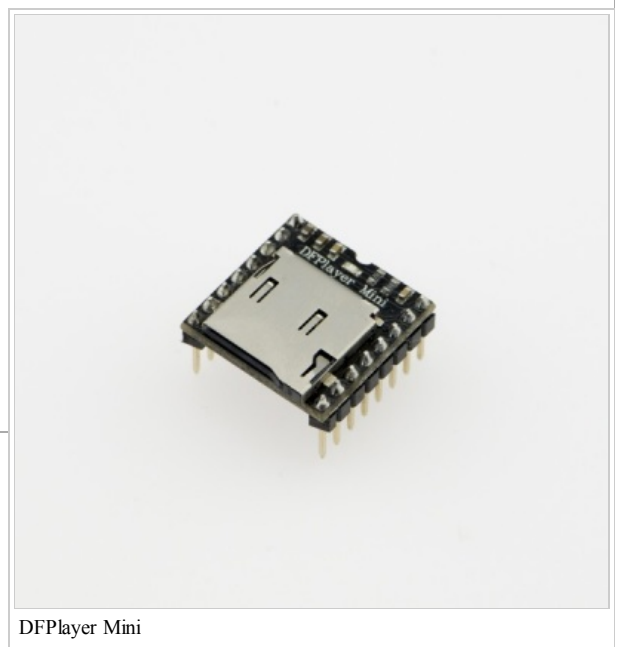


DFPlayer Mini SKU:DFR0299

From Robot Wiki

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DFPlayer Mini

Introduction

The DFPlayer Mini is a small and low price MP3 module with an simplified output directly to the speaker. The module can be used as a stand alone module with attached battery, speaker and push buttons or used in combination with an Arduino UNO or any other with RX/TX capabilities.

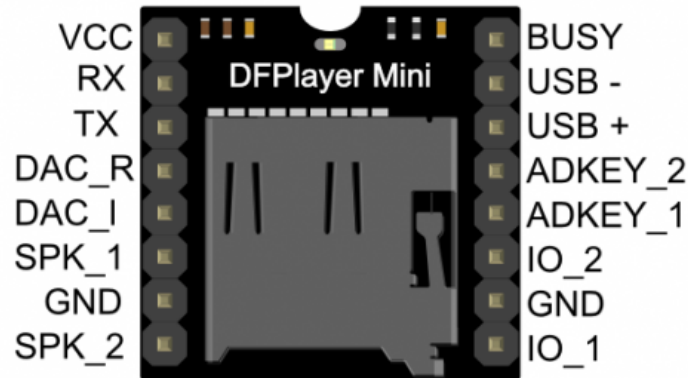
Specification

- supported sampling rates (kHz): 8/11.025/12/16/22.05/24/32/44.1/48
- 24 -bit DAC output, support for dynamic range 90dB , SNR support 85dB
- fully supports FAT16 , FAT32 file system, maximum support 32G of the TF card, support 32G of U disk, 64M bytes NORFLASH
- a variety of control modes, I/O control mode, serial mode, AD button control mode
- advertising sound waiting function, the music can be suspended. when advertising is over in the music continue to play
- audio data sorted by folder, supports up to 100 folders, every folder can hold up to 255 songs
- 30 level adjustable volume, 6 -level EQ adjustable

Application

- Car navigation voice broadcast;
- Road transport inspectors, toll stations voice prompts;
- Railway station, bus safety inspection voice prompts;
- Electricity, communications, financial business hall voice prompts;
- Vehicle into and out of the channel verify that the voice prompts;
- The public security border control channel voice prompts;
- Multi-channel voice alarm or equipment operating guide voice;
- The electric tourist car safe driving voice notices;
- Electromechanical equipment failure alarm;
- Fire alarm voice prompts;
- The automatic broadcast equipment, regular broadcast.

