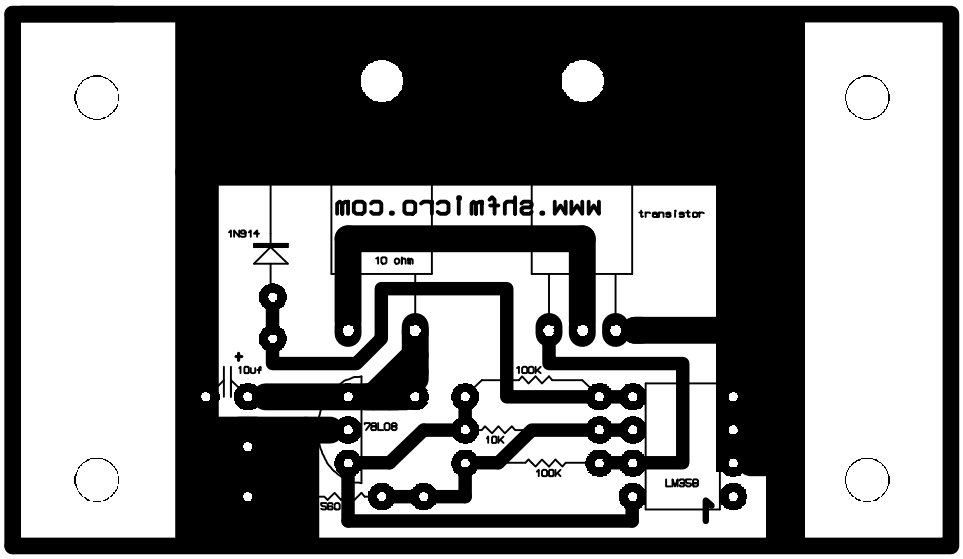
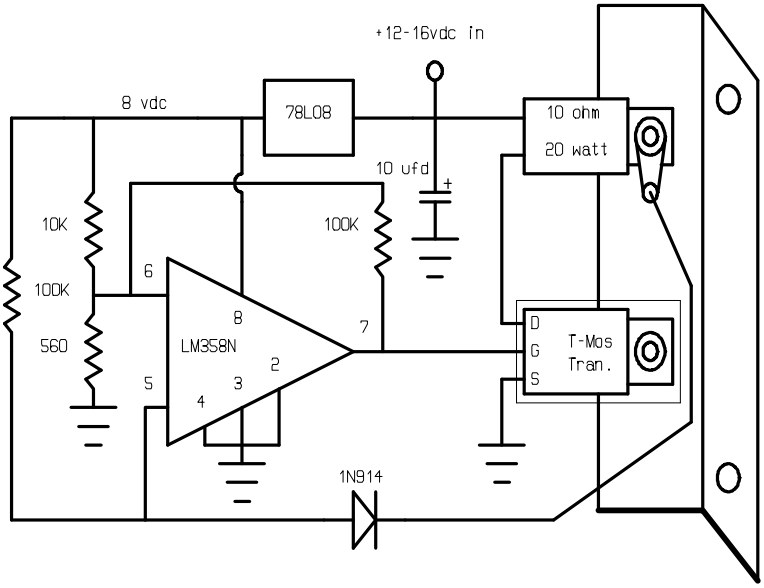
Proportional Heater Kit-Please use static-prevention techniques for assembly!



Component-side view



Install resistor flat on metal plate so the heat conducts to the plate properly. Install the solder tab on the top of the resistor away from the metal plate. Solder the cathode lead of the sensing diode to the solder tab, so it can receive heat for sensing through its soldered lead. There is no insulating sheet required for the resistor.

resistor mounting

transistor mounting

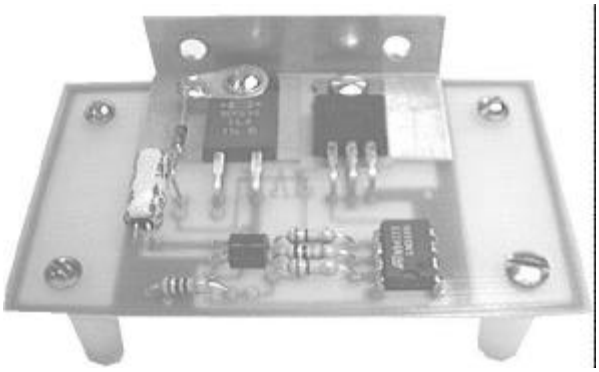
Transistor must be insulated from the bolt and from the metal plate. Use shoulder washer and insulating sheet supplied. The shoulder washer must fit inside the transistor hole before the bolt is tightened. This transistor can be damaged by static electricity, so ground everything before installation.

