

PH785DBR 785nm Series

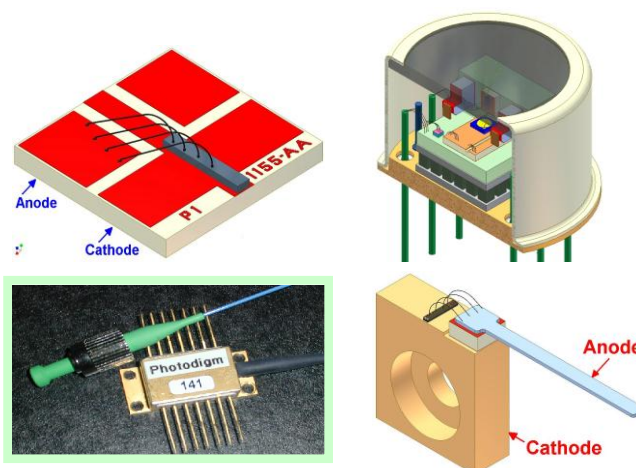
High-Power Single-Frequency Laser Diode

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 PH785DBR 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 Ramon spectroscopy and optical storage.

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	-	150**
Pulsed Laser Forward Current, $T=25^{\circ}\text{C}$, PW=300 ns, DC=10%	I_F	A	-	0.3
Laser Reverse Voltage	V_R	V	-	0.0
Photodiode Forward Current 1/	I_P	mA	-	5.0
Photodiode Reverse Voltage 1/	V_R	V	-	20.0
Photodiode Dark Current, $V_R=10\text{V}$, LD $I_F=0$, 1/	I_D	nA	-	50
TEC Current 1/	I_{TEC}	A	-2.0	2.0
TEC Voltage 1/	V_{TEC}	V	-6.0	6.0
Thermistor Current 1/	I_{THRM}	mA	-	1.0
Thermistor Voltage 1/	V_{THRM}	V	-	10
External Back Reflection	-	dB	-	-14
Lead Soldering Temperature, 10 sec. Max.	-	°C	-	260

1/ Butterfly and TO8 package
LIV

**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 @ 150mA	λ_c	nm	783	785	787
Optical Output Power @ 150mA	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	0.75	-
Threshold Current	I_{th}	mA	-	50	70
Laser Series Resistance	R_S	Ω	-	2.0	2.5
Laser Forward Voltage @ 150mA	V_F	V	-	2.0	2.5
Thermistor Resistance @ 25°C , <u>2/</u>	R_T	K Ω	-	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	-	3	10
Polarization Extinction Ratio, <u>1/</u>	PER	dB	-16	-19	-
Beam Divergence @ FWHM	$\theta_{ } \times \theta_{\perp}$	$^\circ$	-	6 X 32	8 X 34
Side Mode Suppression Ratio	SMSR	dB	-30	-	-
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.

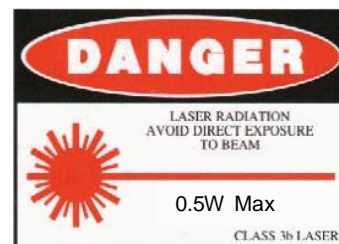
How To Order

Part number example: PH785DBR080CM. Assign optical power from those available. Use a three-digit format for all power entries. Call factory for special frequency selection and certification to certain atomic absorption lines.

PH785DBR 

Minimum Power (mW)
040
080
120
180

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



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