
HL1330DFS

1.3 μm InGaAsP Laser Diode

HITACHI

Preliminary
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Description

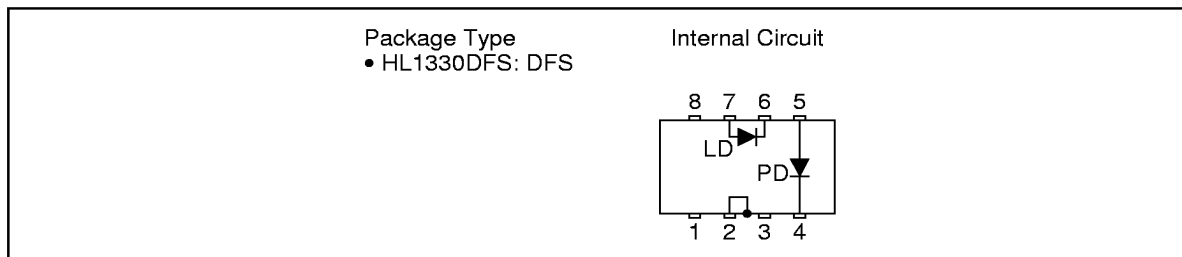
The HL1330DFS is a 1.3 μm InGaAsP Fabry-Perot laser diode with a multi-quantum well (MQW) structure. It is suitable as a light source in 155 Mb/s or 622 Mb/s short haul fiberoptic communication systems and other types of optical equipment. Laser output is delivered from the miniature DIL package through optical fiber pigtail. A built-in photodiode provides monitor current output.

Features

- Wide operating temperature range: $T_{opr} = -40$ to $+85^{\circ}\text{C}$
- Optical output power: 0.4 mW
- Miniature ceramic DIL package

Fiber Specifications

- Mode field diameter: $9.85 \pm 0.65 \mu\text{m}$
- Cutoff wavelength: 1.10 to $1.22 \mu\text{m}$
- Outer diameter: 125 μm nominal
- Jacket diameter: 900 μm nominal
- Fiber minimum bend radius: 30 mm



HL1330DFS

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Value	Unit	Condition
LD forward current	$I_F(\text{LD})$	$I_{th} + 60$	mA	
LD reverse voltage	$V_R(\text{LD})$	2	V	
PD reverse voltage	$V_R(\text{PD})$	20	V	
Operating temperature	T_{opr}	-40 to +85	°C	
Storage temperature	T_{stg}	-40 to +85	°C	

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

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I_{th}	—	8	—	mA	Ta = 25°C
		—	20	—		Ta = 85°C
Optical output power	P_o	0.4	—	—	mW	Kink free
Slope efficiency	η_s	—	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	λ_c	1270	1310	1350	nm	Pf = 0.4 mW, RMS
Spectral width	$\Delta\lambda$	—	—	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	I_s	100	—	—	μA	Pf = 0.4 mW, $V_R(\text{PD}) = 2 \text{ V}$
Temp dependency of tracking error relative to 25°C	ΔEP_f	-1	—	1	dB	Pf = 0.4 mW, $V_R(\text{PD}) = 2 \text{ V}$ $I_s = \text{const.}$
PD dark current	$I_{(\text{DARK})}$	—	—	100	nA	$V_R(\text{PD}) = 2 \text{ V}$