DENSELIGHT SEMICONDUCTORS PTE. LTD.
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SPECIFICATIONS

Tunable Single-Frequency Laser Box

DL-BF11-CLSxxxB-Syyyy-zz

A. PRODUCT DESCRIPTION

The DenseLight DL-BF11-CLSxxxB-Syyyy-zz is a series of tunable single frequency laser designed for applications in optical metrology & instrumentation and optical gas & chemical sensing, requiring narrow spectral linewidth, excellent SMSR, power stability, and a very highly wavelength stable laser output. The DL-BF11-CLSxxxB-Syyyy-zz is complete with a DenseLight 14-pin BTF package laser, integrated laser driver & temperature controller, and 10-Turn dial controlled electronics for picometer precision wavelength tuning over the selected tuning range. DenseLight DL-BF11-CLSxxxB-Syyyy-zz is available over a wide wavelength range across the O, E, S, C and L bands, which can be customized with various options to meet your specific needs.

For responsive prototyping enquiries please email: info@denselight.com

B. FEATURES

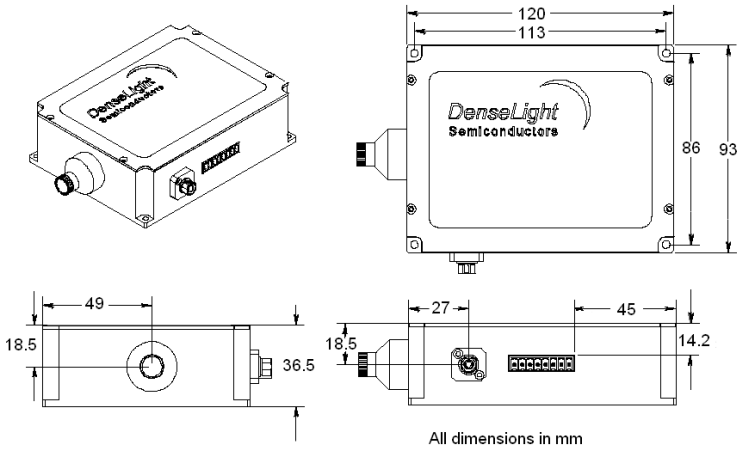
- CW optical power of 3 to 20mW
- Typical linewidth of 5kHz
- SMSR >35dB
- Wavelength stability better than +/-1pm
- Wavelength tuning range of 300pm
- Wavelength availability 1260 to 1670nm
- Integrated optical isolator (Optional)
- FC receptacle
- Built-in current driver and temperature controller
- Single +5V power supply (optional power adapter)
- Over temperature protection and internal PCB temperature monitor
- Compact size
- RoHS compliance

C. APPLICATIONS

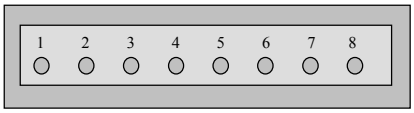
- OTDR
- Optical measuring instrumentation
- Optical gas and chemical sensor

D. PHYSICAL DIMENSIONS AND MECHANICAL SPECIFICATION

Dimension: L120 x W93 x H36.5 mm
Enclosure: Metal Case
Optical output: FC receptacle
Cooling: Air-cooled.
Electronic interface: 8-pin terminal block



E. PIN ASSIGMENT AND FUNCTION



8-pin terminal block (Pin 8 near to SMA1)

Pin No.	Symbol	Power/Control /Monitor	Analog /Digital	Input /Output	Description
1	P_{GND}	P			Power Supply Ground
2	V_S	P			+5V d.c.
3	OVRT	M	D	O	To report PCB over temperature and internal self-protection shutdown in operation (Active high)
4	T_{MON}	M	A	O	To monitor the temperature of PCB
5	N/C				
6	N/C				
7	LO_EN	C	D	I	To enable Light output (active low or no connection to enable laser driver)
8	A_{GND}				Signal Ground for Control and Monitor Signals

F. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit
Operating temperature (chassis)	T_{op}	I_{op}	0	60	°C
Operating Relative Humidity	RH	I_{op}		85	%
Storage temperature	T_{stg}	Unbiased	-40	85	°C
Input current	I_s			6	A
Input Power Supply	V_S			6	V

G. ELECTRICAL SPECIFICATIONS [1]

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Input Power Supply	V_S		4.75	5	5.5	V
Input Current [2]	I_S				2.5	A
Total Power consumption [2]	P_S				12.5	W
Over Temperature	OVRT	Open-drain digital output with internal 1K pull-up to 3V for VH and 8mA current sink for VL				
	V_{OL}	Normal	0		0.45	V
	V_{OH}	Over-temp	2.0		3.0	V
Internal PCB Temperature Monitor	T_{MON}	Analog voltage: T_{MON} = 395mV + (6.2mV/°C x T), T = PCB temperature in °C				mV
Voltage	V_{OUT}	R_X = infinite	0		2.5	V
Output Impedance	R_{OUT}			150		Ω
Source Current	$\|I_{OUT}\|$	V_{OUT} = 2.5V			4	mA
Light Output Enable	LO-EN	Digital input with internal 10K pull-down for light output enable at logic low or no connection				
	V_{IL}	Normal	0		1	Normal
	V_{iH}	Disable light output	2.5		3.3	Disable light output

[1] Unless otherwise specified, tests are performed at T_{op} = 25°C

[2] Depending on product selection

H. OPTICAL SPECIFICATIONS

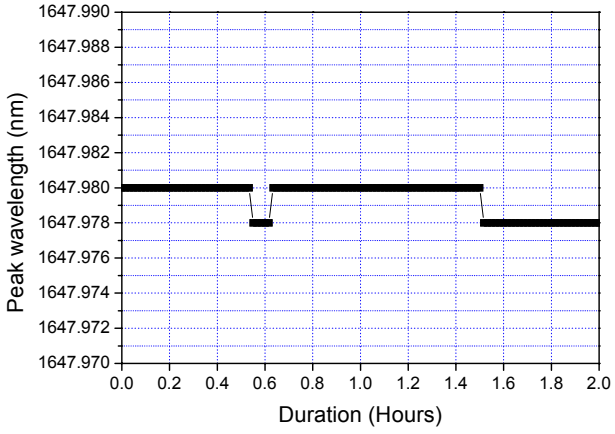
Parameter	Symbol	Min	Typ	Max	Unit
Power stability [5] 1 hour	P_{Stb}			± 0.03	dB
8 hour				± 0.05	dB
Wavelength stability [5]	$\lambda_{stability}$			± 1	pm

[5)] After one hour of warm-up

14-Pin Butterfly package CLSxxxB-Syyyy	Min Power (mW)	Peak wavelength (nm)	Side Mode Suppression Ratio (dB)	Linewidth (kHz)
CLS051B-S1260	5	1260±2	>35dB	<50
CLS051B-S1383	5	1383±2	>35dB	<50
CLS101B-S1550	10	1550±2	>35dB	<50
CLS051B-S1648	5	1648±2	>35dB	<50
CLS051B-S1665	5	1665±2	>35dB	<50

The full optical performance of the DL-BF11-CLSxxxB-Syyyy-zz can be found in DenseLight standard 14-pin Butterfly package CLSxxxB-Syyyy series individual specification. Please contact DenseLight Semiconductor Pte Ltd for further information.

I. TYPICAL WAVELENGTH STABILITY



*Wavelength stability <+/-1pm, limited by resolution of optical spectrum analyzer

J. ORDERING INFORMATION

Please use the following part code system to order products.

DL-BF11-CLSxxxB-Syyyy-zz

Part code:
1) CLSxxxB-Syyyy refers to DenseLight standard 14-pin Butterfly package. Refer to the summary in section H for the code number.
2) Syyyy-zz denotes peak wavelength selection
yyyy.zz =1260.01 to 1670.00

K. REVISION CONTROL

Authorized Personnel	Rev	Description of Change	Date
OTK	A	Initial: Prelim Production Release	12 June 2007