

# Macrodimension Microelectronics



## Profile:

WTV020 external SD card voice module, the main control chip uses WTV020-16S and WTV020-20S package chip.Voice content updates are replaced directly on the PC through the SD card reader.The controls are also changed in a TXT file stored on the SD card.This module supports the FAT file system.WAV and ADPCM file playback is supported.Support two-line serial port control mode, key mode and UART232 serial port mode.It can automatically recognize voice sampling rate and voice file format.

## Parameters:

- The product supports external SD card with a maximum capacity of 1G;
- Support to play 4Bit ADPCM format files;
- Automatic recognition of voice files;
- Can load 6KHz ~ 32KHz, 36KHz sampling rate AD4 audio;
- Can load 6KHz ~ 16KHz sampling rate WAV audio;
- 16bitDAC and PWM audio output;
- Store up to 512 segments of voice;
- WTV020-SD-20S,WTV020-SD-16P two module types;
- Support microprocessor and key control;
- Can call any paragraph of the voice to play;
- Power off save operation data function;
- Loading voice without software assistance, directly placed voice to SD card can be;
- Support file combination playback, including mute combination;
- Supply voltage: 3.3V-5V
- Working voltage: DC2.5 ~ 3.6V;

Static current: 16uA (without SD card).

## Fields:

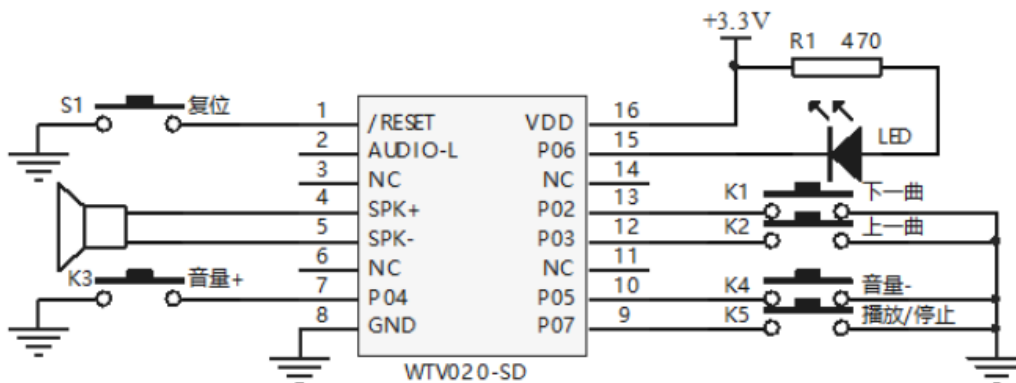
WTV020-SD module can be used in automobile electronics (burglar alarm, reversing radar, GPS navigator, electronic dog, central control lock), smart home system, home burglar alarm, medical equipment voice prompt, music playback, household appliances (induction cooker, rice cooker, microwave oven), entertainment equipment (game machine, amusement machine), learning model (early education machine, children's audio reading machine) Object), intelligent transportation equipment (toll station, parking lot), communication equipment (telephone exchange, telephone), industrial control field (elevator, industrial equipment), toys and other fields.

## 1. Default shipping mode (second-line serial port control mode)

Support MP3/WAV/WMA format audio, this upgrade no longer support the old AD4 format  
Module power supply 3.3V-5V  
Support TF card, U disk, SPI-Flash

## 2, module subsequent brushable mode (MP3 control mode)

**This mode is simply controlled by keys**



**Circuit analysis:** WTV020-SD-16P and WTV020-SD-20S in PWM output, audio signal selection from the SPK+. SPK terminal output to the speaker.

**Control part:** select the MP3 control mode, pulse trigger, by the key to the ground action to generate signals to control the I/O port./0 port P02, P03, P04, P05 and P07 are the previous song, the next song, volume +, volume - and play/stop respectively..



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### Procedure upgrade steps:

1. Get a USB flash drive or TF card ready
  2. Format
  3. Copy the upgrade document to the prepared USB flash drive or TF card
  4. Power on the circuit board
  5. Insert U disk or TF card
  - 6, wait for 10 to 20 seconds, the horn "woo...Whoo...Whoo..."A sound similar to vibration (the sound may not be audible, you can touch the horn diaphragm with your finger, you can obviously feel the vibration), indicating that the upgrade is complete
  7. Unplug the U disk or TF card and use it normally
- Note: if more than 30 seconds do not hear "woo...Whoo...Whoo..."Sound, please repeat steps 4,5,6,7

- 1, pay attention to the connection according to the diagram, do not connect wrong.
2. This document only represents the product parameters at the time of editing. If there are any changes later, we will not notice.
3. In the power-on loop playback mode, you need to create a text document of ".txt", the content of the text document can be empty, and renamed as "1111.AD4", and then put it together with other AD4 audio to the root directory of the SD card, so that the power-on loop playback mode can take effect.



Encapsulate pins	Pin label		Function description
1	/RESET	/RESET	Reset foot
2	AUDIO-L	AUDIO-L	Dangling
3	NC	NC	empty
4	SP+	PWM+	PWM+ audio output pin /DAC audio output positive
5	SP-	PWM-	PWM- Audio output pin
6	NC	NC	empty
7	P04	K3/A2/CLK	Key/two-line serial clock pin
8	GND	GND	Ground line footing
9	P07	K5/A4/SBT	Key trigger pin
10	P05	K4/A3/DI	Key/two-line serial port data entry pin
11	NC	NC	empty
12	P03	K2/A1	Keystrokes
13	P02	K1/A0	Keystrokes
14	NC	NC	empty
15	P06	BUSY	Voice play busy signal output pin
16	VDD	VDD	Power input pin

Ask customer service for it

Front of PCB

