

Model:FF2100TE

TECHNICAL DESCRIPTION

Content

HANDSET

1. RF/Audio Sections
 - 1.1Receiver
 - 1.2Transmitter
 - 1.3Duplexer
 - 1.4Alerter
 - 1.5 microphone

2.MCU

- 2.1Battery Detect
- 2.2Carrier Detection

BASE

3. RF/Audio Sections

4.Telephone Network

- 4.1 Telephone Interface
- 4.2 Ring Detect
- 4.3 Sidetone Cancellation Network

4. MCU

- 5.1Charging Network
- 5.2Carrier Detection

HANDSET

1. RF/Audio Section

The radio link Handset and Base is full duplex at 902/928 MHz with the 40 channels. FM modulation is used for the link. The 1st IF frequency is 10.7MHz and the 2nd IF FREQUENCY IS 450MhZ. The operating frequency for the cordless phone is selected from one of the following channels and controlled by the synthesizer U501 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 lcs are used: LMX1602(U501),KA3361(U500) is made up of dual serial input PLL frequency synthesizer with 1000MHz prescaler. KA3361 is a narrow-band IF detector IC.

1.1 Receiver

The receiver section is made of double conversion with 10.7MHz as the first and second IF. Rx signal from the duplexer circuit is amplified by a Low Noise RF transistor and passed to a Mixer (Q500), and it is converted to 10.7MHz IF and it is then double converted to 450kHz IF in the internal mixer of U500. Voice/data signal is demodulated and output from pin 9 of U500. The demodulated signal is then divided into two paths, a path is fed into the data amplifier Q6,Q7. The recovered data signal RX-DATA is extracted from the output of Q7. The other path will go through a de-emphasized amplifier and a expander in IC102B. Recovered signal can be muted by the pin 13 of IC102B, the 2 volume levels of the signal can be controlled by the switch SW6.

1.2 Transmitter

Audio signal(from Microphone for handset/Tip & Ring for base) is first fed into the amplifier and compressor inside IC102A. T he 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 Alarmer

The alerting signals include the following: Ringing, Paging, Key Beep and Low battery warning tone. These tones are generated by the MCU to the alarmer through the driving circuit formed Q4 and the associated components.

1.5 microphone

The condenser microphone is in the headset and it biased by the resistor R25. The signal is applied to the amplifier inside IC102A.

2. MCU

2.1 Battery Detect

The voltage detector is composed of Q2, Q3 which is used to detect battery low condition. The detecting accuracy of the voltage detector is $\pm 0.2V$. The detect pin BAT-LOW is connected to the pin 43 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 42 of 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

The operation of the RF/Audio section are similar to that of the handset.

4. Telephone Network

4.1 Telephone Interface

Fuse FUSE1 is for over-voltage protection. Relay RL1 controls the on/off hook state and pulse dialing. The Tip&Ring are isolated from the base circuit by the transformer T1, relay RL1.

4.2Ring 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 Q1. The MCU will read this waveform and determine whether it will send ringer command.

4.3Sidetone Cancellation Network

The sidetone cancellation is a hybrid circuit of the Tx and Rx paths of the telephone circuit formed by the Q12.

5. MCU

5.1Charging Network

Base charging circuit provides a DC current for handset batter. Resistor R29 controls the current flow.

5.2Carrier Detection

This is similar to the handset counterpart.

	MODEL : JB550 (USA) FF2100 TE	DWG# :
	TITLE : Product Specification	REV. : 00

FREQUENCY TABLE

Channel	H/S Tx (MHz)	H/S LO (MHz)	B/U Tx (MHz)	B/U LO (MHz)
1	924.875	891.475	902.175	935.575
2	924.95	891.55	902.25	935.65
3	925.025	891.625	902.325	935.725
4	925.1	891.7	902.4	935.8
5	925.175	891.775	902.475	935.875
6	925.25	891.85	902.55	935.95
7	925.325	891.925	902.625	936.025
8	925.4	892	902.7	936.1
9	925.475	892.075	902.775	936.175
10	925.55	892.15	902.85	936.25
11	925.625	892.225	902.925	936.325
12	925.7	892.3	903	936.4
13	925.775	892.375	903.075	936.475
14	925.85	892.45	903.15	936.55
15	925.925	892.525	903.225	936.625
16	926	892.6	903.3	936.7
17	926.075	892.675	903.375	936.775
18	926.15	892.75	903.45	936.85
19	926.225	892.825	903.525	936.925
20	926.3	892.9	903.6	937
21	926.375	892.975	903.675	937.075
22	926.45	893.05	903.75	937.15
23	926.525	893.125	903.825	937.225
24	926.6	893.2	903.9	937.3
25	926.675	893.275	903.975	937.375
26	926.75	893.35	904.05	937.45
27	926.825	893.425	904.125	937.525
28	926.9	893.5	904.2	937.6
29	926.975	893.575	904.275	937.675
30	927.05	893.65	904.35	937.75
31	927.125	893.725	904.425	937.825
32	927.2	893.8	904.5	937.9
33	927.275	893.875	904.575	937.975
34	927.35	893.95	904.65	938.05
35	927.425	894.025	904.725	938.125
36	927.5	894.1	904.8	938.2
37	927.575	894.175	904.875	938.275
38	927.65	894.25	904.95	938.35
39	927.725	894.325	905.025	938.425
40	927.8	894.4	905.1	938.5