

## 2\*75W I<sup>2</sup>S Input Stereo Class D Amplifier

2×75W I<sup>2</sup>S Input, Inductor Free, Stereo Class D Amplifier

### ■ FEATURES

- Power supply: 4.5V – 26.4V
- Audio Performance
  - Output Power (BTL)  
2×75W (PVDD=24V, RL=4Ω, THD+N=10%)
  - Output Power (PBTl)  
140W (PVDD=24V, RL=2Ω, THD+N=10%)
  - THD+N=0.03% (PVDD=24V, RL=4Ω, Po=1W)
  - Noise: 75uV (Gain = 25.2dBV, A weighted)
- Audio I/O Configuration
  - Single Stereo I<sup>2</sup>S Input
  - BTL or PBTl output
  - 32, 44.1, 48, 88.2, 96kHz Sample Rates
- General Operational Features
  - Selectable Hardware or I<sup>2</sup>C Control mode
  - Integrated Digital Output Clipper and AGC
  - Integrated Thermal Foldback Function
  - Programmable I<sup>2</sup>C Address (110110x[R/W])
  - Adjustable Switching Frequency for Class D
- Robustness Features
  - Clock Error, DC, and Short-Circuit Protection
  - Overtemperature and Programmable
  - Overcurrent Protection
- Packages: Pb-free Packages, ETSSOP32 (EPAD up)
- 电源供电
  - PVDD: 4.5V – 26.4V;
- 音频性能
  - 输出功率(BTL)  
2×75W (PVDD=24V, RL=4Ω, THD+N=10%)
  - 输出功率(PBTl)  
140W (PVDD=24V, RL=2Ω, THD+N=10%)
  - THD+N=0.03% (PVDD=24V, RL=4Ω, Po=1W)
  - 噪声: 75uV (Gain = 25.2dBV, A加权)
- 音频I/O:
  - I<sup>2</sup>S输入
  - BTL或PBTl输出
  - 32, 44.1, 48, 88.2, 96kHz采样频率
- 其他功能
  - 硬件模式或I<sup>2</sup>C控制模式
  - 数字限幅器和AGC功能
  - 限温控制
  - I<sup>2</sup>C地址可选(110110x[R/W])
  - D类PWM频率可调
- 保护: 时钟错误、直流、短路保护等; 过温保护, 可设置; 过流保护
- ETSSOP32封装(顶部散热片)

### ■ APPLICATIONS

- Bluetooth/Wi-Fi Speakers
- Portable Speakers
- Smart speakers
- LCD TV/Monitor
- Sound Bars, Docking stations, PC Audio
- 蓝牙/ Wi-Fi音箱
- 智能音箱
- 声霸, 扩展坞, PC音频
- 便携式音箱
- LCD TV/监视器
-

### DESCRIPTION

The HT5606 is a stereo Class D audio amplifier with an I<sup>2</sup>S input serial port. It supports a variety of audio clock configurations via two speed modes.

The outputs of the HT5606 can be configured to drive two speakers in stereo BTL mode or mono PBTL mode.

The HT5606 also includes hardware and I<sup>2</sup>C control modes, integrated digital clipper, AGC, several gain options, and a wide power supply operating range to enable use in a multitude of applications.

An optimal mix of thermal performance and device cost is provided in the 110-mΩ RDS(ON) of the output MOSFETs. Additionally, a thermally enhanced ETSSOP32 (EPAD up) provides excellent operation in the elevated ambient temperatures found in modern consumer electronic devices.

