Model : GH-3025S

CIRCUIT DESCRIPTION

Content

<u>HANDSET</u>
1. RF/Audio Section

The radio link Handset and Base is Width band with full duplex at 2475/2403MHz with the 40 channels. FM modulation is used for the link. The 1st IF frequency is 10.7MHz and the 2nd IF is NONE. The operating frequency for the cordless phone is selected from one of the following channels and controlled by the synthesizer IC1 which is programmed by the MCU. Please refer to Table 1 for the Channel Frequency Table.
This section is common to both handset and base as the same ICs are used: LMX1602(U2), SIT8531(U1) is made up of dual serial input PLL frequency synthesizer with 2.4GHz prescaler. SIT8531 is a WIDTH-band IF detector IC.

1.1 Receiver
The receiver section is made of double conversion with 10.7MHz as the first IF. Rx signal from the duplexer circuit is amplified by a Low Noise RF transistor and passed to a Mixer (Q2), and it is converted to 10.7MHz IF Direct input from U1 pin 15 and pin 16. Voice/data signal is demodulated and output from pin 7 of U1. The demodulated signal is then divided into two paths, a path is fed into the data amplifier Q201,Q202. The recovered data signal   RX-DATA is extracted from the output of Q202. The other path will go through a de-emphasized amplifier and an expander in IC102. Recovered signal can be muted by the pin 13 of U201, the 3 volume levels of the signal can be controlled by the switch SW2.

1.2 Transmitter

Audio signal (from Microphone for handset/Tip & Ring for base) is first fed into the amplifier and compressor inside IC102. The signal will pass through a limiter. The AGC and the limiter has the property to limit the maximum signal which feed into the transmitter so that the RF deviation is limited. The transmitter section mainly divided into two parts. They are the voice/data modulator and the Tx power amplifier. The voltage controlled oscillator VCO operated at the Tx frequency controlled by the synthesizer is modulated by the audio and data signals. Modulated signal is amplified by the RF amplifier and sending the signal to the dupliexer for radiation by the antenna.

1.3 Duplexer
Two band-pass filter are matched to use as duplexer. The function of the

duplexer is to multiplex the transmitting and receiving signals to a common antenna while providing isolation and rejection of interference and other spurious signals.

1.4 Alerter

The alerting signals include the following: Ringing, Paging, Key Beep and Lowbattery warning tone. These tones are generated by the MCU to the alert or through the driving circuit formed Q103 and the associated components.

1.5 microphone

The condenser microphone is in the headset and it biased by the resistor R312. The signal is applied to the amplifier inside IC102.

1.6 Antenna description

The antennas is a /2 wavelength #24 wires based on the 2.4Ghz for transmitting and receiving.

2 MCU

2.1 Battery Detect

The voltage detector is composed of Q1 which is used to detect battery lowcondition. The detecting accuracy of the voltage detector is +/-0.2V. The detect pin BAT-LOW is connected to the pin 70 of the MCU.

2.2 Carrier Detection

This 40 channels cordless has the features of auto-scanning. This is done by the detection of the RSSI at pin 371of MCU of handset. During PHONE on or CHANNEL changing, the MCU will select the clearest channel for the RF communication.

BASE

3 RF/Audio sections/ Antenna description

The operation of the RF/Audio section are similar to that of the handset. Antenna description: The antenna is a λ wavelength #24 wires based on the 2.4Ghz for transmitting and receiving.

4. Telephone Network

4.1 Telephone Interface

Fuse FUSE1 is for over-voltage protection. Relay RL101 controls the on/off hook state and pulse dialing. The Tip&Ring are isolated from the base circuit by the transformer T101, relay RL101.

4.2 Ring Detect

When ring signal is present on the Tip/ Ring, and envelope waveform of the ring pattern will transfer to pin 69 of MCU by the C8 and the opto-coupler. The MCU will read this waveform and determine whether it will send ringer command.

4.3 Sidetone Cancellation Network

The sidetone cancellation is a hybrid circuit of the Tx and Rx paths of the telephone circuit formed by the. C18. R37 R38.

5. MCU

5.1 Charging Network

Base charging circuit provides a DC current for handset batter. Resistor R44 controls the current flow

5.2 Carrier Detection

This is similar to the handset counterpart.