Pin Map



Pin	Description	Note
VCC	Input Voltage	DC3.2~5.0V;Type: DC4.2V
RX	UART serial input	
TX	UART serial output	
DAC_R	Audio output right channel	Drive earphone and amplifier
DAC_L	Audio output left channel	Drive earphone and amplifier
SPK2	Speaker-	Drive speaker less than 3W
GND	Ground	Power GND
SPK1	Speaker+	Drive speaker less than 3W
IO1	Trigger port 1	Short press to play previous (long press to decrease volume)
GND	Ground	Power GND
IO2	Trigger port 2	Short press to play next (long press to increase volume)
ADKEY1	AD Port 1	Trigger play first segment
ADKEY2	AD Port 2	Trigger play fifth segment
USB+	USB+ DP	USB Port
USB-	USB- DM	USB Port
BUSY	Playing Status	Low means playing \High means no

Work Mode

1) Serial Mode

Support for asynchronous serial communication mode via PC serial sending commands

Communication Standard:9600 bps

Data bits :1

Checkout :none

Flow Control :none

- Instruction Description

Format:	SS	VER	Len	CMD	Feedback	para1	para2	checksum	SO
\$S				Start bit 0x7E					Each command feedback begin with \$, that is 0x7E
VER				Version					Version Information
Len				the number of bytes after "Len"					Checksums are not counted
CMD				Commands					Indicate the specific operations, such as play / pause, etc.
Feedback				Command feedback					If need for feedback, 1: feedback, 0: no feedback
para1				Parameter 1					Query high data byte
para2				Parameter 2					Query low data byte
checksum				Checksum					Accumulation and verification [not include start bit \$]
\$O				End bit					End bit 0xEF

For example, if we specify play NORFLASH, you need to send: 7E FF 06 09 00 00 04 FF DD EF
Data length is 6, which are 6 bytes [FF 06 09 00 00 04]. Not counting the start, end, and verification.

Serial Control Cmd

CMD	Function Description	Parameters(16 bit)
0x01	Next	
0x02	Previous	
0x03	Specify tracking(NUM)	0-2999
0x04	Increase volume	
0x05	Decrease volume	
0x06	Specify volume	0-30
0x07	Specify EQ(0/1/2/3/4/5)	Normal/Pop/Rock/Jazz/Classic/Base
0x08	Specify playback mode (0/1/2/3)	Repeat/folder repeat/single repeat/ random
0x09	Specify playback source(0/1/2/3/4)	U/TF/AUX/SLEEP/FLASH
0x0A	Enter into standby – low power loss	
0x0B	Normal working	
0x0C	Reset module	
0x0D	Playback	
0x0E	Pause	
0x0F	Specify folder to playback	1~10(need to set by user)
0x10	Volume adjust set	{DH= 1:Open volume adjust } {DL: set volume gain 0~31}
0x11	Repeat play	{1:start repeat play} {0:stop play}

