

PH1083DBR 1083nm Series

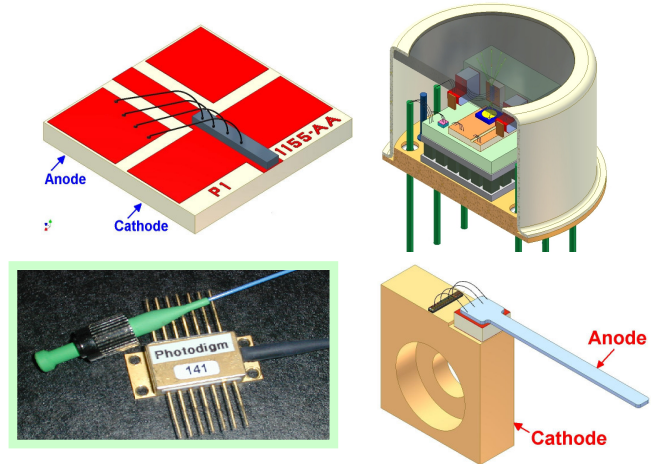
High-Power Single-Frequency Laser Diode

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, $T=25^{\circ}\text{C}$	I_F	mA	-	300
Pulsed Laser Forward Current, $T=25^{\circ}\text{C}$, PW=300 ns, DC=10%	I_F	A	-	1.0
Laser Reverse Voltage	V_R	V	-	2.0
Photodiode Forward Current <u>1/</u> <u>2/</u>	I_P	mA	-	5.0
Photodiode Reverse Voltage <u>1/</u> <u>2/</u>	V_R	V	-	20.0
Photodiode Dark Current, $V_R=10\text{V}$, LD $I_F=0$, <u>1/</u> <u>2/</u>	I_D	nA	-	50
TEC Current <u>1/</u> <u>2/</u>	I_{TEC}	A	-2.5	2.5
TEC Voltage <u>1/</u> <u>2/</u>	V_{TEC}	V	-6.0	6.0
Thermistor Current <u>1/</u> <u>2/</u>	I_{THRM}	mA	-	1.0
Thermistor Voltage <u>1/</u> <u>2/</u>	V_{THRM}	V	-	10
ESD (HBM)	-	V	-	500
External Back Reflection	-	dB	-	-14
Lead Soldering Temperature, 10 sec. Max., <u>1/</u> <u>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

CW Characteristics at T_C = 25 °C unless otherwise specified

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength @ 250mA	λ_c	nm	1081	1083	1085
Optical Output Power @ 250mA	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 @ 250mA	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 @ 250mA	$\Delta\nu$	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: PH1083DBR080BF. Assign optical power from those available shown in Photodigm's Product Capabilities Brochure. Use a three-digit format for all power entries. Call factory for special frequency selection and certification to certain atomic absorption lines.

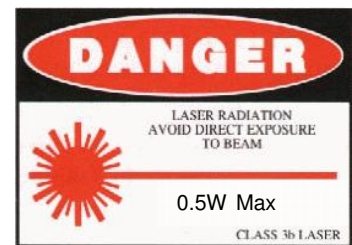
PH1083DBR 

Minimum Power (mW)

040	125
060	150
080	200
100	250

Package Type

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



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