

HL1513AF

1.55 μm 10Gb/s Laser Diode with EA Modulator

HITACHI

ADE-208-1406 (Z)
Preliminary
1st Edition
Feb. 2001

Description

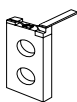
The HL1513AF is a 1.55 μm InGaAsP distributed-feedback laser diode (DFB-LD) with a multi-quantum well (MQW) structure. An electro-absorption (EA) modulator is integrated with the laser diode. It is suitable as a light source for 10 Gb/s WDM systems up to 40 km.

Features

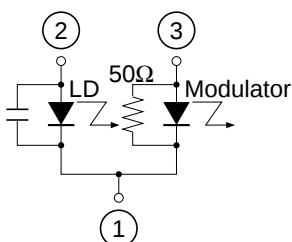
- Wide wavelength coverage: $\lambda_p = 1527$ to 1565 nm (C-BAND)
- High extinction ratio: 10 dB Min under modulated
- Dynamic single longitudinal mode: $S_r = 40$ dB Typ
- Package: open air package (chip on carrier) with micro strip-line

Package Type

- HL1513AF: AF



Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

Item	Symbol	Value	Unit
LD forward current	I _F	100	mA
Laser diode reverse voltage	V _{R(LD)}	2	V
Modulator forward voltage	V _{F(EA)}	1	V
Modulator reverse voltage	V _{R(EA)}	5	V
Operating temperature	Topr	+15 to +30	°C
Storage temperature *	Tstg	−40 to +85	°C

Note: without condensation

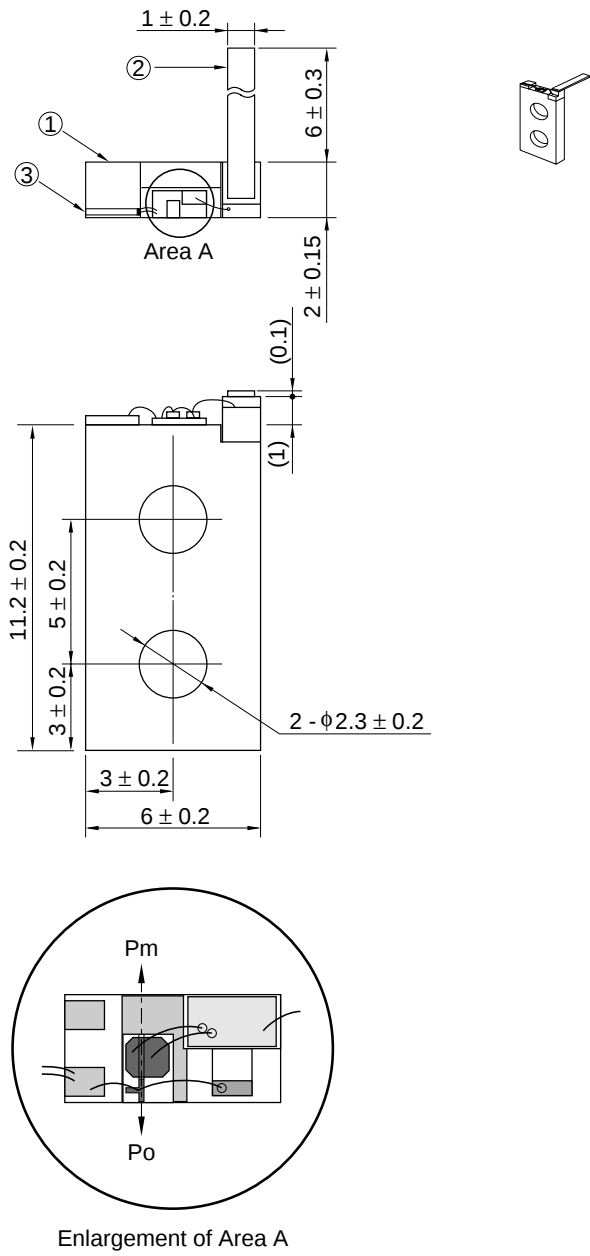
Optical and Electrical Characteristics (T_C = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I _{th}	—	—	25	mA	
Optical output power	P _o	2	—	—	dBm	I _{F(LD)} = 60 mA, Modulated *
Extinction ratio	ER	10	—	—	dB	I _{F(LD)} = 60 mA, Modulated *
Lasing wavelength	λ _p	1527	1550	1565	nm	I _{F(LD)} = 60 mA, Modulated *
Side-mode suppression ratio	Sr	35	—	—	dB	I _{F(LD)} = 60 mA, Modulated *
Transmission dispersion penalty	Pd	—	—	2	dB	I _{F(LD)} = 60 mA, Modulated *, 750 ps/nm
Cutoff frequency	S ₂₁	12	—	—	GHz	I _{F(LD)} = 60 mA, V _{R(EA)} = −1 V
RF return loss	S ₁₁	8	—	—	dB	0.13 to 5 GHz
		5	—	—	dB	5 GHz to 10 GHz

Note: 9.95328 Gb/s, NRZ, V offset = 0 to −1 V, V mod = 2.5 Vpp max

Package Dimensions

Unit: mm



Hitachi Code	LD/AF
JEDEC	—
EIAJ	—
Mass (reference value)	1.1 g

Cautions

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| <ol style="list-style-type: none">1. The laser light is harmful to human body especially to eye no matter what directly or indirectly. The laser beam shall be observed or adjusted through infrared camera or equivalent. |
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