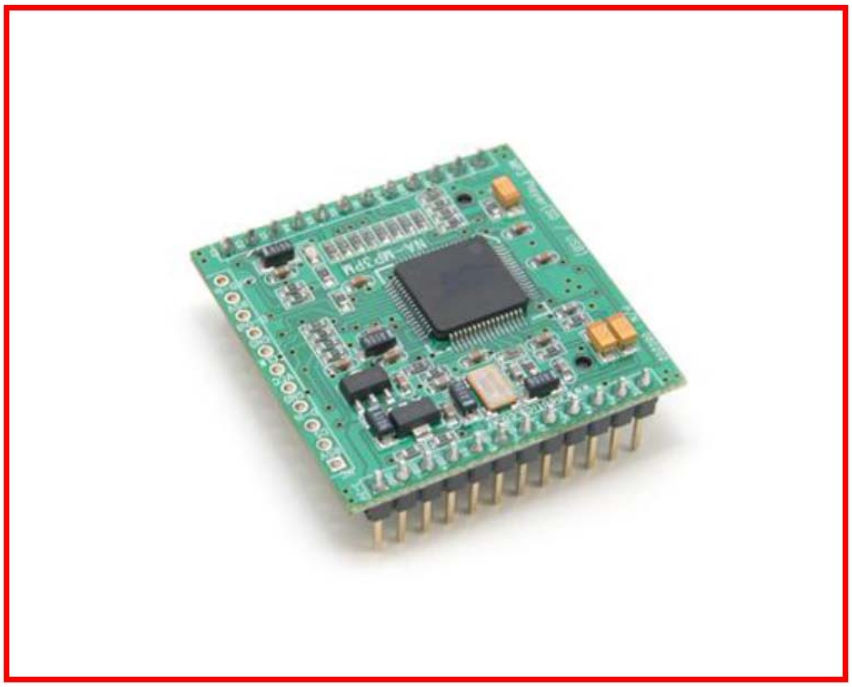
MP3 Player Module

NA-MP3PM Ver 6.0



Related Product: NA-EMP3M

QuantumBase
Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

1. NA-MP3PM Remote Control MP3 Player Module

NA-MP3PM MP3 player module is designed for various industrial applications and can play high quality MP3 files of voice messages, sound effects, music, and so on. It can be controlled directly by keys, I2C commands of an external MCU. Thus, it can be used as a stand alone MP3 player or as a part of your high esteemed products of voice or sound information systems.

2. Features

- ✓ Compact MP3 SOC employed
- ✓ SD memory card slot (back side of NA-MP3PM)
- ✓ Supports 3 operation modes
  - ➢ Stand along mode (MODE1)
    Predefined MP3 player mode controlled by an external key matrix
  - ➢ Auto slave mode (MODE2)
    Predefined MP3 player mode controlled by an external MCU via the I2C interface
  - ➢ Manual slave mode(MODE3)
    The mode to make an user manage and play files as he or she wants to do
- ✓ Interface ports to deliver superior application advantages, such as
  - ➢ 7 status indicator ports
  - ➢ 7 ports for an external key matrix
    (Some of the ports are used for I2C interface and mode selection between MODE2 and MODE3)
  - ➢ 2 channel stereo audio output ports
  - ➢ 12Mbps full speed USB interface ports(USB host)
- ✓ Built in sound mode: POP, JAZZ, ROCK CLASSIC, R&B and BassBoost.
- ✓ Selectable working voltage : DC 5V or DC 3.3V
- ✓ Current consumption : < 50mA
- ✓ Supported file format : MP3

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

- Supports 8kHz, 16kHz, 32kHz, 11.025kHz, 22.05kHz, 44.1kHz, and 48kHz of sampling rates.
- Supports 8kbps to 320kbps bit rates and VBR (variable bit rate)
- Supports ID3TAG v.1.0, v.1.1, v.2.2, v.2.3, and v.2.4

