

Thunderstorm Predictor

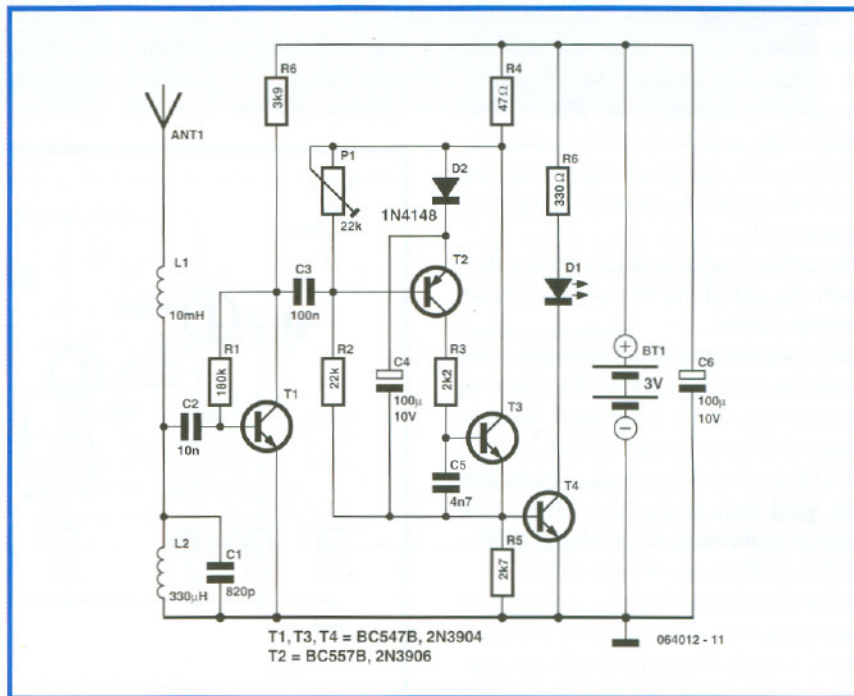
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Sure, listening to VHF FM has great advantages over MW/LW AM from the old days — now we have bright stereo free from interference, fading and noise! However, your FM radio will no longer predict the arrival of a thunderstorm as did the AM radio many years ago — reliably and hours before the trouble was upon you! The crux is that AM detection will faithfully reproduce the effects of lightning and other massive static discharges approaching in a very simple way: they're audible as slight crackling noises in the loudspeaker, almost irrespective of the tuning of the radio!

Assuming no AM radio is available anymore, a dedicated VLF receiver tuned to about 300 kHz can faithfully detect the crackle of approaching lightning. The simple receiver shown here consists of a loosely tuned amplifier driving a kind of flasher circuit that blinks an LED in synchronicity with the lightning bolts. The frequency and intensity of the LED activity indicates the intensity and distance of the storm respectively.

Looking at the circuit diagram, the LED driver is not biased to flash until a burst of RF energy, amplified by T1, arrives at the base of T2. The receiver works off 3 volts and has a negligible standby current of about 350 microamperes which will hardly dent the shelf life of a couple of 1.5-V D-size cells. T2 and T3 form a monostable generator triggered by sud-



den drops in T1's collector voltage. Preset P1 is adjusted until the LED remains off when you're sure there's no thunderstorm around for a few hundred miles. The value of the LED series resistor is subject to experimentation and LED current. L2, C1 and the antenna are coarsely tuned for resonance at about 300 kHz. Frequency-wise, lightning is a fairly broadband phenomenon so any tuning to between 200 and 400 kHz will be fine for the circuit but make sure you're not accidentally tuned to a nearby VLF trans-

Warning

This circuit and in particular the antenna must not be used to attract lightning. Consequently, neither the circuit nor the antenna may be used outdoors and/or powered from the mains.

mitter! The input signal is obtained from a 70-cm long piece of stiff wire, with coil L1 inserted for impedance matching and lengthening the antenna electrically.

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