Tone Keyer For Morse Code Programs

By N1HFX

Recently, I received email from an amateur wishing to key his transmitter from the tone output of a Morse Code generator program. Although it is possible to connect to a COM port on the back of a PC using a diode-transistor configuration, this results in another precious COM port being used up. The tone keyer is an ideal alternative and works very well.

The circuit in Figure 1 is actually very similar to a circuit I used for an earlier VOX system. The circuit uses a 741 Op Amp as a comparator. Approximately 1/2 of the supply voltage is set for pins 2 and 3 of the Op Amp. The voltage across pin 2 is actually slightly higher than pin 3. This results in the output voltage at pin 6 to remain low with no signal.

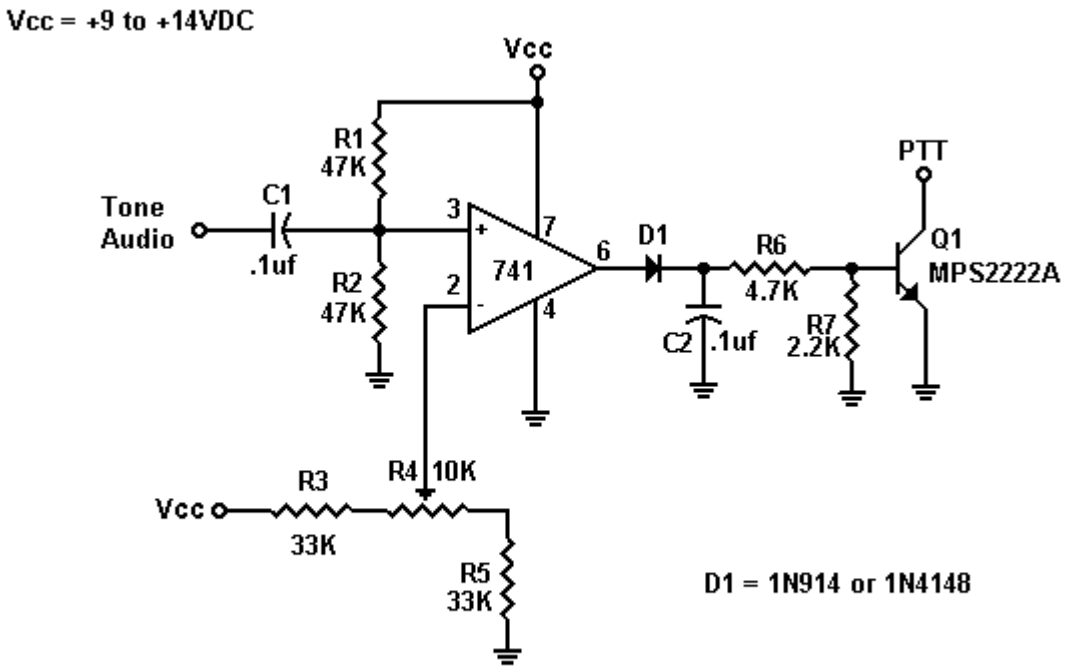

Figure 1

When an audio tone is applied to C1, the voltage across pin 3 of the IC is slightly higher than pin 2 causing the output at pin 6 to go high. Because the output of the IC is pulsating in accordance with the tone frequency, capacitor C2 filters out the 700Hz output. Diode D1 prevents C2 from discharging through pin 6 when it goes low. Resistors R6 and R7 form a voltage divider network since the voltage from the IC could be as high as 1.5 volts in a low state. This keeps the voltage at the base of Q1 below .7 volts in a no signal condition. Transistor Q1 keys the transmitter by causing the PTT line to go low when a signal is present.

This circuit will work well using the output from amplified speakers or even connected to your PC speaker. The components are tailored for a 700Hz tone. If a lower frequency tone is used, C2 may need to be increased in value. R4 should be adjusted to just before the PTT line goes low. Some additional adjustment may be needed for best results.

The above circuit works well and does not tie up another one of those precious COM ports since many computers only have two available. If a high power transmitter is used, place this circuit in a shielded enclosure to prevent RF

from affecting its operation. I have not tested this circuit at speeds higher than 20 words per minute. Of course, if you are able to copy at that speed then a circuit like this is probably not needed.

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