

A Simple Microwave Noise Source

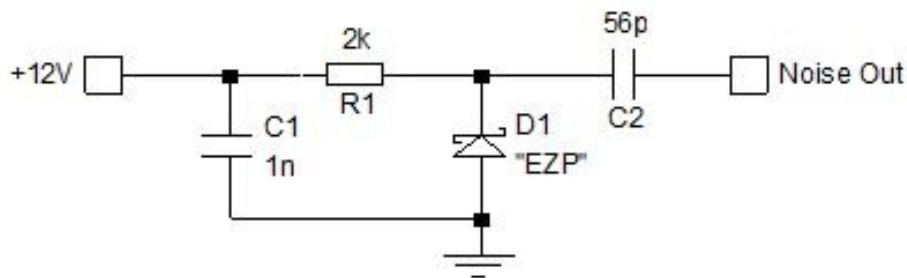
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Some years ago the late John Watson, VE3EZF, had a jam jar full of a mix of Gunn and mixer diodes of unknown types, probably originally intended for 10 GHz intruder alarms. He generously gave me a few hundred of them. Here is one application I have found for the mixer diodes.

A noise source is a simple and useful item of test equipment. It can be used as a go/no-go test for sensitive receivers, as it typically generates noise levels not more than about 20 dB above thermal noise. If a preamp is blown or there is a connection problem, you won't be able to hear the noise it generates. Note that you need to use it with an AM/SSB/CW receiver....a good FM receiver will not respond to noise. It can also be used for comparative noise figure measurements between different receivers. The noise source I will describe is not calibrated, so it is not useful for absolute noise figure testing.

Any microwave detector diode with a reverse breakdown voltage of a few volts can likely be used. Apart from the noise source described here I have another one with a 1N21 in it, which produces detectable noise up to 5.76 GHz. This one, using surface mount components, works to at least 10 GHz. The schematic is very simple:



I constructed it on a small piece of 1/16 inch FR4 PC board, as shown in the following photo.

