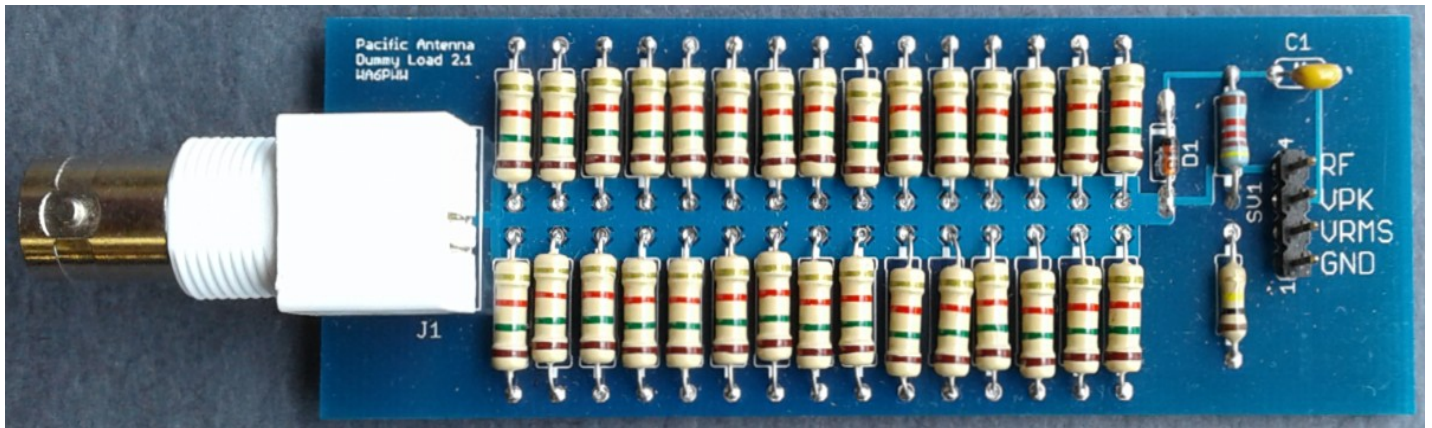


Pacific Antenna 15 Watt Dummy Load Kit



Introduction

Our 10 Watt Dummy Load kit is a compact design using all through hole parts

A great first time kit to learn or improve soldering skills.

Can be assembled with common soldering tools and techniques

Provides direct RF as well as DC voltages representing the Peak and RMS values.

Accurately measures RF Power from less than 100mW to 15 Watts with just a digital Multimeter

Usable from DC to 60MHz

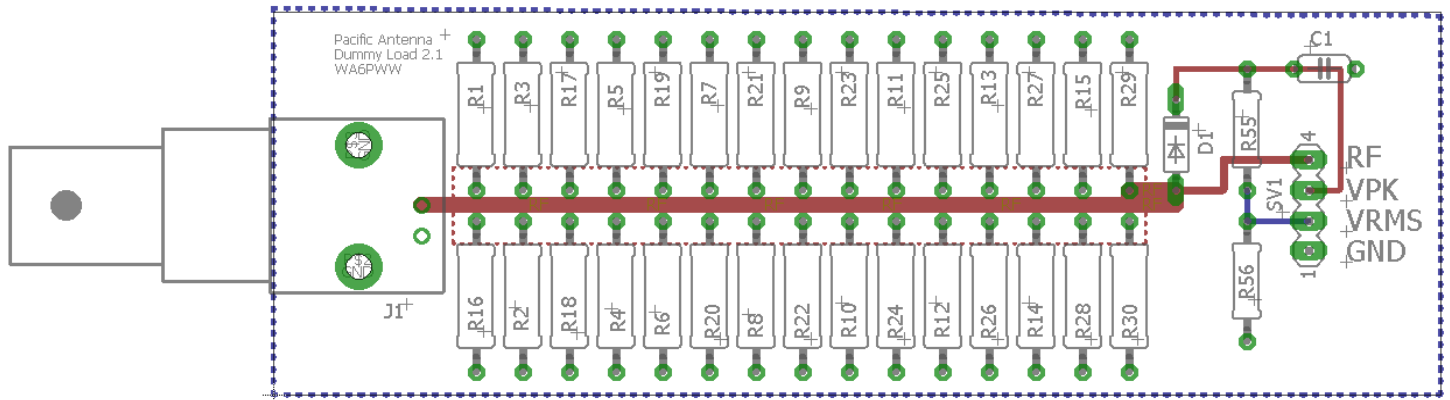
Includes all the components and circuit board.

Inspection and Inventory

First, check the kit to be sure all parts are included. Should anything be missing, please contact us for a replacement.

