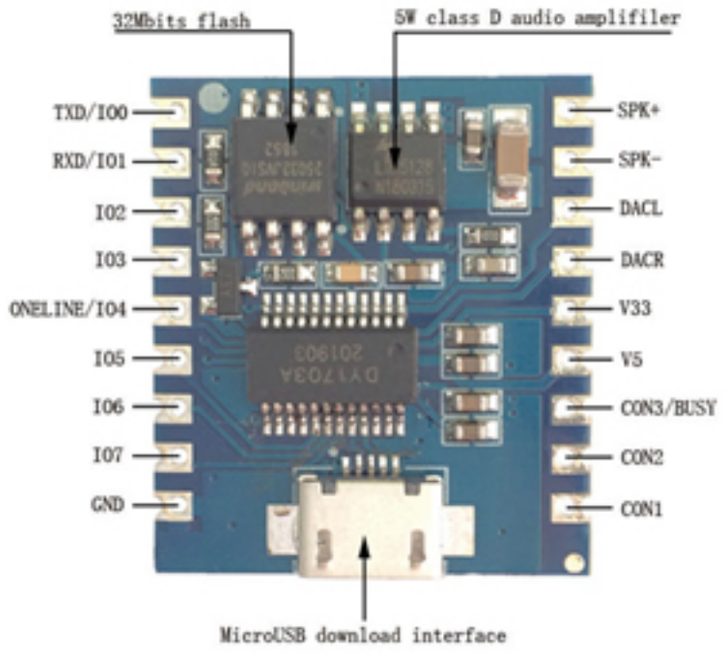
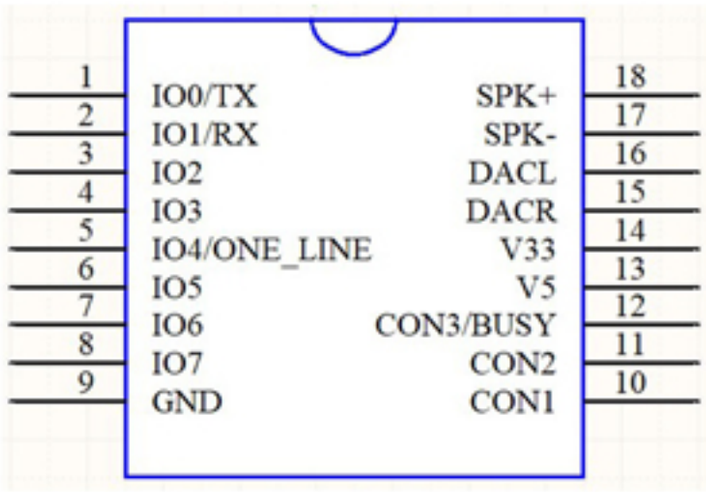
Pin Definition





No.	Pin Name	Instruction
1	TXD/IO0	IO trigger mode is input IO0;UART mode is TX.
2	RXD/IO1	IO trigger mode is input IO1;UART mode is RX.
3	IO2	IO trigger mode input IO2.
4	IO3	IO trigger mode input IO3.
5	IO4/ONE_LINE	IO mode input IO4;One_Line mode data receiver pin.
6	IO5	IO trigger mode input IO5.
7	IO6	IO trigger mode input IO6.
8	IO7	IO trigger mode input IO7.
9	GND	Ground
10	CON1	Mode Configuration pin1.
11	CON2	Mode Configuration pins2.
12	CON3/BUSY	It is Mode configuration pin3 within 30ms after power on.Then is BUSY output.Output low level signal(0V) when playing and output high(3.3V) after
13	V5	5V work voltage positive pole input terminal
14	V33	3.3V output voltage positive(Max 80mA)
15	DACR	Audio left channel output
16	DACL	Audio right channel output
17	SPK-	5W Amplifier Output - and connect to speaker
18	SPK+	5W Amplifier Output + and connect to speaker

