Circuit Principles Description of Bluetooth Headsets H52 and H53

The core of Bluetooth headsets model H52 and H53 circuit is chip BC63C159A03（hereinafter refer to BC6）. The circuit through the BC6 chip to fulfill power control, charge and 2.4G Bluetooth communication functions. Following are principles of each part on the circuit.

1. Power control circuit:

① The 3.7V battery power is input to supply the chip through pin 32nd (VREGIN_H) on the BC6 chip.

This circuit is mainly consisted of: 3.7V Li-polymer battery which is compliant with "451117" standard and C12 (106P).

② When the circuit is powered on, the 3.7V battery voltage will be reduced by LDO inside the BC6 chip and then output 1.5V power to supply all parts of the chip through the 35th (LX) pin on the chip.

③1.8V voltage is output through pin 20th（VDD-PADS0）and pin 43rd（VDD-PADS1）on the BC6 chip to supply memorizer U3（24C32）.

The power control circuit is mainly consisted of ：L3(22UH), C11（106P）, C3（104P）R2（2R2）and C7（475P）.

2. Charging circuit:

The external rechargeable + 5V power supply which is input from the charging socket J1 (0.7JAK) pass the U1 (XC6204B502) and then input through pin 37th (VDD-CHG) on the chip, and finally output to the positive pole of the battery through pin 36th (BAT-P) after pass the internal integrate charging circuit of the chip.

The charging circuit is mainly consisted of：U1（XC6204B502）, R5（10K）,C24（475P）and C8（475P）.

3. Power ON/OFF and other functions control circuit:

When the power switch SW1 (4 * 3 * 2) pressed, the battery voltage will be input through pin 33rd (REGENBLE_H) on the chip 33 feet after voltage division to control the power ON/OFF and other functions of the chipset;

This circuit is mainly consisted of: SW1 (4 * 3 * 2) and R4 (10K).

4. Microphone input circuit:

When the headset is in the normal call mode, our voice is output through pin 1st (MIC - P) and pin 2nd (MIC-N) on the chip after conversed by the MIC and filtered by band-pass filter consist of C17 (15P), L2 (15NH) and C18 (15P). The offset voltage of the MIC is out put through pin 37th (MIC_BIAS) of the chip and then supply biasing to the MIC via R8 (1K) and R7 (1K5).

The microphone input circuit is mainly consisted of: C17 (15P), L2 (15NH), C18 (15P), C19 (333P), C20 (333P) and R17 (1K5).

5. Audio Receiver output circuit:

The voice signal and indicator signal are received as well as processed by the chip, and then output to the speaker through pin 3rd (SPKR-N) and pin 4th (SPKR-P) on the chip after amplified;

The Audio Receiver output circuit is mainly consisted of: C15 (15P), C16 (15P) and SPK.

6. External memorizer circuit:

It fulfills corresponding data communication with U3 (24C32) memorizer through pin 44th (PIO8), pin 45th (PIO7) and pin 46th (PIO6);

The external memorizer circuit is mainly consisted of: R11 (4K7), R13 (4K7), R14 (4K7), C5 (104P) and C6 (105P).

7. Device reset circuit:

When the headset is charging, pin 26th (RST #) on the chip can be reset controlled through Q1 (BC847CW);

The device reset circuit is mainly consisted of: C13 (224P), R12 (4K7), R11 (220K), Q1 (BC847CW) and R9 (47K).

8. Status indicator circuit:

It indicates charging and working status of the circuit by the red and the blue LED;

The status indicator circuit is mainly consisted of: D2 (RED), R6 (821R) and D1 (BLUE), R7 (471R).

9. Low-voltage detection circuit:

The power is output through pin 21st (PIO3) and then input from pin 16th (AIO1) of the chip after voltage division by R16 (100K) and R15 (100K);

The low-voltage detection circuit is mainly consisted of: R16 (100K) and R15 (100K).

10. Crystal oscillator circuit:

The 16MHz crystal oscillated signals are input through pin 13th (XTAL-IN) and pin 14th (XTAL-OUT) of the chip;

The crystal oscillator circuit is mainly consisted of: XT1 (16MHZ 5032), C23 (9P) and C21 (18P).

11. 2.4G RF output circuit:

First, the 2.4G RF is processed by Bluetooth baseband and protocol inside BC6 chip and after RF power amplified, then output through pin 7th (RF_P) and pin 8th (RF_N) of the chip. And then, it's output through F1 (2012B) after being conversed of matching and unbalanced 2.4G impedance. Finally, it connects with the antenna via the impedance matching network that consisted of R1 (2N2) and L5 (2N2) to output RF signal through the antenna.

The RF output circuit is mainly consisted of: F1 (2012B), R1 (2N2), L5 (2N2), 2.4G ANT, C1 (15P) C2 (15P) and L1 (15NH).