

PH1083DBR 1083nm Series

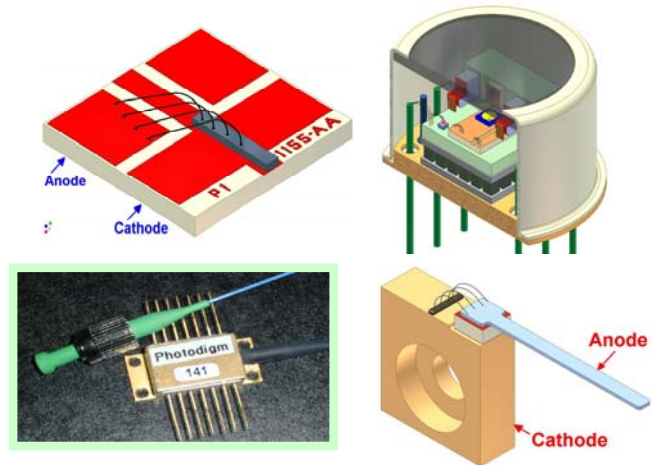
High-Power Single-Frequency Laser Diode

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 PH1083DBR 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. Applications include fiber amplifier seeding, spectroscopy, difference frequency generation, and low power DPSS replacement.

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	-	300**
Pulsed Laser Forward Current, T=25°C, PW=300 ns, DC=10%	I _F	A	-	1.0
Laser Reverse Voltage	V _R	V	-	2.0
Photodiode Forward Current <u>1/ 2/</u>	I _P	mA	-	5.0
Photodiode Reverse Voltage <u>1/ 2/</u>	V _R	V	-	20.0
Photodiode Dark Current, V _R =10V, LD I _F =0, <u>1/ 2/</u>	I _D	nA	-	50
TEC Current <u>1/ 2/</u>	I _{TEC}	A	-2.5	2.5
TEC Voltage <u>1/ 2/</u>	V _{TEC}	V	-6.0	6.0
Thermistor Current <u>1/ 2/</u>	I _{THRM}	mA	-	1.0
Thermistor Voltage <u>1/ 2/</u>	V _{THRM}	V	-	10
ESD (HBM)	-	V	-	500
External Back Reflection	-	dB	-	-14
Lead Soldering Temperature, 10 sec. Max., <u>1/ 2/</u>	-	°C	-	260
Fiber Pull Force <u>1/</u>	-	N	-	5.0
Fiber Bend Radius <u>1/</u>	-	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°C unless otherwise specified

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength	λ_c	nm	1081	1083	1085
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	-	30	40
Laser Series Resistance	R _S	Ω	-	2.0	2.5
Laser Forward Voltage	V _F	V	-	2.0	2.5
Thermistor Resistance @ 25°C, <u>2/</u>	R _T	K Ω	-	10	-
Photodiode Dark Current, V _R =10V, LD I _F =0, <u>2/</u>	I _D	nA	-	-	50
Beam Divergence @ FWHM	$\theta_{ } \times \theta_{\perp}$	°	-	6 X 32	8 X 34
Laser Line Width	$\Delta\nu$	MHz	-	8	10
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: PH1083DBR050BF. Assign optical power from those shown below. Use a three-digit format for all power entries. Call factory for special frequency selection and certification to certain atomic absorption lines. Butterfly package offered at 50% of output powers shown.

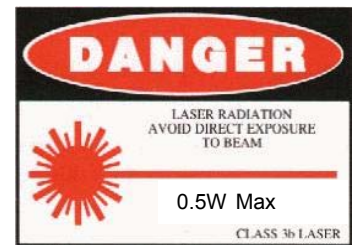
PH1083DBR ■ ■ ■ ■

Operating Power (mW)

040	125
060	150
080	200
100	

Package Type

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



Photodigm, Inc. reserves the right to make changes in design, specifications and other information at any time, and without prior notice. The information contained within the product bulletin is believed to be accurate. However, no responsibility is assumed for possible inaccuracy or omission. Any information contained herein shall legally bind Photodigm, Inc. only if it is specifically incorporated in the terms and conditions of a sales agreement.