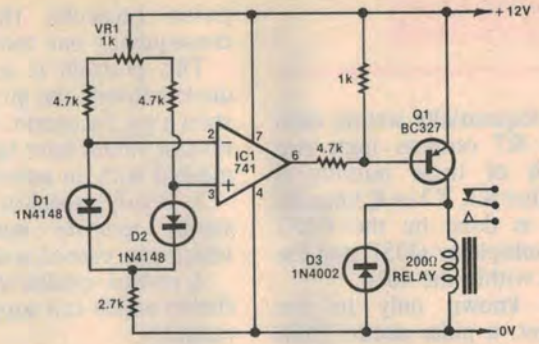


Thermal balance switch

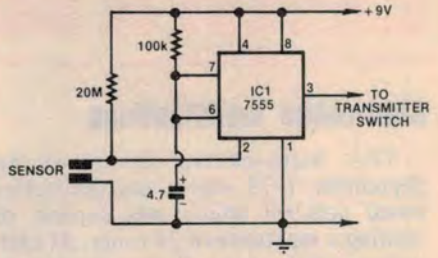
Originally designed to compare the temperature of one chemical chamber against another in an industrial control application, this circuit should prove useful for many temperature control systems.

The relay will only be energised when the temperature at diode D1 is higher than the temperature at diode D2. The relay can then be used to remove power to a heater which controls the temperature measured by D1. The temperature at D1 will thus closely follow the temperature measured by D2.

Circuit operation relies upon the temperature coefficient of the silicon diodes D1 and D2. As the temperature rises, so does the voltage drop across the diode. Initially trimpot VR1 is adjusted so that the output of op amp IC1 just stays low when the temperature at both diodes is the same. The diodes are connected so that the non-inverting input, pin 2, measures the voltage at D1.

When the voltage at the inverting input of IC1 becomes greater than the voltage at the non-inverting input, the output of IC1 goes low, turning on Q1. This in turn switches the relay. Diode D3 is used to short-circuit the back EMF developed by the relay coil when power is removed.

J. Date,
Maharashtra, India. **$15**



CMOS touch switch for Infrared TV Sound Control

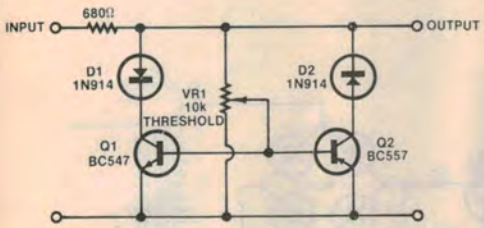
This simple circuit is designed to replace the mechanical switches in the Remote Infrared TV Sound Control (Jan '83) with the convenience of touch switching. It consists of a 7555 timer IC (the CMOS equivalent of the 555) wired as a monostable. When the sensor plates are touched, the pin 2 input is pulled low and the output (pin 3) switches high for 0.5s (approx).

Note that two such circuits will be needed: one to replace the UP button and one to replace the DOWN button. The two 0.1μF switch debounce capacitors should be removed from the existing circuit.

D. Thornton,
Magill, SA. **$10**

Adustable peak limiter

This adjustable peak limiter will symmetrically limit a signal input from 450mV RMS upwards over a frequency range from DC to several hundred kilohertz.



When the output voltage, or fraction thereof set by VR1, exceeds about 0.6V, Q1 or Q2 conducts and limits the output to this level. Diodes D1 and D2 prevent base-collector conduction in Q1 and Q2 which control the positive and negative signal peaks respectively.

The circuit was designed to limit an audio signal feed to a high-power amplifier to prevent it damaging a relatively low-power loudspeaker. The limiting action is quite positive but without the hard clipping of many other circuits. It can be used in a balanced line as it is completely floating with respect to ground.

Note that resistor R1 should be chosen to suit the drive capabilities of the source. Most op amps will drive 680Ω without problems.

P. Allison,
Summer Hill, NSW. **$15**