

## 4.7W防削顶单声道音频功率放大器

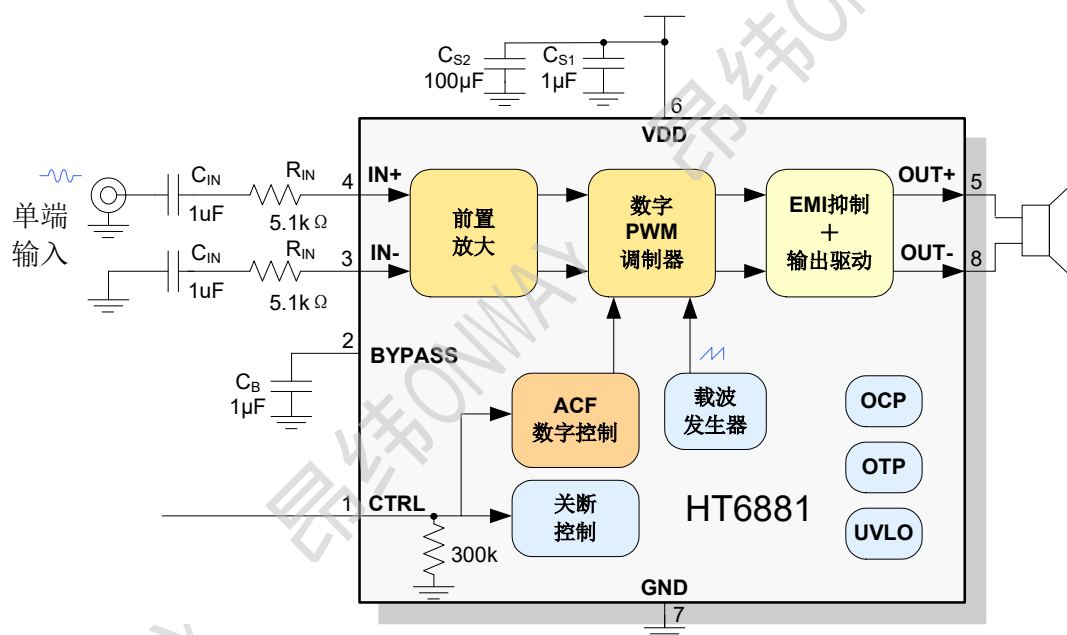
### ■ 特点

- 防削顶失真功能(Anti-Clipping Function, ACF)
- AB类/D类切换
- 优异的全带宽EMI抑制性能
- 免滤波器数字调制, 直接驱动扬声器
- 输出功率  
 1.4W ( $V_{DD}=3.6V, R_L=4\Omega, THD+N=10\%, \text{Class D}$ )  
 2.8W ( $V_{DD}=5.0V, R_L=4\Omega, THD+N=10\%, \text{Class D}$ )  
 4.7W ( $V_{DD}=6.5V, R_L=4\Omega, THD+N=10\%, \text{Class D}$ )  
 2.5W ( $V_{DD}=5.0V, R_L=4\Omega, THD+N=10\%, \text{Class AB}$ )
- 高信噪比SNR: 95dB ( $V_{DD}=6.5V, A_v=24\text{dB}, THD+N=1\%$ )
- 低静态电流 (D类)  
 2.65mA ( $V_{DD}=3.6V$ )  
 3.25mA ( $V_{DD}=5.0V$ )  
 4.00mA ( $V_{DD}=6.5V$ )
- 低关断电流:  $<1\mu\text{A}$
- 过流保护及自动恢复功能
- 过热保护、欠压异常保护功能
- 无铅无卤封装, DFN8L, SOP8和SOP8-PP

### ■ 应用

- 便携式音箱
- iPhone/iPod/MP3 docking
- PMP/MP4/MP5播放器
- 便携式游戏机
- 智能音响
- 平板电脑
- 导航仪GPS
- 手机

