

The Technical Description of GH3000

Made by: L.S HE

1. RF Module

TX Part:

The TX-VCO generates the transmitting frequency, and it is controlled by the MCU in the base-band through the combo-chip (TB31261AF). The output signal is tripled by the TX-BUF and amplified by power amplifier (PAMP-1 and PAMP-2), then fed to the TX-antenna.

The audio signal is fed to the MIC-AMP from the base-band part and then modulated to the RF signal in TX-VCO through the compressor.

The DATA is used to transfer the commands between the base unit and the handset.

RX Part:

The received signal from the RX-antenna is fed to the mixer (Q2) after amplified by LNA-1 and LNA-2. In the mixer it is mixed with the local frequency generated by the RX-VCO and tripled by the tripler (Q14) converted to the IF (10.7MHz) signal, The RX-VCO (Q15) is controlled by the MCU in the base-band part. After amplified by IF-Amp in IC1 (TB31261AF) the IF signal is fed to the FM-demodulator in which the audio signal is picked up. The audio signal is fed to the base-band part through the expander and the speaker amplifier in TB31261AF.

The combo chip (TB31261AF) also detects the voltage of the battery and the RSSI to inform the MCU and it is controlled by the MCU through the interface of COMBO_DATA, COMBO_CLK, COMBO_EN. And the other hand, TB31261AF also demodulates the data signal from the received signal and sends to the MCU.

2. The Base Band Part of The Base Unit:

Tel. Line Interface: Separate the incoming and outgoing audio signals and make the sidetone cancellation. Make the telephone line on- hook and off hook.

Ring Detector: detects the ring signal from the telephone line in on hook status and inform the MCU.

Charge Control and Charge Detecting Circuit: Controls the charge current for charging the battery in handset when the handset is in cradle. And detect if the handset on cradle or not and inform the MCU.

Ref. OSC (4MHz): Provide the standard frequency to RX-PLL and TX-PLL of the RF Module as the reference frequency.

Power Control Circuit: Switch on or off the powers of TX part RX part of the RF module. It is controlled by the MCU.

MCU: It's the central controller. It manages the all parts in the base unit to work properly and makes the communication with the handset through the RF link.

3. The Base Band Part of The Handset:

Keyboard: The user interface.

Power Control Circuit: Switch on or off the power of TX-part and RX-part of the handset RF module.

Charge Circuit and Charge Detector: Charge the battery in the handset when the handset is in the base cradle and detect if the handset is charging or not, and then inform the MCU.

REF OSC (4MHz): Provide the standard frequency to the RX-PLL and TX-PLL of the RF module as the reference frequency.

MCU: The central controller. It manages the operation of the handset and communicates with the base unit through the RF link.

4. The Antennas of Base and Handset:

There are two antennas that are single pole type and soldered permanently on the RF module of both base and handset, one for TX and one for RX.

END

40 Channels Sequencing Table in Test Mode of Base

No. of channel	40	Fosc/Fref=R
Ch Separation	100kHz	Fin/Fref=P
Ref Freq (Fref)	16.667kHz	
Crystal connected (Fosc)	4MHz	
Ref counter (R)	240	
1st IF	10.7MHz	

