音频解码芯片规格书

——AC109N 芯片

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AC109N Features

High performance 8-bit MCU

- DC-48MHZ operation
- Compatible with 8051
- Extended 16-bit DSP instructions
- All instructions are single-cycle except branching instructions
- Two data pointer for indirect addressing

Program Memory

- 16K Bytes OTP program memory

Interrupt Feature

- 16 Vectored interrupts
- External wake up/interrupt on 4 GPIOs
- 4 Levels interrupt priority

Flexible I/O

- 32 GPIO pins
- All GPIO pins can be programmable as input or output individually
- All GPIO pins are internal pull-up/pull-down selectable individually
- CMOS/TTL level Schmitt triggered input

Digital Peripheral Feature

- Two multi-function 8-bit timers,support capture and PWM mode
- Two multi-function 16-bit timers, support Capture mode
- Watchdog
- MPEG-1, MPEG-2, MPEG-2.5 Audio Layer 1,2,3 decoder, Bit rate 8-448Kbps, CBR/VBR/ABR
- Support 9 sampling frequency:
  8kHz/11.025kHz/12kHz/16kHz/22.05kHz/24kHz/32kHz/44.1kHz/48kHz
- One full-duplex UART
- One SPI with EMI mode, support DMA
- LCD controller, support 6-COM 16-SEG
- IIC HOST/DEVICE controller
- SD Card Host controller
- Full speed USB 2.0 HOST/DEVICE controller

Analog Peripheral Features

- One 1~24MHz Crystal Oscillator
- An independent powered RTC with One 32KHz Crystal Oscillator
- One internal RC oscillator
- One internal high- performance RC oscillator
- Full speed USB 2.0 PHY
- 48MHz PLL-based clock generator

- 16-bit Stereo DAC， SNR > 90dB
- Embedded headphone amplifier
- 2 channels Analog MUX
- 1 channels Analog MIC
- 8 Channels 10-bit ADC
- 2 channels 4 levels Low Voltage Detector
- Power-on reset
- Two LDO: 5V to 1.8V, 5V to 3.3V