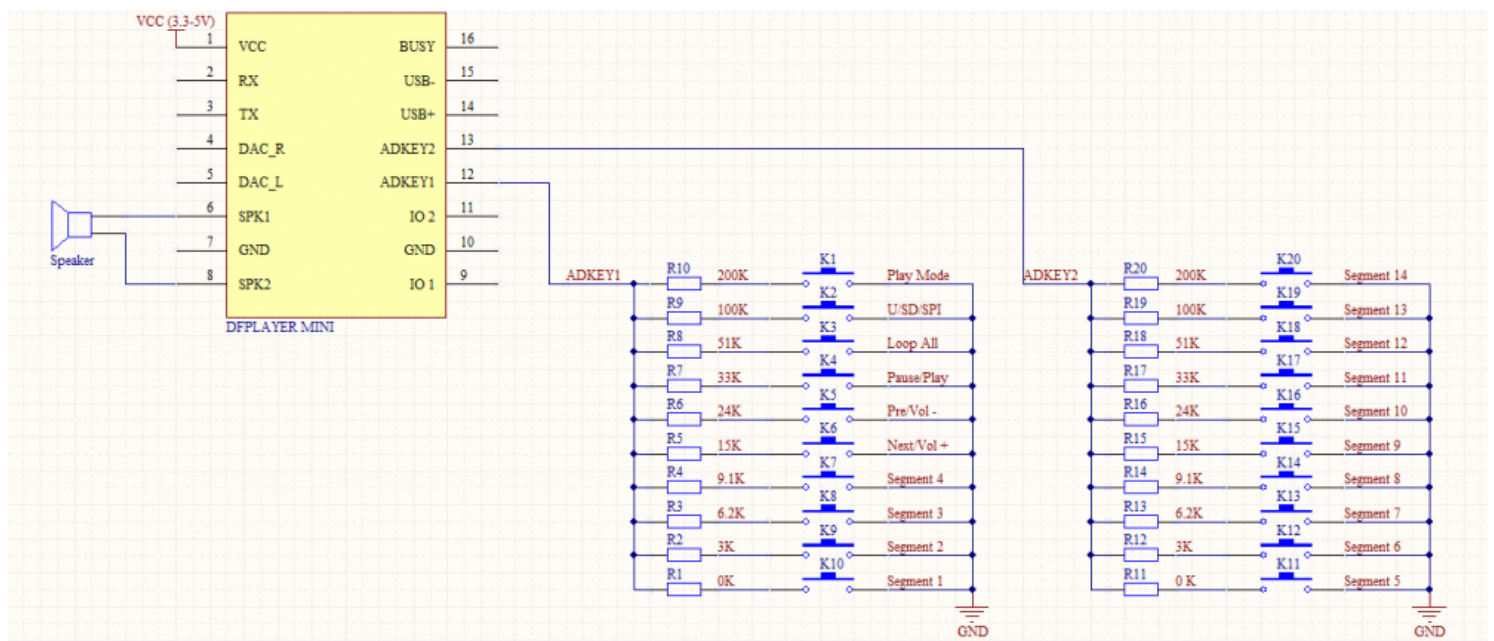
Serial Query Cmd

Commands	Function Description	Parameters(16 bit)
0x3C	STAY	
0x3D	STAY	
0x3E	STAY	
0x3F	Send initialization parameters	0 - 0x0F(each bit represent one device of the low-four bits)
0x40	Returns an error, request retransmission	
0x41	Reply	
0x42	Query the current status	
0x43	Query the current volume	
0x44	Query the current EQ	
0x45	Query the current playback mode	
0x46	Query the current software version	
0x47	Query the total number of TF card files	
0x48	Query the total number of U-disk files	
0x49	Query the total number of flash files	
0x4A	Keep on	
0x4B	Queries the current track of TF card	
0x4C	Queries the current track of U-Disk	
0x4D	Queries the current track of Flash	

2) AD KEY Mode

We use the AD module keys, instead of the traditional method of matrix keyboard connection, it is to take advantage of increasingly powerful MCU AD functionality, Our module default configuration 2 AD port, 20 key resistance distribution.

