

内置升压的25W立体声D类音频功放

2×25W Class D Audio Amplifier with Boost Converter

■ FEATURES

- Output Power ($f_{IN} = 1\text{kHz}$, $R_L = 4\Omega$)
- Boost output voltage: 4.5V~16.8V
- Spread Switching Frequency Function for AMP
- Integrated boost converter: adjustable output voltage VOUT and switch peak current limit
- Over current protection/ Over temperature protection / Overvoltage protection / Low voltage malfunction prevention function with auto recovery
- Pb-free Packages, ETSSOP28
- 输出功率($f_{IN}=1\text{kHz}$, $R_L=4\Omega$)
- 升压输出电压: 4.5V至16.8V
- D类功放扩频功能
- 内置升压电路: 可调节的升压值和升压限流
- 保护功能: 过流/过热/欠压异常/过压保护功能
- 无铅无卤封装, ETSSOP28

■ APPLICATIONS

- Smart Speakers
- Portable Speakers
- Megaphone
- Wireless Speakers
- 2.1Channel Speakers
- Portable Gamers
- 智能音响
- 无线音响
- 便携式音箱
- 2.1声道小音箱
- 拉杆音箱
- 便携式游戏机

■ DESCRIPTION

The HT81696 is a stereo Class D audio amplifier integrated a boost converter. With wide input voltage range, HT81696 supports applications with single cell, two cell Lithium batteries, 5V or 12V power supply and so on.

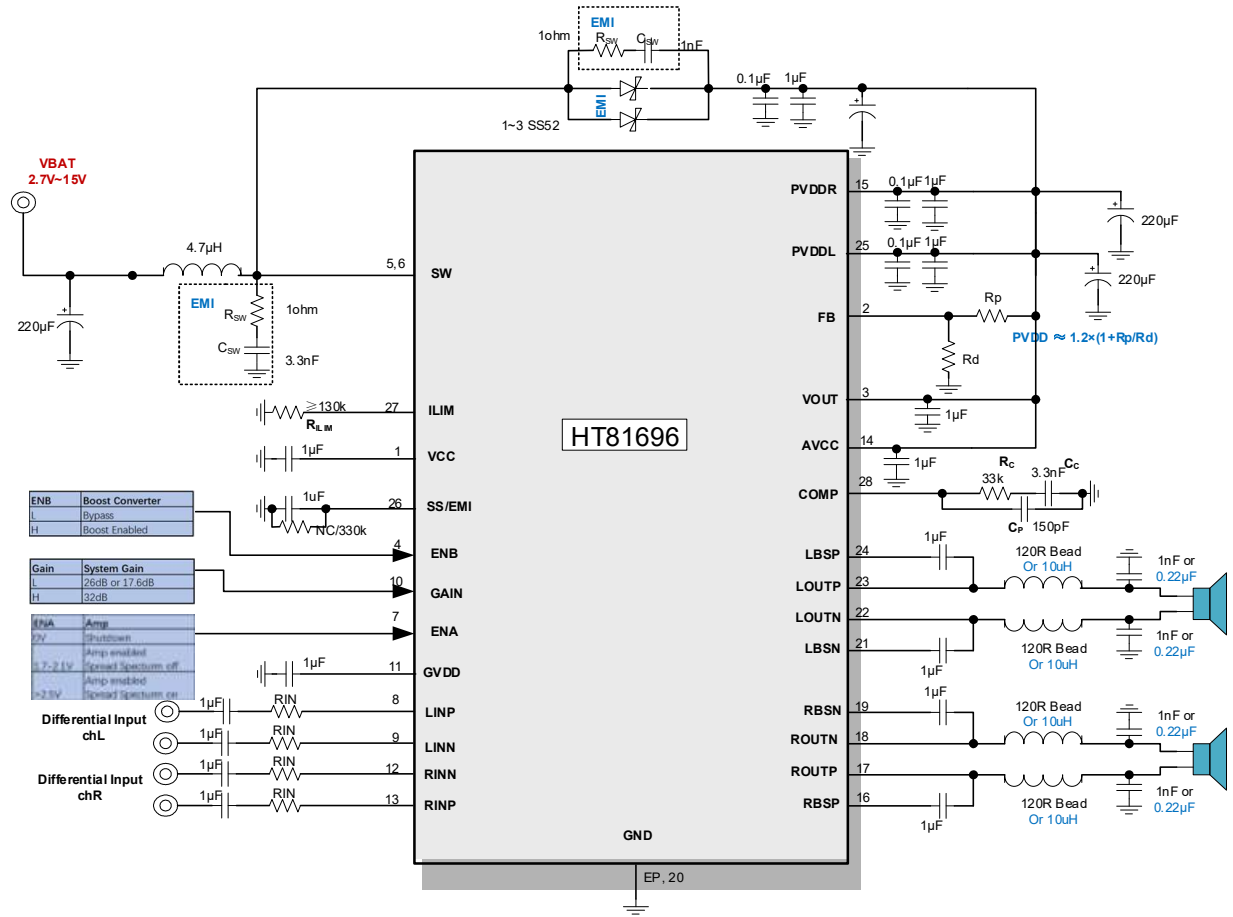
HT81696 built-in boost converter supports selectable output voltage by external resistors for different applications with different power requirements. It also implements an adjustable switching peak current limit function through external resistors.

