

## DESCRIPTION

### EMITTER DESCRIPTION

Product Name: Two-way Radio

Model Number: PT5200-01

1. **Emitter Power Voltage:** D.C.7.5V
2. **CPU Frequency:** 10MHz
3. **Emissive Frequency:** 150-174 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 (Q26) after passing through a transmit/receive switch circuit (D102, D103 and D104) and a 3-pole LC filter. After the signal is amplified (Q26), 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 MPU(IC506).

#### 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 (Q21) to create a 51.65MHz first intermediate frequency (1st IF) signal. The first IF signal is then fed through a monolithic crystal filters (MCFs: XF 203) to further remove spurious signals.

#### 5.2 IF amplifier

The first IF signal is amplified by Q204, and then enters IC204(FM processing IC) .The signal is heterodyned again with a second local oscillator signal within IC204 to create a 450KHz second IF signal. The second IF signal is then fed through a 450KHz ceramic filter (CF201) to further eliminate unwanted signals before it is amplified and FM detected in IC204.

#### 5.3 AF amplifier

The recovered AF signal obtained from IC204 is filtered by the baseband processor IC408. 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 (IC401).

### 6 Transmitter

#### 6.1 Transmit audio

The modulation signal from the microphone is amplified by IC402, passes through a pre-emphasis and amplified by the baseband processor IC408 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 Q304, is amplified by Q111 , Q101 and Q102. This amplified signal is passed to the power amplifier, Q103 and Q104, which consists

of 2-stage FET amplifier and is capable of producing up to 3.5W 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 D102、 D103 and D104. D102 are turned on (conductive) in transmit mode and off (isolated) in receive mode.