

2.8W I²S 输入单声道D类音频功率放大器

2.8W I²S Input Mono Class D Audio Amplifier

FEATURES

- Power Supply
PVDD: 2.5-6.5V;
DVDD: 3.0-3.6V
- I²S Interface
Data width: 16, 20, 24bit;
Sample rate: 8-96kHz
- Output Power
1.40W (PV_{DD}=3.6V, R_L=4Ω, THD+N=10%)
2.80W (PV_{DD}=5.0V, R_L=4Ω, THD+N=10%)
4.70W (PV_{DD}=6.5V, R_L=4Ω, THD+N=10%)
- THD+N= 0.04% (P_o=1W, R_L=4Ω, PV_{DD} = 3.7V)
- Adjustable Gain
- Thermal protection / Low voltage malfunction prevention / Over current protection function
- Pb-free Packages, TSSOP20, QFN20
- 电源供电: PVDD 2.5-6.5V; DVDD 3.0-3.6V
- I²S输入: 最大支持24-bit字节; 可自动检测采样频率, 最高192kHz
- 输出功率:
1.40W (PV_{DD}=3.6V, R_L=4Ω, THD+N=10%)
2.80W (PV_{DD}=5.0V, R_L=4Ω, THD+N=10%)
4.70W (PV_{DD}=6.5V, R_L=4Ω, THD+N=10%)
- THD+N= 0.04% (P_o=1W, R_L=4Ω, PV_{DD} = 3.7V)
- 增益可调
- 欠压保护、过温保护、过流保护
- TSSOP20, QFN20封装

APPLICATIONS

- Smart Home
- Smart Toys
- Smart Home
- Smart Toys
- IoT Devices
- Gaming Devices
- Smart Speakers
- Other Li-ion cell/5V Devices
- 智能家居
- 智能玩具
- IoT设备
- 游戏设备
- 智能音箱
- 其他锂电/5V设备

ORDERING INFORMATION

| Part Number | Package Type | Marking | Operating Temperature Range | MOQ/Shipping Package |
|-------------|--------------|---------------------------------|-----------------------------|----------------------------|
| HT511MTNB | TSSOP20 | HT511MTN UVWXYZ ¹ | -40°C~85°C | Only samples available yet |
| / | QFN20 | / | -40°C~85°C | Samples not available yet |



DESCRIPTION

The HT511 is an easy-to-use, low-cost, I²S input mono Class D audio amplifier that drives up to continuous 2.8W into 4ohm speaker with 5V power supply, and 4.7W into 4ohm speaker with 6.5V power supply.

HT511 integrates an DA converter, the I²S interface supports up to 24bit width, 192kHz sample rate. built-in Class G boost converter supports adjustable boost voltages. The boost converter is automatically active only when a higher audio output power is required, which will significantly improve the efficiency and extends the playing time in battery supply applications.

The built-in Class D amplifier also integrates Anti-clipping Function (ACF). The gain of the amplifier is also adjustable using external resistors.

The Device is available in TSSOP20 and QFN20 package.