HT81696 has a filter-less modulation circuit which can directly drive speakers. HT81696 can be shut down so that the power consumption can be minimized. As for protection function, over current protection function for speaker output terminals, over temperature protection function, low supply voltage malfunction preventing function and over boost voltage protection are also prepared.

HT81696是一款内置升压的立体声D类音频功率放大器, 其支持单节锂电、双节锂电串联、5V、12V等多种输入, 升压后的电压提供给功放供电。

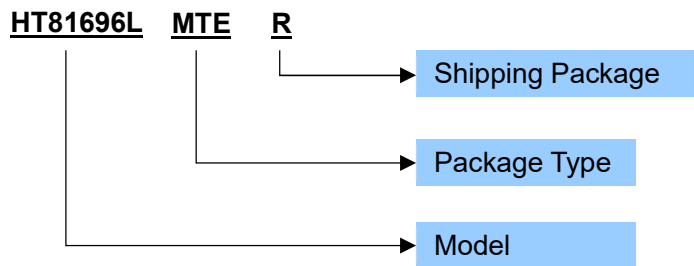
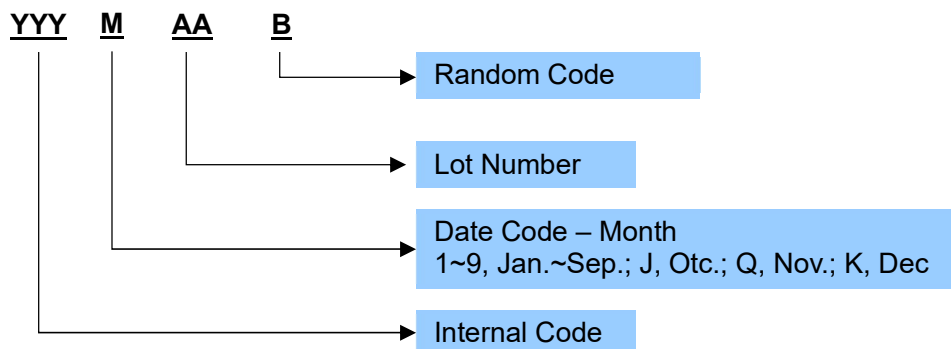
HT81696内置的升压电路, 可通过FB脚设置升压值, 以满足不同的输出功率需求。其还可通过外置电阻调节开关峰值电流限值。

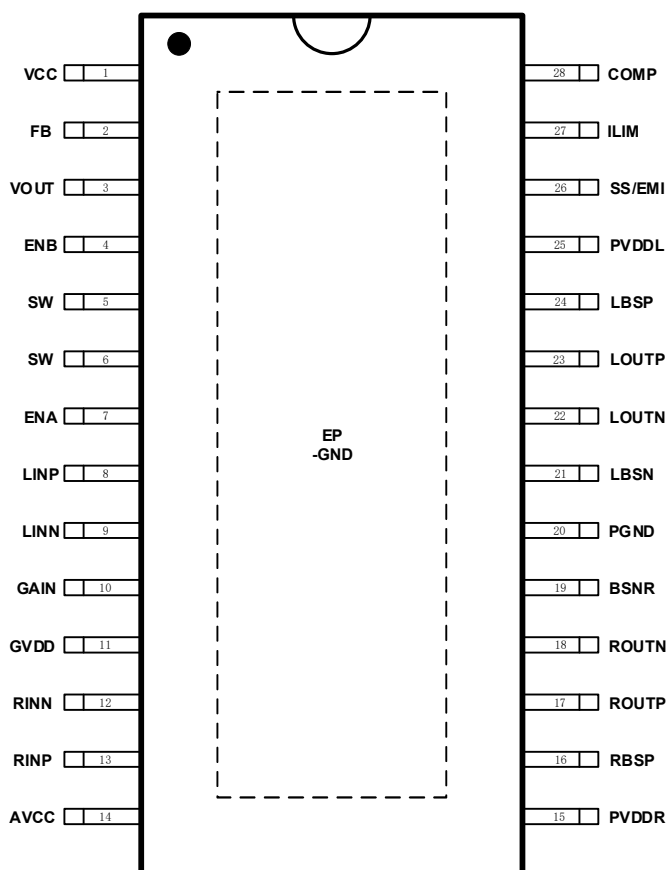
此外, HT81696内部集成免滤波器调制技术, 能够直接驱动扬声器, 内置的关断功能使待机电流最小化, 还集成了输出端过流保护、片内过温保护、输入电源欠压异常保护、升压电压过压保护等功能。