### ■ 典型应用图



### ■ 概述

HT6881是一款低EMI的, 防削顶失真的, 单声道免滤波D类音频功率放大器。在6.5V电源, 10% THD+N, 4Ω负载条件下, 输出4.7W功率, 在各类音频终端应用中维持高效率并提供AB类放大器的性能。

HT6881的最大特点是防削顶失真 (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电池应用中由电源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。同时芯片具有ACF-Off模式。

HT6881具有独有的电磁辐射 (EMI) 抑制技术和优异的全带宽低辐射性能, 辐射水平在不加任何辅助设计时仍远在FCC Part15 Class B 标准之下, 不仅避免了干扰其他敏感电路还降低了系统设计难度。其还能切换至AB类模式, 以彻底消除电磁辐射。

HT6881内部集成免滤波器数字调制技术, 能够直接驱动扬声器, 并最大程度减小脉冲输出信号的失真和噪音。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, HT6881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、片内过温保护和电源欠压异常保护等功能。

## 4.7W Anti-Clipping Mono Audio Power Amplifier

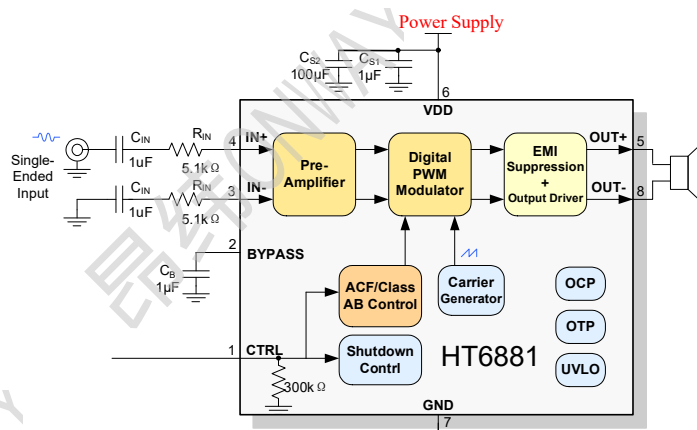
### FEATURE

- Anti-Clipping Function, ACF
- Both Class D and Class AB are available
- Excellent EMI Suppression Performance
- Filter-less Modulation, Eliminating Output Filter
- Output Power
  - 1.4W ( $V_{DD}=3.6V$ ,  $R_L=4\Omega$ , THD+N=10%, Class D)
  - 2.8W ( $V_{DD}=5.0V$ ,  $R_L=4\Omega$ , THD+N=10%, Class D)
  - 4.7W ( $V_{DD}=6.5V$ ,  $R_L=4\Omega$ , THD+N=10%, Class D)
  - 2.5W ( $V_{DD}=5.0V$ ,  $R_L=4\Omega$ , THD+N=10%, Class AB)
- High SNR: 95dB ( $V_{DD} = 6.5V$ ,  $A_v = 24dB$ , THD+N = 1%)
- Low quiescent current (Class D)
  - 2.65mA ( $V_{DD}=3.6V$ )
  - 3.25mA ( $V_{DD}=5.0V$ )
  - 4.00mA ( $V_{DD}=6.5V$ )
- Low shutdown current:  $< 1\mu A$
- Over Current Protection and Thermal Protection with Auto Recovery
- Low voltage malfunction prevention function included
- Pb-Free Packages, DFN8L, SOP8L and SOP8L-PP

### APPLICATIONS

- Portable Speakers
- Smart Speakers
- iPhone/iPod/MP3 docking
- GPS
- Tablet PC/Note Book
- PMP/MP4/MP5
- Portable Gamers
- Smart phones

### TYPICAL APPLICATION



### GENERAL DESCRIPTION

HT6881 is a Low-EMI, Anti-Clipping, filter-less mono Class D audio power amplifier IC with maximum output power of 4.7W (6.5V power supply, 4Ω load, 10% THD+N). It has a high efficiency with class AB amplifier performance.

