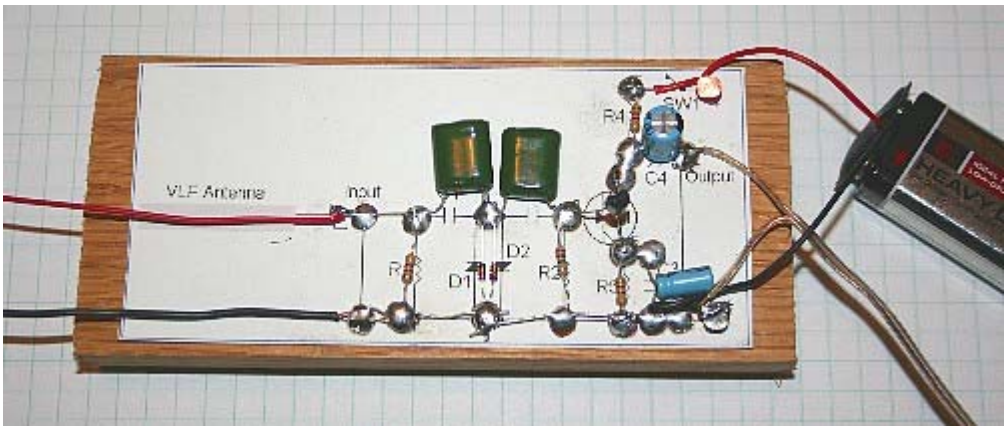
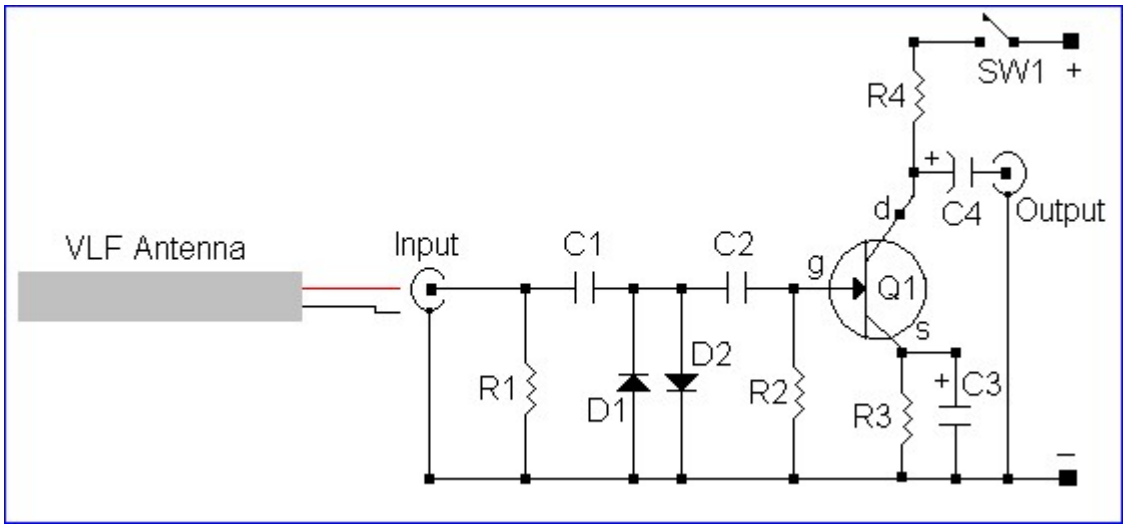
Wideband ULF - VLF Pre-amplifier circuit project.





This FET preamp makes a great unit to place ahead of a tape recorder or portable audio amplifier. It adds very little hiss noise unlike bi-polar transistors do.

The FET preamp works great to hear tweeks and whistlers.

Input impedance of this preamp is 100 K-ohms which is physically set by resistor R1.

This FET preamp will amplify 100 Hz to 30 KHz. The MPF-102 transistor operates similar to a vacuum tube circuit (but works with 9-volts instead of 200) and it has very low noise. Do not omit the source or drain load resistors and capacitor (R3, C3) else the circuit will not work. The FET requires this resistor and capacitor so that proper DC bias is applied.