TYPICAL APPLICATION


ORDERING INFORMATION

Part Number	Package Type	Marking	Gain (dB, GAIN = L)	Shipping Package / MOQ
HT81696MTER	ETSSOP28	HT81696 YYYMAAB ¹	26dB	Tape and Reel 3000PCS
HT81696LMTER	ETSSOP28	HT81696 YYYMAAB	17.6dB	Tape and Reel 3000PCS

Part Number

Production Tracking Code

¹ YYYMAAB is production tracking code

■ TERMINAL CONFIGURATION


Top View

■ TERMINAL FUNCTION

Terminal No.	Name	I/O ¹	Description
EP	GND	G	Ground. Also provides thermal connection from the device to the board. A matching ground pad should be provided on the PCB and the device connected to it via solder. 地, 同时提供器件向板级散热的路径。PCB 板上需要留有足够的铺地露铜与之良好焊接。
1	VCC	O	Output of the internal regulator for boost converter. A ceramic capacitor of 1uF is required between this pin and ground. 升压电路内部电压输出, 接 1uF 到底。
2	FB	I	Voltage feedback. 电压反馈脚
3	VOUT	P	Power supply for boost converter. 升压供电端
4	ENB	I	Enable logic input for boost converter. Logic high level enables the device. Logic low level disables the device and turns it into bypass mode. 升压使能脚, 高电平时升压开启, 低电平时升压关闭
5,6	SW	P	The switching node pin of the converter. 升压开关点

¹ I: Input; O: Output; G: Ground; P: Power

7	ENA	I	Enable logic input and operation mode selection for amplifier
8	LINP	I	Positive input (differential+) for audio amplifier of left channel. 音频左声道输入正端。
9	LINN	I	Negative input (differential-) for audio amplifier of left channel. 音频左声道输入负端。
10	GAIN	I	Gain select pin. Gain is 26dB when logic low, and 32dB when logic high or floating 增益选择。拉低时，增益 26dB；拉高或悬空时，增益 32dB
11	GVDD	O	Voltage regulator of amplifier, connect 1uF to GND. 功放内部电压，接 1uF 到地
12	RINN	I	Negative input (differential-) for audio amplifier of right channel. 音频右声道输入负端。
13	RINP	I	Positive input (differential+) for audio amplifier of right channel. 音频右声道输入正端
14	AVCC	P	Analog power supply for amplifier 功放模拟供电
15	PVDDR	O	Power supply terminal for right channel. 右声道功率电源端。
16	RBSP	BST	Connection point for the ROU TP bootstrap capacitor, which is used to create a power supply for the high-side gate drive for ROU TP. ROU TP 自举电容端
17	ROU TP	O	Positive output terminal (BTL+) for right channel. 右声道正端输出
18	ROU TN	O	Negative output terminal (BTL-) for right channel. 右声道负端输出。
19	RBSN	BST	Connection point for the ROU TN bootstrap capacitor, which is used to create a power supply for the high-side gate drive for ROU TN. ROU TN 自举电容端
20	PGND	P	Power ground for amplifier 功放功率地
21	LBSN	BST	Connection point for the LOU TN bootstrap capacitor, which is used to create a power supply for the high-side gate drive for LOU TN. LOU TN 自举电容端
22	LOU TN	O	Negative output terminal (BTL-) for left channel. 左声道负端输出。
23	LOU TP	O	Positive output terminal (BTL+) for left channel. 左声道正端输出。
24	LBSP	BST	Connection point for the LOU TP bootstrap capacitor, which is used to create a power supply for the high-side gate drive for LOU TP. LOU TP 自举电容端
25	PVDDL	P	Power supply terminal for left channel. 左声道功率电源端。
26	SS	O	Soft-start programming pin. An external capacitor connected to ground sets the ramp rate of the internal error amplifier's reference voltage during soft-start. 升压软启动设置脚，接电容到地。 Also used as mode selection for different tr/ tf, an external resistor connected to ground selects a flatter tr/ tf. 同时作为 tr/ tf 设置脚，当同时外接 1 个 330k 电阻到地时，选择较缓的 tr/ tf。
27	ILIM	I	Adjustable switch peak current limit. An external resistor should be connected between this pin and GND. 最大限流值设置端，外部接电阻到地。
28	COMP	O	Output of the internal error amplifier, the loop compensation network should be connected between this pin and the AGND pin. 内部补偿脚

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