

HT2144 产品简介

HT2144 Brief Introduction

中文版 (2-3页)

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2.1W带削顶失真功能立体声D类音频功率放大器

■ 特点

- 最大输出功率
 - 2.1 W×2ch ($V_{DDP}=V_{DDA}=5.0V, R_L=4\Omega$)
 - 0.75 W×2ch ($V_{DDP}=V_{DDA}=3.6V, R_L=8\Omega$)
- 总谐波失真 (THD+N)
 - 0.03% ($V_{DDP}=V_{DDA}=3.6V, R_L=8\Omega, P_o=0.4W, 1kHz$)
- 噪声
 - 40 μ Vrms ($V_{DDP}=V_{DDA}=3.6V, A_v=12dB$)
- 效率
 - 84% ($V_{DDP}=V_{DDA}=3.6V, R_L=8\Omega, P_o=600mW$)
 - 78% ($V_{DDP}=V_{DDA}=3.6V, R_L=8\Omega, P_o=100mW$)
- 信噪比SNR
 - 95dB ($V_{DDP}=V_{DDA}=3.6V, A_v=12dB$)
- 通道隔离度
 - 95dB ($V_{DDP}=V_{DDA}=3.6V, R_L=8\Omega, A_v=18dB, 1kHz$)
- 过流保护
- 过温保护
- 欠压保护
- 独立声道关断
- 上电快速恢复
- 封装
 - Lead-free 20-pin QFN
 - Lead-free 20-pin TSSOP

■ 应用

- 便携式音箱,USB音箱,FM插卡式音箱
- MP3/MP4扩展坞
- 便携式游戏机,数码相框
- 手机,笔记本电脑
- 小尺寸LCD电视/监视器

■ 概述

HT2144是一款数字音频功率放大器，最大输出功率为2.1W ($R_L=4\Omega$) × 2ch。

HT2144内部采用纯脉冲扬声器驱动电路，可减小输出信号失真，并减小信号噪音，实现了同类产品中高标准的低失真率和低噪音的性能。

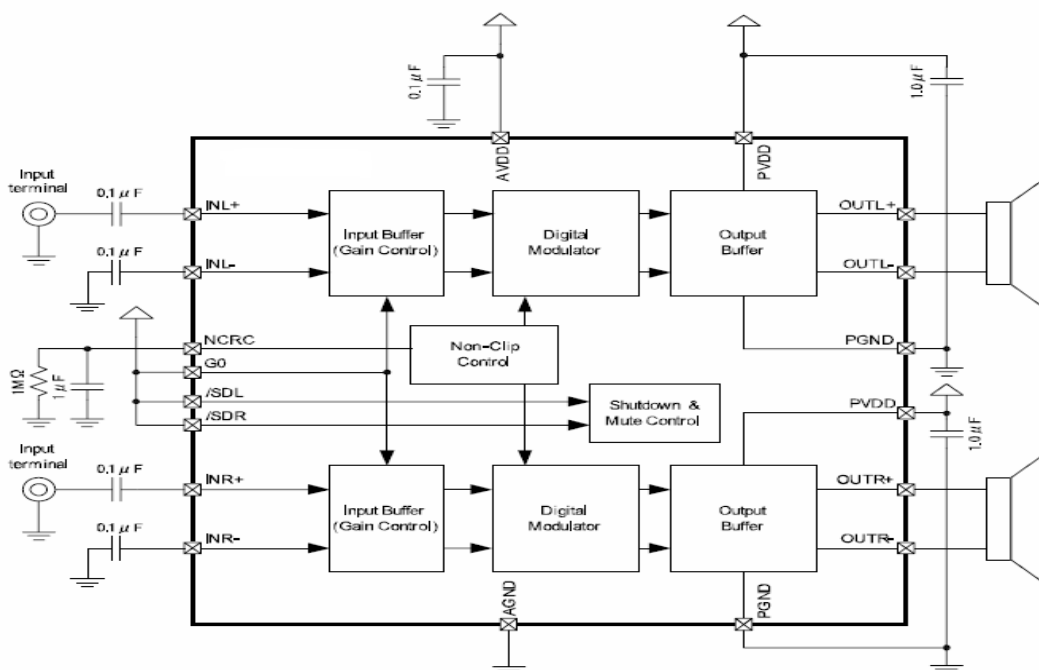
此外，电路采用新型调制技术，输出无需滤波网络，简化了系统设计和降低系统成本。

HT2144实现了无削顶输出控制功能，可检测到由于输入幅度过大引起的输出信号削顶并自动衰减。此外，无削顶控制功能还可以检测到电源电压下降造成的输出削顶。这是区别传统的AGC（自动增益控制）或ALC（自动电平控制）电路。跟踪时间和释放时间可通过外部电阻或电容自由设定。