Work Mode Configuration

Control Mode	Configuration Pin			I/O Function							
	CON3	CON2	CON1	IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0
I/O Integrated Mode 0	0	0	0	Key combination play, can play 2^8-1(255) Songs.							
I/O Integrated Mode 1	0	0	1	Level combination play, can play 2^8-1(255) Songs.							
I/O Independent Mode 0	0	1	0	Song8	Song7	Song6	Song5	Song4	Song3	Song2	Song1
I/O Independent Mode 1	0	1	1	Song8	Song7	Song6	Song5	Song4	Song3	Song2	Song1
UART Mode	1	0	0							RXD	TXD
One-Line Mode	1	0	0				TXD				
Standard MP3 Mode	1	0	1				RPT	EQ	P/P/MODE	PREV/V-	NEXT/V+

Note:

1>. "key combination play" : Return to the original high level after the corresponding level from I/O0-I/O7 output, similar to the key triggered once.Similar instantaneous switch.

2>. "Level combination play" :The trigger signal remains the same, similar to a self-locking switch.

3>.The difference between "I/O Integrated/Independent Mode 0" and "I/O Integrated/Independent Mode 1" :Mode 0 will continue playing the current song to the end after release level .Mode 1 will stop playing immediately after release level.

I/O Integrated Mode 0 (Key combination playing).

Note: the song must be named for 5bit.

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	1	0	0	00003.mp3
1	1	1	1	1	0	1	1	00004.mp3
1	1	1	1	1	0	1	0	00005.mp3
1	1	1	1	1	0	0	1	00006.mp3
1	1	1	1	1	0	0	0	00007.mp3
.....	.....	.....	.....	.....	.....	.....	.....	.....
0	0	0	0	0	0	0	0	00255.mp3

It will stop playing current song to the end after I/O0-7 release input signal (return to high) at 'I/O Integrated Mode 0'. It will playing new song when get new input signal during playing and stop after end of song. It will play repeatedly if keep input. Busy pin will output valid signal(High) during playing.Music control as following:

I/O Integrated Mode 1 (Level combination playing)

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	1	0	0	00003.mp3
1	1	1	1	1	0	1	1	00004.mp3
1	1	1	1	1	0	1	0	00005.mp3
1	1	1	1	1	0	0	1	00006.mp3
1	1	1	1	1	0	0	0	00007.mp3
.....	.....	.....	.....	.....	.....	.....	.....	.....
0	0	0	0	0	0	0	0	00255.mp3

It will keep playing current song when get trigger signal.It will stop playing immediately after release level.Busy pin will output valid signal(High) during playing.

I/O Independent Mode 0 (Key independent controlling)

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	0	1	1	00003.mp3
1	1	1	1	0	1	1	1	00004.mp3
1	1	1	0	1	1	1	1	00005.mp3
1	1	0	1	1	1	1	1	00006.mp3
1	0	1	1	1	1	1	1	00007.mp3
0	1	1	1	1	1	1	1	00008.mp3

I/O0-I/O7 independently controls 8 songs.It will stop playing current song to the end after I/O0-7 release input signal(return to high);It will playing new song when get new input signal during playing and stop after end of song;It will play repeatedly if keep input;Busy pin will output valid signal(High) during playing.

I/O Independent Mode 1 (Level independent controlling)

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	0	1	1	00003.mp3
1	1	1	1	0	1	1	1	00004.mp3
1	1	1	0	1	1	1	1	00005.mp3
1	1	0	1	1	1	1	1	00006.mp3
1	0	1	1	1	1	1	1	00007.mp3
0	1	1	1	1	1	1	1	00008.mp3

I/O0-I/O7 independently controls 8 songs.It will keep play repeatedly specify the triggered song.It will stop playing immediately after release level.Busy pin will output valid signal(High) during playing.

UART Mode

Communication Format

Adopt full duplex serial port communication. Baud rate 9600, data bits 8, stop bit 1, check bit N.

Start Code	Command Type	Data Length (n)	Data 1	Data n	Check Bit (SM)

Command Code: fixed to 0xAA.

Command Type: used to distinguish the type of command.

Data Length: the number of bytes of data in an command.

Data: Relevant data in command, when length of data is 1, means there is only CMD and no data bits.

Check Bit: Low 8 bits of sum of all bytes. that is, When start code and data are added, take out low 8 bits.

Data format: Sent data or command, high 8-bit data is in front, low 8-bit is in the back.

Communication Protocol

The following is a data definition for the return and identification of the chip.