- 30 – R1-R30, 1.5 K 1/2 watt resistors: Brown-Green-Red-Gold
- 1 – R55: 41.2K 1/4W, 1% resistor: Yellow-Brown-Red-Red-Brown
- 1 – R56: 100K 1/4W, 1% resistor: Brown-Black-Black-Orange-Gold
- 1 – D1: 1N4148 diode
- 1 – C1: 0.01uF monolithic capacitor, yellow, (marked 103)
- 1 – J1: BNC board mount connector
- 1 – SV1: 4 pin header
- 1 – Circuit board

Board Layout



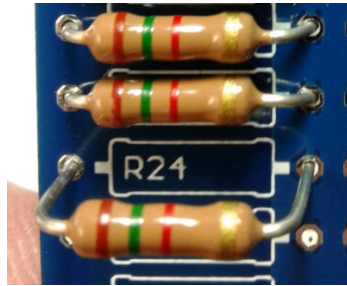
Assembly

Install R1- R30

These are the 1/2W, 1.5K ohm resistors and they go in the marked locations shown on the circuit board.

You may find it helpful to do one row of the resistors at a time to make soldering the leads easier.

First, pre-bend the leads near the resistor bodies and then insert them into the board.



Push or pull the resistors down flush to the board and bend the leads on the backside to hold them in place while soldering.

Trim the excess leads close to the board.

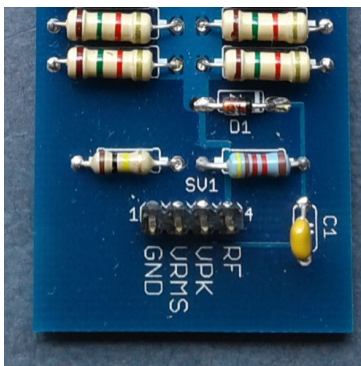
Install, solder and trim the leads of D1. Be sure to match the band end to the diagram above and the outline on the circuit board.



Install R55 the 41.2K ohm (Yellow-Brown-Red-Red-Brown) resistor in the marked location on the board

Install R56, the 100K resistor (Brown-Black-Black-Orange-Gold) in the marked location on the board.

Note: R56 is now a 1% resistor and has a blue body. The photo below shows a 5% resistor for R56.

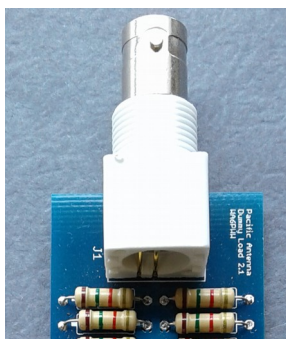


Install C1 the 0.01uF capacitor in the location marked on the board.

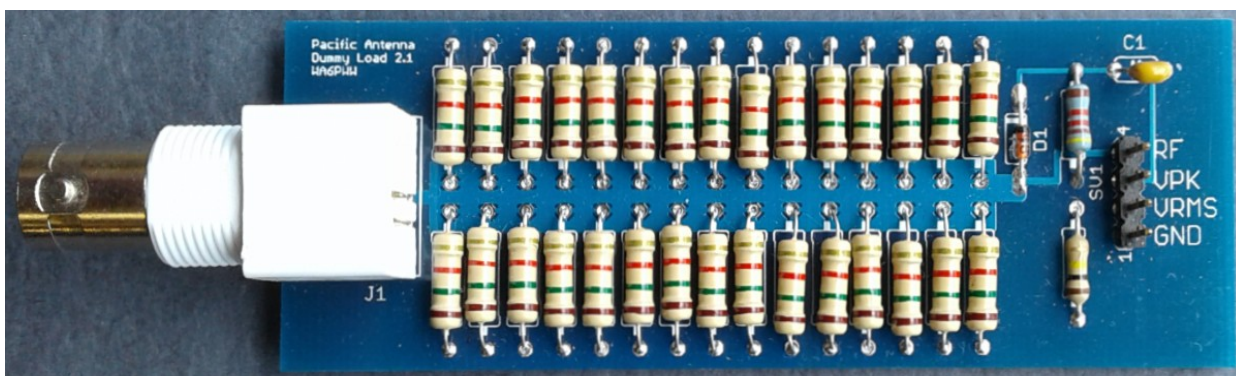
Install the 4 pin Header in the location SV1. You will find it helpful to just solder 1 pin and then make sure it is straight and flush to the board. If not, reheat that pin and adjust the header for alignment before soldering the additional pins.

Now, solder the BNC connector, making sure to seat it fully into the board. Solder the two small wires and the two support pins.

The support pins may require longer time, increased temperature or a larger soldering iron to properly solder.



Congratulations, your dummy load kit is now complete!



Initial test

To verify proper soldering, it is recommended to use a multimeter and measure the resistance across the input BNC connector or between the header pin 1 and 4. The value should be close to 50 Ohms.

If not, there may be one or more bad solder joints in the resistor array.

Operation

The dummy load is easy to use. Simply connect your transmitter input to the BNC

To measure RF Power, connect your multimeter to pin 1 and Pin 2 or 3.

