

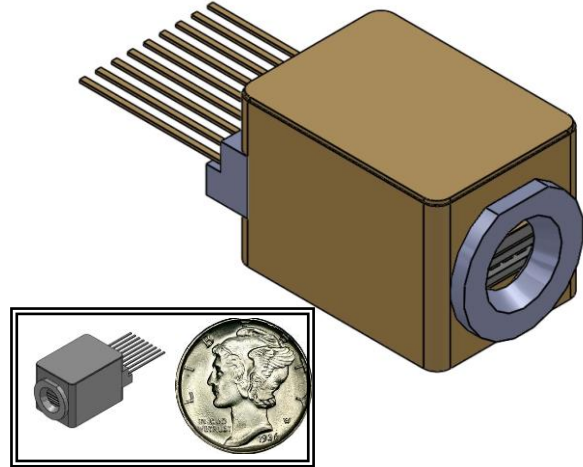
## 1083nm Mercury™ Series High-Power Single-Frequency Laser Diode PH1083DBRXXXTS

### Technology

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

### Features

- Robust, monolithic die and package 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 1083nm 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 include mobile instrumentation where durability and reliability are essential.

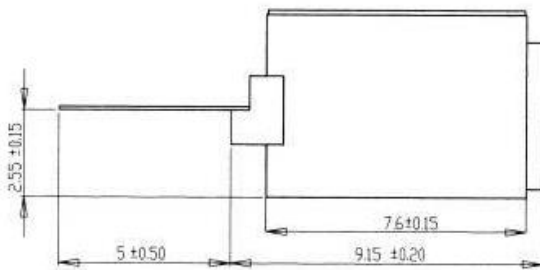
### Absolute Maximum Ratings

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	-	**
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

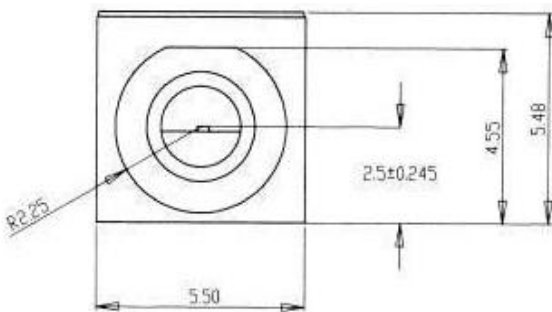
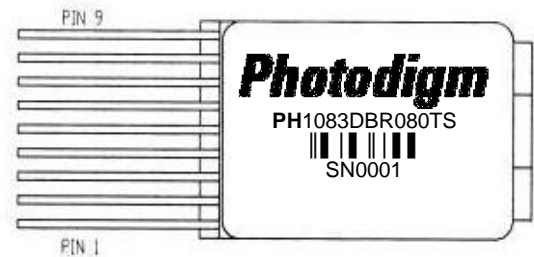
\*\*Do not exceed drive current or operating power of supplied LIV

**CW Characteristics at T<sub>C</sub> = 25°C unless otherwise specified**

Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength @ 150mA	$\lambda_c$	nm	1081	1083	1085
Optical Output Power	P <sub>o</sub>	mW	See Power Options Call-out		
Slope Efficiency	$\eta_d$	W/A	0.6	0.85	-
Threshold Current, P <sub>o</sub> <100mW	I <sub>th</sub>	mA	-	60	80
P <sub>o</sub> >100mW	I <sub>th</sub>	mA	-	100	120
Laser Series Resistance	R <sub>S</sub>	$\Omega$	-	2.0	2.5
Laser Forward Voltage @ 150mA	V <sub>F</sub>	V	-	2.0	2.5
Thermistor Resistance @ 25°C	R <sub>T</sub>	K $\Omega$	-	10	-
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	



**PIN ASSIGNMENTS:**  
 PIN 1: TEC(+)  
 PIN 2: THERMISTOR  
 PIN 3: THERMISTOR  
 PIN 4: LD(+)  
 PIN 5: LD(-)  
 PIN 6: NC  
 PIN 7: NC  
 PIN 8: NC  
 PIN 9: TEC(-)



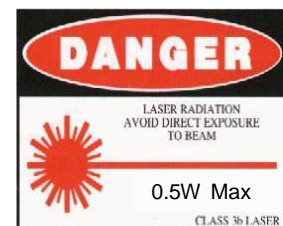
1. Hermeticity: <math> < 5 \times 10^{-8}</math> ATM<sub>(He)</sub>cc/sec
2. Window: Sapphire coated with AR both sides, 700nm-1080nm >90% transmission
3. LD facet to outer surface of window holder is 1.4mm typical
4. LD is centered to package (not window)
5. Package base is W85CU15
6. Final finish: 60 $\mu$ " of Au over 100 $\mu$ " Ni
7. Module is supplied with 6" flex interconnect (FPC). FPC will interface to Molex connector PN522071060. Custom FPC is optional.

**How To Order**

Part number example: PH1083DBR080TS. Assign optical power from those available. Use a three-digit format for all power entries. These devices are sensitive to ESD.

PH1083DBR **040** **080** **120** TS

<b>Typical Power</b> (mW)
<b>040</b> <b>080</b> <b>120</b>



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