HL1336DJS

1.3 μm Laser Diode

HITACHI

ADE-208-963 (Z)
Preliminary
1st Edition
Sep. 2000

Description

The HL1336DJS is a 1.3 μm 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 medium haul fiberoptic communication systems and other types of optical equipment. Laser output is delivered from the non-hermetic Mini DIL package through SC optical connector attached at the end of fiber pigtail. A built-in photodiode provides monitor current output.

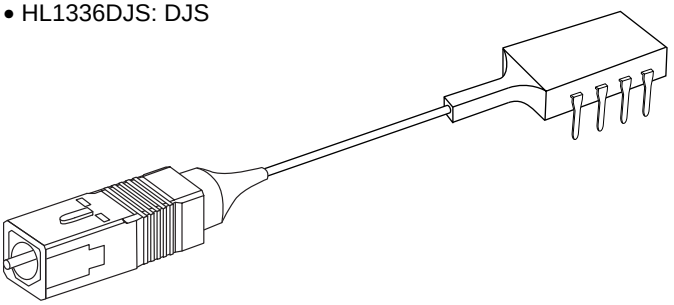
Features

- Wide operating temperature range: Topr = –40 to +85°C
- Optical output power: 1.4 mW
- Plastic Mini DIL package

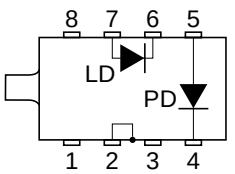
Fiber Specifications

- Mode field diameter: 9.5 ± 1.0 μm
- Cutoff wavelength: 1.10 to 1.27 μm
- Outer diameter: 125 μm nominal
- Jacket diameter: 900 μm nominal
- Fiber minimum bend radius: 30 mm

Package Type
• HL1336DJS: DJS



Internal Circuit (Top View)



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Absolute Maximum Ratings (Ta = 25°C)

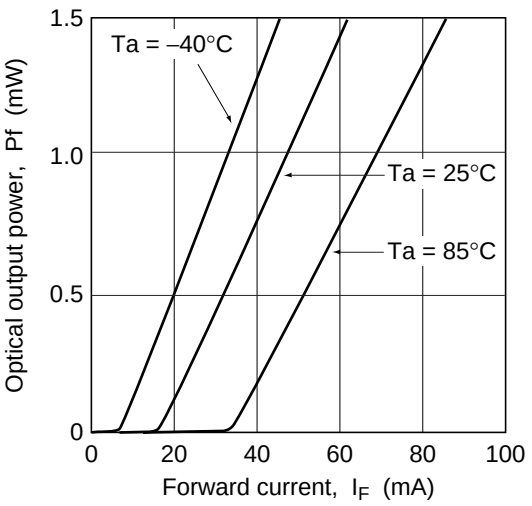
Item	Symbol	Value	Unit	Condition
LD forward current	$I_{F(LD)}$	Ith + 60	mA	at Ta = –40°C, 25°C
		Ith + 100		at Ta = 85°C
LD reverse voltage	$V_{R(LD)}$	2	V	
PD forward current	$I_{F(PD)}$	5	mA	
PD reverse voltage	$V_{R(PD)}$	20	V	
Operating temperature	Topr	–40 to +85	°C	
Storage temperature	Tstg	–40 to +85	°C	

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

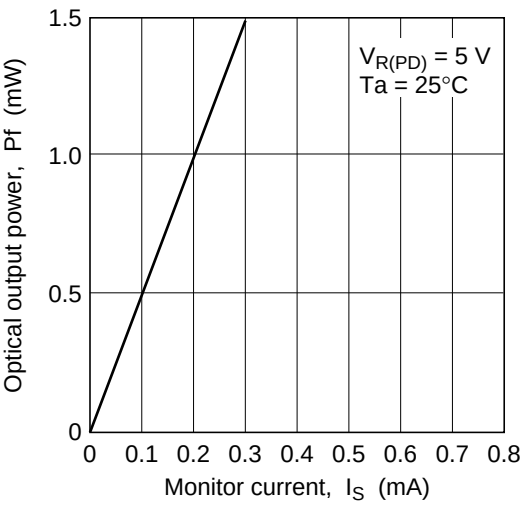
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	Pf	1.4	—	—	mW	Kink free
Threshold current	Ith	—	—	25	mA	Ta = 25°C
		—	—	45		Ta = 85°C
Operating voltage	V_{OP}	—	—	1.6	V	Pf = 1.4 mW
Slope efficiency	ηs	0.028	—	0.140	mW/mA	Ta = 25°C
		0.023	—	—		Ta = 85°C
Lasing wavelength	λc	1260	1310	1360	nm	Pf = 1.4 mW, RMS
Spectral width	σ	—	—	2.5	nm	Pf = 1.4 mW, RMS
Rise time	t_r	—	—	0.5	ns	Pf = 1.4 mW, Ib = Ith, 10 to 90 %
Fall time	t_f	—	—	0.5	ns	Pf = 1.4 mW, Ib = Ith, 90 to 10 %
Monitor current	I_S	100	—	1000	μA	Pf = 1.4 mW, $V_{R(PD)}$ = 5 V, Ta = 25°C
Temp dependency of tracking error relative to 25°C	ΔPf	–1	—	1	dB	I_S = const. (Pf = 1.4 mW, Ta = 25°C, $V_{R(PD)}$ = 5 V)
PD dark current	$I_{(DARK)}$	—	—	200	nA	$V_{R(PD)}$ = 5 V

