



ATS2819 Product Brief

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Revision History

Date	Revision	Description
2018-04-16	1.0	First Release
2018-05-09	1.1	Modify
2018-05-24	1.2	Modify

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Introduction

Overview

The ATS2819 is a highly integrated single-chip Bluetooth audio device. It also can act as traditional card speakers and card-reader for data transmission.

The ATS2819 integrates the high-performance transceiver, rich features baseband processor and Bluetooth audio profile. It meets V4.2 and complies with 2.1+EDR, it is also completely backward compatible with Bluetooth V1.1/1.2/2.0 specification.

ATS2819 integrates high quality and low latency SBC decoder and CVSD codec. It also supports PLC technique and AEC in voice call providing a high audio quality.

The ATS2819 integrates a complete set of power management circuits, flexible memory configuration, Matrix LED controller for UI display and rich interfaces, such as SD/SDIO/SPI/USB/UART/TWI/PWM/IR/SPDIF RX/I2S TX&RX and so on. The architecture is fully programmable with any application. It also has the minimum package and the most compact BOM.

Application Diagram

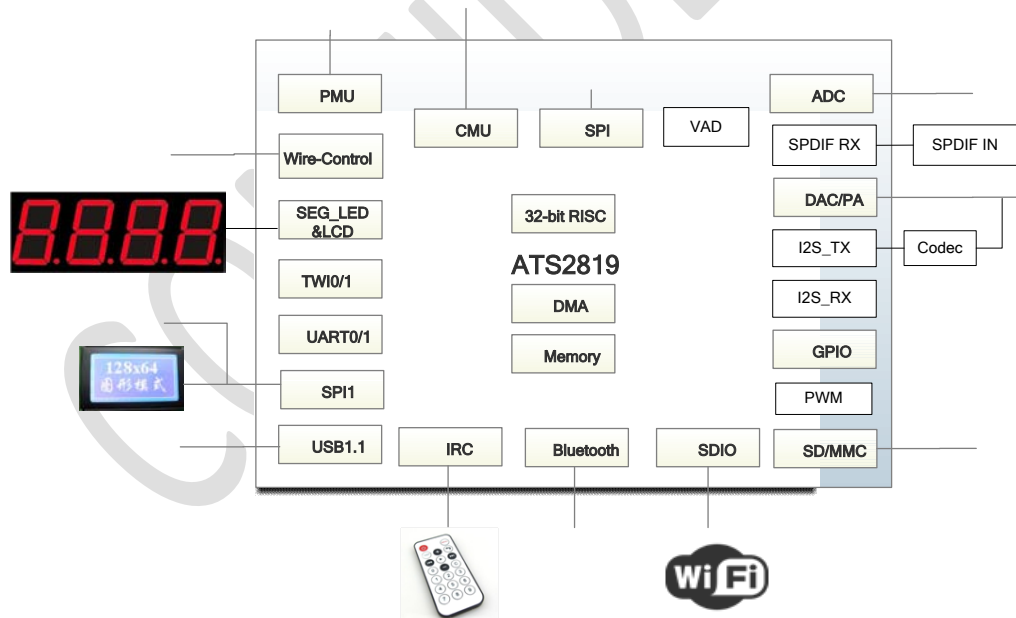


Figure 1-1 ATS2819 Application Diagram

Features

System

- 180MHz 32bit RISC processor Core
- Internal RAM for data and program storage
- Internal 1MByte Nor flash
- 5-channel DMA, including DMA0, DMA1, DMA2, DMA3 and DMA4, support for transmission in burst 8 mode
- Fully configurable PEQ, up to 14 segments
- Support for echo cancellation and noise reduction
- Support for packet loss concealment
- Support USB/SDCard firmware upgrade

Bluetooth

- Bluetooth V4.2 Dual Mode
- Support all packet types in basic rate and enhanced data rate
- Support SCO/eSCO link
- Support secure simple pairing
- Support low power mode (sniff/sniff sub-rating)
- Bluetooth Piconet and Scatternet support
- Bluetooth TX power: 4dBm(typical)
- Bluetooth RX sensitivity: -86dBm(typical) when packet Type is 2-DH5

Audio

- Built-in stereo 16-bit input sigma-delta DACs, SNR>93dB, SNR (A-Weighting)>96dB, THD+N < -80dB, THD+N (A-Weighting) < -81dB @0dBFS output amplitude
- Built-in stereo 16-bit input sigma-delta ADC, SNR>87dB, SNR(A-Weighting)>89dB, THD+N < -80dB, THD+N(A-Weighting)<-82dB @PA 1.6Vpp output
- DAC supports sample rate of 8k/11.025k/12k/16k/22.05k/24k/32k/44.1k/48kHz
- PA Support non-direct or direct drive output.
- ADC supports sample rate of 8k/11.025k/12k/16k/22.05k/24k/32k/44.1k/48kHz
- Supports two single-ended Analog microphone or one DMIC
- Supports two stereo AUX IN sharing two ADCs
- SPDIF RX supports sample rate of 96k/48k/44.1k/32kHz

- I2S TX&RX support master and slave mode separately, and support sample rate of 192k/96k/48k/44.1k/32k/24k/22.05k/16k/12k/11.025k/8k
- Support Voice Active Trigger

Display

- 7/8pin Segment Matrix LED

Power Management

- Support Li-Ion battery power supply with battery insert wake up.
- Support power on button & reset button.
- Linear regulators outputs VCC, AVCC, SVCC.
- Standby current 45uA (typical).
- 10-bit A/D converters for system monitor and wire-control, 10 channels can be externally used by user. The ADC sample rate can support 2/4/8KHz per channel.
- 1*WIO which can used for charging detection.

