

# Making a Low cost, simple and robust 6kW, 50HZ Pure Sine Wave, 48vdc to 230vac, INVERTER.

**PCB Components and ancillary parts details for the 6-15kW Power Board.** (These lists will be updated as required). June 2015....

These Boards have been designed for easily obtainable components and parts. Please find below a list of the majority of parts required. This list will be updated as required. Most of the details are from Ebay and may be purchased there, however, some parts may be found on Allibaba, so the Web Link is given.

Please Note..... Different soldering Irons are required, and when finishing the pools of solder and the 10mm/2 cable connections, a 300W soldering Iron is a must.

## **Please find below a list of the majority of parts required.**

174x282 x1.5mm 35µm, best 70um thick copper, Double Sided Copper Clad Plate Laminate PCB Circuit Board.

Heat sinks..... Silver Tone Aluminium Radiator Heat Diffuse Heatsink 150x80x27mm, stock size, (4off, 2 will need joining together, use the offcut, remove fins and use as the join, give clearance for the FET mounting, I used M4 bolts, and drilled & threaded M4),

[http://www.ebay.co.uk/itm/391275496753?\\_trksid=p2057872.m2749.l2649&ssPageName=STRK%3AMEBIDX%3AIT](http://www.ebay.co.uk/itm/391275496753?_trksid=p2057872.m2749.l2649&ssPageName=STRK%3AMEBIDX%3AIT)

M3 STAINLESS FLAT FORM A WASHERS, (24 off), (use when mounting the FET's) ..... M3 A2 STAINLESS STEEL ALLEN BOLT SOCKET CAP SCREW HEX HEAD ALLEN KEY DIN 912, 6mm long, (24 off). ..... M3 A2 STAINLESS STEEL ALLEN BOLT SOCKET CAP SCREW HEX HEAD ALLEN KEY DIN 912, 16mm long, (8 off). ..... M3 HSS Metric Taper Plug Tap Right Hand Thread & 2.5mm dia HSS drill.....& M6 HSS Metric Taper Plug Tap Right hand thread and 5mm dia HSS drill. .... Stainless Steel Penny Washers. M3 x 9mm OD. (4 off), (for the Long Heat Sink/48v+ battery connection copper bottom connection to the Board).

IRFB4110 IRFB4110PBF 100V, 3.7mO, 180A, 370W FET POWER MOSFET TO-220, (24 off), (also available on Ebay, but this Allibaba supplier has been consistent with quality). ..... <http://www.aliexpress.com/item/50pcs-free-shipping-IRFB4110-FB4110-B4110-IRFB4110PBF-100V-3-7mO-180A-370W-FET-100-new-original/32431611261.html> .... Fast Diode IN5819, (24 off). ....

100V 10000UF Electrolytic (Can) Capacitor 35mmX60mm (B88) AR, (6 off). ..... 4.7uF 250V Metallized Polyester Film CBB Capacitor 475J, (1 off). .... 4.7nf Ceramic Disc Capacitor, 250V, 472 (4 off). ... CAPACITOR, SAFETY, 10NF, 250V, 20%, (2 off).

RESISTOR, METAL film , 5R6, 0.6W, 1%, (24 off). ... RESISTOR Metal film 20K 0.6W, 1%, (24 off). .... 5r6 or 5.6ohm Resistors 2W Power 5% (4 off).

6 lengths, 250mm to 400mm long, tri rated/battery/welder cable, very flexible cable, 10mm/2. 3off, Bolt cable end lugs, 35mm/2 to 10mm bolt hole. .... 2.54mm Pitch 10 Pins 10 Wires, (Female/Female), IDC Connector Flat Ribbon Cable 20cm, (1 off) ..... IDC Straight Latched PCB Plug (male) Connector 10 Way, (1 off). .... M3 Brass Insert Female Thread 8mm OD x15mm Insulated Standoff Terminals, (4 off), (use the Control board mounting holes as a template mark, for drilling the Power Board heat sinks).

Another supplier of the Primary cable Choke..... ( 262302338052 ) E-Core Ferrite Choke.....<http://au.rs-online.com/web/p/transformer-ferrite-cores/6479351/>

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Heat Toner Transfer Paper/Sheets, A4 size. For DIY Circuit Board Production Etching. ....

[http://www.ebay.co.uk/itm/111793870005?\\_trksid=p2057872.m2749.l2649&ssPageName=STRK%3AMEBIDX%3AIT](http://www.ebay.co.uk/itm/111793870005?_trksid=p2057872.m2749.l2649&ssPageName=STRK%3AMEBIDX%3AIT)

Brief steps are: Use the supplied PCB mask on a laser photocopier, copy size for size onto Heat Toner Transfer sheet. The print must be printed in mirror/reverse so the toner side will be on the copper. Make sure your copper clad board is free of any contaminants and oxidisation, this is crucial. Can use wire wool gently & Isopropanol Alcohol wipe.

Use a hot iron to transfer the print (laser toner) onto the copper board and an etching solution to dissolve away the copper not protected with the laser toner.