

Description:

AK4137 I2S/DSD Sample Rate Switch Supports I2S/DSD Interchange Supports DOP Input

The AK4137 supports PCM to PCM (convertable sample rate and data format), DSD to DSD (convert DSD sampling rate), PCM to DSD, DSD to PCM, DOP to PCM, and DOP to DSD.

default sent Standard Edition 22.5792M 24.576M, just leave message what you need

A Standard Edition Crystal Configuration 22.5792M 24.576M

B Low frequency version of the crystal configuration 11.2896M 12.288M

C 768K version of the crystal configuration 22.5972M 49.152M

Versions support functional sampling rates, etc. as follows:

支持 \ 版本	标准版 Fs/MCLK频率	低频版 Fs/MCLK频率	768K版 Fs/MCLK频率
PCM 44.1K	512Fs/22.5792M	256Fs/11.2986M	512Fs/22.5792M
PCM 48K	512Fs/24.576M	256Fs/12.288M	不支持
PCM 88.2K	256Fs/22.5792M	128Fs/11.2986M	256Fs/22.5792M
PCM 96K	256Fs/24.576M	128Fs/12.288M	512Fs/49.152M
PCM 176.4K	128Fs/22.5792M	64Fs/11.2986M	128Fs/22.5792M
PCM 192K	128Fs/24.576M	64Fs/12.288M	256Fs/49.152M
PCM 352.8K	64Fs/22.5792M	不支持	64Fs/22.5792M
PCM 384K	64Fs/24.576M	不支持	128Fs/49.152M
PCM 768K	不支持	不支持	64Fs/49.152M
DSD64 2.82MHz	支持	支持	支持
DSD128 5.64MHz	支持	支持	支持
DSD256 11.2MHz	支持	支持	支持
PCM数据格式	IIS LJ RJ 可设	IIS LJ RJ 可设	IIS LJ RJ 可设
PCM输出比特数	16 20 24 32 可设	16 20 24 32 可设	16 20 24 32 可设

The following detailed contents are referenced to the standard version.

This board input signal range:

PCM mode can input I2S (I2S format also called Philips format 16-32bit), LJ (left-aligned format 16-32bit), RJ24 (right-aligned also called Sony format 24bit), RJ32 (right-aligned also called Sony format 32bit), due to The reason for the chip manufacturer's design does not support the right-justified (Sony) format signal input below 24 bit. DSD mode can input DSD64 DSD128 DSD256. And DOP data (DOP data to be input in PCM mode).

This board output signal range:

PCM mode can output I2S format LJ (left-justified format) RJ (right-justified format) Three formats can output 16bit 20bit 24bit 32bit data 44.1K 48K 88.2K 96K 176.4K 192K 352.8K 384K sampling rate, and slave (from mode). DSD mode can output DSD64 DSD128 DSD256.

Note: When the input PCM signal is lower than 44.1K, it cannot be converted to DSD, nor can it be converted to a higher sampling rate of PCM. When the input PCM signal is lower than 176.4K, it can output DSD64. DSD128 can't output DSD256. Because the output 768K signal needs to use a higher frequency crystal, the default output of this board is only 384K.

Board sub-interface description: POW interface is the power input interface (can only use 5V DC can not be reversed); I2S/DSD-OUT interface is I2S/DSD data output interface; I2S/DSD-IN is I2S/DSD data input interface; D/ P is a manual control of the PCM/DSD input mode interface (the PCM/DSD input mode can also be controlled via the 1-pin of the data input port); the K port is a special function interface; the LCDPORT is a display interface (the display connection is the pin 1 of the board). Connect to the 1 foot of the display, 2 feet to 2 feet, and so on. The

middle four pins are not connected).

Note: When using the I2S/DSD-IN pin 1 pin control input mode, disconnect the D/P connector.

There are 4 buttons on the board to set the board (see below for the setting method). Besides the function of the mute function, the functions set by the buttons can all be powered off and the board will still work according to the last set mode when it is turned on again.

I2S/DSD-IN interface pin definition: pin 1 is DSD enable input (also called DSDON or DSDOE), pin 2 GND, pin 3 DATA/DSDL input, pin 4 pin BCK/DCLK input, pin 5 is not taken, 6-pin LRCK/DSDR input. This board input interface does not need to input MCLK to work.

I2S/DSD-OUT interface pin definition: Pin 1 is DSD enable output (also called DSDON or DSDOE), pin 2 GND, pin 3 DATA/DSDL output, pin 4 BCK/DCLK output, pin 5 MCLK output, pin 6 LRCK /DSDR output. In the output PCM mode, pin 1 outputs low level, and when outputting DSD mode, pin 1 outputs high level.

Detailed usage instructions:

First of all, turn on the power, POW interface connected to the 5V power supply voltage range 4.8-5.5V (power supply connection is not to say, understand the basics of the circuit know how to connect, need to pay attention to the voltage range is not connected to the reverse line on the line) .

