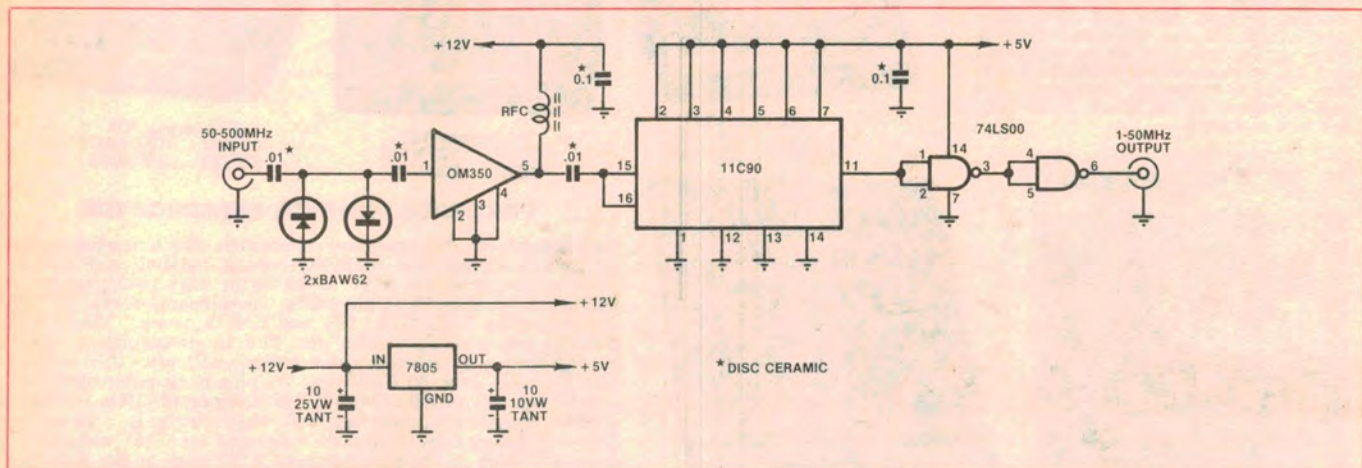


# Circuit & Design Ideas

Interesting circuit ideas from readers and technical literature. While this material has been checked as far as possible for feasibility, the circuits have not been built and tested by us. As a consequence, we cannot accept responsibility, enter into correspondence or provide constructional details.

## 500MHz prescaler for digital frequency meters



Many older commercial frequency meters are incapable of measurements above 50MHz but this is no reason to scrap them. With the addition of the prescaler circuit from the EA 500MHz Frequency Counter (December 1981), they can be given a further lease of life.

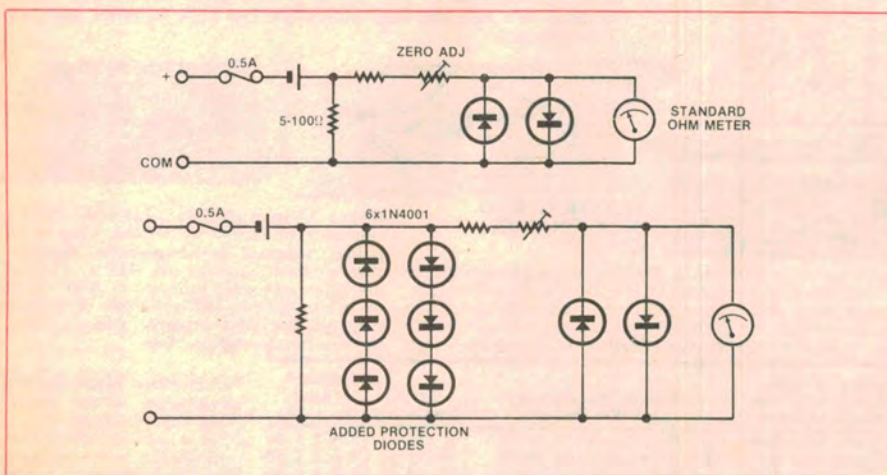
The circuit uses the 11C90 as a 10:1 divider preceded by the OM350 hybrid amplifier to increase the sensitivity. The 74LS00 buffers the output while the 7805 regulator supplies the 5V rail to run the 11C90 and 74LS00 from the 12V rail. The RF choke is wound on a 13mm

balun core with six turns of 22B&S enamelled copper wire.

In use, the measured frequency will be ten times that displayed on the counter readout.

P. O'Connell,  
Oatley, NSW.

## Burnout protector for ohmmeter ranges



Analog multimeters which are used for general purpose electrical testing are often damaged by having 240VAC mains voltage accidentally applied to the low "ohms" ranges. While the meter movement is usually protected from electrical damage by series resistors and shunt diodes, the "ohms" shunt resistor is usually vaporised in spite of any fuse which may be fitted.

This usually results in carbon soot

being deposited all over the inside of the multimeter case and is often accompanied by damage to the switch contacts and PCB tracks. If six diodes are added as shown, only the fuse will be blown. If the meter does not have a fuse, it may be added in series with the external positive lead inside the case if space permits.

R. Pointing,  
Redbank Plains, Qld.

## Loudspeaker protection for high-power amps

A problem has come to light where the EA loudspeaker protector is used with high power amplifiers such as the Playmaster 300W amplifier described in May, June and July 1980. Because of the very high DC supply rails the resultant arc drawn by the relay contacts under a DC fault condition is self-sustaining and can burn out the loudspeakers. The cure is to connect the unused contact of the relay to 0V. The arc will then blow the supply fuses and thus protect the speakers.

This cure can be applied to any loudspeaker protection circuit using a relay with change-over contacts. The only proviso is that the moving contact of the relay must be connected to the speaker load rather than the amplifier output. The modification is not necessary for amplifiers with supply voltages of less than  $\pm 50V$ .

Another method, used by some high-power amplifier manufacturers, is to place a magnet near the relay to quench the arc.

P. Allison,  
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