Typical Characteristic Curves

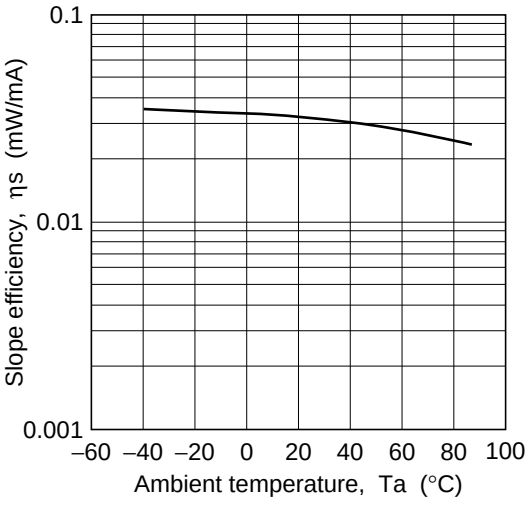
Oputical Output Power vs. Forword Current



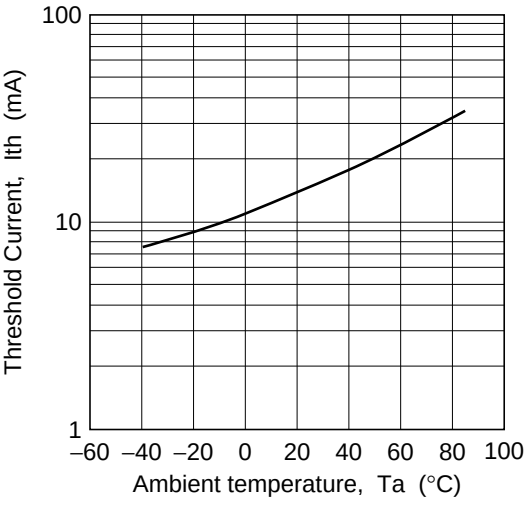
Oputical Output Power vs. Monitor Current



Slope Efficiency vs. Ambient Temperature

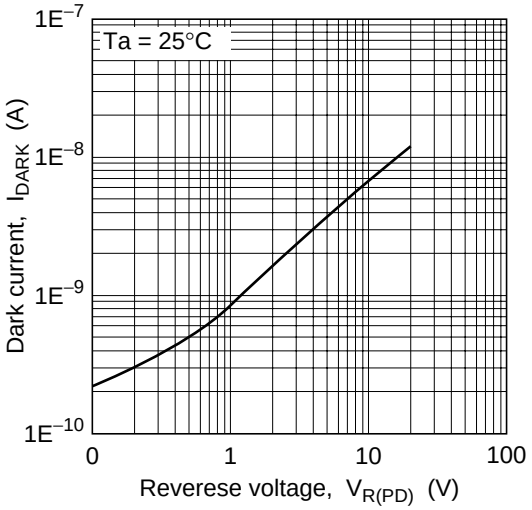


Threshold Current vs. Ambient Temperature

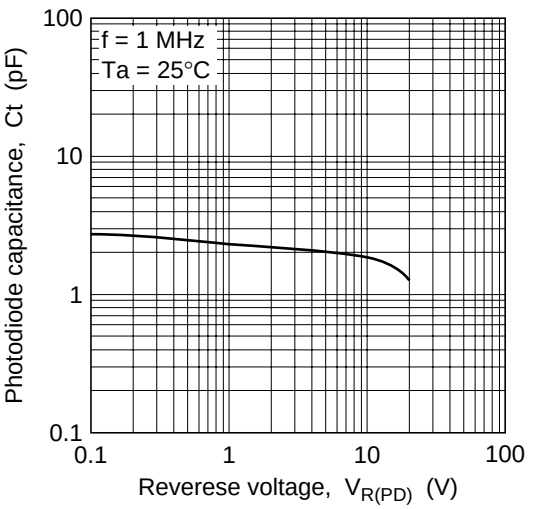


Typical Characteristic Curves (cont)