Physical Interfaces

- Maximum 2*SD/MMC/eMMC card interface
- USB1.1FS host or device, support 2 IN endpoint and 1 OUT endpoint except endpoint0
- Maximum 2*UART support master or slave mode with RTS/CTS hardware flow control
- Maximum 2*TWI supports master or slave mode
- Maximum 2*SPI interface controllers.
- Support 22 Programmable GPIO interfaces, and 10 analog IOs can also be config as GPIOs.
- All 22 Programmable GPIOs can be SIRQs
- Maximum 9*PWM output integrated
- 1* infrared remote control RX

Package

- LQFP-48, 7mm*7mm*1.4mm

Pin Assignment

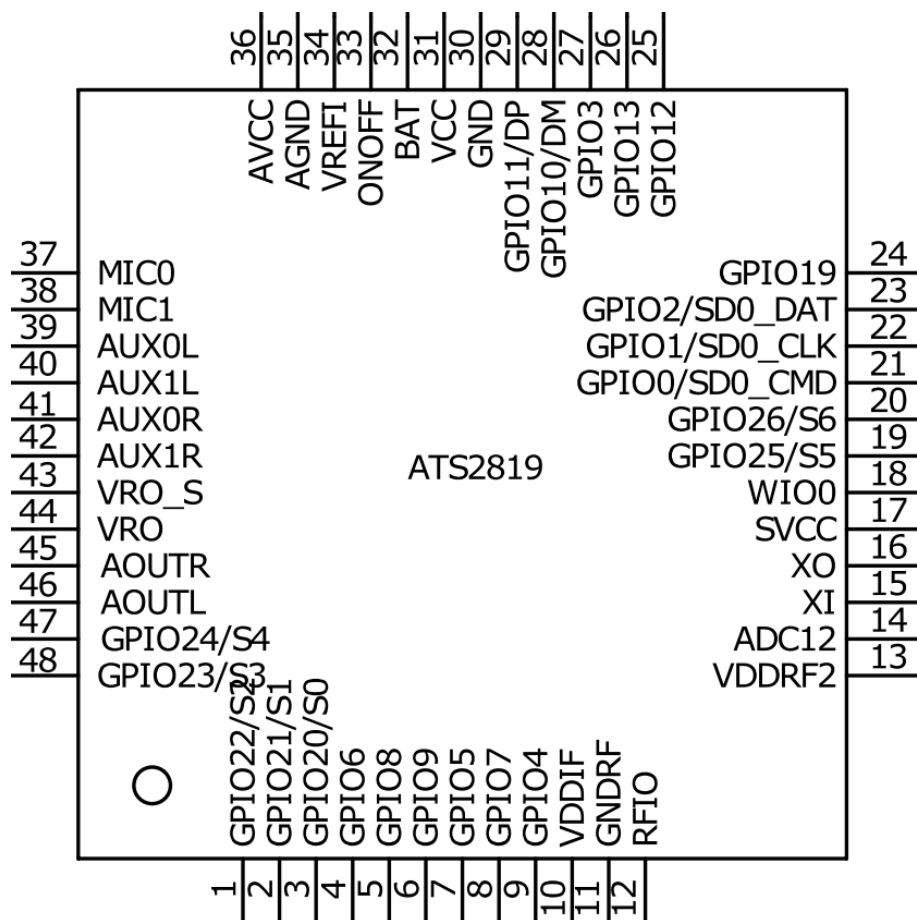


Figure 1-2 ATS2819 Pin Assignment

Package and Drawings

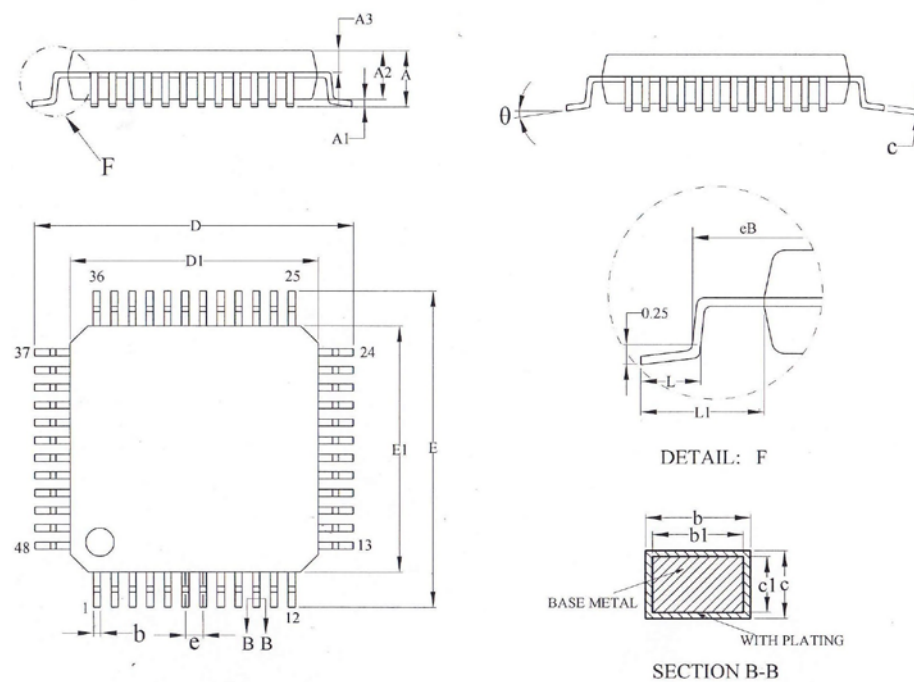


Figure 1-3 ATS2819 Package and Dimension

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