

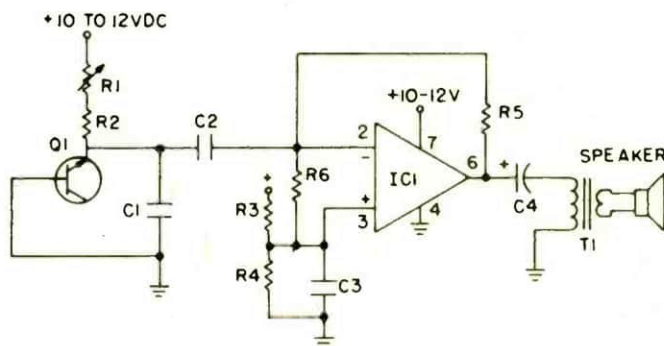
53 White Noise

□ Noise, more or less "pure white" from some source of uncertainty, can be filtered and shaped for various purposes, ranging from radio alignment, to music, or the simulated sounds of rain on the roof. There are various naturally random impulse sources available to the experimenter, including the plasma from gaseous discharges occurring in neon lamps. On the semiconductor level, there are diodes and transistors

purposely configured and biased into noisiness. But under certain conditions, many semiconductor junctions develop wide band RF noise. When amplified by a type 741 op amp, which has internal frequency roll-off elements, the result is a continuous hiss in the output speaker, simulating rain. The signal can also be used in the development of "electronic music" and the testing of hi-fi filters and systems.

PARTS LIST FOR WHITE NOISE

- C1**—.005- μ F ceramic capacitor, 15 VDC
C2, C3—10- μ F electrolytic capacitor, 15 VDC
C4—75- μ F electrolytic capacitor, 25 VDC
IC1—741 op amp
Q1—2N4401
R1—100,000-ohm linear-taper potentiometer
R2, R6—10,000-ohm, $\frac{1}{2}$ -watt resistor
R3, R4—4,700-ohm, $\frac{1}{2}$ -watt resistor
R5—1,000,000-ohm, $\frac{1}{2}$ -watt resistor
SPKR—8-ohm PM type speaker
T1—audio output transformer with 500-ohm primary/8-ohm secondary



54 Micro-Mini PA

□ Designed for **very** private listening, this little

amplifier sports a tiny loudspeaker of $1\frac{1}{2}$ to 2

PARTS LIST FOR MICRO-MINI PA

- C1**—100- μ F electrolytic capacitor, 100-WVDC
C2—100- μ F electrolytic capacitor, 6-WVDC
C3—100- μ F electrolytic capacitor, 10-WVDC
IC1—741 op amp
R1, R2—5,600-ohm, $\frac{1}{2}$ -watt 10% resistor
R3—1,000-ohm, $\frac{1}{2}$ -watt 10% resistor
R4—50,000-ohm, $\frac{1}{2}$ -watt 10% resistor
R5—100,000-ohm, $\frac{1}{2}$ -watt 10% resistor
R6—100,000-ohm audio tape potentiometer

SPKR—8 ohm, 2-in PM type

