

iDRV3 V1

High Power Laser Diode Driver

User's Manual

revision 3-May-2013

Thank you for purchasing the iDRV3. V1 – CONSTANT CURRENT BUCK laser diode/LED driver.

Specs:

Max. output current = 3A

Input voltage = 3.6V to 16V (upgradable to 25V with higher rated capacitors)

Low Current Ripple ($\leq 10\text{mA}$)

Overvoltage protection at the output (same voltage as input with no current)

Overcurrent protection

Load disconnected protection

Over temperature protection (150°C at the junction)

Short Circuit Protection/Reverse polarity at the output

PCB Size = 18.70mm x 12mm

Driver's bottom must be used as a heatsink base. Apply a thin layer of thermal paste/thermal silicone and attach it to aluminum/copper heatsink for cooling.

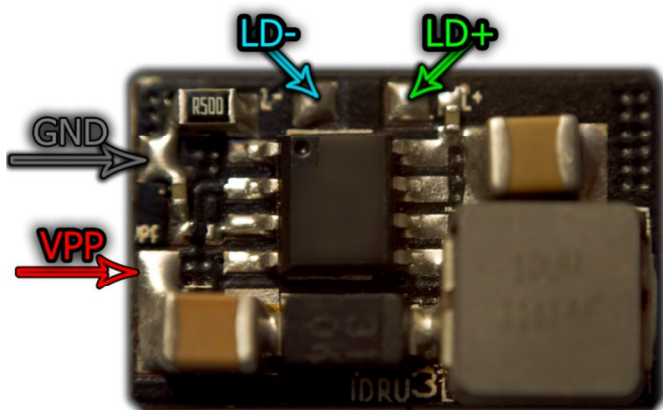
!!! WARNING !!!

DO NOT REVERSE THE POLARITY OF THE INPUT. THIS WILL RESULT IN IMMEDIATE DAMAGE TO THE IC WITHOUT ANY CHANCE OF RECOVERING UNLESS THE IC IS REPLACED

!!! IMPORTANT !!!:

Input/Output Leads must be able to carry the current passing through them without overheating and causing resistance. Good and flexible leads such as Silicon Wires are recommended.

See picture for the correct way of connecting before using.



!!! IMPORTANT !!!:

Discharge the output capacitors of the driver before connecting the laser diode to the corresponding output leads. Failing to do so will most likely shoot a huge spike in your laser diode and instantaneously cause damage to it!

!!! IMPORTANT !!!:

Input ground and Output Ground are not continuous! Do not use with case positive or case negative diodes unless they are isolated from the host body and power source ground!!

Output current is preset at the time of purchase and should be tampered with only by an experienced user with good soldering skills and appropriate resistors (0805 package).



The yellow mark shows the place of the sense resistors. 0805 size package resistors is required.

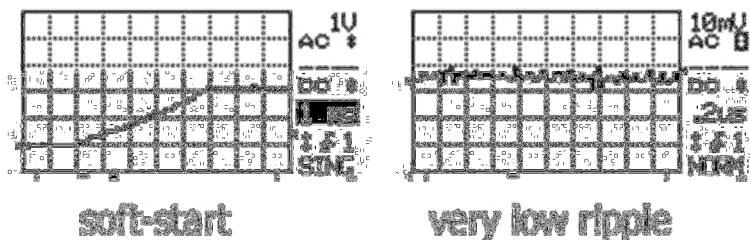
Optionally two or more resistors can be stacked on each other if you don't have the correct value.

Maximum current is **3A** with a **0.083Ω** sense resistor. **If you decide to change the resistor do that at your own risk.**

Output current formula:

$$I = 0.25/R$$

Be sure to use a test load before putting the driver into your final project.



The driver features a soft-start and no current spikes/overshoots. Output ripple is kept at max 10mA.

Disclaimer:

The iDRV 3. is assembled and tested on oscilloscope prior to shipping to ensure a perfect working condition. I don't take responsibility for improper handling, reverse polarity, not heatsinking, short-circuiting, operating the driver outside it's specs, tampering with the Rset resistor or any other components, or any other USER fault causing damage to the driver or your application! Before using the driver in your final project - always use a test/dummy load for testing!

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