

LI-3950 (and LI-6050) circuit description

I Transmitting section

1. Low frequency amplifying section:

MIC signal input @ pin17 of U2, output @ Pin5 .After AMP (EMBEDDED IN U7) ,the audio signal go through to FM modulation..

2. CTCSS section:

CPU send out by RC network alternation into FM modulation.

3. VCO section:

'Q9、'Q10、'U2 work as VCO, the varactor 'D10 value (frequency) is controlled by PLL, 'Q20 is a frequency band switch for RX and TX, 'Q20 is a power switch for power-save mode.

4. Power amplifying section:

'Q18 is a buffer transistor and 'Q19 is a driver, 'Q11 acts as power amplifier, when the signal had been amplified by 'Q12. 13, it will pass to a switch diode 'D1 and send out from the antenna; Q11 is low power control transistor.

II Receiving section

1. RF section:

The signal received by antenna passed to LPF network, which is consisted of 'L8、'L3, then amplified by ' Q2, Q4, and passes to the band-pass filter 'CF1, after frequency selection it comes into mixing frequency network 'Q6.

2. Local-oscillator and mixing frequency:

'Q6 is frequency mixing transistor, the VCO forms a local-oscillator circuit, the frequency is controlled by PLL, after mixing, 'L15、'C53 output the first IF frequency 21.6MHz.

3. IF section:

'CF2 is a 21.6MHz band-pass, the second IF is 450KHz, U2 (AN6311FA) works as the second mixing, local-oscillator, IF amplifier, demodulation, S/N controller, etc.

4. audio amplifying:

CPU internally include BPF and HPF comprised of (the CTCSS can't be entered in it) then the signal come into U1 (LM386), the power amplifier lever, Q14、Q21 are the power control switches for LM386.

5. CTCSS section:

Audio signal (with CTSS) go through AMP circuit, LPF, and detected to output a control level so as to control VCC OF IL386.

III Others

1. PLL section:

The 'U2 (AN6311FA) works as PLL, 'X1 is a local-oscillation crystal, 'VC1 is a trimmer. The 'X2 is fixed on 21.15MHz and the 'U2 third pins output constant current to control the VCO oscillation frequency, the required frequency is controlled by CPU.

2. Recharge circuit:

, R94, R20R106, D13 form the recharge circuit.

3. Low voltage DET:

R46, 47 form the low-voltage DET circuit.

4. Power source:

There are 5 groups power source,

VDD, VCOC, RX-V+, TX-V+, (WX-V+ in which. for li6050)

IV WX section (only applied to li-6050, not to LI3950)

Q7, Q8, U2, work as WX VCO, Q1 RF AMP, Q5 is frequency mixing transistor, To CF2 21.6 IF filter.