

Rockmite][-12 (ver 3) Power and Efficiency Modification

W5USJ Drawing 21 Nov 2014

This mod starts with an RM][-20 v3 kit. All the same up to the Q6 output circuits

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

Includes 28 MHz crystals

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

Cut the short trace between Q6-C and C14

See Figure 1.

T30-6 Toroids

L2 = 387 nH 9 turns #26

L3 = 318 nH 8 turns #26 **Measured**

Spread or squeeze turns as needed

Strip insulation close to core

All Capacitors MLCC 5% COG

C15 = 82 pF (820)

C16 = 12 pF (120)

C17 = 180 pF (181)

C18 = 33 pF (470)

C19 = 68 pF (680)

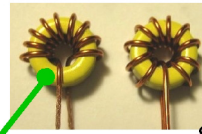
Q6 = 2N3866

2N3553

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.

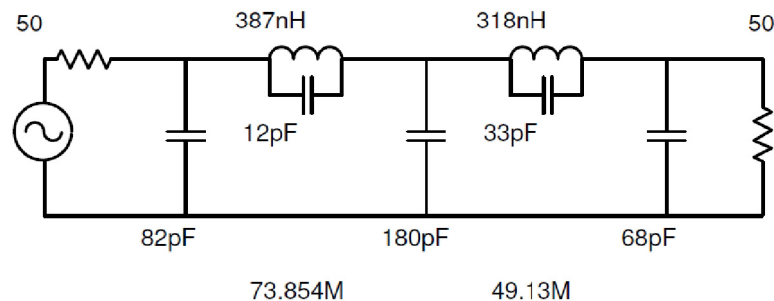
8 Turns	9 Turns
318 nH	387 nH



Spot of clear nail polish on both sides

Strip Leads

Elsie Design LPF Schematic 12m



Matching Transformer



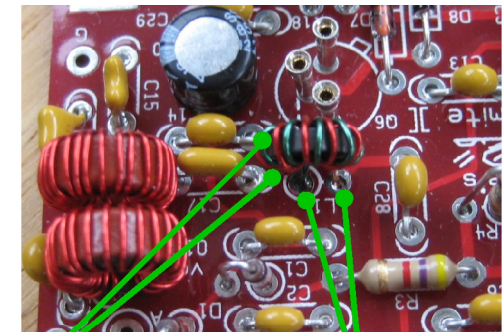
Secondary

Strip Leads

Primary

RM][PCB ver 3

First, cut short trace between Q6 C and C14 see illustration below

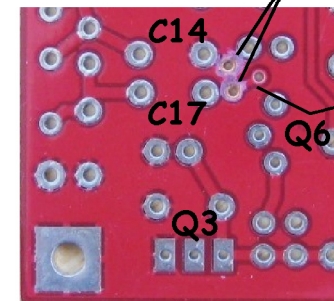


Connect secondary leads, to two S pads at ends of C14 and C17 pads

Connect primary leads in place of L1.

Gently scrape the solder mask from these two pads

Figure 1



Cut this short trace