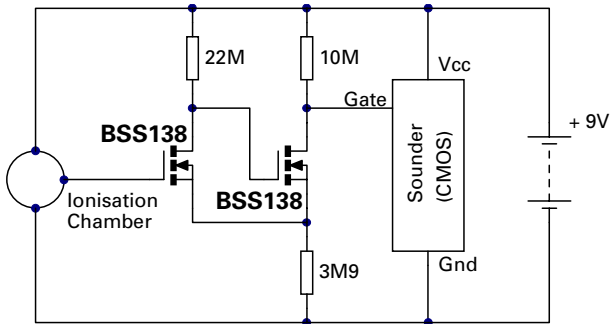


Ionising Smoke Detector



Smoke particles entering an ionising detection chamber generate signals of only a few pico-amperes. This signal must be buffered by a high input impedance amplifier, normally requiring an expensive low leakage J-FET.

The leakage current through the high integrity silicon-oxide gate of the Zetex BSS138 is negligible, hence the buffer circuit shown is ideal for this application. Two MOSFET's have been used, coupled

to produce a Schmitt-Trigger action. This eliminates unwanted current drain produced by many CMOS IC's when their inputs are allowed to settle mid-supply. This circuit can also be used in signal conditioning circuits for battery operated CMOS microcontrollers. Suitable for operation over the temperature range of -40°C to $+75^{\circ}\text{C}$ the circuit consumes only $0.65\mu\text{A}$ (excluding the sounder), thus giving a battery life limited only by internal battery leakage.