

976 nm Laser Diode

Description

The IDP976DBR Series of high-power edge-emitting lasers are based on Idealphotonics'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 Yb narrow band pumping, spectroscopy, difference frequency generation, and low power DPSS replacement.

Feature

W Available in several package styles

Pulsed operation for spectral stability at short pulse lengths

High power for CW applications

High Slope Efficiency

Technology

DBR Single-Frequency Laser Chip

AlGaAs QW Active Layer

Epi designed for high reliability

Specification

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, $T=T_{op}$	I_F	mA	-	250**
Pulsed Laser Forward Current, $T=25^{\circ}C,$	I_F	A	-	0.5
PW=300 ns, DC=10%				
Laser Reverse Voltage	V_R	V	-	2.0
Photodiode Forward Current 1/ 2/	I_P	mA	-	5.0
Photodiode Reverse Voltage 1/ 2/	V_R	V	-	20.0
Photodiode Dark Current, $V_R=10V, LD$ $I_F=0, \underline{2/}$	I_D	nA	-	50
TEC Current 1/ 2/	I_{TEC}	A	-2.5	2.5
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
ESD (HBM)	-	V	-	500
Lead Soldering Temperature, 10 sec. Max., 2/	-	°C	-	260
Fiber Pull Force 1/	-	N	-	5.0
Fiber Bend Radius 1/	-	mm	-	35

1/ Butterfly package 2/ TO8 package**Do not exceed drive current or operating power of supplied LIV

CW Characteristics at TC = 25°C unless otherwise specified



Parameter	Symbol	Unit	Min	Typ	Max
Center Wavelength	λ_c	nm	974	976	978
Optical Output Power @ LIV current	P_o	mW	40-280		
Slope Efficiency, 1/	η_d	W/A	0.3	0.36	
Slope Efficiency	η_d	W/A	0.6	0.72	-
Threshold Current	I_{th}	mA	-	30	40
Laser Series Resistance	R_s	Ω	-	2.0	2.5
Laser Forward Voltage	V_F	V	-	2.0	2.5
Thermistor Resistance @ 25°C, 2/	R_T	K Ω	-	10	-
Photodiode Dark Current, $V_R=10V$, LD $I_F=0$, 2/	I_D	nA	-	-	50
Laser Line Width	$\Delta\nu$	MHz	-	8	10
Beam Divergence @ FWHM	$\theta \times \theta_{\perp}$	°	-	6 X 32	8 X 34
Side Mode Suppression Ratio	SMSR	dB	-30	-	-
Polarization Extinction Ratio, 1/	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.

Package

T08	Butterfly
 <p>A cylindrical gold-colored component with a lens on top and three pins at the bottom, set against a blue background with light rays.</p>	 <p>A yellow rectangular component with multiple pins on one side and a fiber optic cable on the other, set against a blue background with light rays.</p>