



Grove - Speaker

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Version : 1.0

Wiki: [http://www.seeedstudio.com/wiki/Grove - Speaker](http://www.seeedstudio.com/wiki/Grove_-_Speaker)

Bazaar: <http://www.seeedstudio.com/depot/Grove-Speaker-p-1445.html>

Document Revision History

Revision	Date	Author	Description
1.0	Sep 21, 2015	Victor.He	Create file

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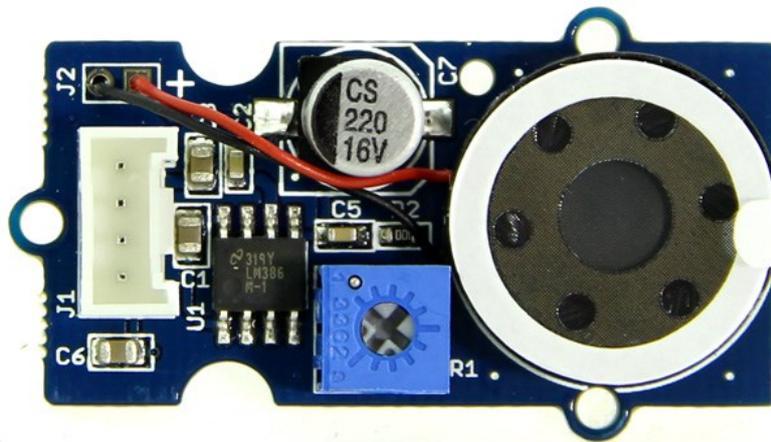
Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

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1. Introduction

The Grove- Speaker is a module which consists of power amplification and voice outputs. The loudness can be adjusted by the on-board potentiometer. With different input frequency, the loud-speaker generated different tones. Coding the music into Arduino, DIY your own music box!



2. Features

- Volume Adjustable
- Grove Interface

3. Specifications

Item	Min	Typical	Max	Unit
Working Voltage	4.0	5.0	5.5	VDC
Voltage Gain	-	-	46	dB
Band Width	-	-	20	KHz

4. Usage

The speaker can emit a variety of sounds like a car horn, doorbell and ignition. The different sounds are based on the frequency of the input signal.

You can supply different frequency signal to this module with Arduino. Arduino generates these signal via PWM or even digital write and delay. Here we are going to show you how to generate these signals using `delay()`, the speaker sound bass 1~7.

Bass range	Frequency	Semi-period
1	261.6255653	1911.128216
1.5	277.182631	1803.864832
2	293.6647679	1702.621678
2.5	311.1269837	1607.060866
3	329.6275569	1516.863471
4	349.2282314	1431.728466
4.5	369.9944227	1351.371722
5	391.995436	1275.525055
5.5	415.3046976	1203.935334
6	440	1136.363636
6.5	466.1637615	1072.584446
7	493.8833013	1012.384907

```

/*macro definition of Speaker pin*/
#define SPEAKER 3

int BassTab[]={1911,1702,1516,1431,1275,1136,1012}; //bass 1~7

void setup()
{
  pinInit();
}
void loop()
{
  /*sound bass 1~7*/
  for(int note_index=0;note_index<7;note_index++)
  {
    sound(note_index);
    delay(500);
  }
}

```

```
void pinInit()  
{  
  pinMode(SPEAKER,OUTPUT);  
  digitalWrite(SPEAKER,LOW);  
}  
void sound(uint8_t note_index)  
{  
  for(int i=0;i<100;i++)  
  {  
    digitalWrite(SPEAKER,HIGH);  
    delayMicroseconds(BassTab[note_index]);  
    digitalWrite(SPEAKER,LOW);  
    delayMicroseconds(BassTab[note_index]);  
  }  
}
```

Note: Due to the influence of the capacitance, the module can only output the bass signal, and the treble is unable to emit.

5. Resource

[Grove - Speaker Eagle File](#)

[How to generate different tone with MCU](#)

[Grove - Speaker v1.0 brd.pdf](#)

[Grove - Speaker v1.0 sch.pdf](#)

[LM386 Low Voltage Audio Power Amplifier Datasheet](#)

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