

# HL1511AF

1.55  $\mu\text{m}$  10Gb/s Laser Diode with EA Modulator

# HITACHI

ADE-208-1405A (Z)

Rev.1  
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## Description

The HL1511AF is a 1.55  $\mu\text{m}$  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 80 km.

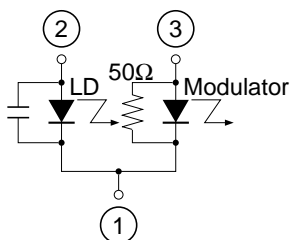
## Features

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

Package Type  
• HL1511AF: AF



Internal Circuit



## Absolute Maximum Ratings

( $T_c = 25^\circ\text{C}$ )

Item	Symbol	Value	Unit
LD forward current	$I_F$	150	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	$T_{opr}$	+15 to +35	$^\circ\text{C}$
Storage temperature *	$T_{stg}$	-40 to +85	$^\circ\text{C}$

Note: without condensation

## Optical and Electrical Characteristics

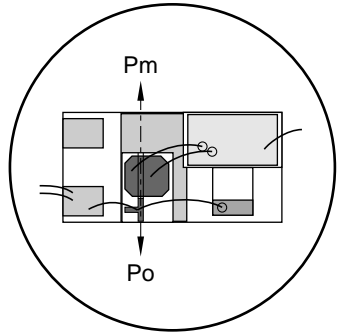
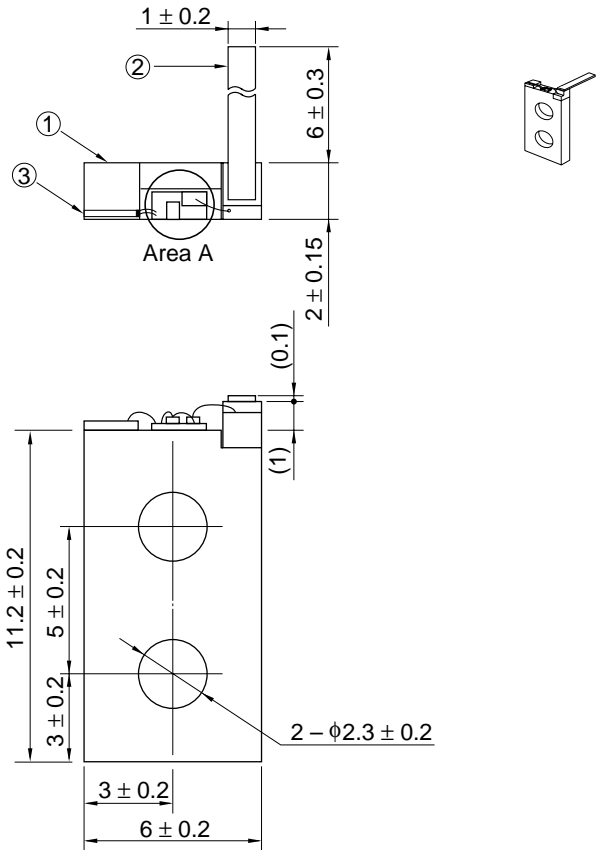
( $T_c = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	$I_{th}$	—	—	25	mA	
Optical output power	$P_o$	0	—	—	dBm	$I_{F(LD)} = 60\text{ mA}$ , Modulated *
Extinction ratio	ER	9	—	—	dB	$I_{F(LD)} = 60\text{ mA}$ , Modulated *
Lasing wavelength	$\lambda_p$	1527	1550	1565	nm	$I_{F(LD)} = 60\text{ mA}$ , Modulated *
Side-mode suppression ratio	Sr	35	—	—	dB	$I_{F(LD)} = 60\text{ mA}$ , Modulated *
Transmission dispersion penalty	Pd	—	—	2	dB	$I_{F(LD)} = 60\text{ mA}$ , Modulated *, SMF 80 km
Cutoff frequency	$S_{21}$	12	—	—	GHz	$I_{F(LD)} = 60\text{ mA}$ , $V_{R(EA)} = -1\text{ V}$
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

As of July, 2001  
Unit: mm



Enlargement of Area A

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

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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.

## Sales Offices

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