HT5606是一颗I<sup>2</sup>S输入的立体声D类音频功放，支持多种采样频率，包含两种速率模式。

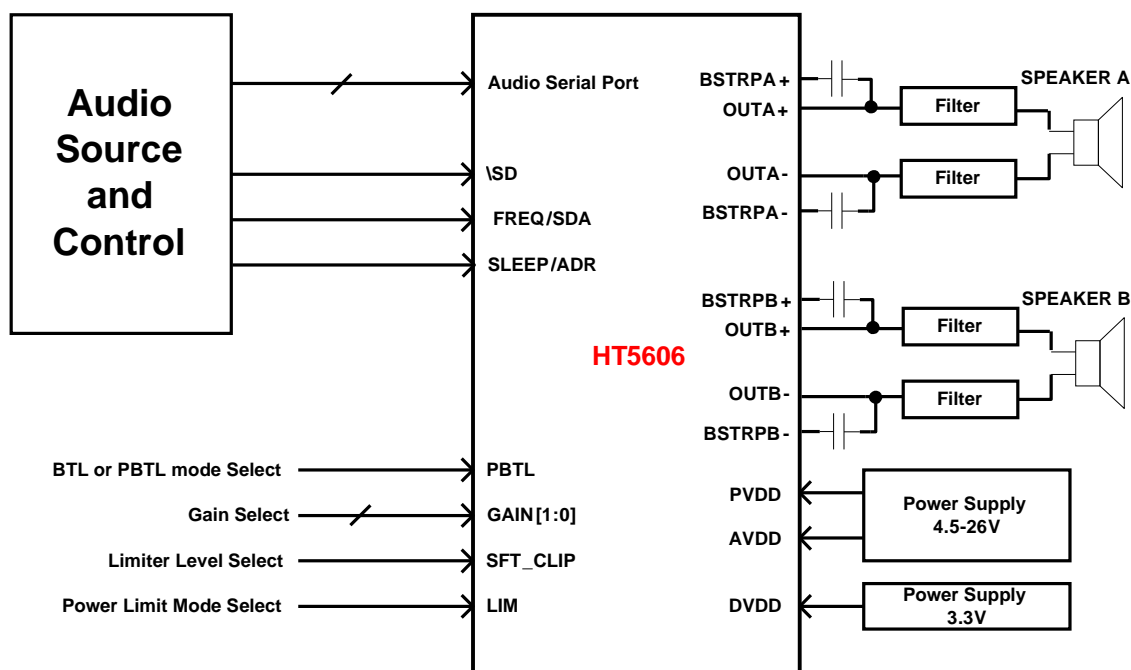
HT5606除了驱动BTL立体声双喇叭外，还能驱动PBTL单喇叭。

HT5606包含了硬件工作模式和I<sup>2</sup>C控制模式，具有数字限幅器、AGC、多种增益选择，支持不同应用下较宽的工作电压范围。

功放输出MOS的R<sub>DS(ON)</sub>约为110mΩ，其在成本和散热二者间达到了最佳平衡。

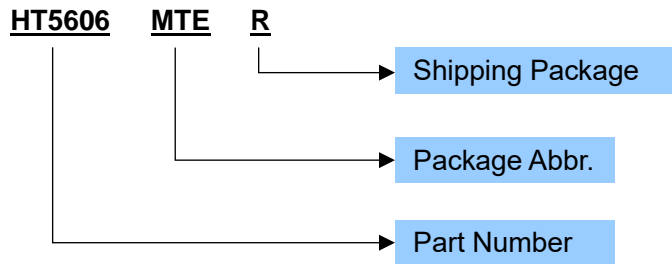
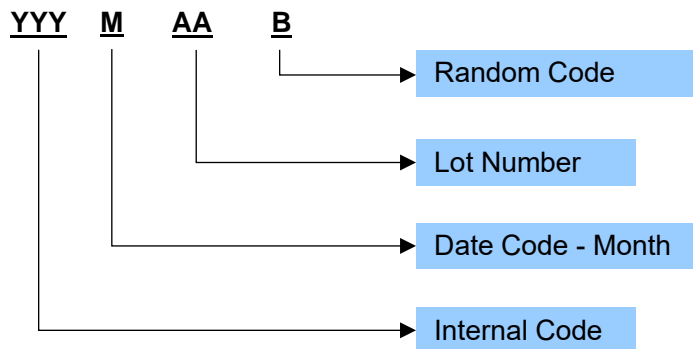
该产品提供ETSSOP32封装（顶部散热片），其具有不错的散热表现，在现代消费电子复杂的环境下提供出色的性能。