A. Playing State definition: the system is on the stop state when power on.

	00(stop)	01(play)	02(pause)	

B. Disk character definition: it is stopped after the switch disk.

	USB:00	SD:01	FLASH:02	NO_DEVICE: FF	

C. Volume: the volume is 31grades, 0-30.The default is 20grade.

D. Play mode: the default is the single stop when power on.

Cycle for all songs (00) : play the whole songs in sequence and play it after the play.

Single cycle (01) : play the current song all the time.

Single stop (02) : Only play current song once and then stop.

Random play (03) : random play.

Directory loop (04) :Play in current folder in order, then play by play.Directory don't contain subdirectory.

Directory random (05): random play in the current folder, and directory does not contain subdirectory.

Directory order play(06):Play current folder in order & stop after play.Directory not include subdirectory.

Sequential play (07) : play the whole songs in order and stop after it is played.

E. EQ definition: the default EQ is NORMAL(00).

	NORMAL(00)	POP(01)	ROCK(02)	JAZZ(03)	CLASSIC(04)	

F. Composition play definition: combination play is combined by filename. The file requirements are stored under the "XY" file. You can change the name of the file you want to combine to two bytes, which is generally recommended as a number. Such as: 01. Mp3, 02. Mp3.

UART Communication Command		
Control Command		
Command	Command code	Return
Play	AA 02 00 AC	None
Pause	AA 03 00 AD	None
Stop	AA 04 00 AE	None
Previous	AA 05 00 AF	None
Next	AA 06 00 B0	None
Volume +	AA 14 00 BE	None
Volume -	AA 15 00 BF	None
Previous file	AA 0E 00 B8	None
Next file	AA 0F 00 B9	None
Stop playing	AA 10 00 BA	None
Query Command		
Command	Command Code	Return
Query play status	AA 01 00 AB	AA 01 01, play status, SM
Query current online drive	AA 09 00 B3	AA 09 01, drive, SM
Query current play drive	AA 0A 00 B4	AA 0A 01, drive, SM
Query Number of songs	AA 0C 00 B6	AA 0C 02S.N.H S.N.L SM
Query current song	AA 0D 00 B7	AA 0D 02 S.N.H S.N.L SM
Query folder directory song	AA 11 00 BB	AA 11 02 S.N.H S.N.L SM
Query folder Number of songs	AA 12 00 BC	AA 12 02 S.N.H S.N.L SM

UART Communication Command

Control Command

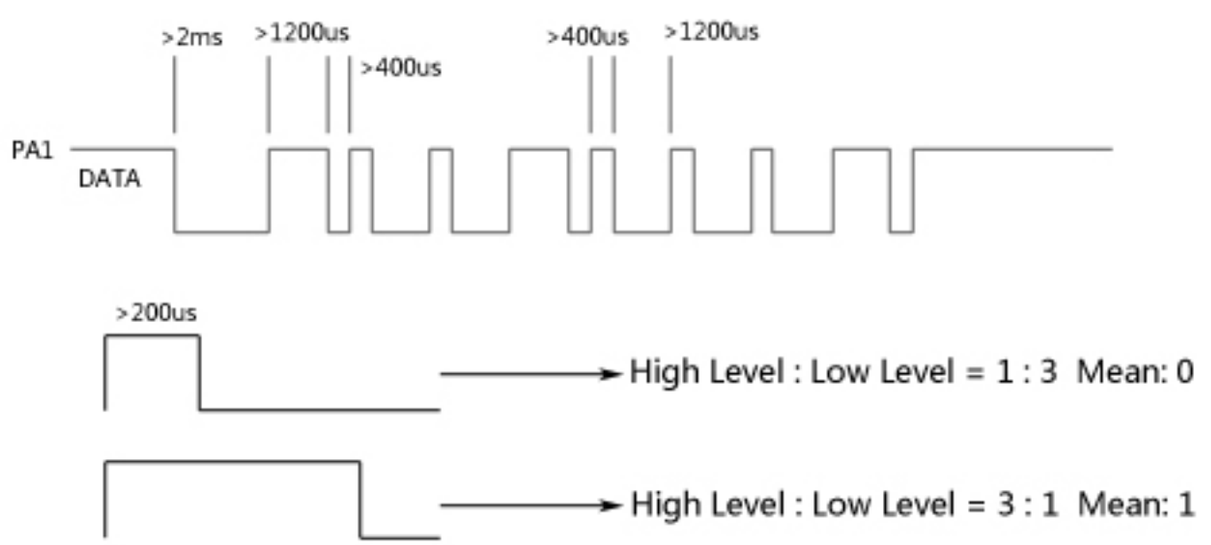
Command	Command Code	Return
Play	AA 02 00 AC	None
Pause	AA 03 00 AD	None
Stop	AA 04 00 AE	None
Previous	AA 05 00 AF	None
Next	AA 06 00 B0	None
Volume +	AA 14 00 BE	None
Volume -	AA 15 00 BF	None
Previous file	AA 0E 00 B8	None
Next file	AA 0F 00 B9	None
Stop playing	AA 10 00 BA	None

