

**PH811DBR
811nm Series**

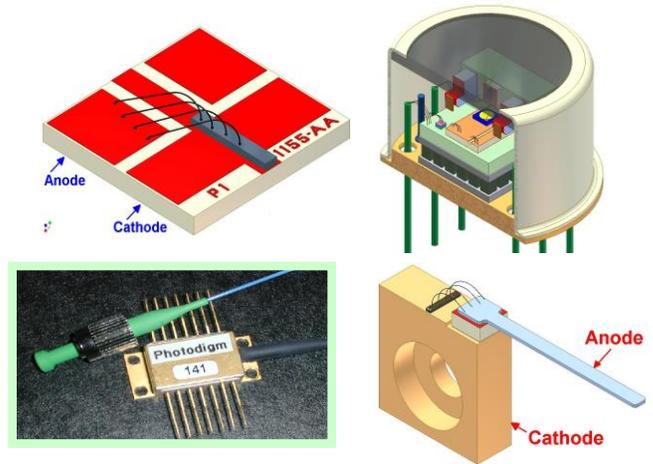
High-Power Single-Frequency Laser Diode

Technology

- DBR Single-Frequency Laser Chip
- InGaAs QW Active Layer
- Epi designed for high reliability

Features

- Available in several package styles
- Pulsed operation for spectral stability at short pulse lengths
- High power for CW applications
- High Slope Efficiency



Description

The PH811DBR Series of high-power edge-emitting lasers are based on Photodigm’s advanced single-frequency laser technology. It provides a diffraction limited, single lateral and longitudinal mode beam. Facets are passivated for high-power reliability. Devices used in atomic spectroscopy based applications.

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature	T _{STG}	°C	0	80
Operating Temperature	T _{OP}	°C	5.0	70
CW Laser Forward Current, T=T _{op}	I _F	mA	-	**
Pulsed Laser Forward Current, T=25°C, PW=300 ns, DC=10%	I _F	A	-	0.5
Laser Reverse Voltage	V _R	V	-	0.0
Photodiode Forward Current 1/2/	I _P	mA	-	5.0
Photodiode Reverse Voltage 1/2/	V _R	V	-	20.0
Photodiode Dark Current, V _R =10V, LD I _F =0, 1/2/	I _D	nA	-	50
TEC Current 1/2/	I _{TEC}	A	-1.8	1.8
TEC Voltage 1/2/	V _{TEC}	V	-1.9	1.9
Thermistor Current 1/2/	I _{THRM}	mA	-	1.0
Thermistor Voltage 1/2/	V _{THRM}	V	-	10
ESD (HBM)	-	V	-	500
External Back Reflection	-	dB	-	-14
Lead Soldering Temperature, 10 sec. Max., 1/2/	-	°C	-	260
Fiber Pull Force 1/	-	N	-	5.0
Fiber Bend Radius 1/	-	mm	-	35

1/ Butterfly package 2/ TO-8 package** Do not exceed drive current or operating power of supplied LIV

CW Characteristics at $T_c = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength	λ_c	nm	-	811	-
Optical Output Power @ LIV current	P_o	mW	See Power Options Call-out		
Slope Efficiency, <u>1/</u>	η_d	W/A	0.3	0.36	
Slope Efficiency	η_d	W/A	0.6	0.72	-
Threshold Current	I_{th}	mA	-	40	50
Laser Series Resistance	R_s	Ω	-	2.5	3.5
Laser Forward Voltage	V_F	V	-	2.0	2.5
Thermistor Resistance @ 25°C , <u>1/2/</u>	R_T	K Ω	-	10	-
Photodiode Dark Current, $V_R=10\text{V}$, LD $I_F=0$, <u>1/2/</u>	I_D	nA	-	-	50
Laser Line Width	$\Delta\nu$	MHz	-	0.5	1
Beam Divergence @ FWHM	$\theta_{ } \times \theta_{\perp}$	$^\circ$	-	6 X 32	8 X 34
Side Mode Suppression Ratio	SMSR	dB	-30	-	-
Polarization Extinction Ratio, <u>1/</u>	PER	dB	-16	-19	-
Laser Polarization				TE	
Mode Structure			Fundamental Mode		

1/ Butterfly package 2/ TO-8 package

Handling Precautions

These devices are sensitive to ESD. When handling the module, grounded work area and wrist strap must be used. Always store in an antistatic container with all leads shorted together.

How To Order

Part number example: PH811DBR080CM. Assign optical power from those shown below. Use a three-digit format for all power entries. Call factory for special performance selection and certification to certain atomic absorption lines.

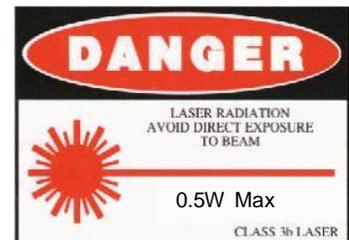
PH811DBR 

Operating Power
(mW)

040
080
120
180

Package Type

CS Chip on Submount
CM 'C' Mount
BF Butterfly
T8 TO-8



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