CH No.	TX freq	N for TX	RX freq	Triple RX LO freq	N for RX
0	2401000000	48020	2473500000	2484200000	49684
1	2401100000	48022	2473600000	2484300000	49686
2	2401200000	48024	2473700000	2484400000	49688
3	2401300000	48026	2473800000	2484500000	49690
4	2401400000	48028	2473900000	2484600000	49692
5	2401500000	48030	2474000000	2484700000	49694
6	2401600000	48032	2474100000	2484800000	49696
7	2401700000	48034	2474200000	2484900000	49698
8	2401800000	48036	2474300000	2485000000	49700
9	2401900000	48038	2474400000	2485100000	49702
10	2402000000	48040	2474500000	2485200000	49704
11	2402100000	48042	2474600000	2485300000	49706
12	2402200000	48044	2474700000	2485400000	49708
13	2402300000	48046	2474800000	2485500000	49710
14	2402400000	48048	2474900000	2485600000	49712
15	2402500000	48050	2475000000	2485700000	49714
16	2402600000	48052	2475100000	2485800000	49716
17	2402700000	48054	2475200000	2485900000	49718
18	2402800000	48056	2475300000	2486000000	49720
19	2402900000	48058	2475400000	2486100000	49722
20	2403000000	48060	2475500000	2486200000	49724
21	2403100000	48062	2475600000	2486300000	49726
22	2403200000	48064	2475700000	2486400000	49728
23	2403300000	48066	2475800000	2486500000	49730
24	2403400000	48068	2475900000	2486600000	49732
25	2403500000	48070	2476000000	2486700000	49734
26	2403600000	48072	2476100000	2486800000	49736
27	2403700000	48074	2476200000	2486900000	49738
28	2403800000	48076	2476300000	2487000000	49740
29	2403900000	48078	2476400000	2487100000	49742
30	2404000000	48080	2476500000	2487200000	49744
31	2404100000	48082	2476600000	2487300000	49746
32	2404200000	48084	2476700000	2487400000	49748
33	2404300000	48086	2476800000	2487500000	49750
34	2404400000	48088	2476900000	2487600000	49752
35	2404500000	48090	2477000000	2487700000	49754
36	2404600000	48092	2477100000	2487800000	49756
37	2404700000	48094	2477200000	2487900000	49758
38	2404800000	48096	2477300000	2488000000	49760
39	2404900000	48098	2477400000	2488100000	49762

1. 40 Channels Sequencing Table in Test Mode of Handset

Channel	TX freq (Hz)	TX counter	Triple RX LO freq (Hz)	RX counter
0	2473500000	49470	2390300000	47806
1	2473600000	49472	2390400000	47808
2	2473700000	49474	2390500000	47810
3	2473800000	49476	2390600000	47812
4	2473900000	49478	2390700000	47814
5	2474000000	49480	2390800000	47816
6	2474100000	49482	2390900000	47818
7	2474200000	49484	2391000000	47820
8	2474300000	49486	2391100000	47822
9	2474400000	49488	2391200000	47824
10	2474500000	49490	2391300000	47826
11	2474600000	49492	2391400000	47828
12	2474700000	49494	2391500000	47830
13	2474800000	49496	2391600000	47832
14	2474900000	49498	2391700000	47834
15	2475000000	49500	2391800000	47836
16	2475100000	49502	2391900000	47838
17	2475200000	49504	2392000000	47840
18	2475300000	49506	2392100000	47842
19	2475400000	49508	2392200000	47844
20	2475500000	49510	2392300000	47846
21	2475600000	49512	2392400000	47848
22	2475700000	49514	2392500000	47850
23	2475800000	49516	2392600000	47852
24	2475900000	49518	2392700000	47854
25	2476000000	49520	2392800000	47856
26	2476100000	49522	2392900000	47858
27	2476200000	49524	2393000000	47860
28	2476300000	49526	2393100000	47862
29	2476400000	49528	2393200000	47864
30	2476500000	49530	2393300000	47866

31	2476600000	49532	2393400000	47868
32	2476700000	49534	2393500000	47870
33	2476800000	49536	2393600000	47872
34	2476900000	49538	2393700000	47874
35	2477000000	49540	2393800000	47876
36	2477100000	49542	2393900000	47878
37	2477200000	49544	2394000000	47880
38	2477300000	49546	2394100000	47882
39	2477400000	49548	2394200000	47884

No. of channel	40		Fosc/Fref=R
Ch Separation	100kHz		Fin/Fref=P
Ref Freq (Fref)	16.667kHz		
Crystal connected (Fosc)	4MHz		
Ref counter (R)	240		
1st IF	10.7MHz		