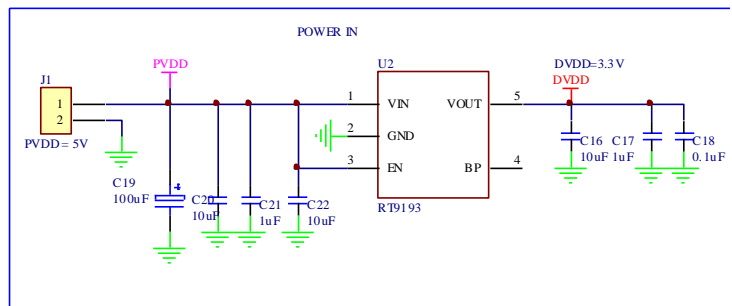
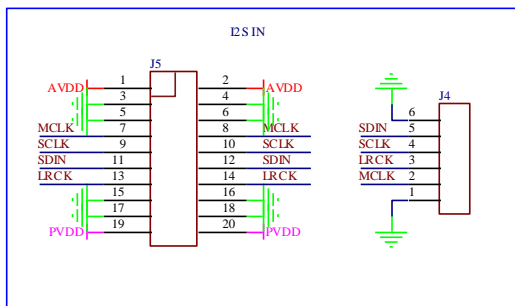
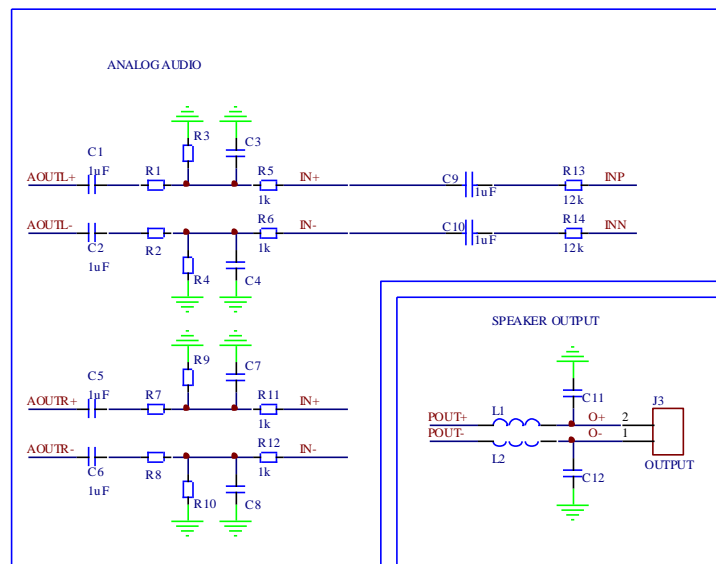
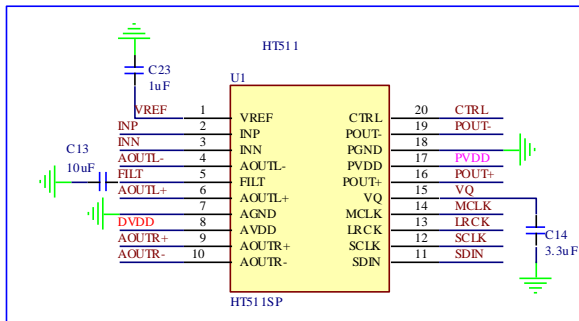
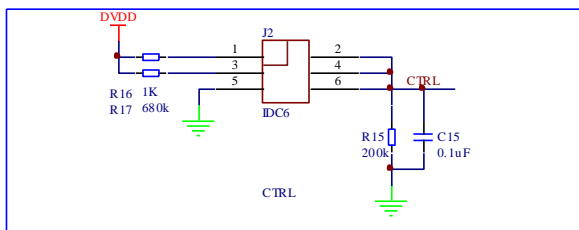
HT511是一款低成本的I²S输入单声道输出D类音频功率放大器。其在5V供电时可提供最大2.8W的输出功率；在6.5V供电时可提供最大4.7W的输出功率