6. TAD
6.1 ICM record
     The audio signal input from TIP/RING. passed Q109 pre-AMP and input the DSP(U7) from pin 66. after encode the audio signal changed to digital signal stored in U8.
6.2 OGM record
     The audio signal input from microphone. direction input the DSP(U7) from pin 66. after encode the audio signal changed to digital signal stored in U8.
6.3 BATTERY DETECT
     The battery detect circuit through R143 and R142. detection the 9v

Battery voltage at the rang of 7.0~7.8V .when the battery is low batt
The red LED will blink on base.

6.4 CPC detection

The CPC detection circuit as same ring detection circuit from the TIP/RING and Q8.opto-coupler. Q6 input DSP from U7 pin 98.

6.5 AUDIO AMPLIFIRE

Once the answer system be play back , the data be read from U8 through U7.audio signal output from U7 pin 77 after decode .the audio signal be amplified by IC207,rech to speaker emit sound .

FREQUENCY TABLE UNIT: MHZ

Channel		BASE TX	BASE LOCAL		HAND TX	HAND LOCAL
1	2403.05	801.0166667	828.2333333	2474.00	824.6666667	804.5833333
2	2403.10	801.0333333	828.2500000	2474.05	824.6833333	804.6000000
3	2403.15	801.0500000	828.2666667	2474.10	824.7000000	804.6166667
4	2403.20	801.0666667	828.2833333	2474.15	824.7166667	804.6333333
5	2403.25	801.0833333	828.3000000	2474.20	824.7333333	804.6500000
6	2403.30	801.1000000	828.3166667	2474.25	824.7500000	804.6666667
7	2403.35	801.1166667	828.3333333	2474.30	824.7666667	804.6833333
8	2403.40	801.1333333	828.3500000	2474.35	824.7833333	804.7000000
9	2403.45	801.1500000	828.3666667	2474.40	824.8000000	804.7166667
10	2403.50	801.1666667	828.3833333	2474.45	824.8166667	804.7333333
11	2403.55	801.1833333	828.4000000	2474.50	824.8333333	804.7500000
12	2403.60	801.2000000	828.4166667	2474.55	824.8500000	804.7666667
13	2403.65	801.2166667	828.4333333	2474.60	824.8666667	804.7833333
14	3403.70	801.2333333	828.4500000	2474.65	824.8833333	804.8000000
15	2403.75	801.2500000	828.4666667	2474.70	824.9000000	804.8166667
16	2403.80	801.2666667	828.4833333	2474.75	824.9166667	804.8333333
17	2403.85	801.2833333	828.5000000	2474.80	824.9333333	804.8500000
18	2403.90	801.3000000	828.5166667	2474.85	824.9500000	804.8666667
19	2403.95	801.3166667	828.5333333	2474.90	824.9666667	804.8833333
20	2404.00	801.3333333	828.5500000	2474.95	824.9833333	804.9000000
21	2404.05	801.3500000	828.5666667	2475.00	825.0000000	804.9166667
22	2404.10	801.3666667	828.5833333	2475.05	825.0166667	804.9333333
23	2404.15	801.3833333	828.6000000	2475.10	825.0333333	804.9500000
24	2404.20	801.4000000	828.6166667	2475.15	825.0500000	804.9666667
25	2404.25	801.4166667	828.6333333	2475.20	825.0666667	804.9833333
26·	2404.30	801.4333333	828.6500000	2475.25	825.0833333	805.0000000
27	2404.35	801.4500000	828.6666667	2475.30	825.1000000	805.0166667
28	2404.40	801.4666667	828.6833333	2475.35	825.1166667	805.0333333
29	2404.45	801.4833333	828.7000000	2475.40	825.1333333	805.0500000
30	2404.50	801.5000000	828.7166667	2475.45	825.1500000	805.0666667

31	2404.55	801.5166667	828.7333333	2475.50	825.1666667	805.0833333
32	2404.60	801.5333333	828.7500000	2475.55	825.1833333	805.1000000
33	2404.65	801.5500000	828.7666667	2475.60	825.2000000	805.1166667
34	2404.70	801.5666667	828.7833333	2475.65	825.2166667	805.1333333
35	2404.75	801.5833333	828.8000000	2475.70	825.2333333	805.1500000
36	2404.80	801.6000000	828.8166667	2475.75	825.2500000	805.1666667
37	2404.85	801.6166667	828.8333333	2475.80	825.2666667	805.1833333
38	2404.90	801.6333333	828.8500000	2475.85	825.2833333	805.2000000
39	2404.95	801.6500000	828.8666667	2475.90	825.3000000	805.2166667
40	2405.00	801.6666667	828.8833333	2475.95	825.3166667	805.2333333