

# 6W高保真超低EMI防削顶单声道D类音频功率放大器

## 6W Ultra Low-EMI Anti-Clipping Mono Class D Audio Power Amplifier

### ■ FEATURES

- Patented technology (EDMA) to reduce the internal  $R_{dson}$  and heat loss, increase the output power  
 $P_o=3.5\text{ W (V}_{DD}=5.0\text{V, }R_L=4\Omega, \text{THD+N}=10\%)$   
 $P_o=3.0\text{ W (V}_{DD}=3.7\text{V, }R_L=2\Omega, \text{THD+N}=10\%)$   
 $P_o=6.0\text{ W (V}_{DD}=5.0\text{V, }R_L=2\Omega+33\mu\text{H, THD+N}=10\%)$
- Excellent EMI Suppression Performance
  - Using Patented technology (AROC, Active edge Ringing and Overshoot Control circuitry)
  - The emission level is highly lower than FCC Part15 Class B standard;
  - Without interference to FM radio, CMMB, GSM, CDMA, Bluetooth and any other sensitive modules with different bands;
  - The difficulty of system design is reduced
- THD+N=0.1% ( $R_L=4\Omega, P_o=1\text{W, }f=1\text{kHz}$ )
- Low noise, High SNR
- Anti-Clipping Function (ACF)
- Excellent Click-Pop Noise reduction function
- Low Shutdown Current,  $0.1\mu\text{A}$
- Filter-less Modulation, Eliminating Output Filter
- Over Current Protection, Thermal Protection, Low voltage malfunction prevention function included
- Pb-Free Packages, SOP8, ESOP8

- 降低内阻和热耗的EDMA专利技术，极大提升了输出功率和产品可靠性  
 $P_o=3.5\text{ W (V}_{DD}=5.0\text{V, }R_L=4\Omega, \text{THD+N}=10\%)$   
 $P_o=3.0\text{ W (V}_{DD}=3.7\text{V, }R_L=2\Omega, \text{THD+N}=10\%)$   
 $P_o=6.0\text{ W (V}_{DD}=5.0\text{V, }R_L=2\Omega+33\mu\text{H, THD+N}=10\%)$
- 优异的全带宽EMI抑制性能
  - 独创的主动边沿控制专利 (AROC, Active edge Ringing and Overshoot Control circuitry)
  - 辐射水平远在FCC Part15 Class B 标准之下；
  - 对系统中不同频段无线通信敏感模块无干扰，如FM、CMMB、GSM、CDMA和Bluetooth等；
  - 减小了辐射和传导干扰，降低了系统设计难度
- 高保真，THD+N=0.1% ( $R_L=4\Omega, P_o=1\text{W, }f=1\text{kHz}$ )
- 全低噪应用，高信噪比
- 防削顶失真功能(Anti-Clipping Function, ACF)
- 卓越的“咔嗒-噼噗”(Click-Pop)噪声抑制性能
- 低关断电流： $0.1\mu\text{A}$
- 免滤波器数字调制，直接驱动扬声器
- 过流、过热、欠压异常保护功能
- 无铅无卤绿色封装，SOP8, ESOP8

### ■ APPLICATIONS

- Bluetooth/Wi-Fi Speakers
- Smart speakers
- Sound Bars, Docking stations, PC Audio
- Portable Speakers
- Smart Home

- 蓝牙音箱/Wi-Fi音箱
- 智能音箱
- ipad/iphone/ipod docking
- 便携式/USB音箱
- 智能家居
- 声霸

## ■ DESCRIPTION

HT6873 is a low-EMI, Anti-Clipping, filter-less, monaural Class D audio power amplifier IC with maximum output power of 3.5W. It has a high efficiency in a variety of audio terminal applications with Class AB amplifier performance.

HT6873 has excellent EMI radiation suppression characteristics. The radiation level is well below FCC Part15 Class B standards without any additive design. It keeps from interference with other EMI sensitive circuits, simplifies system design and lowers system cost.

