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# 780 nm Laser Diode | PH780DBR Mercury Series

## PH780DBR Mercury Series High-Power Single-Frequency Laser Diode

### 780 nm Laser Diode in Mercury™ TOSA Package Technology

- DBR Single-Frequency Laser Chip
- AlGaAs QW Active Layer

### Features

- Robust, monolithic die design
- Pulsed operation for spectral stability at short pulse lengths
- Package contains TEC cooling with precise thermistor control
- High Slope Efficiency

- Hermetic package for high reliability

## Description

The 780nm Mercury™ 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 in a compact hermetic package. Facets are passivated for high-power reliability. Applications for the **780 nm Laser Diode** include mobile spectroscopy instrumentation where durability and reliability are essential.

### Absolute 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, $T=25^{\circ}C$	$I_F$	mA	-	**
Laser Reverse Voltage	$V_R$	V	-	0.0
TEC Current	$I_{TEC}$	A	-1.1	1.1

TEC Voltage	$V_{TEC}$	V	-3.0	3.0
Thermistor Current	$I_{THRM}$	mA	-	1.0
Thermistor Voltage	$V_{THRM}$	V	-	10

\*\*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	$\lambda_c$	nm	778	780	782
Optical Output Power	$P_o$	mW	See Power Options Call-out		
Slope Efficiency	$\eta_d$	W/A	0.75	0.85	-
Threshold Current	$I_{th}$	mA	-	50	80
Laser Series Resistance	$R_S$	$\Omega$	-	2.0	2.5

Laser Forward Voltage @ 150mA	$V_F$	V	-	2.0	2.5
Thermistor Resistance @ 25°C	$R_T$	K $\Omega$	-	10	-
Laser Line Width	$\Delta\nu$	MHz	-	0.5	1.0
Beam Divergence @ FWHM	$\theta_{  } \times \theta_{\perp}$	°	-	6 X 28	8 X 32
Side Mode Suppression Ratio	SMSR	dB	-30	-	-
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: PH780DBR080TS. Assign optical power from those available. Use a three-digit format for all power entries.

**PH780DBR\_\_\_TS** These devices are sensitive to ESD.

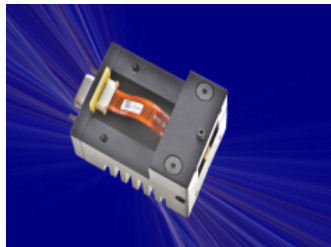
## The Mercury™

### Package

#### Minimum Power (mW)

040 120

080 180



Mercury™ with HSM



Mercury™



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