# ATOM SPK

SKU:K054



G23: CLK
G19: MOSI
G33: MISO
G22: BCLK
G25: DATA
G21: LRCLK

ATOM LITE (include)

NS4168
MICRO SD
SPEAKER: 1W
24 x 48 x 18 mm

FOR ATOM LITE ONLY

## Description

**ATOM SPK** is an audio player that adapts to the ATOM master control, with built-in I2S digital audio interface power amplifier chip NS4168, with automatic sampling rate detection, adaptive functions, and can effectively prevent audio signal distortion. Integrated TFCard card slot is convenient for saving and reading audio files. Provide 3.5mm headphone jack and external speaker interface, users can play audio through external headphones or speakers.

> **ATOM SPK Some IO conflict with ATOM Matrix's built-in hardware, so ATOM SPK is only applicable to ATOM LITE**

## Product Features

- Power amplifier chip NS4168
- I2S serial digital audio input interface
- Support a wide range of sampling rates: 8kHz~96kHz
- Automatic sampling rate detection, adaptive function
- TFCard slot
- Headphone jack
- Speaker interface

## Contains

- 1x ATOM Lite
- 1x ATOM SPK
- 1x 1W Speaker
- 1x M2 HEX KEY
- 1x M2*8 cup head machine screw
- 1x TYPE-C USB Cable(20cm)

# Application

○ Audio player
○ Bluetooth audio
○ WiFi speaker

# Specifications

| Specifications | Parameters |
| --- | --- |
| Power amplifier chip | NS4168 |
| Amplifier output power | 1W(VDD=3.3V) |
| Headphone jack | 3.5mm |
| Speaker interface | 1.25mm-2P |
| Speaker power | 1W |
| Net weight | 18.6g |
| Gross weight | 37g |
| Product size | 24*48*18mm |
| Package size | 54*54*20mm |



# EasyLoader

EasyLoader is a simple and fast program burner, which has a built-in product-related case program, which can be burned to the main control through simple steps to perform a series of functional verification.

Download Windows Version Easyloader

Description:

Press the middle button of ATOM to play a short audio.

## Related Links

◦ **Datasheet**
  ◦ NS4168

## Pin mapping

◦ TFCard

| ATOM | G23 | G33 | G19 |
|------|-----|-----|-----|
| TFCard | SCK | MISO | MOSI |

◦ NS4168

| ATOM | G22 | G21 | G25 |
|------|-----|-----|-----|
| NS4168 | BLCK | LRCLK | DATA |

## Schematic

> NS4168 is a mono audio power amplifier(the right channel is used by default in the ATOM SPK hardware design)
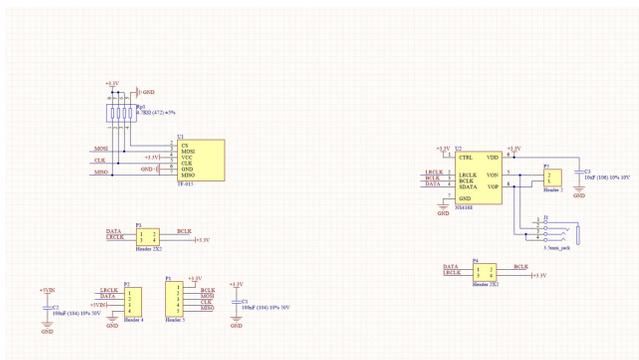


## Example

◦ ATOM SPK Play RawPCM

◦ ATOM SPK Play MP3 From TFCard

> Use ATOM SPK to play RawPCM files or MP3, the case is suitable for master: ATOM Lite.

**AtomSPK.h - API**

```cpp
//Init I2S  param(__rate: I2S sampling rate)
bool begin(int __rate = 44100);

//Play RawPCM param(___audioPtr: audio data pointer, __size: data length, freeFlag: whether to release the memory,
__ticksToWait: allow the maximum duration of blocked playback)

size_t playRAW( const uint8_t* __audioPtr, size_t __size, bool __modal = false, bool freeFlag = true,TickType_t __ticksToWait =
portMAX_DELAY );

//play Beep param(__freq: frequency, __timems: play market, __maxval: maximum volume, __modal: asynchronous or not)
size_t playBeep( int __freq = 2000, int __timems = 200, int __maxval = 10000, bool __modal = false );
```