 ENDURANCE LASER TECHNICAL NOTE	Document #	Date
	EL-TN56DIY-A	July 2018
	Author(s)	
Subsystem		
Assembly		
Document Title		
5.6W DIY Laser Assembly		

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ABSTRACT

This tech note details all the steps necessary to assemble the 5.6W DIY laser kit

SAFETY

- *Visible lasers can PERMANENTLY damage your eyes. Use protection and ensure any other person or animal in the same area is suitably protected.*
- *ALWAYS wear safety goggles when operating the laser, even if you have it inside a case*
- *BE RESPONSIBLE – ensure a clear work area, ensure you have fire-suppression at hand*
- *Use the laser at your own risk – you only have ONE set of eyes.*
- *NEVER aim a laser beam at anyone and use it only for its designed purposes: laser cutting or engraving.*
- *NEVER leave the laser unattended - to avoid accidental fires and careless actions of humans and animals.*
- *When choosing your material, keep in mind that during the laser operation combustion products are released, some of which can be harmful to health or to your machine.*
- *ALWAYS use an air funnel and ventilation.*
- *If you plan to cut any material underlay a piece of metal to protect the worktable from damage and fire.*
- *If you are not sure about anything, please contact us (email, fill the website form or call) for advice.*

KIT OVERVIEW

Supplied Parts

With the kit you will receive:

- Aluminium Laser housing
- 12V fan
- DC:DC step-down converter
- Laser diode installed in 12mm two-part housing
- LM338 Adjustable Regulator
- 13N10 MOSFET
- 8x 2.7OHM SMD resistors
- D540 Schottky Power Rectifier Diode
- 100-ohm through-hole resistor
- Copper PCB
- Laser heatsink
- Power jack socket
- Power jack lead
- TTL lead
- Construction wires for PCB – DC:DC stand off
- 1x 10mm M3 screw
- 4x 16mm M3 screws
- 1x 25mm M3 screws

Required Parts

- A suitable 3A+/12V power supply
- 16-12awg wire to connect the laser to your power supply
- Mounting hardware to fit your CNC/3D printer device
- A quality solder suitable for electronics work (~1.5mm tin/lead 60:40 – 63:37)
- Solder flux

Tools

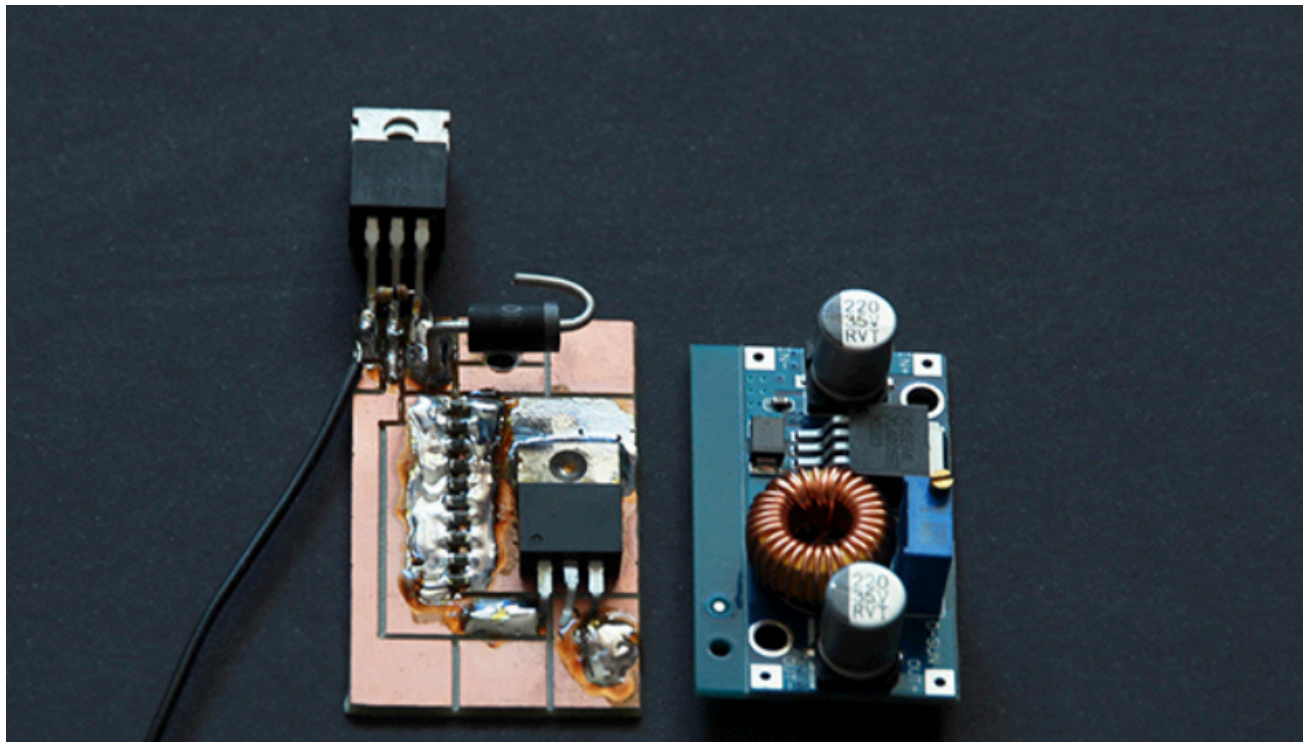
- Drill – drill press preferred
- Vice - suitable for pressing the laser module into the heatsink
- Quality soldering iron capable of soldering a MOSFET to a raw copper PCB (60W+)
- Electronic tweezers for the SMD devices
- 'Helping hands' for assembly
- Wire cutter/snips
- A decent digital multimeter that can measure amps and volts and continuity

Process

Check your parts/Lay out your parts

Lay out all your parts and identify each one – take particular care with the 13N10 MOSFET and the LM338 voltage regulator, as they look very similar. Take care with the tiny SMD resistors.

Solder PCB



Test PCB

Mount DC:DC step-down converter

Adjust and test final voltage

Assemble laser module and heatsink

Test fit parts into housing

Complete driver to laser connection,

Fit laser and driver assembly into housing.

[Check connections, check housing assembly, mount to CNC/3D printer](#)

Testing

Installation

Calibration