

具有防破音功能的免电感滤波2×20W D类立体声音频功放

2×20W Inductor Free Class D Stereo Amplifier with Anti-Clipping Function

■ FEATURES

- Output Power (BTL)
2×22W (VDD=14V, RL=4Ω, THD+N=10%)
- Output Power (PBTL)
34W (VDD=16V, RL=4Ω, THD+N=10%)
- Single Wide Voltage Supply: 4.5V-19V
- Anti-clipping Function (ACF)
- Efficiency > 90%
- Differential / Single-ended Analog Input, BTL or PBTL Output
- Gain: 32dB
- Integrated Self-protection Circuits Including Overvoltage, Undervoltage, Overtemperature, DC-detect, and Overcurrent with Error Reporting
- LF and HF Package of ESOP16
- 输出功率 (BTL模式)
2×22W (VDD=14V, RL=4Ω, THD+N=10%)
- 输出功率 (PBTL模式)
34W (VDD=16V, RL=4Ω, THD+N=10%)
- 单电源系统, 4.5V-19V宽电压输入范围
- ACF防破音功能可选
- 超过90%效率, 无需散热器
- 扩频功能, 免电感滤波
- 模拟差分/单端输入, 输出模式立体声/单声道可选
- 增益: 32dB
- 保护功能: 过压/过流/过热/欠压异常, 直流检测和短路保护
- 无铅无卤封装, ESOP16

■ APPLICATIONS

- Sound Bars
- Wireless Speakers
- 条形音箱
- 无线智能音箱
- Consumer Audio Applications
- TVs/Monitors
- 便携式音箱
- 消费类音频应用
- 拉杆音箱
- LCD电视/监视器

■ DESCRIPTION

HT316C is a stereo efficient, Class-D audio amplifier for driving speakers up to 34W/4 Ω in mono PBTL. It can also deliver 2×20W/4Ω power in stereo BTL.

Advanced EMI Suppression enables the use of inexpensive ferrite bead filters while meeting EMC requirements for system cost reduction.

HT316C is fully protected against faults with Overvoltage, Undervoltage, Overtemperature, DC-detect, and Overcurrent protection. Faults can be reported to the processor to prevent devices from being damaged.

HT316C features Anti-Clipping Function (ACF) which detects output signal clip due to the over input signal and suppresses the output signal clip automatically. Also, the ACF function can adapt the output clip caused by power supply voltage down with battery. It can significantly improve the sound quality, creating a very comfortable musical enjoyment, and to protect the speakers from overload damage.

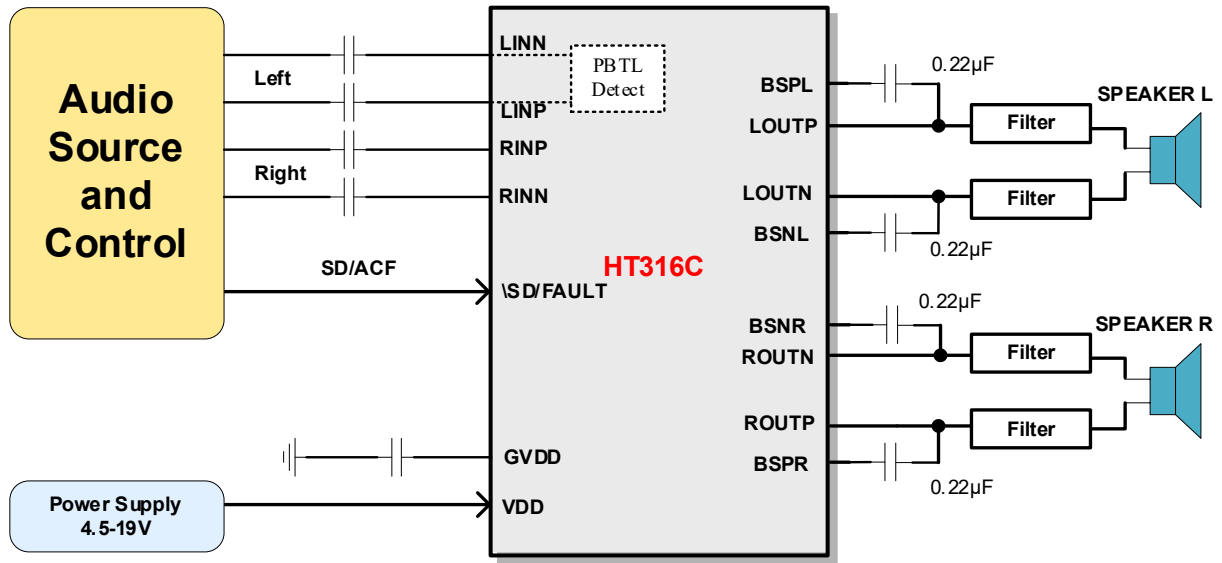
HT316C是一款高效D类音频功率放大器。在14V供电的立体声(BTL)模式、THD+N=10%条件下,能够持续提供2×20W/4 Ω功率输出;在单声道(PBTL)、模式、THD+N=10%条件下,能够持续提供34W/4 Ω功率输出。