Power Supply

- VDDLDO is 3.2V to 5.5V
- VDDIO is 3.0V to 3.6V
- VDDCORE is 1.6V to 2.0V

Packages

- LQFP48
- SOP28

Temperature

- Operating temperature: -40℃ to +85℃
- Storage temperature: -65℃ to +150℃

引脚定义

1.1 引脚分配

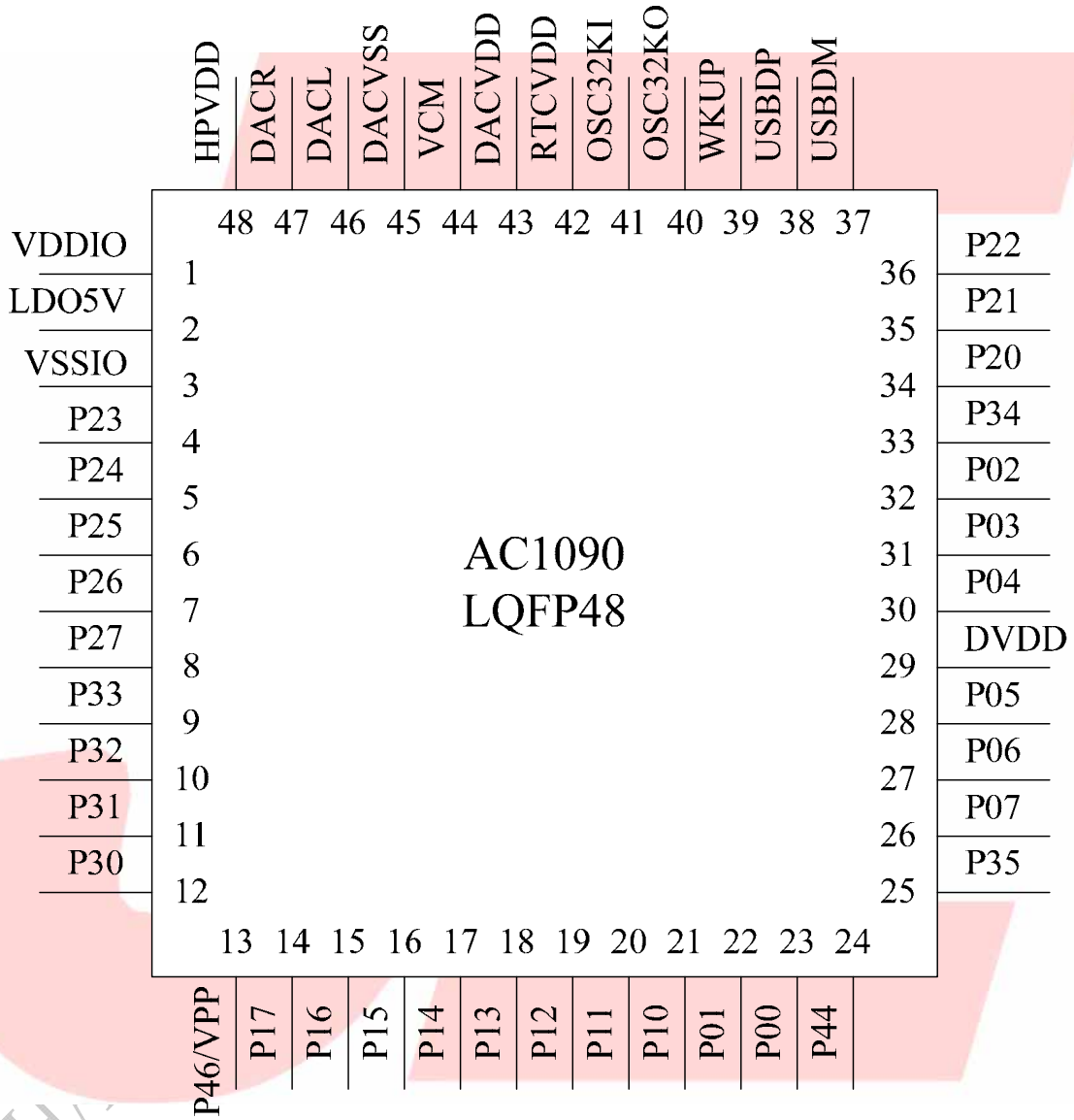

图 1　AC1090_48PIN 引脚分配图

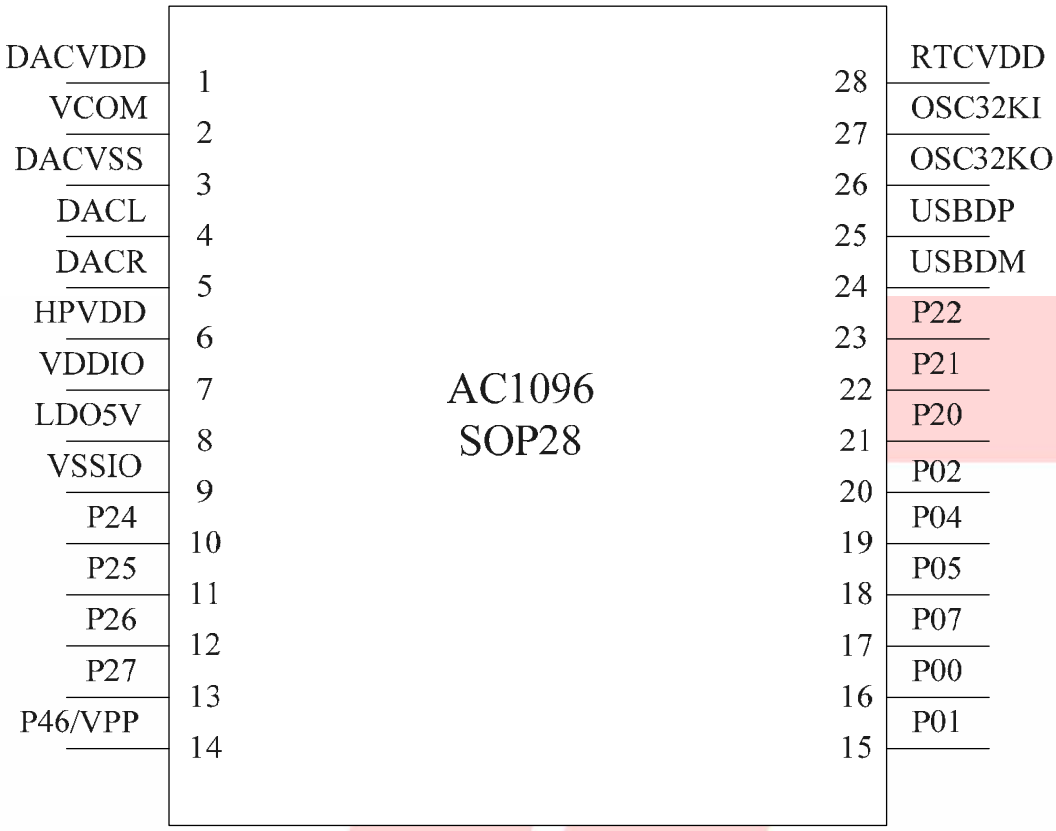

图 2　AC1096_28PIN 引脚分配图

1.2 引脚描述

表 1　AC109n 引脚描述

AC1090（LQFP48）	AC1096（SOP28）	Name	I/O Type	Drive (mA)	Function
1	7	VDDIO	P	/	IO Power 3.3V
2	8	LDO5V	P	/	LDO Power 5V
3	9	VSSIO	P	/	IO Ground
4		P23	I/O	8	GPIO
5	10	P24	I/O	8	GPIO
6	11	P25	I/O	8	GPIO
7	12	P26	I/O	8	GPIO
8	13	P27	I/O	8	GPIO
9		P33	I/O	24	GPIO
10		P32	I/O	24	GPIO
11		P31	I/O	24	GPIO
12		P30	I/O	24	GPIO

13	14	P46/VPP	I/O	8	GPIO OTP Program Power
14		P17	I/O	8	GPIO
15		P16	I/O	8	GPIO
16		P15	I/O	8	GPIO
17		P14	I/O	8	GPIO
