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## **SPECIFICATIONS**

### **Ultra Narrow Linewidth Laser Box**

#### **DL-BF9-CLSyyyB-Szzzz**

DenseLight Semiconductors reserves the right to make product design or specifications changes without notice.

## A. PRODUCT DESCRIPTION

The DenseLight DL-BF9-CLSyyyB-Szzzz is a series of ultra narrow linewidth 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-BF9-CLSyyyB-Szzzz is complete with a DenseLight 14-pin BTF package laser, integrated laser driver & temperature controller. It is available over a wide wavelength range across the O, E, S, C and L bands, and can be customized with various options to meet your specific needs.

For responsive prototyping enquiries please email: [info@denselight.com](mailto:info@denselight.com)

## B. FEATURES

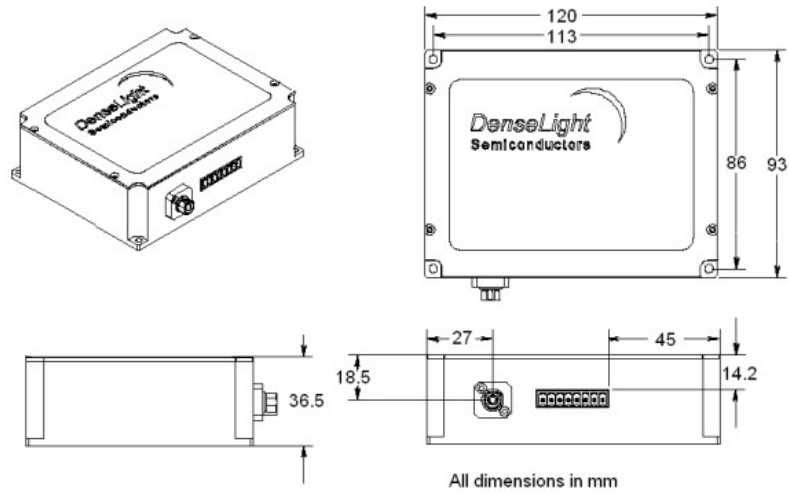
- Wavelength availability 1260 to 1670nm
- Wavelength stability better than +/-1pm
- Typical linewidth of <10kHz to 50kHz
- SMSR >35dB
- Built-in current driver and temperature controller
- Single +5V power supply (optional power adapter)
- RoHS compliance, Telcordia GR-468-CORE
- Integrated optical isolator
- Optical output: FC/APC receptacle
- Dimension: L120 x W93 x H36.5 mm

## C. APPLICATIONS

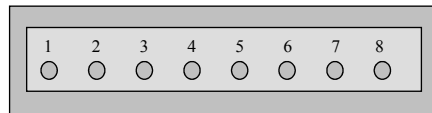
- OTDR
- Optical measuring instrumentation
- Optical gas and chemical sensor

## 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 ASSIGNMENT AND FUNCTION



**8-pin terminal block (Pin 1 near to FC receptacle)**

Pin No.	Symbol	Power/Control /Monitor	Analog /Digital	Input /Output	Description
1	P <sub>GND</sub>	P			Power Supply Ground
2	V <sub>S</sub>	P			+5V d.c.
3	N/C				
4	N/C				
5	N/C				
6	T <sub>MON</sub>	M	A	O	To monitor the temperature of PCB
7	N/C				
8	A <sub>GND</sub>				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	50	°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 <sup>1</sup>

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Input Power Supply	$V_s$	$T_{op}=0$ to $50$ °C	4.75	5	5.5	V
Input Current	$I_s$	$T_{op}=0$ to $50$ °C			2.5	A
Total Power consumption	$P_s$	$T_{op}=0$ to $50$ °C			12.5	W
Internal PCB Temperature Monitor	$T_{MON1}$	Analog voltage: $T_{MON} = 395mV + (6.2mV/°C \times T)$ , T = PCB temperature in °C				mV
Voltage	$V_{OUT}$	$R_x = \text{infinite}$	0		2.5	V
Output Impedance	$R_{OUT}$			150		Ω
Source Current	$ I_{OUT} $	$V_{OUT} = 2.5V$			4	mA

<sup>1)</sup> Unless otherwise specified, tests are performed at  $T_{op} = 25°C$

<sup>2)</sup> Depending on product selection

## H. OPTICAL SPECIFICATIONS

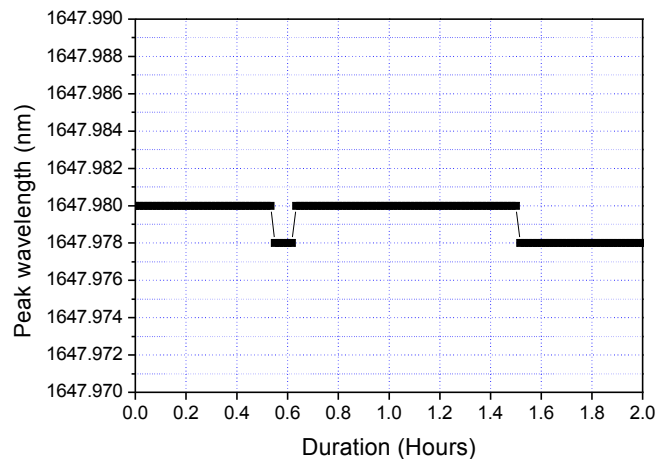
Parameter	Symbol	Min	Typ	Max	Unit
Power stability <sup>5</sup> 1 hour	$P_{Stb}$			$\pm 0.03$	dB
8 hour				$\pm 0.05$	dB
Wavelength stability <sup>5</sup>	$\lambda_{stability}$			$\pm 1$	pm

<sup>5)</sup> After one hour of warm-up

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

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

## I. TYPICAL WAVELENGTH STABILITY



\*Wavelength stability  $< \pm 1$  pm, limited by resolution of optical spectrum analyzer

## J. ORDERING INFORMATION

Please use the following part code system to order products.

### **DL-BF9-CLSyyyB-Szzzz**

Part code:

CLSyyyB-Szzzz refers to DenseLight standard 14-pin Butterfly package. Refer to the summary in section H for the code number.

## K. REVISION CONTROL

<b>Authorized Personnel</b>	<b>Rev</b>	<b>Description of Change</b>	<b>Date</b>
OTK	A	Initial: Prelim Production Release	22 April 2009