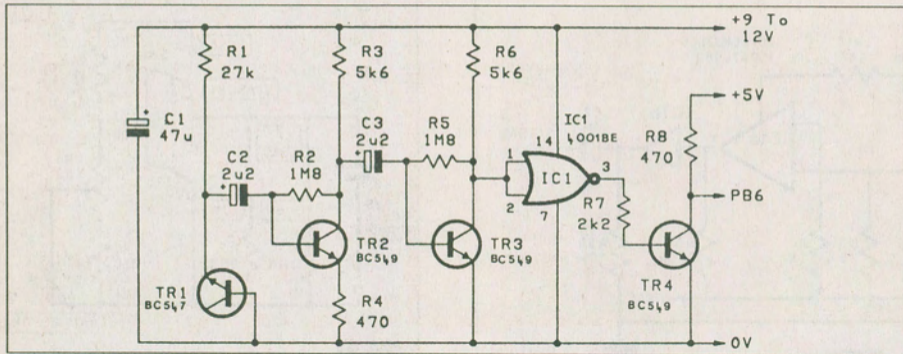


RANDOM CLOCK GENERATOR



This simple method of producing a random clock signal uses a reverse-biased emitter-base junction that emits noise spikes in much the same way as a zener diode. TR2 and TR3 provide voltage gain for the very low-amplitude spikes (these can be any general-purpose NPN). The 4001BE NOR gate cleans up the signal to CMOS level; if you need a CMOS level, take the signal from pin 3 of the 4001. If you need TTL levels, take the output from the collector of TR4, which can also be any general purpose NPN.