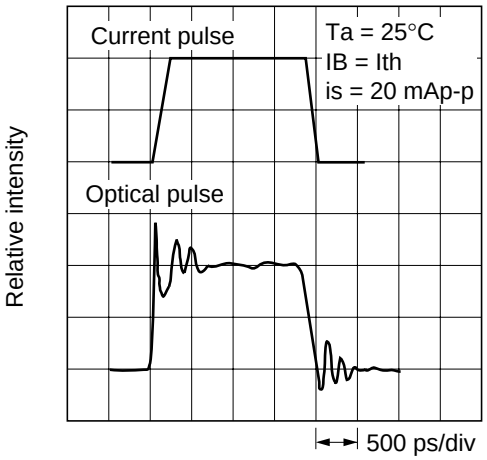
Photodiode Dark Current vs. Reverese Voltage



Photodiode Capacitance vs. Reverese Voltage



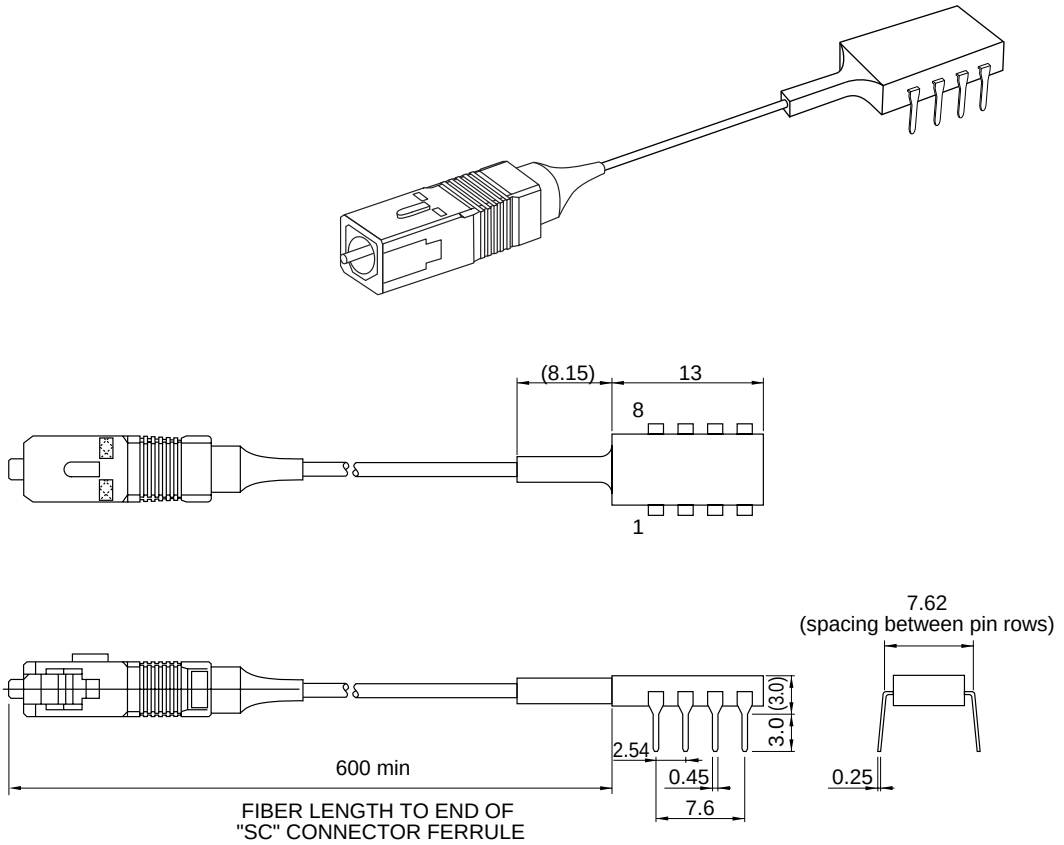
Pulse Response of Laser Diode



Package Dimensions

Preliminary

Unit: mm



Hitachi Code	LD/DJS
JEDEC	—
EIAJ	—
Mass (reference value)	—

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