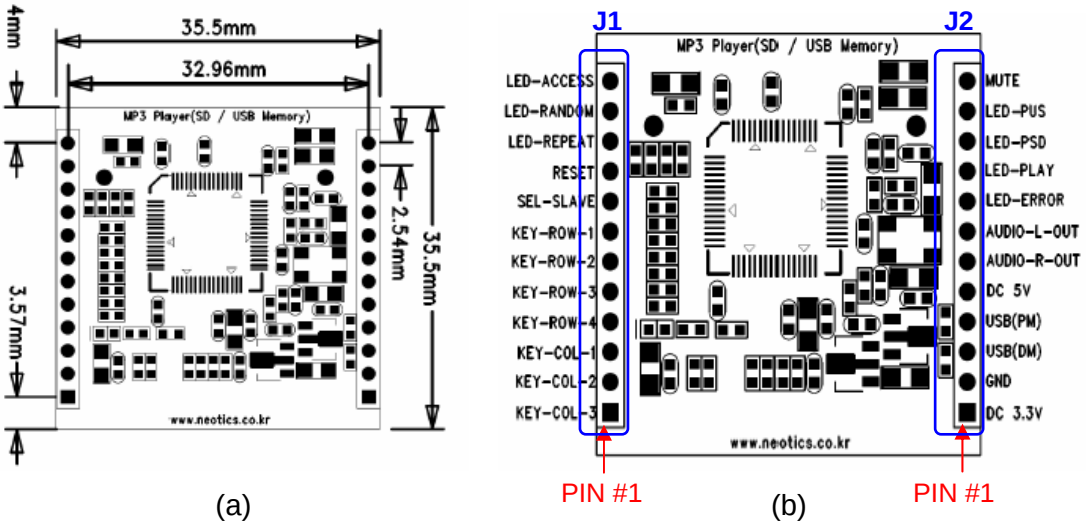


Figure 1. (a) Module dimension (b) Pinout

3. Applications

✓ Any industrial and personal uses to need high quality sound

(e.g. voice or sound information systems for an exhibition, an elevator, amusement park, and so on)

4. Pin descriptions

Case1: MODE1-Stand alone mode

J1		
Pin #	Name	Description
1	KEY-COL3	Key input (Column3)
2	KEY-COL2	Key input (Column2)

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

3	KEY-COL1	Key input (Column1)
4	KEY-ROW4	Key input (Row4)
5	KEY-ROW3	Key input (Row3)
6	KEY-ROW2	Key input (Row2)
7	KEY-ROW1	Key input (Row1)
8	SEL-SLAVE	Stand alone mode (set high), Slave mode(set low)
9	RESET	Reset (active low)
10	LED-REPEAT	This signal is driven low when “repeat” mode is active.
11	LED-RANDOM	This signal is driven low when “random play” mode is active.
12	LED-ACCESS	This signal is driven low when a MP3 data is accessed.

J2		
Pin #	Name	Description
1	DC 3.3V	DC 3.3V power supply input
2	GND	Ground
3	USB(DM)	USB memory negative data line
4	USB(PM)	USB memory positive data line
5	DC 5V	DC 5.0V power supply input
6	AUDIO-R-OUT	Audio output (right channel)
7	AUDIO-L-OUT	Audio output (left channel)
8	LED-ERROR	This signal is driven low when an error occurs.
9	LED-PLAY	This signal is driven low when NA-MP3PM module plays a MP3 file.
10	LED-PSD	This signal is driven low when a SD card is selected as the memory of the MP3 files played
11	LED-PUS	This signal is driven low when an USB memory is selected as the memory of the MP3 files played

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

12	MUTE	Mute control output port. The signal can be used as a mute control signal for an external audio AMP. It is driven low during power on, fast forward, and fast backward operation.

