

**PH852DBR  
852nm Series**

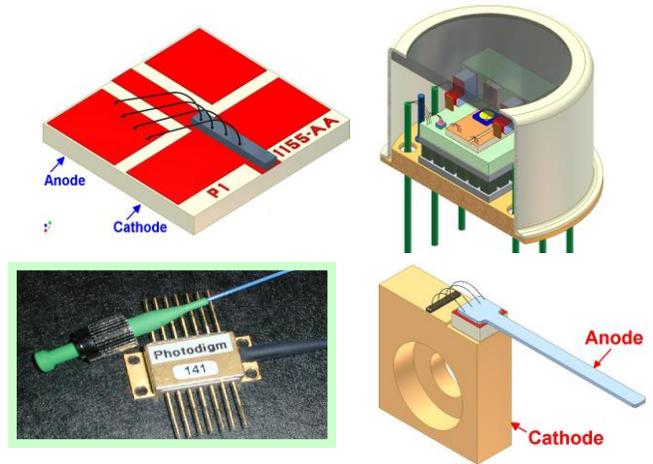
**High-Power Single-Frequency Laser Diode**

**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 PH852DBR 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 for cesium based applications.

**Absolute Maximum Ratings**

Parameter	Symbol	Unit	Min	Max
Storage Temperature	T <sub>STG</sub>	°C	0	80
Operating Temperature	T <sub>OP</sub>	°C	5.0	70
CW Laser Forward Current, T=T <sub>op</sub>	I <sub>F</sub>	mA	-	200**
Pulsed Laser Forward Current, T=25°C, PW=300 ns, DC=10%	I <sub>F</sub>	A	-	0.5
Laser Reverse Voltage	V <sub>R</sub>	V	-	0.0
Photodiode Forward Current 1/2/	I <sub>P</sub>	mA	-	5.0
Photodiode Reverse Voltage 1/2/	V <sub>R</sub>	V	-	20.0
Photodiode Dark Current, V <sub>R</sub> =10V, LD I <sub>F</sub> =0, 1/2/	I <sub>D</sub>	nA	-	50
TEC Current 1/2/	I <sub>TEC</sub>	A	-1.8	1.8
TEC Voltage 1/2/	V <sub>TEC</sub>	V	-1.9	1.9
Thermistor Current 1/2/	I <sub>THRM</sub>	mA	-	1.0
Thermistor Voltage 1/2/	V <sub>THRM</sub>	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	$\lambda_c$	nm	850	852	854
Optical Output Power @ LIV current	$P_o$	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	-	40	50
Laser Series Resistance	$R_s$	$\Omega$	-	2.5	3.5
Laser Forward Voltage	$V_F$	V	-	2.0	2.5
Thermistor Resistance @ $25^\circ\text{C}$ , <u>1/2/</u>	$R_T$	K $\Omega$	-	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: PH852DBR080CM. 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. Butterfly package offered with 40mW operating power only and is not recommended for spectroscopy applications. See Photodigm's application note titled "Optical Feedback"

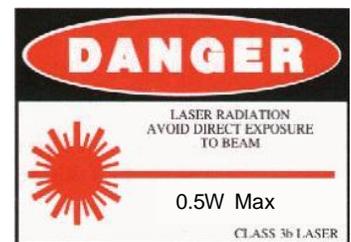
PH852DBR 

**Operating Power (mW)**

040	180
080	240
120	

**Package Type**

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



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