Pin 1 is ground and the DC output voltages appear on pins 2 and 3 of SV1.

Pin 2 provides the RMS value of the RF voltage.

Pin 3 gives the Peak value of the RF voltage.

Pin 4 is direct RF voltage across the resistors.

RF power is calculated from this relationship: $Power = (V_{rms}^2)/50$

Note: The power input should be limited to 15W to avoid damaging resistors and circuit components.

Specifications

Recommended Power Limits: 15 watts: 5 minutes
 10 watts: 10 minutes
 5 watts or less: continuous

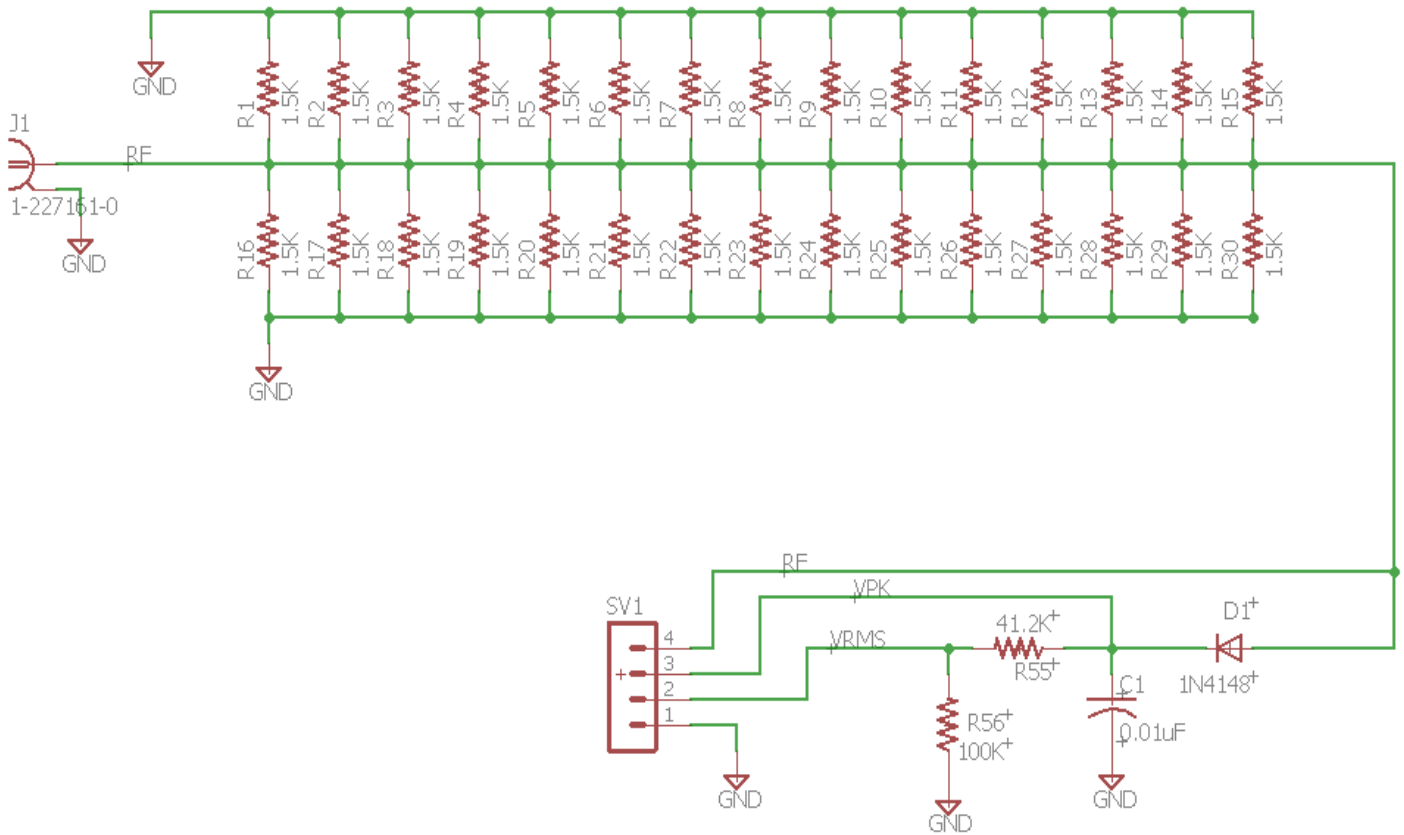
Input Impedance: 50 Ohms +/- 5%

Usable Frequency Range: DC to 60MHz

Outputs on pin header SV1: 1. **Ground**
 2. **V_{rms}**: DC voltage representing the RMS value of the RF voltage
 3. **V_{peak}**: DC voltage representing the peak RF voltage
 4. Direct RF voltage

Support Email: qrpkits.com@gmail.com

Schematic



$$POWER = (V_{rms}^2) / 50$$

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