HT511内部集成了DA转换器，其I²S输入最大支持24-bit字节，并且可自动监测采样频率，最高支持192kHz。

HT511集成的D类音频功放还具有增益可调、防破音等功能。

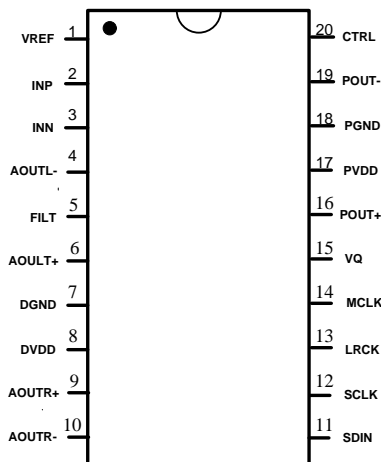
该产品提供TSSOP20, QFN20封装。

TYPICAL APPLICATION





■ TERMINAL CONFIGURATION



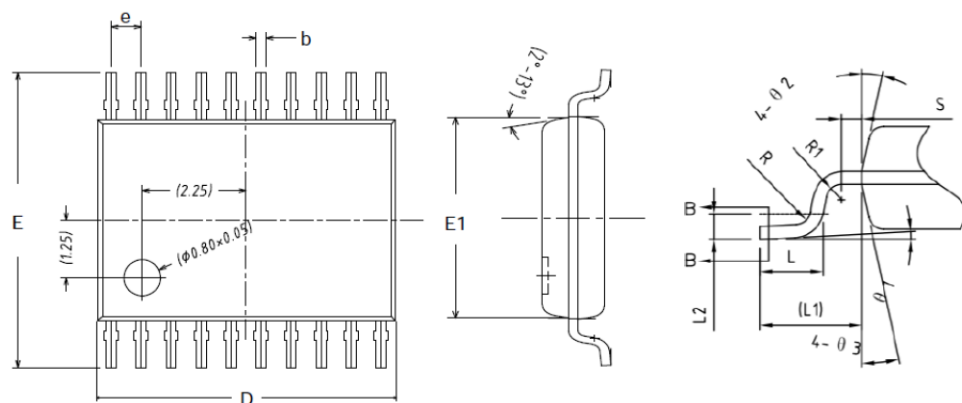
HT511 TSSOP20 Top View

■ TERMINAL FUNCTION

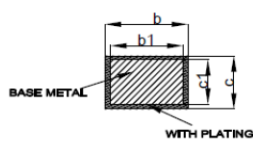
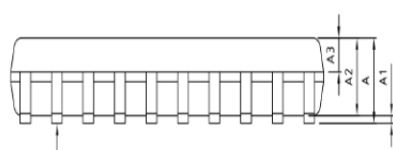
| Terminal No. | Name | I/O ¹ | Description |
|--------------|--------|------------------|---|
| 1 | VREF | O | Analog reference terminal for Class D Amp. D 类功放模拟参考电压。 |
| 2 | INP | I | Positive input terminal of Class D Amp. D 类功放的正向输入端。 |
| 3 | INN | I | Negative input terminal of Class D Amp. D 类功放的反向输入端。 |
| 4 | AOULT- | I | Negative analog output of DAC left channel. DAC 左声道反向模拟输出端。 |
| 5 | FILT | O | Reference voltage for DAC internal sampling. DAC 采样参考电压。 |
| 6 | AOULT+ | O | Positive analog output of DAC left channel. DAC 左声道正向模拟输出端。 |
| 7 | DGND | G | DAC ground. DAC 地。 |
| 8 | DVDD | P | Power supply for DAC. DAC 电源端。 |
| 9 | AOUTR+ | O | Positive analog output of DAC right channel. DAC 右声道正向模拟输出端。 |
| 10 | AOUTR- | O | Negative analog output of DAC right channel. DAC 右声道反向模拟输出端。 |
| 11 | SDIN | I | Serial audio data input. I ² S 串行数据输入端。 |
| 12 | SCLK | I | Serial bit clock input. I ² S 串行时钟输入端。 |
| 13 | LRCK | I | Left right clock input. 左右声道时钟输入端。 |
| 14 | MCLK | I | Master clock input. 主时钟输入端。 |
| 15 | VQ | O | Filter connection for DAC internal quiescent voltage. DAC 内部静态电压。 |
| 16 | POUT+ | O | Positive output terminal for Class D Amp. D 类功放正向输出端。 |
| 17 | PVDD | P | Power supply for Class D Amp. D 类功放电源端。 |
| 18 | PGND | G | Ground for Class D Amp. 左声道负端输出。 |
| 19 | POUT- | O | Negative output terminal for Class D Amp. D 类功放反向输出端。 |
| 20 | CTRL | I | Shutdown and ACF control terminal for Class D Amp. D 类功放的模式控制端。 |



■ PACKAGE OUTLINE



| SYMBOL | MILLIMETER | | |
|------------|------------|------|------|
| | MIN | NOM | MAX |
| A | 1.0 | — | 1.1 |
| A1 | 0.05 | — | 0.15 |
| A2 | — | — | 0.95 |
| A3 | 0.39 | — | 0.40 |
| b | 0.20 | 0.22 | 0.24 |
| c | 0.10 | — | 0.19 |
| c1 | 0.10 | — | 0.15 |
| D | 6.40 | 6.45 | 6.50 |
| E | 6.25 | 6.40 | 6.55 |
| E1 | — | 4.35 | 4.4 |
| L | 0.50 | 0.60 | 0.70 |
| e | 0.55 | 0.65 | 0.75 |
| L2 | 0.25BSC | | |
| R | 0.09 | — | — |
| L1 | 1.0REF | | |
| $\theta 1$ | 0° | — | 8° |



SECTION B-B