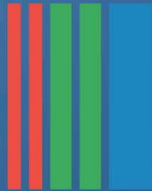




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HPLDD-5A-48V Laser Diode Driver

Technical Data

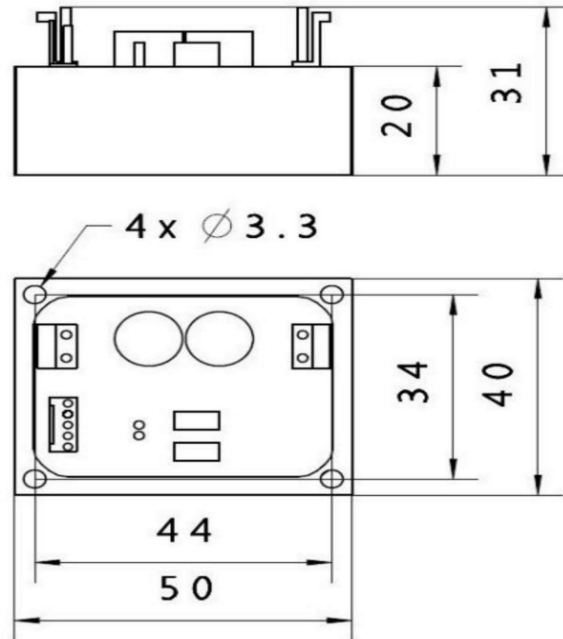
| | |
|---------------------------------------|-----------------------|
| Compliance Voltage | 12 - 48 V |
| Logic Supply Voltage | 10 - 15 V |
| Max. Bias (DC Offset) Current | 5A (2A offset) |
| Max. Power Dissipation | 30W |
| Pre-Set Current Setting | 500 mA |
| Transistor Type Used | High power N-MOSFET |
| Fall Time | less than 1.5 μ s |
| Minimum Current (3% Noise) | 500 mA |
| Current Monitor | 1 V/A |
| Material | Aluminium (heatsink) |
| Max. Modulation Frequency | 50 kHz |
| Modulation Input Voltage Range | 0 - 5 V |
| Softstart Time | 3000 ms |
| Rise Time | less than 1.5 μ s |
| Noise and Ripple (RMS) | 12.5 mA |



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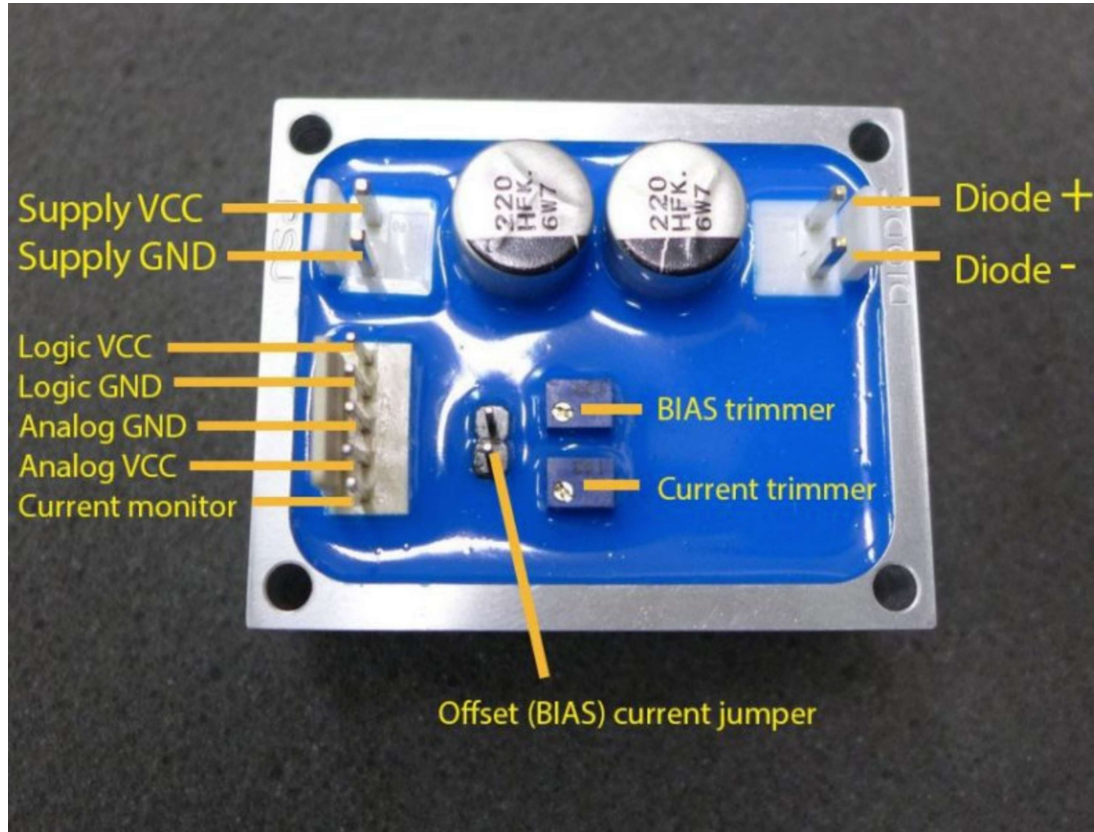
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HPLDD-5A-48V Laser Diode Driver