18		P13	I/O	8	GPIO
19		P12	I/O	8	GPIO
20		P11	I/O	8	GPIO
21		P10	I/O	8	GPIO
22	15	P01	I/O	8	GPIO
23	16	P00	I/O	8	GPIO
24		VDDIO	P	/	IO Power 3.3V
25		VSSIO	P	/	IO Ground
26	17	P07	I/O	8	GPIO
27		P06	I/O	8	GPIO
28	18	P05	I/O	8	GPIO
29		DVDD	P	/	Core Power 1.8V
30	19	P04	I/O	8	GPIO
31		P03	I/O	8	GPIO
32	20	P02	I/O	8	GPIO
33		P34	I/O	24	GPIO
34	21	P20	I/O	8	GPIO
35	22	P21	I/O	8	GPIO
36	23	P22	I/O	8	GPIO
37	24	USBDM	I/O	/	USB Negative Data
38	25	USBDP	I/O	/	USB Positive Data
39		WKUP	O	/	RTC WakeUp Output
40	26	OSC32KO	O	/	RTC32K oscillator output
41	27	OSC32KI	I	/	RTC32K oscillator input
42	28	RTCVDD	P	/	RTC Power 1.8V
43	1	DACVDD	P	/	DAC Power 3.1V
44	2	VCOM	P	/	DAC Reference
45	3	DACVSS	P	/	DAC Ground
46	4	DACL	O	/	DAC Left Channel
47	5	DACR	O	/	DAC Right Channel
48	6	HPVDD	P	/	Headphone Power 3.3V