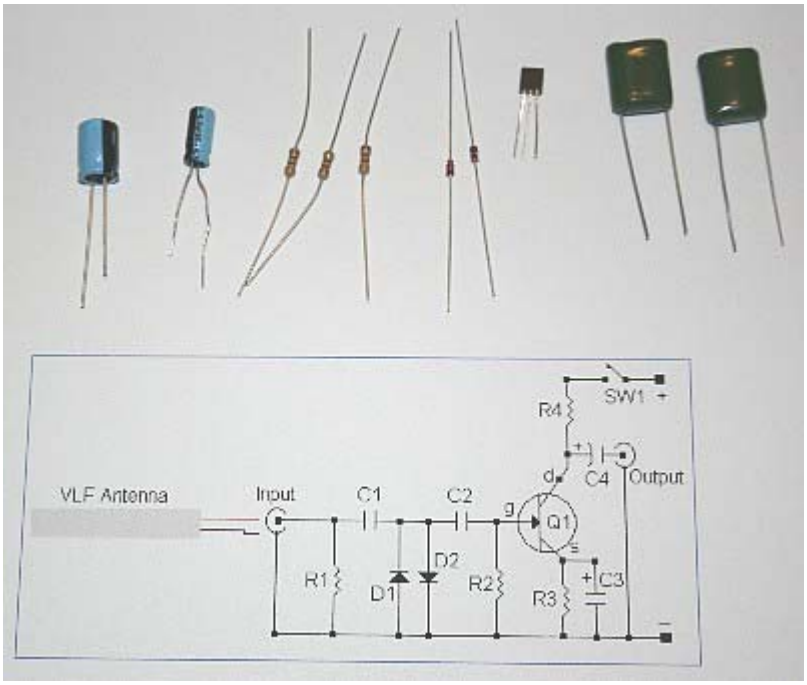
Need more gain? Just stack another FET preamp at the output of the first one.

Power this FET preamp with a 9-volt battery.

- VLF Antenna is one of our VLF / ULF antennas.
- Q1 is an MPF-102 N-channel field effect transistor. STORMWISE PART # MPF-102. $ 1.15 each + s/h.
- R1 is a 100 K-ohms resistor.
- R2 is a 10 Meg-ohm resistor.
- R3 is a 4.7 K-ohms resistor.
- R4 is a 4.7 K-ohms resistor.

- C1 is an 0.22 uF capacitor.
- C2 is an 0.22 uFcapacitor.
- C3 is an 4.7 uF capacitor. You can make this value greater or smaller to control the "tone".
- C4 is an 100 uF capacitor.
- D1 is a 1N914 diode.
- D2 is a 1N914 diode.
- SW1 is a pushbutton ON-OFF switch of any kind.

How to build it: Print out the above circuit diagram. Scale it down on your printer or photoshop program so that it is the right size, large enough for the electronic parts to fit the dots. This size is @ 5.0 inches wide by @ 2.3 inches high. 112 dpi. Get some copper tacks from the hardware store. Get a small piece of wood. Cut out the paper circuit diagram printout and tack it to the wood, one tack going into each dot in the diagram. Place the parts on the tacks. Solder. Do not bend the FET's leads too much. Place the FET last after all the other parts to prevent static damage or heat damage. It is best to just let the FET sit on top of the tacks and barely solder it to the top of the tacks. HAVE FUN!



You can place a capacitor across R1 for a wide-band general tuned circuit. You can remove R1 for a sharply tuned circuit.

VLF and LF signals penetrate walls of homes. The antenna and pre-amp should do very well indoors. It can be built into a wooden or metal box with jacks and switches. Power it with a 9-volt battery.

The amplifier can also placed remotely and even be solar powered. Have fun!

LIST OF OTHER RADIO PROJECTS:

VLF Receiver with Signal Strength Meter

ELF Magnetic Field Detector

VLF Whistler Receiver
