

972-235-7584



GET A QUOTE

1083 nm Laser Diode | PH1083DBR Series

Technology

- DBR Single-Frequency Laser Chip
- AlGaAs 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 for the **1083 nm laser diode** include fiber amplifier seeding, spectroscopy, difference frequency generation, and low power DPSS replacement. The Spectroscopy Series 1083 nm laser diode is certified to be resonant with the **metastable helium** line.

Ab

solute Maximum Rating

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
	I _D	nA	-	50

Photodiode Dark Current, $V_R=10V$, LD $I_F=0$, <u>1/ 2/</u>				
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

**Do not exceed drive current or operating power of supplied LIV

CW Characteristics at $T_C = 25^\circ C$ unless otherwise specified

Parameter	Symbol	Unit	Min	Typ	Max
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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, $V_R=10V, LD I_F=0, \underline{2/}$	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		

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: PH1083DBR040BF. 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, and is not recommended for spectroscopy applications. See Photodigm's application note titled "Optical Feedback"

Package Type

(CS) Chip on Submount

(CM) 'C' Mount

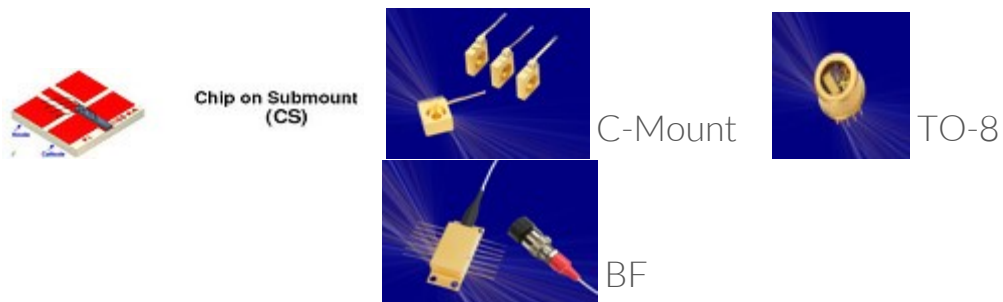
(T8) TO-8

(BF) Butterfly

Minimum Power (mW)

080

120



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