A Simple V.O.X. Circuit

By G8MNY

(8 Bit Graphics use code page 437 or 850)

Here is a 3 transistors 6 diodes circuit that is a Voice Operated Tx PTT control as well as an ANTI VOX circuit to stop mis-operation from Rx noise.

**SCHEMATIC**

```
┌──────┐┌───┐┌────────┐┌─────────┐┌─────┐┌──────────┐┌─────┐┌────────┐
│ RFI  ├┤MIC├┤   AF   ├┤Set Decay├┤ Set ├┤   LEVEL  ├┤ Set ├┤   AF   ├─<Rx
│ Filter├┤AMP├┤DETECTOR├┤ Time   ││Level││COMPARITOR││Level││DETECTOR│  LS
└──────┘└───┘└───        └─────────┘└─────┘└─────┬────┘└─────┘
          ┌─────┴────┐
          │ PTT DRIVER├──>PTT
          └──────────┘
```

**CIRCUIT**

```
VOX TIME  VOX GAIN    ANTI VOX  Smooth
100u ===   _│_      2uF│+ │   │    │             │  +│10u _│_
10k        === │ 220k   │  +10u _│_ D1
10k        D2 10k │u1 │  220k<──┬──┤     │   │ D4  │+10u
              Ge_b│_D2 10k │u1 │  220k<──┬──┤     │   │ D4  │+10u
                10m└─>47R< LS
              Ge│  │   │    │   10M   │       DETECTOR
                ├─┤├─┴─┤<├─┴──┴───┴────┘    └────(──────┬─────────┬──────> PTT
              u1 DETECTOR                   │      │         │
                └─>4k7   │/ BC107   _│_ DC109                            ├────┤ NPN      /_
                └───┴─­─┤ BC109                            ├────┤  POT  │
                  u1 FB │                                      │  4k7   │
                  e                               4k7   │
```

All diodes are 1N4148 or Germanium point contact type.

**HOW IT WORKS**

The BC109 Mic high gain amp is RF protected by the Ferrite Bead on the base lead. Its' low level output is voltage doubled with Germanium diodes D2 & 3 into double time constants Caps to give fast attach & slow decay time responses. The rectified DC is referenced from the +ve rail less the voltage drop of Silicon diode D1 together with the germanium detector diodes, this makes the Mic Audio detector very sensitive! The voltage is put across the 220k VOX gain pot, & the hang time determined by the 220k decay variable control that discharges the capacitors.

The gain controlled sample of the DC switches on the PNP which turns on the NPN PTT drive transistor, that is protected from rig relay back EMF by D6. The 10MΩ from the PNP base to NPN collector, gives positive feedback hysteresis if needed (SCHMITT) for snap on-off action.

High level LS audio is also voltage doubled with Silicon diodes D4 & 5 to give DC that feeds the ANTI VOX control, this DC is used on the emitter of the PNP to stop the PTT operating from loud RX LS audio that may be heard by the mic.

**Why Don't U send an interesting bul?**

73 De John, G8MNY @ GB7CIP