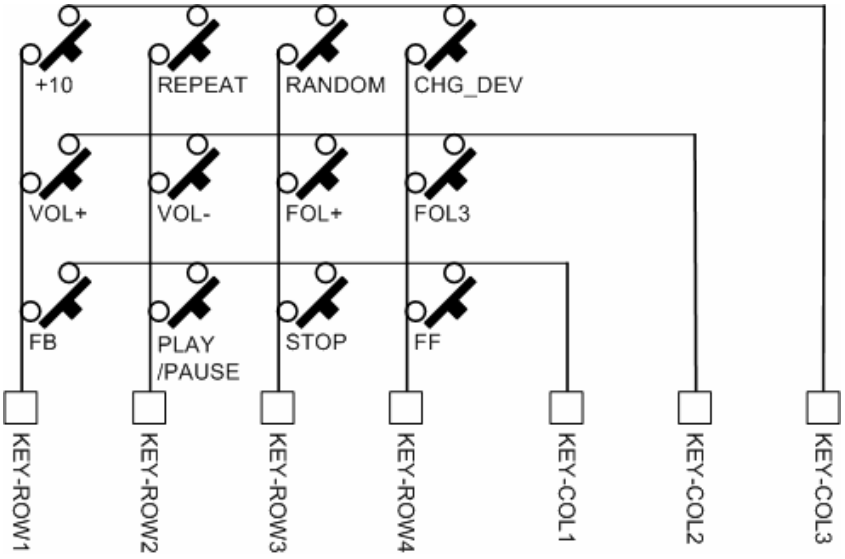


Figure 2. Key matrix and predefined functions

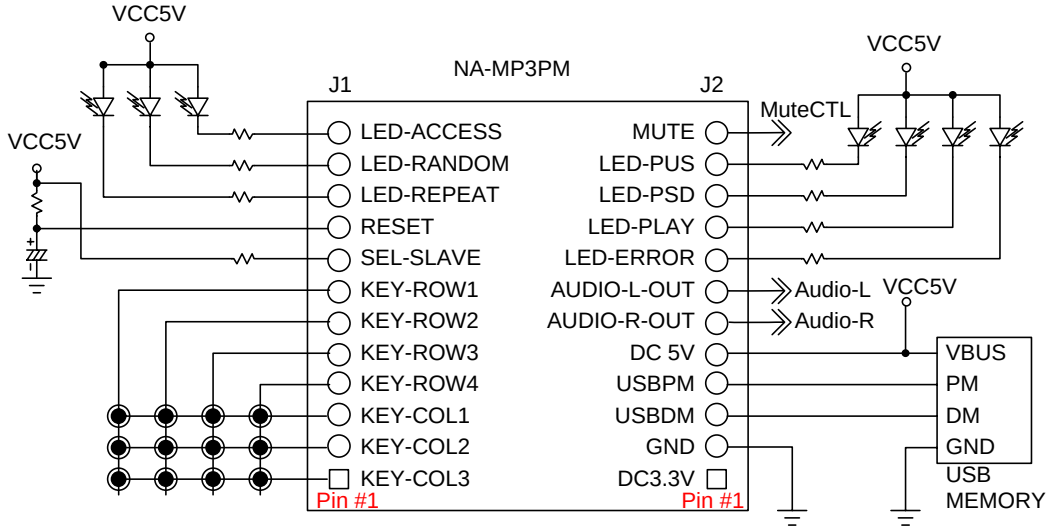


Figure 3. Application circuit employing an external USB memory in MODE1

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

Case2 : MODE2 & MODE3 – Slave mode

J1		
Pin #	Name	Description
1	MODESEL	When this signal is driven high, NA-MP3PM module goes in MODE2. When this signal is driven low, NA-MP3PM module goes to MODE3
2	A1	I2C address[1] bit input
3	A0	I2C address[0] bit input
4	SDA	I2C Serial DAta
5	SCL	I2C Serial CLock
6	BUSY	This signal is driven low when NA-MP3PM module is available to be accessed.
7	MUSIC_CHG	This signal is driven high when NA-MP3PM module is playing a MP3 file, while it is driven low when NA-MP3PM stops playing.
8	SEL-SLAVE	When this signal is driven high, NA-MP3PM module goes to Stand alone mode. When this signal is driven low, NA-MP3PM module goes to Slave mode.
9	RESET	Reset (active low)
10	LED-REPEAT	This signal is driven low when “repeat” mode is active.
11	LED-RANDOM	This signal is driven low when “random play” mode is active.
12	LED-ACCESS	This signal is driven low when a MP3 data is accessed.

J2		
Pin #	Name	Description
1	DC 3.3V	DC 3.3V power supply input
2	GND	Ground
3	USB(DM)	USB memory negative data line
4	USB(PM)	USB memory positive data line

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com

5	DC 5V	DC 5.0V power supply input
6	AUDIO-R-OUT	DAC output (right channel)
7	AUDIO-L-OUT	DAC output (left channel)
8	LED-ERROR	This signal is driven low when an error occurs.
9	LED-PLAY	This signal is driven low when NA-MP3PM module plays a MP3 file.
10	LED-PSD	This signal is driven low when a SD card is selected as the memory of the MP3 files played
11	LED-PUS	This signal is driven low when an USB memory is selected as the memory of the MP3 files played
12	MUTE	Mute control output port. The signal can be used as a mute control signal for an external audio AMP. It is driven low during power on, fast forward, and fast backward operation.

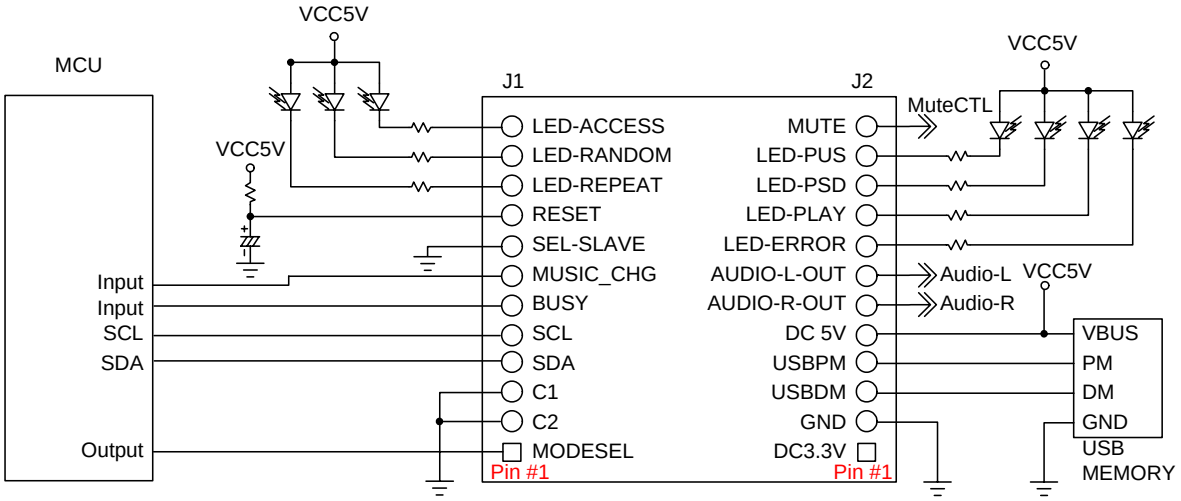


Figure 4. Application circuit employing an external USB memory in MODE2 or MODE3

Tel: +82-70-7122-7728
Fax: +82-2-898-7740
E-mail: support@quantumbase.com