DESCRIPTION

EMITTER DESCRIPTION

Product Name：Two-way Radio

Model Number：PT4208-01

1. Emitter Power Voltage: D.C.7.5V

2. CPU Frequency: 7.3MHz

3. Emissive Frequency: 136MHz-174 MHz Modulating manner: FM

4.Work process:

There is a PTT (Push-To-Talk) button. Press this button, then speak into the microphone to send signal. Release the button to receive.

5 RECEIVER WORKING PROCESS

An incoming signal from the antenna is applied to a RF amplifier (Q20) after passing through a transmit/receive switch circuit (D1、D2、D4 and D5) and a 3-pole LC filter. After the signal is amplified (Q20), the signal is filtered by a band pass filter (a 3-pole LC tuner filter) to eliminate unwanted signals before it is passed to the first mixer. The tuner voltage of these diodes are controlled by to track the MCU(IC10).

5.1 First Mixer

The signal from the RF amplifier is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (Q19) to create a 49.95MHz first intermediate frequency (1st IF) signal. The first IF signal is then fed through a monolithic crystal filters (MCFs: XF1、XF2) to further remove spurious signals.

5.2 IF amplifier

The first IF signal is amplified by Q21, and then enters IC5(FM processing IC) .The signal is heterodyned again with a second local oscillator signal within IC5 to create a 450KHz second IF signal. The second IF signal is then fed through a 450KHz ceramic filter (CF1) to further eliminate unwanted signals before it is amplified and FM detected in IC6.

5.3 AF amplifier

The recovered AF signal obtained from IC5 is filtered by the baseband processor IC6. The processed AF signal passes through an AF volume control and is amplified to a sufficient level to drive a loud speaker by an AF power amplifier (IC8).

6 Transmitter

6.1 Transmit audio

The modulation signal from the microphone is amplified by IC7, passes through a pre-emphasis and amplified by the baseband processor IC7 to perform IDC operation. The resulting signal goes to the VCO through the VCO modulation terminal for direct FM modulation.

6.2 VCO and RF amplifier

The transmit signal obtained from the VCO buffer amplifier Q5, is amplified by Q4 、and Q2. This amplified signal is passed to the power amplifier, Q12 and Q11, which consists of 2-stage FET

amplifier and is capable of producing up to 5W of RF power.

6.3 ANT switch and LPF

The RF amplifier output signal is passed through a low pass filter network and a transmit/receive switching circuit before it is passed to the antenna terminal. The transmit/receive switching circuit is comprised of D1、D5 and D4 are turned on (conductive) in transmit mode and off (isolated) in receive mode.