

## 1. The main parameters:

Power: AC 100-240V, 60Hz, 0.2A Max

## 2. Power amplifier circuit

- 1, P400 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 TX-3012 (U3) for power amplifier, sound output from the trumpet.
- 4, When play music through the bluetooth, after from bluetooth module F-3089(U4, crystal frequency:12MHz) output the signal through the op-amp IC IC LM358(U2) to process, into IC TX-3012(U3) to power amplifier , sound output from the trumpet.

## 3. Power supply circuit

AC input , through the rectifier bridge (MBS6) to rectification, after rectifying, through the IC F0035 and the transformers by oscillation and variable pressure after rectifying, out put the filter after variabling pressure,output DC 5V for battery charging.

The device is a standard bluetooth speaker, The working frequency of RF module F-3089 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 P400 will do the frequency hopping according to a certain sequence, and then send the connection command.
2. If there is a Device response, the P400 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 P400 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.