

## PH976DBR 976nm Series

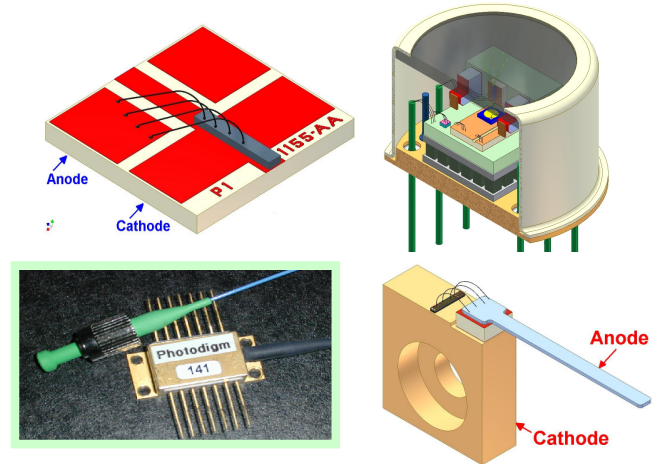
### High-Power Single-Frequency Laser Diode

#### 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 PH976DBR 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 Yb narrow band pumping, 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, $T=25\text{ }^{\circ}\text{C}$ **	$I_F$	mA	-	150
Pulsed Laser Forward Current, $T=25\text{ }^{\circ}\text{C}$ , PW=300 ns, DC=10%	$I_F$	A	-	0.5
Laser Reverse Voltage	$V_R$	V	-	2.0
Photodiode Forward Current 1/ 2/	$I_P$	mA	-	5.0
Photodiode Reverse Voltage 1/ 2/	$V_R$	V	-	20.0
Photodiode Dark Current, $V_R=10\text{V}$ , LD $I_F=0$ , 2/	$I_D$	nA	-	50
TEC Current 1/ 2/	$I_{TEC}$	A	-2.5	2.5
TEC Voltage 1/ 2/	$V_{TEC}$	V	-6.0	6.0
Thermistor Current 1/ 2/	$I_{THRM}$	mA	-	1.0
Thermistor Voltage 1/ 2/	$V_{THRM}$	V	-	10
External Back Reflection	-	dB	-	-14
ESD (HBM)	-	V	-	500
Lead Soldering Temperature, 10 sec. Max., 2/	-	°C	-	260
Fiber Pull Force 1/	-	N	-	5.0
Fiber Bend Radius 1/	-	mm	-	35

1/ Butterfly package 2/ TO-8 package

\*\* unless otherwise noted

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

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength @ 150mA	$\lambda_c$	nm	974	976	978
Optical Output Power @ 150mA	$P_o$	mW	See Power Options Call-out		
Slope Efficiency, <u>1/</u>	$\eta_d$	W/A	0.3	0.36	
Slope Efficiency	$\eta_d$	W/A	0.6	0.72	-
Threshold Current	$I_{th}$	mA	-	30	40
Laser Series Resistance	$R_S$	$\Omega$	-	2.0	2.5
Laser Forward Voltage @ 150mA	$V_F$	V	-	2.0	2.5
Thermistor Resistance @ $25^\circ\text{C}$ , <u>2/</u>	$R_T$	K $\Omega$	-	10	-
Photodiode Dark Current, $V_R=10\text{V}$ , LD $I_F=0$ , <u>2/</u>	$I_D$	nA	-	-	50
Laser Line Width @ 150mA	$\Delta\nu$	MHz	-	8	10
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 only 2/ Butterfly and 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.

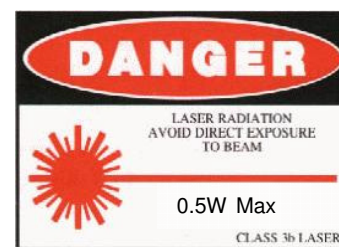
**How To Order**

Part number example: PH976DBR080CM. 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.

PH976DBR 

Minimum Power (mW)	
040	125
060	150
080	200
100	225

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



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