

Ham Radio 101
Where to Purchase Parts and Equipment
By Hal Silverman WB6WXO

In the last article, I wrote a little bit about where to get parts. In this article, I would like to expand on it and also introduce my technique for developing a new circuit. This may take a few articles.

I am in the process of developing a wide band circuit from the QRP Classics¹ and the QRP W1FB's QRP Notebook². As soon as that is complete, I will publish that in a future article.

I found that Electronix Express³ located in NJ caters to schools and universities. They carry a large variety of parts and equipment. It is enough to furnish a good to excellent electronics workbench.

Passive Components: Resistors, Capacitors, Inductors, Etc.

For resistors, capacitors and inductors, Electronix Express has packaged kits of these components. They provide at least 5 of each value. This is enough material to get started with.

The resistors are packaged in 1/2W, 1W and 2W. These are the most popular values. If you need more than that, Electronix Express can supply individual values. All of these parts are available on EBay from the Far East.

They also have pots kitted together.



Figure 1
Resistor Kit

Figure 1 shows three resistor kits. Notice the values are individually packaged in their plastic bags and labeled.

It is exactly the same for capacitors. Capacitors are kitted in electrolytic and then in ceramic disk and Mylar capacitors.



Figure 2
Kit of Ceramic Capacitors

Figure 2 is an example of the kitting of the ceramic disk capacitors. The electrolytic capacitors are kitted similar to the resistors.

I have found that for bread boarding circuits, precut wires work for me (see Figure 3).



Figure 3
Pre-Cut Wires Kit

They can be used in plug-in breadboards or can be soldered into solderable breadboards.

Semi-Conductors: Diodes, Bipolar Transistors, FET Transistors.

I have purchased semi-conductors from a variety of companies. For most devices I have used 2N2222 and 2N2907 for general purpose usage.

For 1 to 2 watts output devices in the ham bands, I use 2N3866. All of these devices have been around for years. They are available from a number of companies. I have used Mouser⁴.

I have presented several schematics showing the semi-conductors used in various circuits.