Query Command

Command	Command code	Return
Query play status	AA 01 00 AB	AA 01 01, play status, SM
Query current online drive	AA 09 00 B3	AA 09 01, drive, SM
Query current play drive	AA 0A 00 B4	AA 0A 01, drive, SM
Query Number of songs	AA 0C 00 B6	AA 0C 02S.N.H S.N.L SM
Query current song	AA 0D 00 B7	AA 0D 02 S.N.H S.N.L SM
Query folder directory song	AA 11 00 BB	AA 11 02 S.N.H S.N.L SM
Query folder Number of songs	AA 12 00 BC	AA 12 02 S.N.H S.N.L SM

Setting Command

Command	Command code	Return	Remark
Set Volume	AA 13 01 VOL SM	None	VOL:0x00-0xFF
Set Loop mode	AA 18 01 Loop-mode SM	None	Loop-mode:0x00-0x07
Set Cycle times	AA 19 02 H L SM	None	H:0x00-0xFF L:0x00-0xFF
Set EQ	AA 1A 01 EQ SM	None	EQ:0x00-0x04
Specified Song	AA 07 02 S.N.H S.N.LSM	None	S.N.H:0x00-0xFF S.N.L:0x00-0xFF
Specified Path	AA 08 Length Drive Path SM	None	Length:0x00-0xFF
			Drive:0x00-0xFF
			Path:0x00-0xFF
Switch Specified Drive	AA 0B 01 Drive SM	None	Drive:0x00-0xFF
Specified song to be interplay	AA 16 03 Drive S.N.H S.N.L SM	None	Drive:0x00-0xFF
			S.N.H:0x00-0xFF
			S.N.L:0x00-0xFF
Specified path to be interplay	AA 17 Length Drive Path SM	None	Length:0x00-0xFF
			Drive:0x00-0xFF
			Path:0x00-0xFF
Select but no play	AA 1F 02 S.N.H S.N.L SM	None	S.N.H:0x00-0xFF S.N.L:0x00-0xFF

One_line Single Bus Mode		
Command(HEX)	Function	Note
0x00	No. 0	The number 0-9 has corresponding functions, such as selecting music, setting the volume, setting EQ, setting cycle mode, setting channel, setting the repertoire, and sending the digital at first and then send function command.
0x01	No. 1	
0x02	No. 2	
0x03	No. 3	
0x04	No. 4	
0x05	No. 5	
0x06	No. 6	
0x07	No. 7	
0x08	No. 8	
0x09	No. 9	
0x0A	Number reset	Sent the number of Cleared
0x0B	Confirm choosing song	Cooperate with Numbers to achieve.
0x0C	Volume setting	
0x0D	EQ setting	
0x0E	Loop mode setting	
0x0F	Channel setting	
0x10	Interplay song setting	
0x11	Play	Note: "selection" and "interplay" are played according to the track name, for example, the track is named "00123. Mp3", and the selected data is "0x01", "0x02" "0x03" "0x0B", and the selection is completed.
0x12	Pause	
0x13	Stop	
0x14	Previous	
0x15	Previous directory	
0x16	Next directory	
0x17	SD card selection	
0x18	SD card selection	
0x19	U disk selection	
0x1A	FLASH selection	
0x1B	System sleep	
0x1C	Stop Playing	