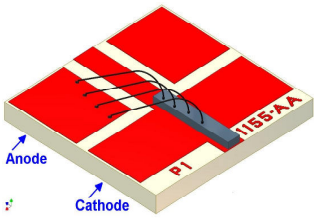
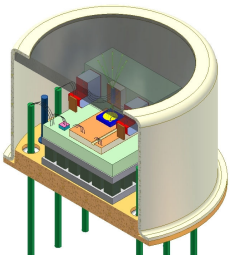
PH770DBR
770nm Series

High-Power Single-Frequency Laser Diode

Technology

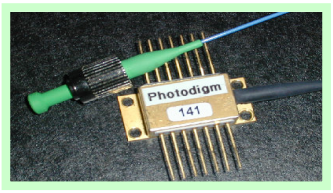
- DBR Single-Frequency Laser Chip
- AlGaAs QW Active Layer
- Epi designed for high reliability

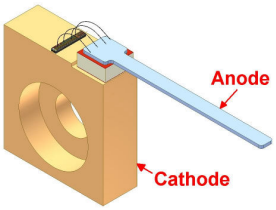




Features

- Available in several package styles
- Pulsed operation for spectral stability at short pulse lengths
- High power for CW applications
- High Slope Efficiency





Description

The PH770DBR 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 spectroscopy for potassium-based application.

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°C *	I_F	mA	-	150**
Pulsed Laser Forward Current, T=25°C, PW=300 ns, DC=10%	I_F	A	-	0.3
Laser Reverse Voltage	V_R	V	-	0.0
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=10V, LD I_F=0, 1/2/	I_D	nA	-	50
TEC Current 1/2/	I_{TEC}	A	-2.0	2.0
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
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/ TO8 package

* unless otherwise noted

** drive current of supplied LIV shall apply

CW Characteristics at T_C = 25°C unless otherwise specified

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength @ 150mA	λ_c	nm	768	770	772
Optical Output Power @ 150mA	P_o	mW	See Power Options Call-out		
Slope Efficiency, 1/	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, 1/2/	R_T	KΩ	-	10	-
Photodiode Dark Current, V_R=10V, LD I_F=0, 1/2/	I_D	nA	-	-	50
Laser Line Width @ 150mA	Δv	MHz	-	0.7	1.0
Polarization Extinction Ratio, 1/	PER	dB	-16	-19	-
Beam Divergence @ FWHM	$\theta_{II} \times \theta_{\perp}$	°	-	6 X 26	8 X 28
Side Mode Suppression Ratio	SMSR	dB	-30	-	-
Laser Polarization				TE	
Mode Structure			Fundamental Mode		

1/ Butterfly package 2/ TO-8 package * standard ridge device

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: PH770DBR080CM. 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.

PH770DBR_ _ _ _ _

Minimum Power (mW)

040
060
080

Package Type

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