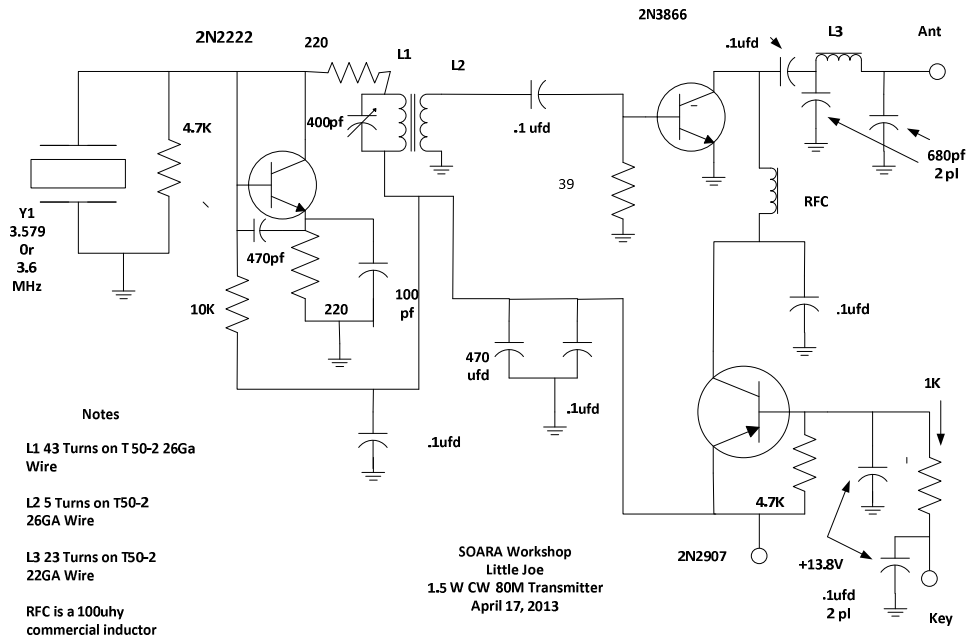


Figure 4
Example of bi-polar semi-conductors used

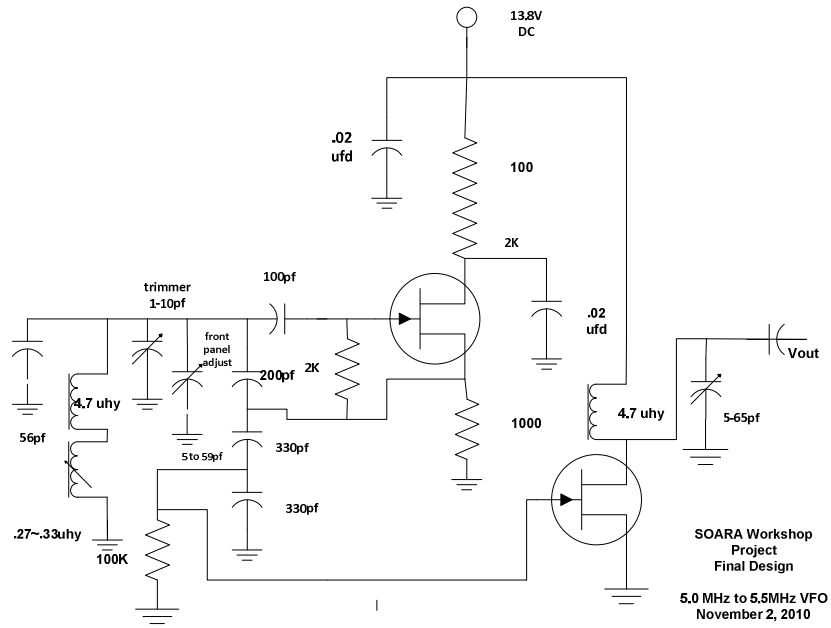


Figure 5
5.0 to 5.5 VFO Using A Junction FET
Q1 and Q2 are 2N 5484

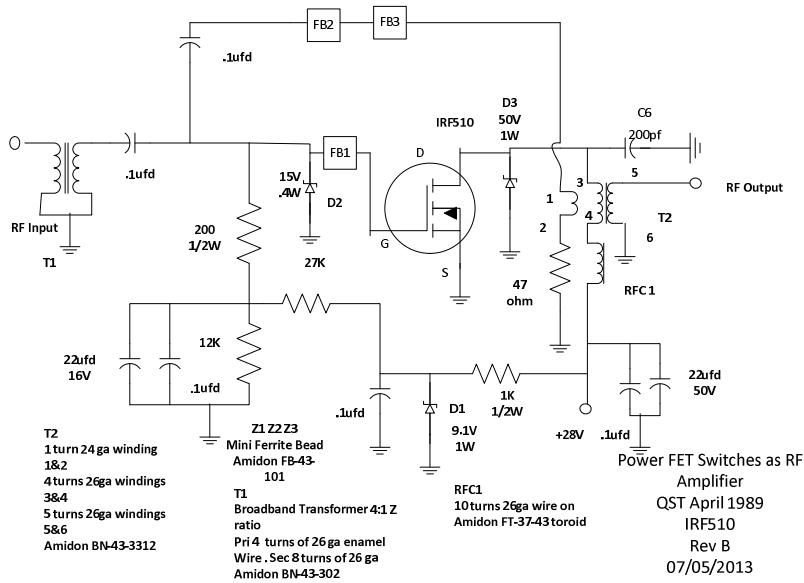


Figure 6
Schematic Using IRF 510

The schematic in Figure 6 shows the use of an IRF 510. This is a preliminary design. I have been working on the final design. It came out the April 1989 QST. This was originally as a switching FET but Doug DeMaw W1FD designed an RF wide range amplifier.

The final design will be presented in a future article.

Magnet Wire:

One of the things that can be easily overlooked is the use of magnet wire for winding transformers and inductors. If you look at Figures 4, 5 and 6, you can see that magnet wire is used to wind the coils and transformers.

Magnet is plain solid core wire that has been coated with a varnish to keep it insulated.

When soldering it to a circuit board, the varnish has to be scraped away so that the part can be soldered.

Over the years I have accumulated 20Ga, 22Ga, and 24Ga. I bought it in 100 ft. rolls.

Powdered Iron Toroids and Transformer Cores:

I set this aside as a separate topic. The toroid and transformer are made as part of powdered iron metallurgy. Iron powder is heated under pressure to form a variety of shapes. Other “ingredients” are added to the mix for different frequency bands.

Amidon is manufacturer and the products are available from different distributors. I usually get my supply from Universal Radio.

The toroids are used to wind inductors and transformers. See the schematics in Figure 4.



Figure 7
A package of toroids used in the ham bands

Figure 8 is a set of RF beads made from the same material. See the schematic in Figure 6. Please note that each package has a listing of the size and what the frequency limits are.



Figure 8
Amidon Ferrite Beads

In the next installment, I will concentrate on the equipment and test set up for both testing circuits and reconditioning a rig.

If there are any questions or comments, please contact me at WB6WXO@SOARA.org.

Foot Notes:

- 1: **QRP Classics**
Copyright May 1990
Doug DeMaw W1FB
- 2: **W1FB's QRP Notebook**
Copyright 1991-1999
American Radio Relay League
Doug DeMaw W1FB
- 3: **Electronix Express**
RSR Electronics
365 Blair Rd.
Avenel, NJ 07001
1-800-972-2225
- 4: **Mouser Electronics**
1000 N. Main St.
Mansfield, TX 76063
1-800-346-6873
- 5: **FAR Circuits:**
Fred KF9GX
18n1640 Field Ct
Dundee, IL 60118