



FF905A(XXX)

FF905 Circuit Description

1. Introduction



FF905A(XXX)

The model FF905 is a 40 channel (902.125 - 927.100Mhz) cordless telephone. The whole unit is divided into two main parts as follow :

- a. A remote Handset.
- b. A Base unit.

2. Functional Blocks of the Remote Handset

- 2.1 Keyboard matrix and function LED
- 2.2 MCU and MCU interface
- 2.3 Antenna and RF module
- 2.4 Compander
- 2.5 Data shaper
- 2.6 Charge detector
- 2.7 Low battery detector
- 2.8 Buzzer amplifier

3. Circuit Block Description

3.1 Keyboard matrix and function LED

Pin 4 to pin7, pin 10 to pin 11 and pin 25 of the U5 ACT15H MCU form a keyboard, and the talk LED is controlled by the pin 12 of the MCU.

3.2 MCU and MCU interface

The handset and the base is link up by the pins(9,24 in HS and 21,24 in Base). Besides, the PLL of the RF Module is controlled by the pins 15,17 and 18 of the MCU.

3.3 Antenna and RF module

ANT is the common point for transmitting and receiving through antenna. MD1 is a RF module which consists of Duplexer, Power amplifier, Mixer & IF, RXVCO, TXVCO, VCC & TXVCC control, Synthesizer and DEMO Audio Output circuits.

3.4 Compander

A compander U2 is used for improving the S/N of the transmit and receive audio signal.

3.5 Data shaper

The information which sending from base unit, is recovered by the amplifier Q7,Q8.

3.6 Charge detector

ZD1, D7, D6, C43, R70, R68 and R69,D4, C42, R71, D5 form a charge detector to direct the charging signal to the MCU pin 26.

3.7 Low battery detector

A battery low detector is built-in by the Q1,Q10 which detects the battery dropping and sends a signal to pin 19 of MCU.

3.8 Buzzer amplifier

Q2 is a buzzer amplifier driven directly by the MCU pin 23.

4. Functional Blocks of the Base unit

- 4.1 Power supply
- 4.2 MCU and MCU interface
- 4.3 Antenna and RF module
- 4.4 Compander
- 4.5 Data shaper
- 4.6 Charge detector
- 4.7 Line audio interface
- 4.8 Ring detector
- 4.9 Led function board
- 4.10 Noise detector and carrier detector

5. Circuit Block Description

5.1 Power supply

BU1 7805 regulate the input DC 9V to 5V which provides power to every part of the circuit.

5.2 MCU and MCU interface

The heart of the base is BU5 ACTB15 MCU that communicates with the PLL of BMD1 through pins 5,6 and 7. Transmitter is controlled by the signal TX_DC which output from MCU via pin 20. MCU pins 6 to 11 consist of a resistor ladder for generating DTMF signal. The communication between Handset and Base is via the pin 24 and pin 26 through the RF link.

5.3 Antenna and RF modulator

ANT is antenna transmit and receive signal. BMD1 is a RF modulator which consist of Duplexer, Power amplifier, Mixer & IF, RXVCO, TXVCO, VCC & TXVCC control, Synthesizer and DEMO Audio Output circuits.

5.4 Compander

A compander BU4 is used for improving the S/N of the transmit and receive audio signal.

5.5 Data shaper

The information which sending from handset unit, is recovered by the amplifier BQ7,BQ8.

5.6 Charge detector

BQ5 is a charge detector to direct the charging signal to the MCU pin 25.

5.7 Line audio interface

BR72, BK1, BR73, BC17, BL3, BL4 and BTR1 line transformer are the audio interface to the telephone line. The transformer is also used for telephone isolation.

5.8 Ring detector

BC44, BR71, BZD3, BZD2, BD7, BU7(LTV817) and BR67 form a ring detector which feed the signal through pin 26 of MCU.

5.9 LED function board

BLED1 is used for indicating "IN USE" OR "CHARGING" when handset is on cradle.

5.10 Carrier detector

The RF Module BMD1 pin 12 is an output pin of the carrier detector signal , it is sent to BU5 pin 23. When there is carrier, it is Low; when there is noise, it is High. BU5 finds the clear channel by this pin 23.

FREQUENCY TABLE

- CHANNEL SPACE : 25KHz
- 1ST I.F : 10.7MHz
- 2ND I.F : 450KHz
- TCXO(X-TAL) : 11.15MHz

CH	BASE(MHZ)		PORTABLE(MHZ)	
	TX	LOCAL(10.7)	TX	LOCAL(10.7)
1	902.125	936.825	926.125	891.425
2	902.150	936.850	926.150	891.450
3	902.175	936.875	926.175	891.475
4	902.200	936.900	926.200	891.500
5	902.225	936.925	926.225	891.525
6	902.250	936.950	926.250	891.550
7	902.275	936.975	926.275	891.575
8	902.300	937.000	926.300	891.600
9	902.325	937.025	926.325	891.625
10	902.350	937.050	926.350	891.650
11	902.375	937.075	926.375	891.675
12	902.400	937.100	926.400	891.700
13	902.425	937.125	926.425	891.725
14	902.450	937.150	926.450	891.750
15	902.475	937.175	926.475	891.775
16	902.500	937.200	926.500	891.800
17	902.525	937.225	926.525	891.825
18	902.550	937.250	926.550	891.850
19	902.575	937.275	926.575	891.875
20	902.600	937.300	926.600	891.900
21	902.625	937.325	926.625	891.925
22	902.650	937.350	926.650	891.950
23	902.675	937.375	926.675	891.975
24	902.700	937.400	926.700	892.000
25	902.725	937.425	926.725	892.025
26	902.750	937.450	926.750	892.050
27	902.775	937.475	926.775	892.075
28	902.800	937.500	926.800	892.100
29	902.825	937.525	926.825	892.125
30	902.850	937.550	926.850	892.150
31	902.875	937.575	926.875	892.175
32	902.900	937.600	926.900	892.200
33	902.925	937.625	926.925	892.225
34	902.950	937.650	926.950	892.250
35	902.975	937.675	926.975	892.275
36	903.000	937.700	927.000	892.300
37	903.025	937.725	927.025	892.325
38	903.050	937.750	927.050	892.350
39	903.075	937.775	927.075	892.375
40	903.100	937.800	927.100	892.400