HT316C具有先进的扩频功能来抑制EMI,使用价格低廉且小体积铁氧体磁珠可满足EMC要求。

此外,HT316C内置关断功能使待机电流最小化,还集成了过压保护、直流保护、短路保护、热保护和电源欠压异常保护等功能,可全面防止出现故障。

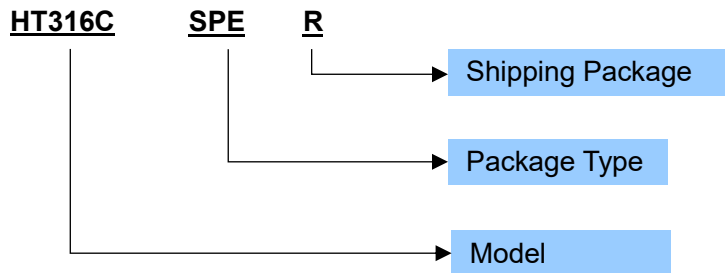
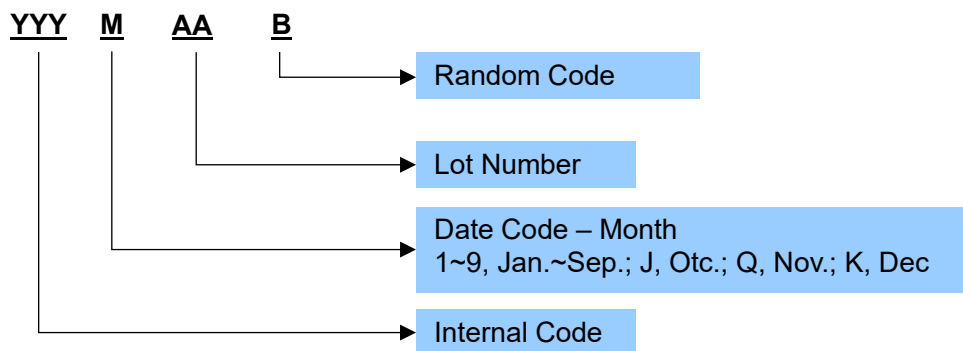
HT316C具有防削顶失真(ACF)输出控制功能,可检测并抑制由于输入音乐、语音信号幅度过大所引起的输出信号削顶失真(破音),也能自适应地防止在BOOST升压电压下降所造成的输出削顶,显著提高音质,创造非常舒适的听音享受,并保护扬声器免受过载损坏。

■ TYPICAL APPLICATION

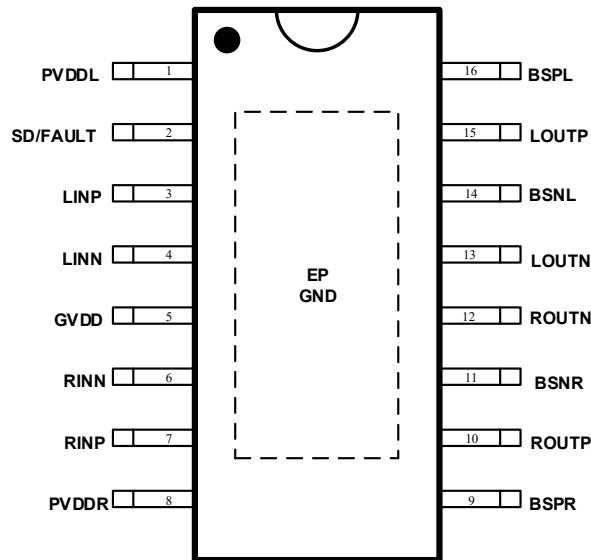


ORDERING INFORMATION

Part Number	Package Type	Marking	Operating Temperature Range	Shipping Package / MOQ
HT316CSPER	ESOP16 (SPE)	HT316C YYYMAAB ¹	-40℃~85℃	Tape and Reel (R) / 2500pcs

Part Number

Production Tracking Code

¹ YYYMAAB is production tracking code

■ TERMINAL CONFIGURATION



HT316C Top View

■ TERMINAL FUNCTION

Terminal No.	Name	I/O ¹	Description
1	PVDDL	P	Power Supply for internal power circuitry of Channel L. 左声道功率电源
2	\SD/FAULT	I	SD/FAULT, multi-function pin. When pulled down, place the speaker amplifier in shutdown mode. General fault reporting including Over-Temp, Over-Current, DC Detect. 接地时功放关闭。发生过温、过流、DC等保护时，该引脚拉低
3	LINP	I	Positive input terminal for L channel. 左声道输入正端
4	LINN	I	Negative input terminal for L channel. 左声道输入负端
5	GVDD	O	Voltage regulator derived from PVDD supply. 内部整流输出，接1uF电容到地
6	RINN	I	Negative input terminal for R channel. 右声道输入负端
7	RINP	I	Positive input terminal for R channel. 右声道输入正端
8	PVDDR	P	Power Supply for internal power circuitry of Channel R. 右声道功率电源
9	BSPR	BST	Connection point for the ROUTP bootstrap capacitor, which is used to create a power supply for the high-side gate drive for ROUTP. ROUTP自举电容位
10	ROUTP	O	Positive pin for differential speaker amplifier output R. 右声道输出正端
11	BSNR	BST	Connection point for the ROUTN bootstrap capacitor, which is used to create a power supply for the high-side gate drive for ROUTN. ROUTN自举电容位
12	ROUTN	O	Negative pin for differential speaker amplifier output R. 右声道输出负端
13	LOUTN	O	Negative pin for differential speaker amplifier output L. 左声道输出负端
14	BSNL	BST	Connection point for the LOUPLN bootstrap capacitor, which is used to create a power supply for the high-side gate drive for LOUPLN. LOUPLN自举电容位
15	LOUTP	O	Positive pin for differential speaker amplifier output L. 左声道输出正端
16	BSPL	BST	Connection point for the LOUTP bootstrap capacitor, which is used to create a power supply for the high-side gate drive for LOUTP. LOUTP自举电容位
EP	GND	G	Provides both electrical and thermal connection from the device to the Board, make sure it is connected to the system ground. 既是地，又是散热PAD

¹ I: Input; O: Output; G: Ground; P: Power; BST: BOOT Strap; OD: Open drain

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