770 nm Laser Diode

Description

The IDP 770DBR 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 of the 770 nm Laser Diode include spectroscopy for potassium-based application.

Feathure

WAvailable 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=Top	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**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	768	770	772
Optical Output Power @ LIV Currrent	P_o	mW	10-40		
Slope Efficiency, 1/	η_d	W/A	0.25	0.36	
Slope Efficiency	η_d	W/A	0.60	0.75	-
Threshold Current	I_{th}	mA	-	50	70
Laser Series Resistance	R_S	Ω	-	2.0	2.5
Laser Forward Voltage	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	Δv	MHz	-	0.7	1.0
Polarization Extinction Ratio, 1/	PER	dB	-16	-19	-
Beam Divergence @ FWHM	$\theta \times \theta_\perp$	o	-	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

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

TO8	Butterfly