HT6873 features Anti-Clipping Function (ACF) which detects and suppresses output signal clippings due to the over level inputs of music or voice signals. The ACF function also can adapt the output clippings caused by power supply voltage down in battery applications. It improves acoustical quality considerably, gives great listening enjoyment, and prevents speaker from overload damaging. According to different audio sources, two modes, ACF-1 and ACF-2, could be selected to achieve a best audio performance.

HT6873 has a filter-less modulation circuit which directly drives speakers while realizes low distortion and low noise characteristics. Thanks to filter-less, circuit design with fewer external parts can be made in portable applications.

HT6873 has shutdown mode, over-current protection, over-temperature protection and low supply voltage malfunction preventing function.

HT6873是一款高保真超低EMI的，具有防削顶失真功能的单声道免滤波D类音频功率放大器。在5V电源，10% THD+N，4Ω负载条件下，输出3.5W高功率，在各类音频终端应用中维持高效率并提供AB类放大器高保真、低噪声的性能。

AROC 辐射和传导干扰抑制电路使HT6873具有优异的全带宽低辐射性能，在不加辅助滤波设计、输出喇叭线长20cm时的辐射水平远在FCC Part15 Class B 标准之下。

HT6873的防削顶失真功能可检测并抑制由于音乐、语音信号幅度过大或电池电压下降所引起的输出削顶失真(破音)，显著提高音质，创造舒适的听音享受，并保护扬声器免受过载损坏。针对不同需求，防削顶具有ACF-1和ACF-2两种模式，分别对应约3%和10%最大THD+N，同时芯片具有ACF-Off 模式。

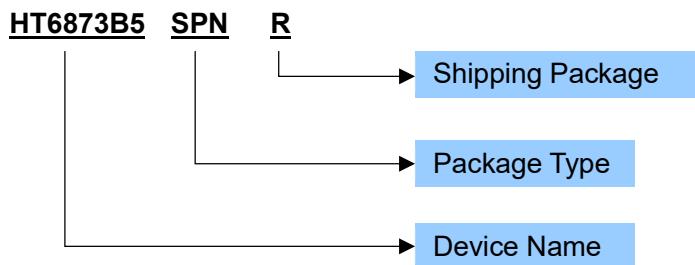
HT6873输出无需滤波网络，极少的外部元器件节省了系统空间和成本，是便携式应用的理想选择。

此外，HT6873内置的关断功能使待机电流最小化，还集成了过流保护、过温保护和欠压异常保护等功能

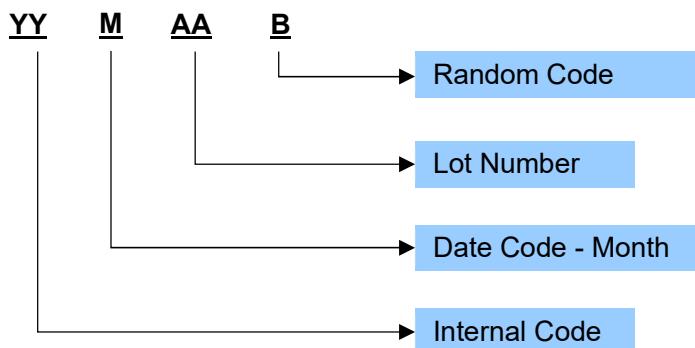
## ■ ORDERING INFORMATION

Ordering Number	Package Type	Marking	Operating Temperature Range	Shipping Package / MOQ
HT6873B5SPNR	SOP8	HT6873	-40°C~85°C	Tape and Reel 2500PCS
HT6873B5SPER	ESOP8	YYMAAB	-40°C~85°C	Tape and Reel 2500PCS

