

63-1123 Circuit Theory

Receiver

The receiver is a super-regenerative receiver. The pre-amplifier formed by Q1 amplified the received RF signal from the antenna. The amplified signal is then being fed to the super-regenerative circuit formed by Q2. The frequency of the super-generative circuit can be adjusted by tuning the variable capacitor VC1. The received RF signal is demodulated by the super-regenerative circuit and then being fed to the data amplifiers which consist of Q3, Q4 and Q5. The demodulated data is amplified by the data amplifiers and then being to the MCU (pin 10 of U1). Once the MCU decoded the received data, it will send a door chime to the audio amplifier Q8.

There is a low battery circuit formed by Q13 to detect the battery voltage. The low battery level can be adjusted by tuning variable resistor VR1. The factory setting was at 2.4V.

There is a 3V regulator (U2) that provides stable supply voltage to MCU control circuit.

63-1124 Circuit Theory

Receiver

The receiver is a super-regenerative receiver. The pre-amplifier formed by Q1 amplified the received RF signal from the antenna. The amplified signal is then being fed to the super-regenerative circuit formed by Q2. The frequency of the super-generative circuit can be adjusted by tuning the variable capacitor VC1. The received RF signal is demodulated by the super-regenerative circuit and then being fed to the data amplifiers which consist of Q3, Q4 and Q5. The demodulated data is amplified by the data amplifiers and then being to the MCU (pin 10 of U1). Once the MCU decoded the received data, it will either send a door chime to the audio amplifier Q8 or enable music IC (U4) by apply a logic zero to pin 16 of U1. When Q7 is turned on by the MCU, U4 is powered by Q7 and then send out a song to audio buffer amplifier formed by Q12. At the same time, the power switch formed by Q10 and Q9 is also turned on to enable the audio amplifier Q8. Therefore, either the door chime from the MCU or music from the music IC can be applied to the speaker.

There is a low battery circuit formed by Q13 to detect the battery voltage. The low battery level can be adjusted by tuning variable resistor VR1. The factory setting was at 2.4V.

There is a 3V regulator (U2) that provides stable supply voltage to MCU control circuit.