

Technical Note

FET Testing Procedure

FET PIN IDENTIFICATION

Field Effect Transistors (FET's) come in a variety of packages. *Figure 1* illustrates some common packages:

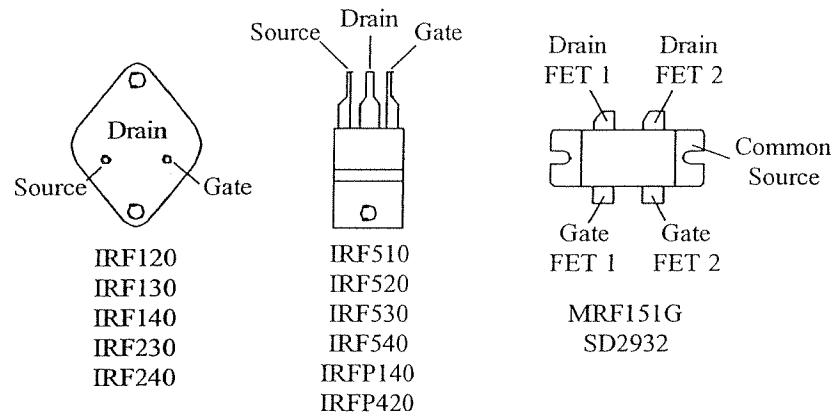


Figure 1

SUMMARY

To determine if a FET is operating correctly, the FET should be turned "ON" and then "OFF" again.

The FET can be turned "ON" by applying a DC voltage between the GATE and SOURCE.

The minimum GATE/SOURCE voltage required to consistently turn FET's "ON" is 4.0 VDC.¹

¹ Some digital multimeters have sufficient DC voltage on their test leads when they are set to the "diode" test position, as shown in the figures.

A 9-volt battery may be used in place of the meter lead connections in steps 2, 4 and 6, for switching FETs ON and OFF

**Do not use more than 9.0 VDC
to test the FETs**

PROCEDURE

- 1) Unsolder and disconnect the wires going to the GATES of all of the FET's on the assembly. This will isolate the FET's from each other.
- 2) Verify all FETs are "OFF", by momentarily placing the black lead (common) of the multimeter or DC source, on the GATE and the red (positive) lead on the SOURCE of each FET. (See *Figure 4*)
- 3) Place the black lead on the SOURCE and the red lead on the DRAIN of each FET. The meter should show an open circuit.



4) For the first FET to be tested, place the black lead on the SOURCE and touch the red lead to the GATE, this will turn the FET "ON". (See Figure 2)

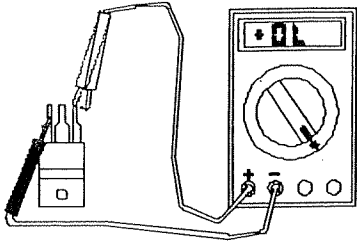


Figure 2: FET "ON"

5) Move the red lead back to the DRAIN and the meter should indicate a short circuit. (See Figure 3)

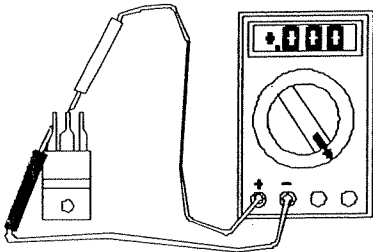


Figure 3: Verifying "ON"

6) Temporarily place the black lead on the GATE and the red lead on the SOURCE, this will turn the FET "OFF". (See Figure 4)

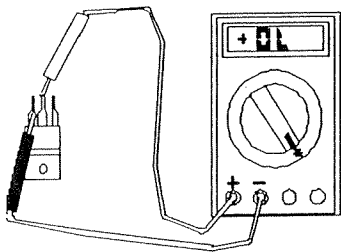


Figure 4: FET "OFF"

7) Move the black lead back to the SOURCE and place the red lead on the DRAIN, the meter should show an open circuit.

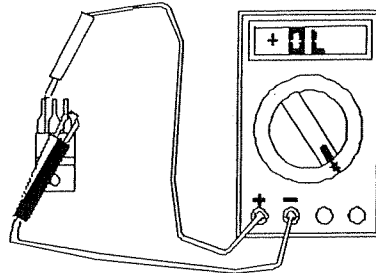


Figure 5: Verifying "OFF"

If the meter leads are reversed, the meter should indicate a diode junction. (See Figure 6)

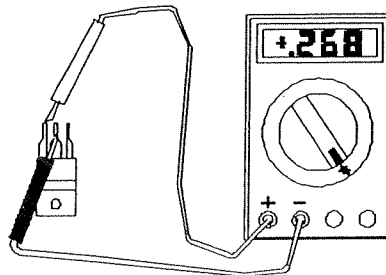


Figure 6: Diode Pedestal

8) Repeat steps 4 through 7 for the remaining FET's on the assembly.