Enter the relevant settings:

Set the signal input mode: first determine whether the input signal is a DSD signal or a PCM (I2S) signal. You can set the input mode through the D/P interface. Short the D/P interface input signal mode to work in the PCM (I2S) mode. The D/P interface input mode operates in DSD mode. The I2S/DSD-IN pin 1 can also be used to control the input mode. The I2S/DSD-IN pin 1 inputs the low level to the PCM input mode, and the high input to the DSD input mode. It

should be noted that the D/P interface must be disconnected when using the I2S/DSD-IN interface pin 1 control input mode (cannot be shorted or it can only work in the PCM mode and may also damage the device providing the DSDON/DSDOE signal). When inputting the DOP signal, the input interface must be configured for the PCM mode.

Set the signal input format, etc.: In the PCM input mode, the format of the input data can be switched by pressing the button 1 for a long time. Each long press corresponds to changing the format of an input signal, and the corresponding letter “I” on the first line of the display The format of the input will be displayed at the back of the screen and it will have a power-off memory function. Input formats include I2S, LJ, RJ24, RJ32, DOP, and cycle switching. In the DSD input mode, the DSD sampling rate of the input can be switched by pressing and holding the key 2 for a long time, and the corresponding display on the first line of the display letter “I” will be displayed with the power-off memory. The DSD inputs include DSD64, DSD128, DSD256, and cycle switching. In addition, it is also possible to switch the input DSD sampling rate through the K port K1 K2 (see Table 1 below). It should be noted that it is necessary to disconnect the K1 K2 when switching the input DSD signal by long pressing the button 2 (make the K1 K2 all disconnected. The state of the DSD input will otherwise be configured using K1 K2.) K1 K2 can automatically switch the input DSD sampling rate when matching the Italian interface (K1 is connected to the Italian interface 18 feet, K2 is connected to the Italian interface 19 feet)!

表1		
K1	K2	模式
短接	短接	DSD64
断开	短接	DSD128
短接	断开	DSD256
断开	断开	长按按键2控制模式

Output related settings:

Set the output format, etc.: Switch the format of the output signal by pressing the button 1 shortly. The formats that can be set include the I2S format, LJ (left-aligned), RJ (right-aligned), DSD64, DSD128, DSD256, cyclic switching with power-off memory, and There is a related

display on the second line of the screen.

Set sampling rate of PCM output mode (This function PCM output mode is valid, the output sampling rate of DSD is switched by pressing button 1 shortly): By short pressing button 2 to switch the sampling rate of the output signal, the settable sampling rate includes 44.1K, 48K, 88.2K, 96K, 176.4K, 192K, 352.8K, 384K, SLA (slave slave mode output), cycle switching with power off memory and related display on the second line of the screen.

Sets the number of bits in the PCM output mode (can be set in all PCM data formats): Switches the number of bits of the output signal by pressing button 3 shortly. The number of bits that can be set includes 16bit, 20bit, 24bit, and 32bit (other bits are not supported.)), cycle switching with power off memory and related display on the second line of the screen.

Other settings: ↓↓↓↓↓↓

Digital filter settings: Switch the digital filter mode by pressing button 3 long. This setting has a power-off memory and is displayed in the second half of the first line of the screen. The display contents are DF1, DF2, DF3, and DF4, corresponding to the filter patterns in Table 2 below.

表2	
DF1	Sharp Roll OFF Filter
DF2	Slow Roll OFF Filter
DF3	Short Delay Sharp Roll OFF Filter
DF4	Short Delay Slow Roll OFF Filter

Dither setting (Add jitter to the signal): Set the dither switch by pressing the button 4 for a long time. After the long press, the last two digits in the second line of the screen display "DT" to turn on the dithering function. After the long press again, the last two digits in the second line will be displayed." DT "disappears to turn off the jitter. This function has a power-off memory.

Mute setting: Setting method Short press key 4 The last two digits in the first line of the screen display “MT” to mute, short press “MT” again to cancel the normal mute playback, this function does not have power off memory, and it will be canceled after restarting the mute.

Key function table:

Key 1: Press and hold to switch the PCM input format (PCM input mode valid); short press to switch output mode.

Key 2: Press and hold to switch the DSD input sampling rate (DSD input mode is valid); short press to switch the PCM output sampling rate (PCM output mode is valid).

Button 3: long press to switch the filter mode; short press to switch PCM output bits (PCM output mode is valid).

Button 4: Long press the dither switch; short press the mute switch.

Electrical characteristics:

Power supply: DC5V (DC voltage 5V to AC will cause board damage) Voltage range 4.8-5.5V (Beyond this range will cause board damage or not work properly).

The input signal supports 3.3V level 5V level; the output signal is 3.3V level.

PCB size: 5.2cm x 6.3cm

The display is a standard 1602 display, and the size parameters can be searched in Baidu.

Both crystals on the board are powered by a precision LDO, and one of the crystals is powered

off by the other to reduce interference.

K port other than No.1 (K1, K2) other interfaces, please do not use it, otherwise it may cause board damage, K1 corresponding to the short-circuited pin is GND, K2 corresponding short-circuited pin can not be used as GND (can only be used with K2 Short-circuited).

Package Included:

1 x AK4137 I2S/DSD Sample Rate Conversion Board Supports PCM/DSD Interconversion DOP