

PR-3850 (and PR-3800) circuit description

I Transmitting section

1. Low frequency amplifying section:

MIC signal input @ pin9 of U7, output @ Pin5 . After AMP (EMBEDDED IN U7) amplifying, the audio signal go through a LPF CONSISTED of R80, c140, U7 pin17&16, then R79 to FM modulation..

2. CTCSS section:

CPU send out by RC network alternation into FM modulation.

3. VCO section:

‘Q4、‘Q5、‘U10 work as VCO, the varactor ‘D4 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:

‘Q9 is a buffer transistor and ‘Q8 is a driver, ‘Q6 acts as power amplifier, when the signal had been amplified by ‘Q6, 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 ‘L1、‘L2, then amplified by ‘ Q7,Q1, and passes to the band-pass filter ‘CF2、after frequency selection it comes into mixing frequency network ‘Q2.

2. Local-oscillator and mixing frequency:

‘Q2 is frequency mixing transistor, the VCO forms a local-oscillator circuit, the frequency is controlled by PLL, after mixing, ‘L9、‘C23 output the first IF frequency 21. 6MHz.

3. IF section:

‘CF1 is a 21. 6MHz band-pass, the second IF is 450KHz, U7 (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 C51, R71, C116 , R45(the CTCSS can't be entered in it) then the signal come into U9 (LM386), the power amplifier lever, Q14、Q15 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 'U7 (AN6311FA) works as PLL, 'X2 is a local-oscillation crystal, 'VC1 is a trimmer. The 'X2 is fixed on 21.15MHz and the ' U1 third pins output constant current to control the VC0 oscillation frequency, the required frequency is controlled by CPU.

2. Recharge check:

Q16, D14 form the recharge check circuit.

3. Low voltage check:

R81, 82 form the low-voltage check circuit.

4. Power source:

There are 5 groups power source,

VDD, VCOC, RX-V+, TX-V+, WX-V+ (只限于 PR-3850 有) in which.

IV WX section (only applied to PR-3850, not to PR3800)

Q25, Q26, U7, work as WX VCO, Q23 RF AMP, Q24 is frequency mixing transistor, To CF2 21.6 IF filter.