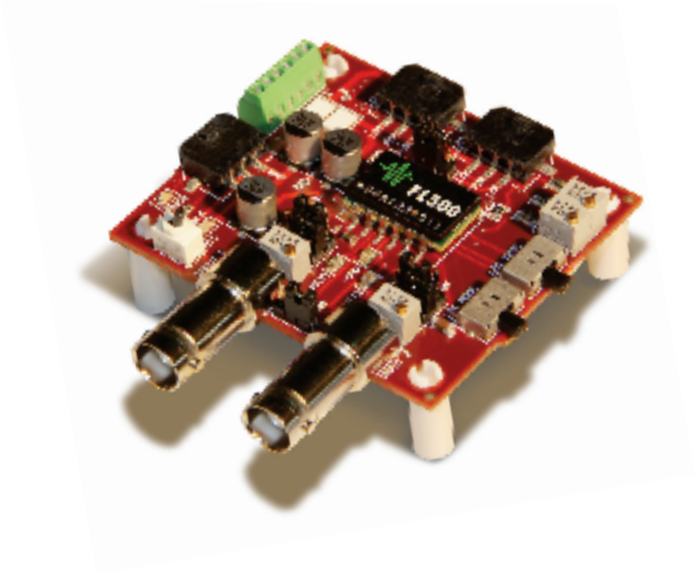
DATASHEET AND OPERATING GUIDE

FL591FL

Laser Diode Driver



FEATURES AND BENEFITS

- Accurately and efficiently characterize the FL500 in your application environment
- Includes FL500 Laser Driver chip already installed
- Utilizes all the safety features of the FL500
  - » Adjustable current limits
  - » Slow-start laser diode protection
  - » Brownout protection
- Onboard trimpots adjust output current and current limits
- Drive two independent 250 mA channels or a single 500 mA output
- Switches set the operating mode to Constant Current or Constant Power
- Operates Type A and Type B Laser Diodes
- Output Enable switch, LED status indicators
- Power and Output cables included

EASY SETUP SAVES YOU TIME

The FL591FL allows you to quickly and easily prototype your laser diode driver system using our popular FL500 laser diode driver chip.

The FL591FL can be configured to drive a single 500 mA output, or two 250 mA independent outputs by setting onboard jumpers. The drivers operate in Constant Current or Constant Power modes.

Onboard current setpoint and limit trimpots mean no external electronics are required to operate the drivers. Simply connect the power supply and laser diodes, and you're ready to go.

ACCURATELY PROTOTYPE YOUR LASER CONTROL SYSTEM

The FL591FL features low-noise electronics and low quiescent current, and the feedback and monitor signals allow you to accurately characterize your laser controller. You can transfer the FL500 prototype configuration directly to your custom laser control system with no surprises.

The FL500 is commonly used in hand-held, portable, and space constrained applications. The small size and light weight makes the FL500 ideal for airborne applications, and the dual-channel output is perfect for sighting-and-detection applications.

CONTENTS

ORDERING INFORMATION

PART NO	DESCRIPTION
FL591FL	Evaluation board with FL500

RoHS Compliant

LASER TYPES A B SUPPORTED

406-587-4910

www.teamWavelength.com

Applies to Product Revisions A through C

WAVELENGTH ELECTRONICS

ELECTRICAL SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS	SYMBOL	DUAL-CHANNEL OPERATION	SINGLE-CHANNEL OPERATION	UNIT	NOTE
Supply Voltage	V_S	3 to 9		VDC	
Max LD Output Current	I_{LD}	(2x) 250	(1x) 500	mA	
Laser Driver Internal Power Dissipation	P_{MAX}	1 W per channel	2 W total	W	$T_{AMBIENT}$ = 25ºC
Case Operating Temperature	T_{OPR}	-40 to 85		ºC	
Case Storage Temperature	T_{STG}	-55 to 125		ºC	
Weight		1.7		oz	47.6 g
Size		2.97 x 2.50 x 1.07		inches	75.5 x 63.5 x 27.1 mm

LASER DRIVER SPECIFICATIONS	SYMBOL	DUAL-CHANNEL	SINGLE-CHANNEL	UNIT	NOTE
CONSTANT CURRENT CONTROL					
Short Term Stability, 1 hour		35 to 40		ppm	$T_{AMBIENT}$ = 25ºC
Long Term Stability, 24 hours		50 to 75		ppm	$T_{AMBIENT}$ = 25ºC
CONSTANT POWER CONTROL					
Short Term Stability, 1 hour		0.009		%	$T_{AMBIENT}$ = 25ºC
Long Term Stability, 24 hours		0.02		%	
OUTPUT					
Peak Current	I_{MAX}	250 - 260	500 - 520	mA	
Compliance Voltage		V_S – (0.5 * V_{SET})		V	I_{MAX} = 500 mA
Rise Time		300		nsec	I_{LD} = 500 mA
Fall Time		300		nsec	I_{LD} = 500 mA
3dB Bandwidth, Constant Current		500		kHz	Sinewave input signal
Delayed Start		100		msec	
Slow Start Ramp		15		mA / msec	
Depth of Modulation		99		%	100 kHz sinewave
POWER SUPPLY					
Power Supply Voltage	V_S	3 to 9		V	
Quiescent Current, V_S		100		mA	at V_S = 9 V
V SET INPUT					
Input Impedance		51.1		Ω	
Input Voltage Range	V_{SET1}, V_{SET2}	0 to 2		V	
Damage Threshold		V_{SET} < -0.3, V_{SET} > (V_S + 0.3)		V	
NOISE					
Noise and Ripple (RMS)		3		µA	I_{LD} = 100 mA
Leakage Current with output disabled		50 100 150		µA	V_{SET} = 0 V V_{SET} = 1 V V_{SET} = 2 V