FL591FL Evaluation Board

SIMPLE AND FAST EVALUATION

The FL591FL Evaluation Board allows you to quickly and efficiently evaluate the FL500 Laser Diode Driver and prototype your laser electronics system.

The evaluation board is designed so that you can fully characterize the included FL500—you’ll know exactly how it will perform in your application, and there will be no surprises during the development process. Ultimately, you’ll bring your system to market faster and at lower cost.

The FL500 is commonly used in hand-held, portable, and space constrained applications. Small and lightweight, the FL500 is ideal for airborne applications, and the dual-channel output is perfect for sighting-and-detection applications.

DESIGNED FOR MAXIMUM VERSATILITY

The FL591FL is loaded with useful features to help simplify the prototyping process. For example, there are several setpoint-output combinations:

- Two independent 250 mA outputs, or a single 500 mA output
- Single 3 – 12 VDC power supply operation
- Trimpots and switches on the evaluation board
  » Output Enable
  » Current Setpoint
  » Current Limit
  » Constant Current or Constant Power control
- Remote adjustments for OEM prototyping
  » Current setpoint and modulation
  » Output Enable
- Monitors for output current, photodiode current, output current limit
- Safety features protect the laser diode
  » CDRH Output On delay and slow start
  » Clamping current limit
  » Brown-out protection

The current limits are set using onboard trimpots, and without enabling the output. The setpoint is controlled using the onboard trimpots, or use the BNC connector for external control. The onboard and BNC setpoints can be summed, so the laser can be driven in a DC Bias + Modulation configuration.

The control mode—Constant Current or Constant Power—is set with onboard switches. When operated as two independent drivers, the two channels can be operated in different modes.

MORE PRACTICAL FEATURES

Thoughtfully designed features provide valuable benefits and protect the laser against operational anomalies:

- The Enable input can be connected to a safety interlock, or coupled to a temperature controller to disable the output if the lasers exceed a safe operating temperature.
- Drive current and photodiode current monitor outputs can be tied to an external control and monitor circuit so you can characterize every aspect of your laser control system.
- Easy access to the setpoint and current limit reference signals for design evaluation and validation of your laser control electronics.

COUNT ON WAVELENGTH ELECTRONICS

Our Sales Engineers have the experience to help you choose the right laser diode driver for your application. Call today or visit our website to find out how Wavelength Electronics can help you to be successful.
# FL591FL Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Two-Channel Operation</th>
<th>Single-Channel Operation</th>
<th>Unit</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Output Current</td>
<td>(2x) 250</td>
<td>(1x) 500</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Laser Driver Power Dissipation</td>
<td>1 W per channel</td>
<td>2 W total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Term Stability, 1 hr</td>
<td>35 to 40</td>
<td></td>
<td>ppm</td>
<td>Constant Current mode</td>
</tr>
<tr>
<td>Long Term Stability, 24 hr</td>
<td>50 to 75</td>
<td></td>
<td>ppm</td>
<td>Constant Current mode</td>
</tr>
<tr>
<td>Compliance Voltage</td>
<td>&gt; 4</td>
<td></td>
<td>V</td>
<td>V_s = 5 V; see datasheet for details</td>
</tr>
<tr>
<td>Photodiode Feedback Range</td>
<td>0 – 1</td>
<td></td>
<td>mA</td>
<td>PD current range can be adjusted</td>
</tr>
</tbody>
</table>

## External Modulation

- **3dB Bandwidth, Constant Current**: 500 kHz
- **Rise / Fall Time**: 300 / 300 nsec
- **Depth of Modulation at 100 kHz**: 99%

## Power Supply Requirements

- **Supply Voltage (V_s)**: 3 – 12 VDC
- **Quiescent Current, Max**: 100 mA at V_s = 9 V

## Absolute Maximum Ratings

- **Supply Voltage (V_s)**: 12 VDC
- **Case Operating Temperature**: -40 to 85 ºC
- **Case Storage Temperature**: -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


### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL591FL</td>
<td>FL500 Evaluation Board, with FL500</td>
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</tbody>
</table>