mW
Lasing wavelength	λc	1270	1310	1350	nm	Pf = 0.4 mW, RMS
Spectral width	Δλ	—	—	2.5	nm	Pf = 0.4 mW, RMS
Rise time	t_r	—	—	0.5	ns	Pf = 0.4 mW, Ib = Ith 10 to 90 %
Fall time	t_f	—	—	0.5	ns	Pf = 0.4 mW, Ib = Ith 90 to 10 %
Monitor current	Is	100	—	—	μA	Pf = 0.4 mW, V_R(PD) = 2 V
Temp dependency of tracking error relative to 25°C	ÆPf	–1	—	1	dB	Pf = 0.4 mW, V_R(PD) = 2 V Is = const.
PD dark current	$I_{(DARK)}$	—	—	100	nA	V_R(PD) = 2 V