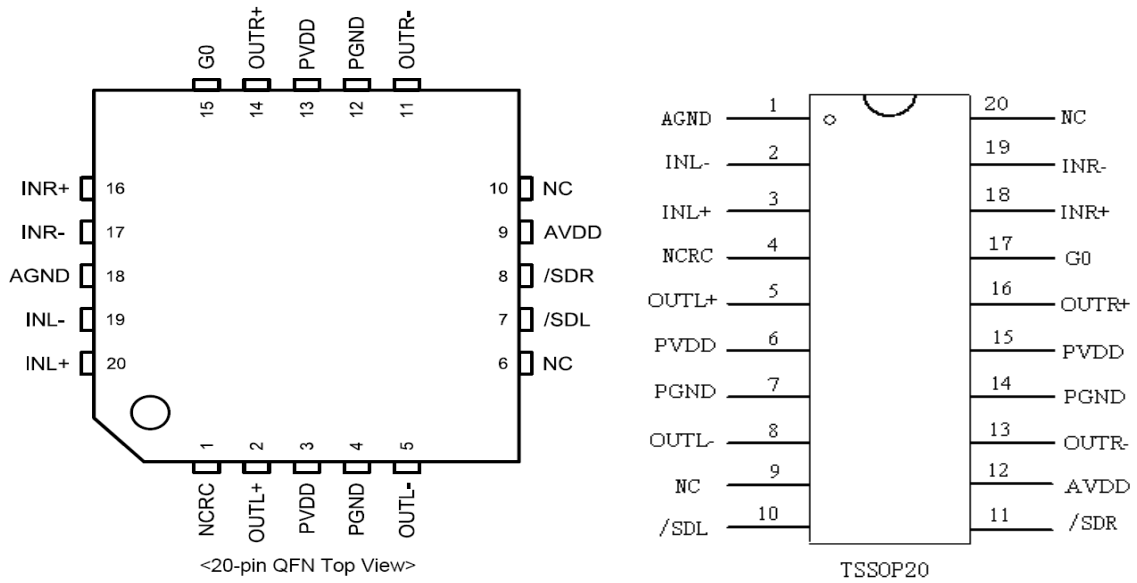
独立的声道关断控制功能使待机电流最小化。另外，该产品还集成了过流保护、过温保护和欠压保护功能等。

■ 典型应用图

● QFN20/TSSOP20



■ 引脚分布图



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2.1W Non-Clip Stereo Class D Audio Power Amplifier

■ FEATURES

- Maximum output
2.1 W×2ch ($V_{DDP}=V_{DDA}=5.0V$, $R_L=4\Omega$)
0.75 W×2ch ($V_{DDP}=V_{DDA}=3.6V$, $R_L=8\Omega$)
- Distortion Rate (THD+N)
0.03% ($V_{DDP}=V_{DDA}=3.6V$, $R_L=8\Omega$, $P_o=0.4W$, 1kHz)
- Residual Noise
40 μ Vrms ($V_{DDP}=V_{DDA}=3.6V$, $A_v=12dB$)
- Efficiency
84 % ($V_{DDP}=V_{DDA}=3.6V$, $R_L=8\Omega$, $P_o=600mW$)
78 % ($V_{DDP}=V_{DDA}=3.6V$, $R_L=8\Omega$, $P_o=100mW$)
- S/N Ratio
95dB ($V_{DDP}=V_{DDA}=3.6V$, $A_v=12dB$)
- Channel separation
95dB ($V_{DDP}=V_{DDA}=3.6V$, $R_L=8\Omega$, $A_v=18dB$, 1kHz)
- Over-current Protection function
- Thermal Protection function
- Low voltage Malfunction Prevention function
- 2ch independent power-down control function
- Power-down High speed Recovery function
- Package
Lead-free 20-pin QFN
Lead-free 20-pin TSSOP
- Pb-Free Package, TSSOP-20, QFN-20

■ APPLICATIONS

- Portable Speakers, USB Speakers, FM Speakers
- MP3/MP4
- Portable Gamers, Digital Photo Frame
- Mobile Phone, Notebook PC
- Small Size LCD TV/Monitors

■ GENERAL DESCRIPTION

HT2144 is a digital audio power amplifier IC with maximum output of 2.1W ($R_L=4\Omega$)×2ch.

HT2144 has a “Pure Pulse Direct Speaker Drive Circuit” which directly drives speakers while reducing distortion of pulse output signal and reducing noise on the signal, and realizes the highest standard low distortion rate characteristics and low noise characteristics among digital amplifier ICs for mobile use.