About the HPLDD-5A-48V Laser Diode Driver

The HPLDD-5A-48V Laser Diode Driver is the professional high-power driver designed for infrared laser diodes. It is possible to modulate the current with frequency up to 50 kHz. Laser controller can work with every infrared laser diodes. It is especially dedicated to stacked laser diode systems where diode operating voltage is high (up to 48 V). While operating with stacked laser diodes proper supply voltage must be ensured. In the recommendation section, there is a formula for maximum input voltage.

Separate laser diode supply voltage input and logic input voltage allow to minimizing the switch-on resistance of a power MOSFET. The outer body of a heat sink, made of aluminum, is isolated from all signals of the driver, including GND signal. It allows mounting the driver directly to the metal components in case of additional cooling needed. Two potentiometers are used to set the values of maximum diode current and bias current.

Attached to the laser diode controller are connectors and pins which are used to power and control the unit. We can also provide the proper power supply unit. Please feel free to contact us with any questions. Measuring input voltage - shutdown driver when lacking diode voltage.

Recommendations and Requirements

Supply voltage range depends on the laser diode system powered. The supply voltage should not exceed 5 V over diode operating voltage.

$$\underline{VCC\ DIODE\ MAX = (Number\ of\ diodes\ in\ series) \times (Each\ diode\ operating\ voltage) + 5\ V}$$

For example when using stacked laser diodes where the operating voltage is 40 V then the maximum supply voltage is 45 V.



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HPLDD-5A-48V Laser Diode Driver

Always power the logic with 12 V before powering up the diode line. Because GND of the diode line and GND of the logic input are internally connected in the driver, always remember to connect GND of the diode line directly to the GND of a PSU not to cause the high current flowing through logic GND paths. The driver is provided with 3s soft-start which appears after connecting a laser diode line to the PSU.

Always use a high-quality power supply unit with low ripple voltage. Adding a large capacitor at the driver input is strongly recommended, but it depends on PSU, wires cross-section and their length.

You should be very careful not to cause a short circuit between the + (VCC) of the power supply and -(GND) of the logic input or monitor input, as a thin GND logic paths can be irreparably damaged.

Modulation input can be used as TTL input with its logic levels of 0 V and 5 V or as an analog input. Analog modulation means that by using 2.5 V on ANG input you get 50% output power, analogically by using 4 V you get 80% output power, etc.

We recommend the use of power cables with the cross-section of at least 1.5 mm².

The current monitor is 1 V/1 A.

The driver should not be tested with resistive load. To test the driver properly one should use Zener diode or similar device. Please remember about maximum power dissipation.



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HPLDD-5A-48V Laser Diode Driver

Protection

The driver is not protected against reverse polarity in order to provide maximum performance and speed. We strongly recommend using the LASORB protection device mounted close to the diode. The driver's body is isolated from all signals of the driver and can be mounted directly to the metal heat sinks or other metal parts with the use of 4 x fi 3.3 mounting holes (raster 44 x 34 mm).

The analog input is protected by a 5V1 Zener diode on occasion there appears the voltage higher than 5 V. Despite everything, this input should not be used with higher voltages. The laser controller is fitted with a 3s soft-start designed to protect laser diodes against switch-on effects. Additional transil diode is soldered at the input of the driver.



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