### TYPICAL APPLICATION

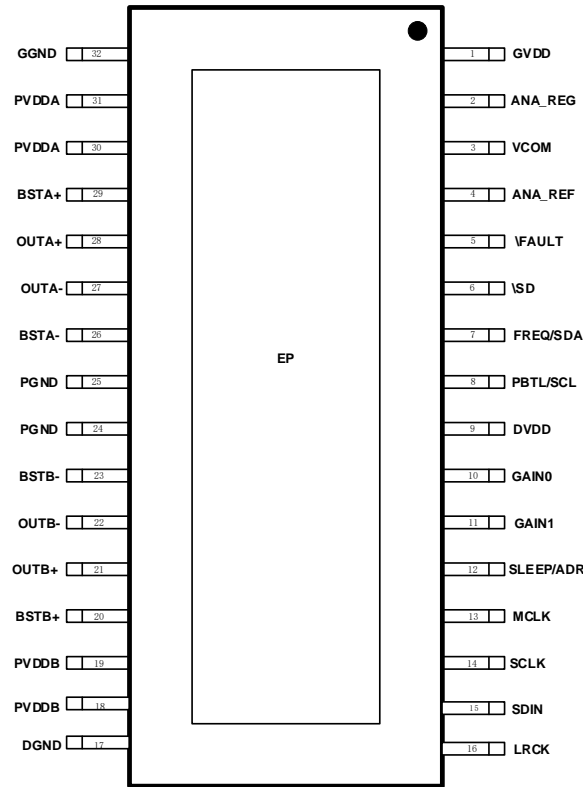


**ORDERING INFORMATION**

Part Number	Package Type	Package Abbr.	Eco Plan	MSL Level	Marking	Shipping Package / MOQ
HT5606MTER	ETSSOP32 (EPAD up)	MTE	RoHS	MSL3	HT5606 YYYMAAB <sup>1</sup>	Tape and Reel (R) / 2000pcs

**Part Number**

**Production Tracking Code**

<sup>1</sup> YYYMAAB is production tracking code

## ■ TERMINAL CONFIGURATION



Top View

## ■ TERMINAL FUNCTION

Terminal No.	Name	I/O <sup>1</sup>	Description
32	GGND	G	Ground for gate drive circuitry (this terminal should be connected to the system ground). 栅极驱动电路地
31,30	PVDDA	P	Power Supply for internal power circuitry of Channel A. A声道功率电源
29	BSTA+	BST	Connection point for the OUTA+ bootstrap capacitor, which is used to create a power supply for the high-side gate drive for OUTA. OUTA+自举电容位
28	OUTA+	O	Positive pin for differential speaker amplifier output A. A声道输出正端
27	OUTA-	O	Negative pin for differential speaker amplifier output A. A声道输出负端
26	BSTA-	BST	Connection point for the OUTA- bootstrap capacitor, which is used to create a power supply for the high-side gate drive for OUTA-. OUTA-自举电容位
25,24	PGND	G	Ground for power device circuitry (NOTE: This terminal should be connected to the system ground). 功率地
23	BSB-	BST	Connection point for the OUTB- bootstrap capacitor, which is used to create a power supply for the high-side gate drive for OUTB-. OUTB-自举电容位
22	OUTB-	O	Negative pin for differential speaker amplifier output B. B声道输出负端
21	OUTB+	O	Positive pin for differential speaker amplifier output B. B声道输出正端
20	BSTB+	BST	Connection point for the OUTB+ bootstrap capacitor, which is used to create a power supply for the high-side gate drive for OUTB+. OUTB+自举电容位
19,18	PVDDB	P	Power Supply for internal power circuitry of Channel B. B声道功率电源
17	DGND	G	Ground for digital circuitry (NOTE: This pin should be connected to the system ground). 数字地
16	LRCK	I	Word select clock for the digital signal that is active on the serial port's input data line. 帧时钟, 字段(声道)选择
15	SDIN	I	Data line to the serial data port. 串行数据
14	SCLK	I	Bit clock for the digital signal that is active on the serial data port's input data line. 串行

