

# Details of the RF Voltmeter

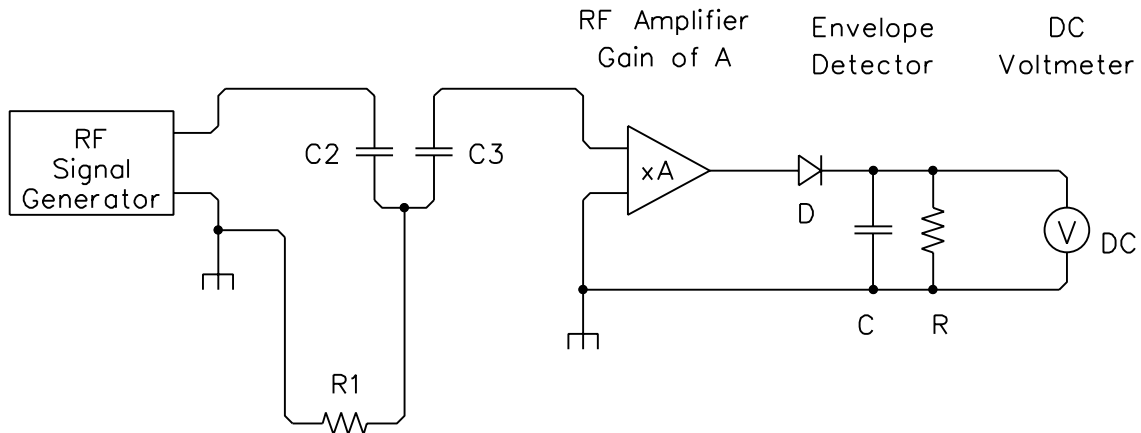


Figure 4

Figure 4 is the same as Figure 2 except that now we see the details of the sensitive RF Voltmeter which consists of:

- an RF Amplifier of gain A
- an Envelope Detector
- and a DC Voltmeter.

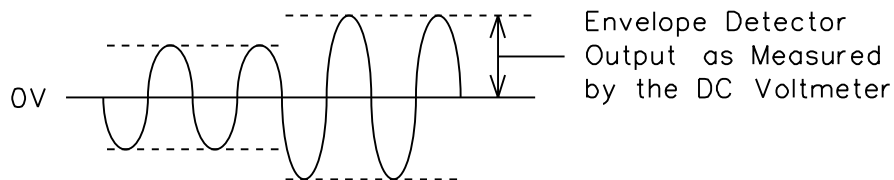


Figure 5

Figure 5 shows the RF waveform at the output of the RF amplifier. The dotted lines (the Envelope) indicate its peak value at two different RF amplitudes.

During each cycle of the RF waveform, capacitor C is charged through the diode D to the peak positive value of the waveform. Capacitor C is very slowly, compared to the period of the RF waveform, discharged by resistor R. This discharge needs to be fast enough to allow the output of the Envelope Detector to track downward changes in RF amplitude.

This type of Envelope Detector is used in a typical AM broadcast receiver where the RF frequency is about 1 MHz and the maximum audio frequency changes in RF amplitude is about 10 kHz so the RC time constant could be set at 100 usec. The diode's forward voltage drop has been ignored.