

Description

The LB5374 is a single longitudinal mode laser diode module..

Features

- 1.3 μm DFB laser diode
- High speed modulation (up to 2.5Gb/s)
- Built-in 30dB optical isolator
- Internal monitor photodiode, thermistor and thermo-electric cooler
- Hermetically sealed, 14-pin low profile butterfly package



Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$)

Item	Symbol	Rated Value	Units
Operating case temperature	T_{opr}	-20 to 65	$^\circ\text{C}$
Storage case temperature	T_{stg}	-40 to 70	$^\circ\text{C}$
LD forward current (CW)	I_F	150	mA
LD reverse voltage	$V_R (LD)$	2	V
PD reverse voltage	$V_R (PD)$	15	V
Thermistor current	I_T	0.2	mA
Cooling current	I_C	1.4	A
Lead soldering temperature	T_s	260	$^\circ\text{C}$
Lead soldering time	—	10	sec

Fiber Pigtail Specifications

Item	Rated Value	Units
Core diameter	10 ± 1	μm
Cladding diameter	125 ± 3	μm
Jacket diameter	0.9 ± 0.1	mm
Cutoff wavelength	≤ 1270	nm
Fiber length	≥ 2000	mm

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Part

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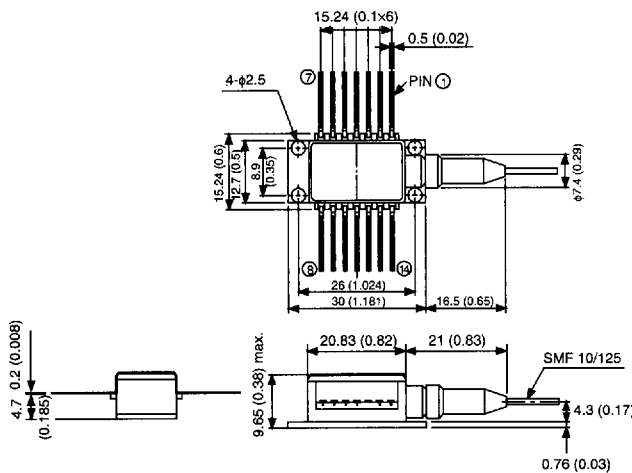
Optical Characteristics ($T_{LD} = 25^{\circ}C$)

Item	Symbol	Min	Typ	Max	Units	Test Conditions
Threshold current	I_{th}	—	25	40	mA	CW
LD forward voltage	V_F	—	—	1.5	V	$I_F = I_{th} + 20$ mA
Fiber output power	P_f	1.0	1.5	—	mW	$I_F = I_{th} + 20$ mA
Tracking error	ΔP_f	—	± 0.2	± 0.5	dB	$T_C = -20$ to $65^{\circ}C$, APC, ATC
Optical rise time	t_r	—	—	100	ps	Note 1, 10 to 90%
Optical fall time	t_f	—	—	200	ns	Note 1, 10 to 90%
Peak wavelength	λ_p	1290	1310	1330	nm	Note 1
Spectral width	$\Delta\lambda$	—	0.45	0.8	nm	Note 1
Side mode suppression ratio	S_r	30	40	—	dB	Note 1
Monitor current	I_m	100	—	1500	μA	CW, $V_R (PD) = 4$ V, $I_F = I_{th} + 20$ mA
PD dark current	I_{DARK}	—	—	0.5	μA	$V_R (PD) = 10$ V
Thermistor resistance	R_{th}	9.5	10	10.5	k Ω	
Cooling current	I_C	—	—	1.2	A	$\Delta T = 40K$, $I_F = I_{th} + 20$ mA
Cooling voltage	V_C	—	—	1.4	V	$\Delta T = 40K$, $I_F = I_{th} + 20$ mA
Optical isolation	—	30	—	—	dB	
Input impedance	Z_{in}	—	25	—	Ω	

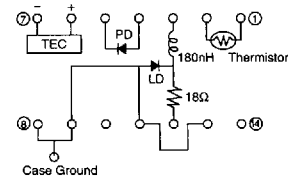
Note 1 : 2.5Gb/s, NRZ, PRBS: $2^{23} - 1$, Mark ratio 50%

$P_{peak} = 2$ mW, $I_B = I_{th}$, rise/fall time of LD driver is less than 120 ps

Outline Drawings and Pin Descriptions



Dimension: mm (inch)



Pin	Description
1:	Thermistor
2:	Thermistor
3:	LD Cathode (DC Bias)
4:	PD Anode
5:	PD Cathode
6:	TE Cooler (+)
7:	TE Cooler (-)
8:	Case Ground
9:	Case Ground
10:	NC
11:	LD Anode, Case Ground
12:	LD Cathode (RF Signal)
13:	Case Ground
14:	NC

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