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

			时钟
13	MCLK	I	Master Clock used for internal clock tree, sub-circuit/state machine, and Serial Audio Port clocking. 主时钟
12	SLLEP/ADR	I	In Hardware Control Mode, places the speaker amplifier in sleep mode. In I <sup>2</sup> C Control Mode, is used to determine the I <sup>2</sup> C Address of the device I <sup>2</sup> C控制模式时为I <sup>2</sup> C器件地址选择pin; 硬件模式时, 为SLEEP模式设置引脚
11	GAIN1	I	Adjusts the MSB of the multi-bit gain of the speaker amplifier. 增益设置脚高位
10	GAIN0	I	Adjusts the LSB of the multi-bit gain of the speaker amplifier. 增益设置脚低位
9	DVDD	P	Power supply for the internal digital circuitry. 数字电源端
8	PBTL/SCL	I	Dual function pin that functions as an I <sup>2</sup> C clock input terminal in I <sup>2</sup> C Control Mode or configures the device to operate in pre-filter Parallel Bridge Tied Load (PBTL) mode when in Hardware Control Mode. I <sup>2</sup> C控制模式时为I <sup>2</sup> C时钟pin; 硬件模式时, 为PBTL模式设置引脚
7	FREQ/SDA	I	Dual function pin that functions as an I <sup>2</sup> C data input pin in I <sup>2</sup> C Control Mode or as a Frequency Select terminal when in Hardware Control Mode. I <sup>2</sup> C控制模式时为I <sup>2</sup> C数据pin; 硬件模式时, 为频率设置引脚
6	\SD	I	Places the speaker amplifier in shutdown mode while pulled low level. 接地时功放关闭
5	\FAULT	OD	Speaker amplifier fault terminal, which is pulled LOW when an internal fault occurs, open-drain output. 错误状态位, 芯片发生某些错误时, 该引脚拉低
4	ANA_REF	P	Connection point for internal reference used by ANA_REG and VCOM filter capacitors. <b>And connect to system GND net.</b> ANA_REG 和 VCOM的滤波电容的参考点, <b>接地</b>
3	VCOM	P	Bias voltage for internal PWM conversion block. 内部PWM转换模块的偏置电压
2	ANA_REG	P	Voltage regulator derived from AVDD supply (NOTE: This terminal is provided as a connection point for filtering capacitors for this supply and must not be used to power any external circuitry). 内部整流输出, 接1uF电容到地
1	GVDD	O	Voltage regulator derived from PVDD supply (NOTE: This pin is provided as a connection point for filtering capacitors for this supply and must not be used to power any external circuitry). 内部整流输出, 接1uF电容到地
/	<b>EP</b>	-	Thermal pad up, must be good connected to heat-sink for power dissipation. 顶部散热片, 需连接至外部散热器

**IMPORTANT NOTICE****注意**

Heroic Electronic Technology (Jiaxing) Co., Ltd (HT) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any products or services. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

禾润电子科技（嘉兴）股份有限公司（以下简称HT）保留对产品、服务、文档的任何修改、更正、提高、改善和其他改变，或停止提供任何产品和服务的权利。客户在下单和生产前应确保所获得的信息是最新、最完整的。

HT assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using HT components.

HT对相关应用的说明和协助以及客户产品的板级设计不承担任何责任。

HT products are not authorized for use in safety-critical applications (such as life support devices or systems) where a failure of the HT product would reasonably be expected to affect the safety or effectiveness of that devices or systems.

HT的产品并未授权用于诸如生命维持设备等安全性极高的应用中。

The information included herein is believed to be accurate and reliable. However, HT assumes no responsibility for its use; nor for any infringement of patents or other rights of third parties which may result from its use.

本文中的相关信息是精确和可靠的，但HT并不对其负责，也不对任何可能的专利和第三方权利的侵害负责。

Following are URLs and contacts where you can obtain information or supports on any HT products and application solutions:

下面是可以联系到我公司的相关链接和联系方式：

**禾润电子科技（嘉兴）股份有限公司**  
**Heroic Electronic Technology (Jiaxing) Co., Ltd.**

地址： 浙江省嘉兴市南湖区亚太路906号科创CBD园区21号楼11层

Add: 11th floor, Building 21, No. 906, Yatai Road, Jiaxing, Zhejiang Province

Sales: 0573-82586608, sales@heroic.com.cn

Support: 0573-82586151, support@heroic.com.cn

Fax: 0573-82585078

Website: www.heroic.com.cn; wap.heroic.com.cn

Wechat MP: HEROIC\_JX

请及时关注禾润官方微信公众号，随时获取最新产品信息和技术资料！