<u>These parts can be damaged by static electricity! Please touch ground/earth before touching these parts for assembly!</u>

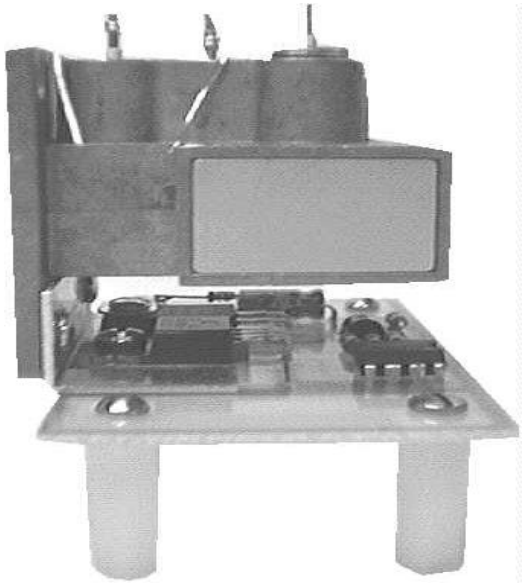
This kit is designed to temperature-stabilize microwave Gunn sources by warming them to a steady 120 degrees F. (49 degrees C). The kit works by warming an aluminum bracket that can be bolted to most Gunn sources, which transfers the heat to the source, which makes the source much more frequency-stable.

The aluminum bracket supplied can be mounted to the pc board in two directions, and additional holes can be drilled in the bracket to accomodate other sources. The kit will also temperature-stabilize other electronic equipment and works ok even if not attached to any other device.

Please follow the instructions above and on the reverse side of this sheet for easy construction.



Fully-constructed unit before attachment to a Gunn source. Please note the placement of the 1N914 diode for heat-sensing, and note that the solder-lug is firmly attached to the top-side of the heater resistor. The heater resistor itself is firmly seated on the metal bracket to transfer heat and warm the bracket. The transistor is mounted using an insulated shoulder-washer and an insulating sheet, so that it has no electrical contact with the metal bracket.



Here is a fully-installed heater kit ready to warm the attached 10 ghz Gunn source to a steady 120 degrees F (about 49 degrees C), or gently warm to the touch.

Assembly Instructions

(1) Place the pc board in front of you, with the metal side down, and the side with 4 holes away from you. Looking at the picture above on the left, locate the parts and visualize where each part will be installed.

(2) Install the 4 resistors and solder and cut the leads.

(3) Install the electrolytic capacitor and install it. Negative marking goes to common/earth (left).

(4) Install the bracket. Use the 10 ohm power resistor, solder-lug, bolt and nut to fasten.

(5) Install and solder the 1N914 temperature-sensing diode as shown.

(6) Install the TO-92 8v regulator and solder. Flat side to the right as pictured.

(7) Install the LM-358 IC and solder. We often ship it already setting in its place on the pc board.

(8) Install the static-sensitive T-Mos transistor. Be sure to add the insulating sheet between the transistor and the metal plate, and be sure to add the insulating sholder-washer before installing the bolt and nut. The sholder-washer will set down into the transistor hole if added in the proper direction, and keep the bolt from touching the transistor hole. Solder the 3 transistor leads.

(9) Apply 12-16 vdc as marked. Unit will draw about 2 amperes for a few seconds, then shut down. It will cycle on and off perhaps 5-10 times, and eventually reach equilibrium and draw a constant small current, depending upon the amount of heat being drawn away by the metal bracket and Gunn source. It will stay at 120 degrees F (49 degrees C) +/- 1 degree, thus maintaining temperature and frequency stability in the Gunn source. If you turn it on and it gets really hot quickly, there is a short somewhere, a missing insulator, or bad IC.

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