

Rockmite][-60 (ver 3) Conversion w/ Power & Efficiency Mods

W5USJ Drawing 30 Aug 2015

Refer to RM][manuals and revised RM][-60 schematic for component details

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

Start with an RM][-80 kit

Leave Out: R9, R10, D5, D6 Jumper R10 pads

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

T30-2 Toroids

L2 = 1.6 uH 19 turns #26

L3 = 1.3 uH 17 turns #26

Measured

Spread or squeeze turns as needed

Strip insulation close to core

All Capacitors MLCC 5% COG K2J

C15 = 390 pF (391)

C16 = 68 pF (680) K1J

C17 = 820 pF (821)

C18 = 180 pF (181) K1J

C19 = 330pF (331)

at D6 pads (offset/shift)

15 pF (150) for ~ 750 Hz K1J

18 pF (180) for ~ 650 Hz K1J

Q6 = 2N3866 or equivalent

Matching Transformer:

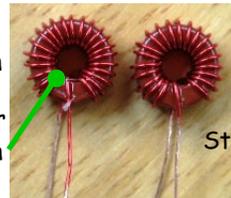
As seen in the LPF schematic, the input and output impedance is 50 Ω . Output resistance of Q6 is much higher and is a power transfer mismatch. Also, poor efficiency.

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.

19 Turns 1.6 uH
17 Turns 1.3 uH

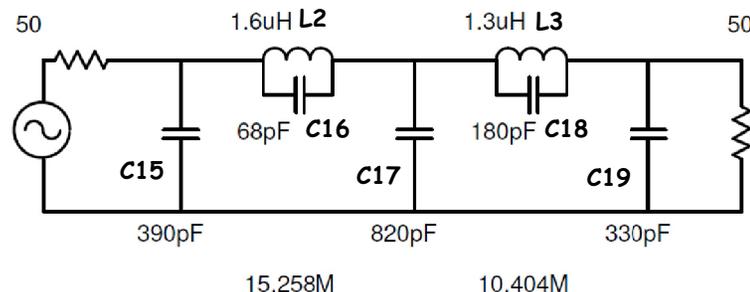
Even turns distribution

Spot of clear nail polish on both sides



Strip Leads

Elsie Design LPF Schematic



Matching Transformer



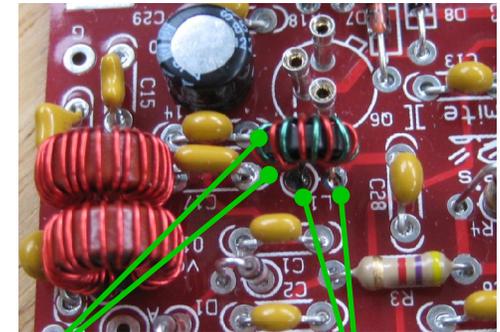
Secondary

Strip Leads

Primary

RM][PCB ver 3

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

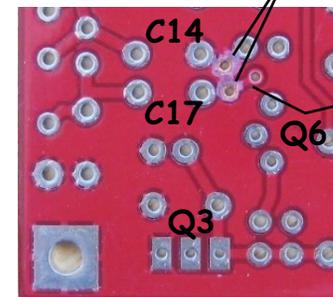


Connect secondary leads, to two S pads at ends of C14 and C17 pads

Connect primary leads in place of L1.

Gently scrape the solder mask from these two pads

Figure 1



Cut this short trace