DENSELIGHT SEMICONDUCTORS
6 Changi North St. 2, S498831 SINGAPORE
sales@denselight.com
www.denselight.com

SPECIFICATION

70mW CW CWDM DFB Chip

DL-DFB31070D-75-85E

A. PRODUCT DESCRIPTION

DenseLight DL-DFB31070D-75-85E is an uncooled DFB laser diode operating with a minimum output power of 70mW at 75°C for 1311 nm wavelength and engineered for CW transmission.

B. FEATURES

- Uncooled operation from -5 to 75°C
- Minimum output power of 70mW at 75°C, 280mA (typical)
- Typical lasing wavelength of 1311 nm
- Typical SMSR ≥ 35dB
- Designed for CW transmission

C. PACKAGING

- DFB laser diode die (chip) with coated facets

D. APPLICATIONS

- Ethernet/Data Center

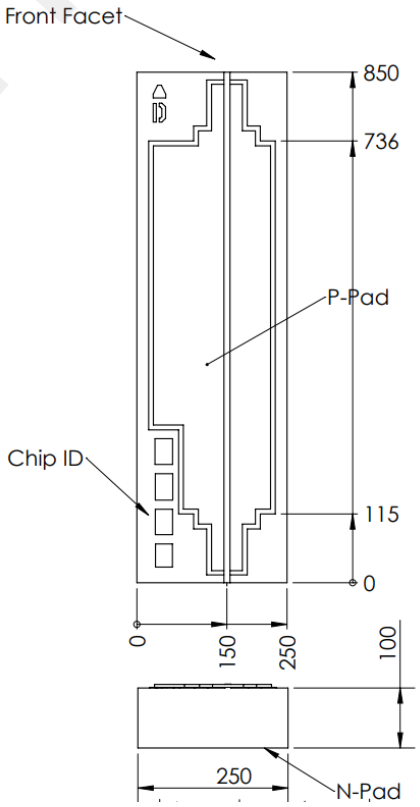
E. ABSOLUTE MAXIMUM RATINGS

Operation beyond the absolute maximum ratings can cause degradation in device performance leading to permanent damage to the device.

Parameter	Symbol	Condition	Min	Max	Unit
Reverse voltage	V_R	-	-	2	V
Forward current	I_F	-	-	500	mA
Operating temperature	T_{op}	-	-5	75	°C
Storage temperature	T_{stg}	Ambient	-40	85	°C
Operating & Storage Humidity	RH	Relative humidity of surrounding environment. Non hermetic package.		85	%
Electro static discharge (ESD)	V_{ESD}	HBM	-	500	V

F. PHYSICAL CHARACTERISTICS

Parameter	Symbol	Typical	Unit
Chip dimensions	L × W × H	(850±20) × (250±20) × (100±10)	μm
Distance of optical axis from p-top contact	-	7.6±0.75	μm
Horizontal distance of optical axis from left edge of the chip (with front facet facing upwards)	-	150±15	μm



G. OPTICAL, ELECTRICAL AND THERMAL CHARACTERISTICS

Performance is based on laser diode die singulated from bar and mounted onto heat-dissipating submount.

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating temperature	T_{op}	-	-5	-	75	°C
Threshold current	I_{th}	T_{op} = 25°C	-	30	-	mA
		Over full T_{op} range	-	60	-	mA
Operating current	I_{op}	CW, P_o = 70mW, T_{op} = 75°C at λ_c	-	280	300	mA
Forward voltage	V_f	Over full T_{op} and I_{op} range	-	-	1.5	V
Slope efficiency	η_s	Over full T_{op} and I_{op} range	0.2	-	-	W/A
Optical Output Power	P_o	I_{op} <= $I_{op, max}$, over full T_{op} range	70	-	-	mW
Center wavelength	λ_c	CW, at over operating temperature range	1304.5	1311	1317.5	nm
Side Mode Suppression Ratio	SMSR	Over full T_{op} and I_{op} range	35	-	-	dB
Wavelength change with temperature	$\Delta\lambda/\Delta T$	Over full T_{op} range	0.09	0.1	0.11	nm/°C
Far Field Divergence Angle Horizontal	θ_H	CW, FWHM	-	17	30	degree
Far Field Divergence Angle Vertical	θ_V	CW, FWHM	-	24	30	degree

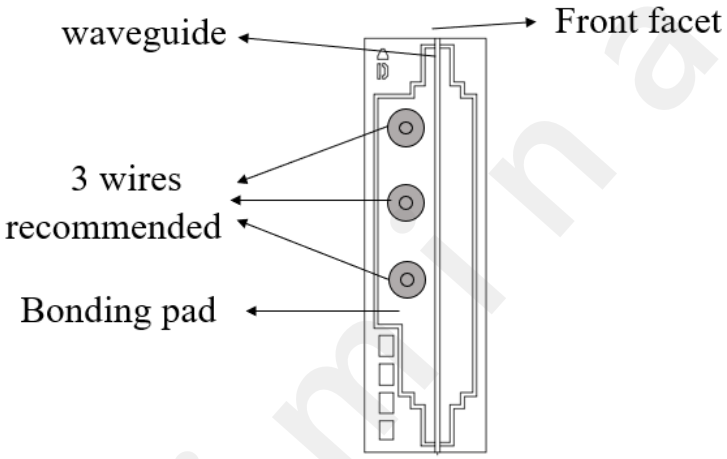
Note:

1. Laser I-V curve must be monotonic and free of kinks.
2. T_{op} is measured by a thermistor soldered on the submount where the laser diode chip is soldered on to.

H. ASSEMBLY

Recommended Wire Bonding Instructions:

1. Gold wire diameter = 25.4µm.
2. Ball bonding should be used and wedge bonding is to be avoided.
3. Recommended number of wires = 3 or more for better heat dissipation and current spreading.
4. Wire bonds should be distributed uniformly on the p-bond pad but positioned away from the waveguide.



I. ORDER INFORMATION

DL – DFB 31 070 D – 75-85E

- High Efficiency (850 CL)
- Maximum Operating Temperature 75°C
- Die/Chip
- Minimum output power 70mW
- Typical Peak Wavelength 1**31**1nm
- Distributed Feedback Laser
- Denselight