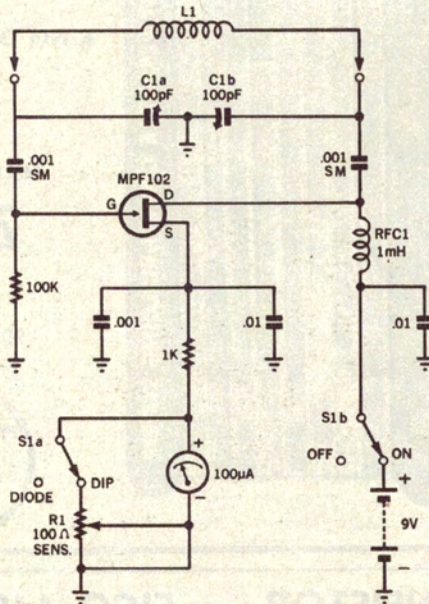


# A Simple FET Dipper

Most solid-state dippers use a diode to rectify the RF energy present at the collector or drain terminal of the oscillator. The rectified RF is used to drive a DC amplifier and the amplifier operates a meter. This technique is fine provided the dipper is not coupled too tightly to the circuit under test, a condition which can cause the RF voltage to fall below the conduction point of the diode — approximately 0.4 volt for a germanium diode, and 0.6 volt for a silicon diode. When the diode no longer conducts, the meter indication falls to zero, thereby preventing one from obtaining a reading.

The circuit shown was tried and the performance was good. There are no dead spots in the tuning range and a pronounced dip in meter reading can be obtained without experiencing diode "dropout". Changes in drain current are observed on a 100 $\mu$ A meter. When S1 is placed in the DIODE position, the instrument can be used as an indicating wavemeter. In this mode the source-gate junction rectifies the sampled RF to provide an indication on the meter.



In the circuit diagram, fixed value capacitors are disc ceramic unless otherwise noted. SM is silver mica. Capacitance is in pF except decimal values which are in  $\mu$ F. Fixed resistors are  $\frac{1}{2}$ W carbon types. C1 is a 100pF per section miniature air variable and R1 is a 100 ohm linear potentiometer.

## COIL DATA

1.5-3.4MHz 214 turns 34B&S enamel  
2.7-6.0MHz 125 turns 34B&S enamel  
4.8-10.2MHz 58 turns 30B&S enamel  
8.7-19MHz 34 turns 22B&S enamel  
18-40MHz 16 turns 18B&S enamel  
35-80MHz 8 turns 18B&S enamel  
70-160MHz hairpin  $\frac{5}{8}$ in x 2in 10B&S enamel

Coils for the FET Dipper are wound on  $\frac{5}{8}$ in diameter plug-in formers, 2 $\frac{1}{2}$ in long. The two low-band coils have windings which occupy 1 $\frac{1}{2}$ in (close wound). All others (except the high-band hairpin) occupy 1in on the former, turns spaced where applicable.

Keep all leads as short as possible to assure proper frequency coverage at the upper end of the operating range. — W1CER.

(From "QST")