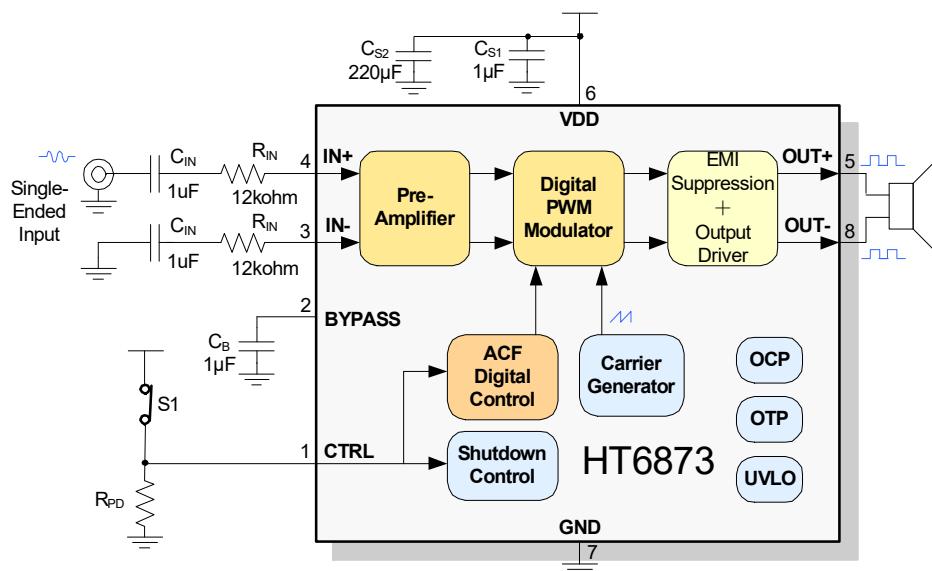
### Part Number



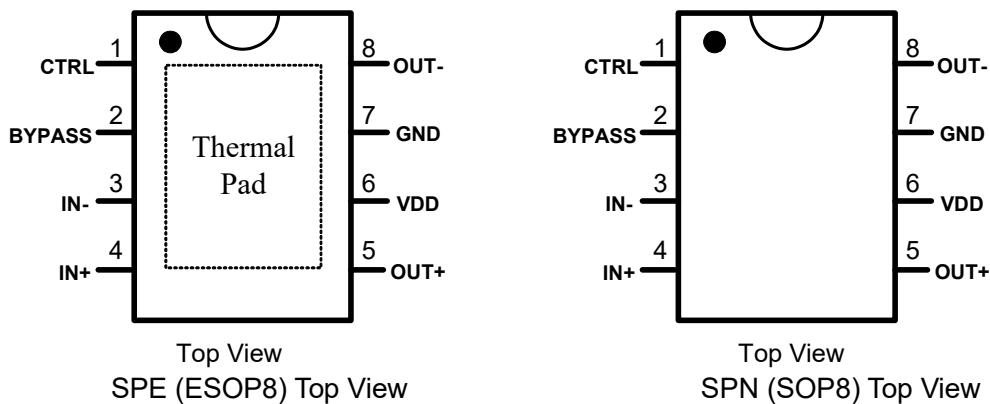
### Production Tracking Code



## ■ TYPICAL APPLICATION



## ■ TERMINAL CONFIGURATION



## ■ TERMINAL FUNCTION

Terminal No.	Name	I/O <sup>1</sup>	Description
1	CTRL	I	Shutdown and ACF control terminal. ACF模式和关断模式控制端
2	BYPASS	O	Analog reference terminal. 模拟参考电压
3	IN-	I	Negative input terminal (differential -). 反相输入端 (差分-)
4	IN+	I	Positive input terminal (differential +). 同相输入端 (差分+)
5	OUT+	O	Positive output terminal (differential +). 同相输出端 (BTL+)
6	VDD	P	Power supply. 电源
7	GND	G	GND. 地
8	OUT-	O	Negative output terminal (differential -). 反相输出端 (BTL-)
/	Thermal Pad	/	Only available for package of ESOP8. 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. 仅ESOP8封装可用。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。

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