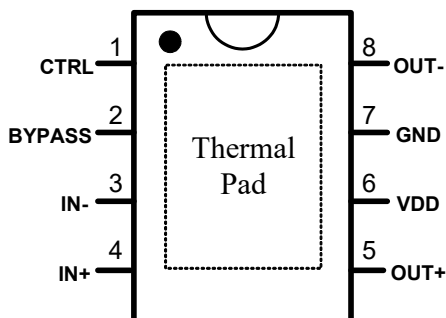
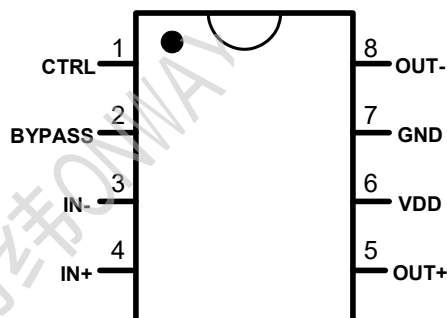
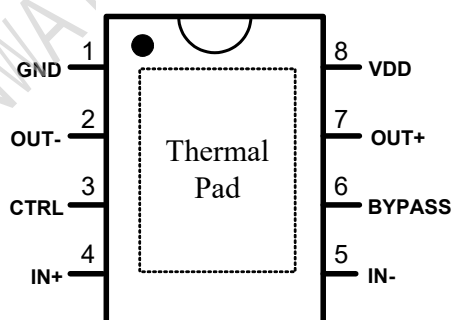
HT6881 features Anti-Clipping Function (ACF) which detects and suppresses output signal clippings due to the over level inputs of music or voice signals. The ACF function also can adapt the output clippings caused by power supply voltage down in battery applications. It improves acoustical quality considerably, gives great listening enjoyment, and prevents speaker from overload damaging.

HT6881 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.

Class AB amplifier mode is also available for HT6881. Once the EMI Interference from class D becomes an annoying problem, HT6881 can be changed into Class AB mode.

HT6881 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.

HT6881 has the independent Shutdown function which can minimize the power consumption at standby function. As for protection function, over current protection function for speaker output terminals, over temperature protection function, and low supply voltage malfunction preventing function are also prepared.

**■ TERMINAL CONFIGURATION**

 Top View  
 HT6881D2SPE (SOP8L-PP)

 Top View  
 HT6881D2SPN (SOP8L)

 Top View  
 HT6881D2SDE (DFN8L)

**■ TERMINAL FUNCTION**

Terminal No.		Name	I/O*1	ESD composition	Function
DFN8L	SOP8L(-PP)				
3	1	CTRL	I	PN	Mode control terminal
6	2	BYPASS	A	PN	Analog reference terminal
5	3	IN-	A	PN	Negative input terminal (differential -)
4	4	IN+	A	PN	Positive input terminal (differential +)
7	5	OUT+	O	-	Positive output terminal (differential +)
8	6	VDD	Power	-	Power supply
1	7	GND	GND	-	GND
2	8	OUT-	O	-	Negative output terminal (differential -)
Thermal Pad		/	/	/	Connecting to GND plane

\*1 I: Input terminal O: Output terminal A: Analog terminal

**■ ORDERING INFORMATION**

Part Number	Package Type	Marking	Operating Temperature Range	Shipping Package/MOQ
HT6881D2SPET	SOP8L-PP	HT6881SP	-40℃~85℃	Tube/100PCS
HT6881D2SPER	SOP8L-PP	HT6881SP	-40℃~85℃	Tape and Reel/2500PCS
HT6881D2SPNT	SOP8L	HT6881LSP	-40℃~85℃	Tube/100PCS
HT6881D2SPNR	SOP8L	HT6881LSP	-40℃~85℃	Tape and Reel/2500PCS
HT6881D2SDER	DFN8L-PP	HT6881SD	-40℃~85℃	Tape and Reel/3000PCS