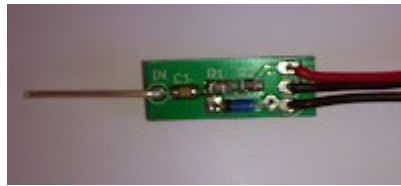


Simple RF probe



This simple RF probe is an excellent help when you are working with RF technology. It is designed for a voltmeter (or multimeter) with an input resistance of 10 MOhm. Most modern multimeters have an input resistance of 10-11 MOhm. If we wanted to use a multimeter with a different input resistance must change the value of R1 and R2 (now 3.9MOhm 0.22MOhm +). We can calculate the resistor value $R = 0.414 * Z$ [MOhm].

The probe can also simply measure RF power. If we measure the voltage at the 50 Ohm resistor. RF power is calculated as follows::

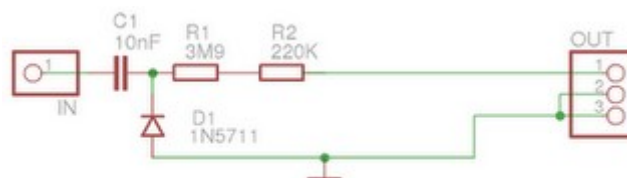
$$P [W] = (U[V] + 0.4)^2 / R[Ohm]$$

The Schottky diode drops is 0.4V The germanium diodes (like 1N34 for example) drops voltage by 0.25V

We measured 15.6V at 50Ohm load:

$$P = (15.6 + 0.4) * (15.6 + 0.4) / 50 = 5.12 W$$

Accuracy is around 10% in the range 200kHz to 30 MHz. At higher frequencies can be measured voltage less than the actual because capacity of the diode working as low-pass filter. When you are using a short cables, the probe can be used up to 150 Mhz.



Schematic



PCB



Ready to use RF probe

Part list:

C1 - 10nF

R1 - 3M9

R2 - 220k

D1 - 1N5711

RF can be build into case from soma marker or simply covered by schrink tube.

<http://www.hamshop.cz>