

# Rockmite ][-20 (ver 1) Power and Efficiency Modification

W5USJ Drawing 22 Jan 2014

Note: Best to make these changes before assembling the rest of the kit

Change R18 to 3 Ohms (ORN, BLK GLD GLD)

Install the transformer in place of L1

Matching transformer: 1.6:1 turns ratio

Impedance (Z) Ratio = 2.56:1 (128:50)

Toroid FT23-43

8 turns #26 primary

5 turns #26 secondary

wound between the pri turns.

Strip insulation to about 1/8 inch from core

T30-6 Toroids

L2 = 647 nH 00 turns #26 **Measured**

L3 = 560 nH 00 turns #26

Strip insulation close to core

All Capacitors MLCC 5% COG

C15 = 150 pF (151)

C16 = 22 pF (220)

C17 = 270 pF (271)

C18 = 56 pF (560)

C19 = 120 pF (121)

Q6 = 2N3866

## Matching Transformer:

As seen in the LPF schematic, the input and output impedance is 50 Ω. Output resistance of Q6 is much higher and is a power transfer mismatch. Also, poor efficiency. So, a matching transformer can be used to even things up. The values chosen are median values between the range of Vcc (12-13.5). A 1 min keydown only warms the heatsink.

## Matching Transformer

Secondary

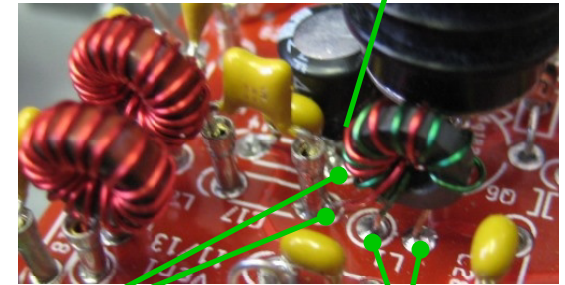


Strip Leads

Primary

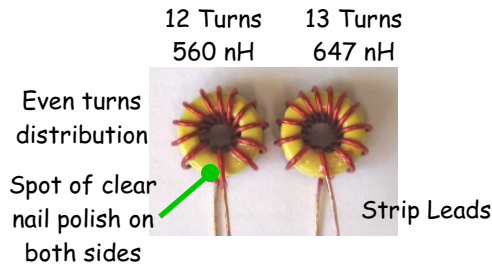
First, cut short trace between Q6 C and C14

RM ][ PCB ver 1

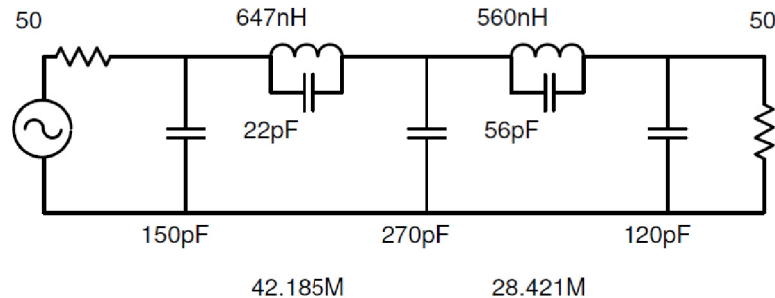


Connect secondary leads, to end pads of C14 and C17.

Connect primary leads in place of L1.



## Elsie Design LPF Schematic



Toroid Size Comparison (T30-6 cores yellow)