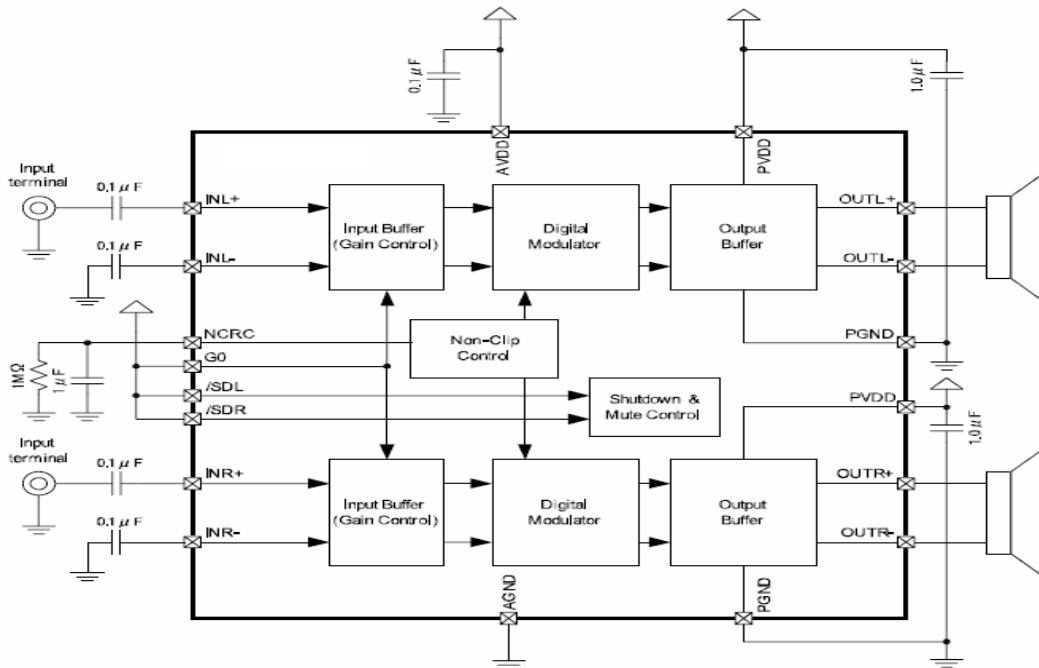
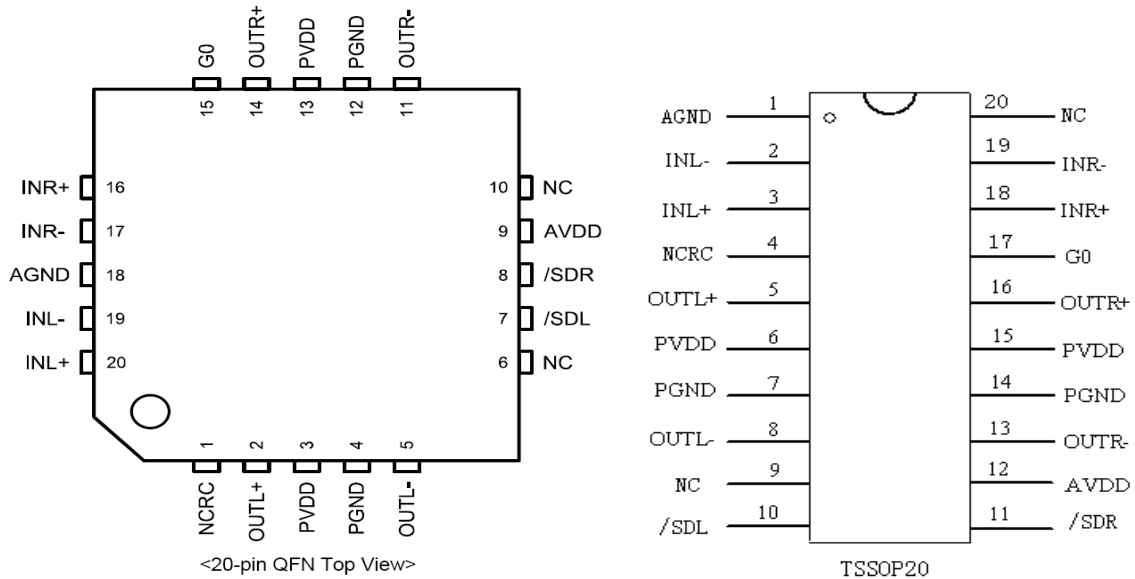
In addition, circuit design with fewer external parts can be made depend on the condition of use because corresponds to filter less.

The HT2144 features Heroic original non-clip output control function which detects output signal clip due to the over level input signal and suppress the output signal clip automatically. Also the non-clip output control function can adapt the output clip caused by power supply voltage down with battery. This is the difference from the traditional AGC (Auto Gain Control) or ALC (Auto Level Control) circuit. Attack time and release time can be freely set by external resistances or capacitances.

The independent power-down function for L channel and R channel minimizes consumption current at standby. As for protection function, over current protection function for speaker output terminal, over temperature protection function for inside of the device, and low supply voltage malfunction preventing function are prepared.

TYPICAL APPLICATION

• QFN20/TSSOP20


TERMINAL CONFIGURATION

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