

## **1. Power amplifier circuit**

- 1, DS1116 is a mono bluetooth speaker.
- 2, This speaker can play music with Aux or bluetooth
- 3, When play the music with Aux, Audio L, R signal through the ST-IN1 (headphones socket) input to the op-amp IC LM358 (U2) sound processing, into IC HT6809 (U3) for power amplifier, sound output from the trumpet.
- 4, When play music through the bluetooth, after from bluetooth module IDS-BM5A(U1) output the signal through the op-amp IC IC LM358(U2) to process, into IC HT6809(U3) to power amplifier , sound output from the trumpet.

## **2. Power supply circuit**

1. Input DC 5V for battery charging.

The device is a standard bluetooth speaker, The working frequency of RF module IDS-BM5A is setted to 2402MHz ~ 2480MHz, the frequency separation is 1MHz and there are 79 channels.

To make sure the communication stable, Bluetooth special design the fast acknowledge and frequency hopping plan to ensure that link stability. First link, between bluetooth devices will build a pseudorandom code, Only the pseudorandom code is same, the information transfer will be accepted. Other interference is not possible in the same sequence of interference. Bluetooth through the spread spectrum technology, Make the influence of interference may become very small.

**The working procedures are:**

1. Power on,.The DS-1116 will do the frequency hopping according to a certain sequence, and then send the connection command.
2. If there is a Device response, the DS-1116 will judge whether it can be permitted to connect. Prompt enter a passkey.
3. If the passkey is right, then can be permitted to connect, send the connection command to build up the connection.
4. While the connection build up successfully, the data transmission is beginning. At the same time, the DS-1116 and device will shift frequencies in synchronization per a same pseudo randomly ordered list of hopping frequencies, the hopping rate is 1600 times per second.
5. The bandwidth of the receiver, which is set to a fix width by the software, match the hopping channel bandwidth of their corresponding transmitter.