

GH3065 Circuit Description

1 PRODUCT DESCRIPTION

The GH3065 is a 2.4GHz 40 Channels Analog Modulation Cordless Phone with Radio and CD, Type I, II Caller ID and Full-duplex speakerphone. The unit is capable of either tone or pulse dialing. The internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. The circuit wiring is consistent under the requirement of part 68.

The handset unit consists of a keypad with twelve standard keys (0... 9, * and #), six function keys (Calls, Del, Memo, Flash, Redial, Volume), and one channel switch key. A Talk key is provided to control pick/release telephone line in a toggle base.

The base unit has a page key, which is used to page the handset unit. It also consists a speaker key for answering incoming calls.

Connection between the device and the telephone network is accomplished through the use of USOC RJ11C in the 2-wire loop calling central office line.

2 BASE UNIT

CPU

The host of base unit is the CPU, U2. It has two system clocks: 32.768KHz for power down mode and 3.579545MHz for normal mode. It controls the RF combo IC on RF module for wireless communication with handset, TEA5757 chip to provide self tuned radio system, The TEA5757 is a 44-pin integrated AM/FM stereo radio circuit including a novel tuning concept. PJ34118 IC to provide speakerphone system. It still dominates the work of CD Module. The CPU also handles keyboard and switches scanning, LCD control, and power managements.

The chip, besides, in charge of Caller ID and Call ID on Call Waiting detection, DTMF generation, ring detection and line states control.

TEA5757/CD Module/PJ34118

Another heart of the base unit is self tuned radio IC, U8. It is a single chip that has an optimized IC partitioning both form application (omitting interferences) and flexibility (removable front panel option) point of view, the tuning synthesizer is on-chip with the radio. It is fully controlled by the system Host, U2, through a simple interface protocol. The Host provides activation and control of all system functions.

The system clock of the chip is generated from a 3.579545MHz crystal.

CD Module dominates through U2, and places U5 (TDA2822) send till the horn and outputs after the meritorious service again after U10 (4066).

Voice switched speakerphone circuit PJ34118, U6. It incorporates the necessary amplifiers, attenuators, level detectors, and control algorithm to form the heart of a high quality hands-free speakerphone system.

The Analog Front End includes audio signal path switches (U7, IC4066), and speaker power amplifier (U5, IC TDA2822) to interconnect all signals from/to telephone line and RF module.

RF module

The RF module is mainly formed by Combo IC, U2; low loss amplifier Q26, Q27, FLT2; RX mixer, Q28; IF amplifier Q29, F2, F3; RX VCO, Q30, D2; TX VCO, Q23, D1 and frequency tripler Q24; power amplifier, Q25, FLT1.

The most important part of the module is combo IC that provide TX, RX PLL for VCOs, demodulator, Compandor, battery level detect, mic pre-amplifier and receiver power amplifier. It is controlled by CPU via serial linking.

In the receiving path, the RX signal is filtered and amplified on LNA and then converted to IF signal 10.7MHz at the mixer. An 8xxMHz signal is generated on RX VCO, which is controlled by RX PLL and feed into mixer to mix the IF signal. The signal is demodulate and expanding on combo IC to reproduce audio signal.

In the transmitting path, the audio signal is converted to 8xxMHz signal on TX VCO, which is controlled by TX PLL. The signal is tripled to 2.4GMz RF signal on frequency tripler. Finally, the RF signal is amplified and filter then feed to antenna.

Line Interface Circuit

Line interface circuit, T2 provides the hybrid 2-to-4 conversion to communicate handset or speakerphone to telephone line. It also included the ringing detection circuit, C23, D7,8, U4; Line state control circuit, SW1, Q2. The internal telephone line isolation is accomplished through the transformer, T2; Opto-couler IC, U4; Relay, SW1 and two 1000P/1KV safety capacitor C3,4.

3 HANDSET UNIT

CPU

The heart of base unit also is the CPU, HU1. It has two system clocks: 32.768KHz for power down mode and 3.58MHz for normal mode. It controls the RF combo IC on RF module for wireless communication with base unit. It also handles LCD display, keyboard scanning, LEDs control, buzzer control and power managements.

RF module

The RF module is mainly formed by Combo IC, U2; low loss amplifier Q26, Q27, FLT2; RX mixer, Q28; IF amplifier Q29, F2, F3; RX VCO, Q30, D2; TX VCO, Q23, D1 and frequency tripler Q24; power amplifier, Q25, FLT1.

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In the receiving path, the RX signal is filtered and amplified on LNA and then converted to IF signal 10.7MHz at the mixer. An 8xxMHz signal is generated on RX VCO, which is controlled by RX PLL and feed into mixer to mix the IF signal. The signal is demodulate and expanding on combo IC to reproduce audio signal. Finally, the audio signal is amplified on power amplifier and connects to receiver or headset via headset jack.

In the transmitting path, the audio signal is converted to 8xxMHz signal on TX VCO, which is controlled by TX PLL. The signal is tripled to 2.4GMz RF signal on frequency tripler. Finally, the RF signal is amplified and filter then feed to antenna.

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