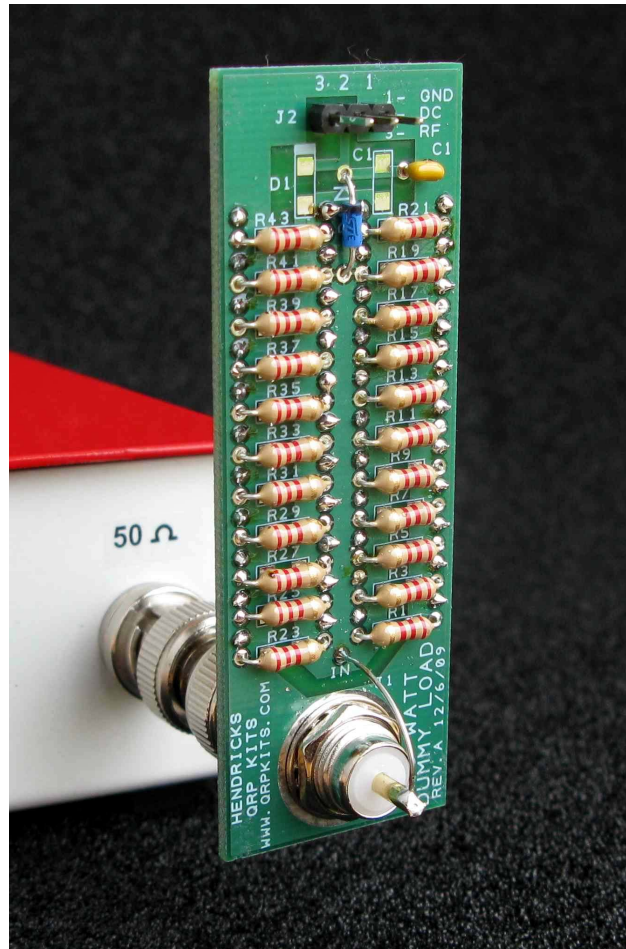


# Qrpkits.com Through Hole 10 Watt Dummy Load Kit Assembly and Operating Manual



## Introduction

The Hendricks 10 Watt (DC–150MHz) 50 Ohm Dummy Load kit is a compact, through hole, design, that in addition to the dummy load, has an on board Schottky diode that rectifies the RF voltage and provides a peak detected output. With the use of an inexpensive 11 Megohm digital voltmeter, it will provide accurate power measurements from about 0.5 watts to 10.0 watts. The through hole option can be assembled with common soldering tools and techniques. This kit includes all the components and circuit board.

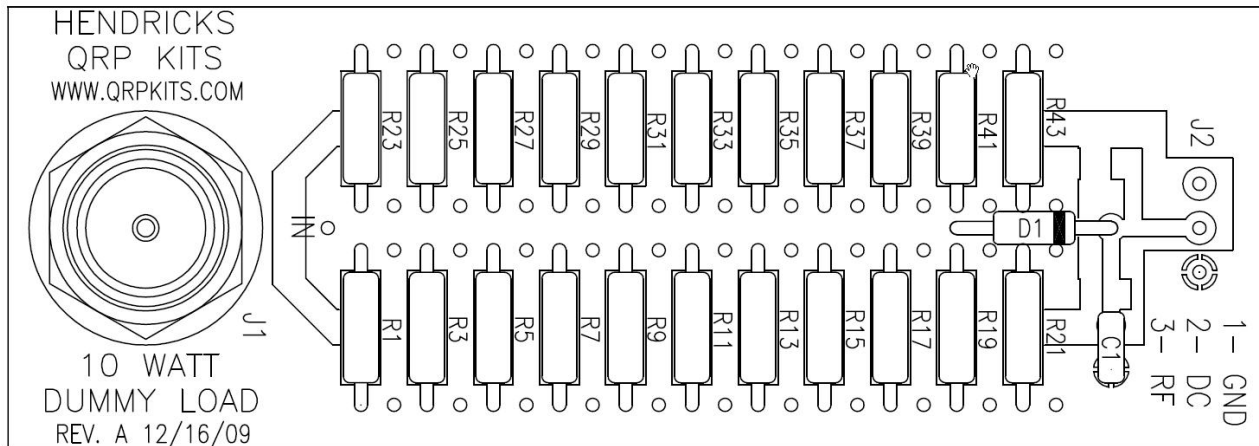
First, check to see if the parts match the parts list...