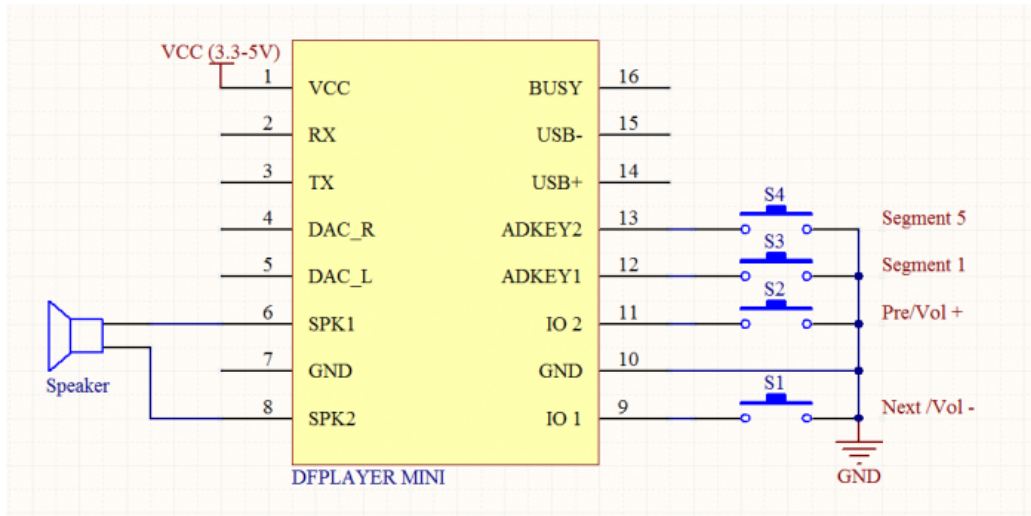
- Refer diagram



3) I/O Mode

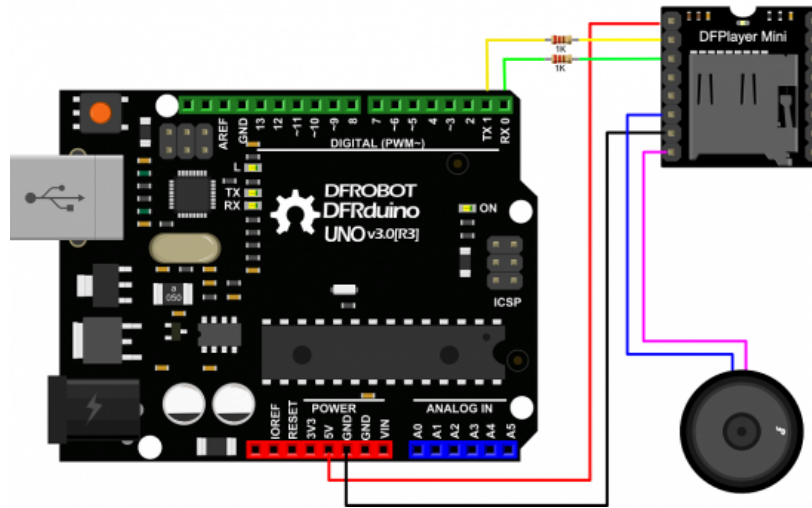
Here comes the most simple way to use this module.

- Refer diagram



note: short time press means pre/next,and long time press means vol- ,vol +

Connection Diagram



Note: For simple use ,the upper diagram is ready,But if you find the noise is quite loud, then you could attach an 1K resistor to the TX pin.

Sample Code

We've created an Arduino library for DFPlayer Mini to simplify the method for you to make it work. Connect the hardware as the picture above shown and play with the sample code. Please download DFPlayer library V2.0 (<https://github.com/DFRobot/DFPlayer-Mini-mp3/archive/master.zip>).

```

?
1 /*
2  * Copyright:  DFRobot
3  * name:      DFPlayer_Mini_Mp3 sample code
4  * Author:    lisper <lisper.li@dfrobot.com>
5  * Date:      2014-05-30
6  * Description:  sample code for DFPlayer Mini, this code is test on Uno
7  *              note: mp3 file must put into mp3 folder in your tf card
8  */
9

```

```
10
11#include <SoftwareSerial.h>
12#include <DFPlayer_Mini_Mp3.h>
13
14//
15void setup () {
16  Serial.begin (9600);
17  mp3_set_serial (Serial);    //set Serial for DFPlayer-mini mp3 module
18  mp3_set_volume (15);
19}
20
21
22//
23void loop () {
24  mp3_play (1);
25  delay (6000);
26  mp3_next ();
27  delay (6000);
28  mp3_prev ();
29  delay (6000);
30  mp3_play (4);
31  delay (6000);
32}
33
34/*
35  mp3_play ();    //start play
36  mp3_play (5);    //play "mp3/0005.mp3"
37  mp3_next ();    //play next
38  mp3_prev ();    //play previous
39  mp3_set_volume (uint16_t volume);    //0~30
40  mp3_set_EQ ();    //0~5
41  mp3_pause ();
42  mp3_stop ();
43  void mp3_get_state ();    //send get state command
44  void mp3_get_volume ();
45  void mp3_get_u_sum ();
46  void mp3_get_tf_sum ();
47  void mp3_get_flash_sum ();
48  void mp3_get_tf_current ();
49  void mp3_get_u_current ();
50  void mp3_get_flash_current ();
51  void mp3_single_loop (boolean state);    //set single loop
52  void mp3_DAC (boolean state);
53  void mp3_random_play ();
54 */
```

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