- 44 – R1-R44, 2.2K 1/4 watt axial resistor (red-red-red-gold)
- 1 – D1, 1N5711 axial diode (marked 1N5711))
- 1 – C1, .01uF radial capacitor, yellow, (marked 103)
- 1 – J1, BNC chassis mount female connector
- 1 – J2, 3 pin header
- 1 - PCB

### Through hole assembly

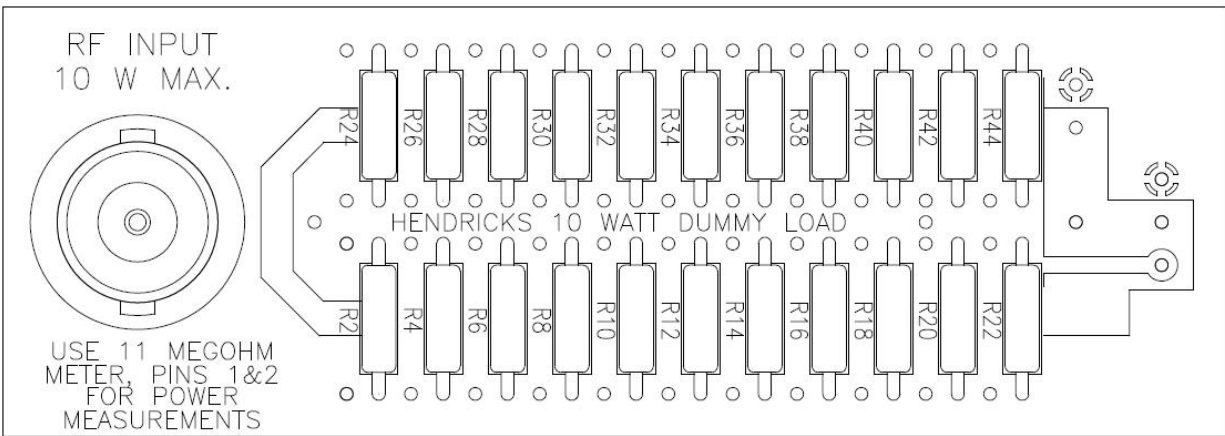
We will refer to the side of the board with the odd numbered resistors, as the rear. The front side will have the even numbered resistors. We will start with the resistors first, as there are extras. There are no extras for the diode or capacitor.

- Solder the all the odd numbered 2.2K ohm resistors (red-red-red-gold) to the rear side of the board, in the rectangular box outlined for the smt resistors. The resistance between pin 1 and 3 should be 100 ohms at this point.
- Solder D1, the 1N5711 diode on the rear side, (placing the polarity band to the header, J2, end of the board).
- Solder C1 , .01uF (103) to the rear side.



Rear Side

- Solder the all the even numbered 2.2K ohm resistors to the front side of the board, in the rectangular box outlined for the smt resistors. The resistance between pin 1 and 3 should be 50 ohms at this point.



Front Side

- Solder the 3 pin header, J2, into the three holes provided, with the exposed pins to the rear side of the board.
- Assemble the female BNC connector with the star lock washer and nut provided. The washer, and nut should be on the rear side.
- Use a short piece of wire, or one of the clipped resistor leads, and connect the center pin of the BNC connector to the hole on the board marked “IN”.

This completes the through hole electrical and mechanical assembly.

### Specifications

Power Handling:                      10 watts for 1 minute  
    5 watts for 3 minutes

Input Impedance:                      50 Ohms +/- 5%

Useable Frequency Range:                      DC – 150MHz

- Outputs:
1. Peak detector DC output: 1 – 10 watts
  2. RF monitor output for precision low power measurements, with external detector.

### Operation

The built-in detector provides useful power measurements from less than 1 watt to greater than 10 watts. The DC output appears between J2 pins 1 and 2. Pin 1 is ground. Figure 1 shows the unit’s DC output voltage at various power levels. A digital voltmeter

with an 11 Megohm input resistance is needed to make the measurements. You can use this graph directly to determine output power, or make up your own chart. The diode is rated for 70 volts. This means that you shouldn't put more than 12 watts into the dummy load to prevent damaging D1. Pin 3 provides direct output to an external detector.

Accurate, lower power measurements, (down to 50 microwatts) can be achieved with the NorTex Accuprobe, see [http://www.kk5na.com/kk5na\\_files/accuprobe.htm](http://www.kk5na.com/kk5na_files/accuprobe.htm).

Special thanks to Tony Parks, KB9YIG, who graciously permitted duplication of the basic design.

## Appendix A

