



## 带任意限幅的9.5W×2高保真D类音频功放

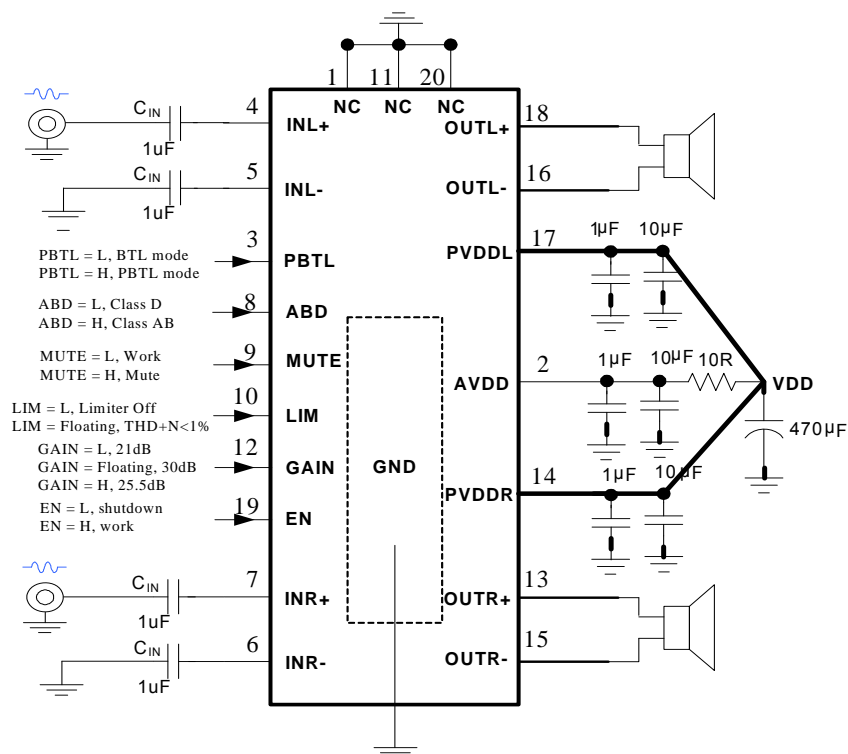
### ■ 特点

- 可任意配置的限幅功能  
自由选择音频限制幅度，使输出音频信号限制在固定失真水平内
- 内置自动限温控制功能
- 支持并联单声道模式 (PBTL)
- 支持AB类与D类切换：**待发布**
- THD+N: 0.03% ( $V_{DD} = 8.5V, R_L = 4\Omega, f_{IN} = 1kHz, P_o = 2 \times 1.0W, BTL$ )
- 输出功率( $f_{IN} = 1kHz, THD+N = 10\%$ )  
2×9.5W ( $V_{DD}=8.5V, R_L=4\Omega, BTL$ )  
18W ( $V_{DD}=8.5V, R_L=2\Omega, PBTL$ )
- VDD供电范围：2.5V至9V
- 多种增益选择：21dB, 25.5dB, 30dB
- 免滤波器数字调制，直接驱动扬声器
- 保护功能：过流/过热/欠压异常保护功能
- 无铅无卤封装，SOP20L-PP

### ■ 应用

- 蓝牙音箱/智能音响
- 便携式音箱
- 2.1声道小音箱
- 扩音器

### ■ 典型应用图



- iphone/ipod/ipod docking · 拉杆音箱
- 平板电脑, 笔记本电脑 · 便携式游戏机
- 小尺寸LCD电视/监视器 · MP4, 导航仪

### ■ 概述

HT876是一款立体声D类音频功率放大器，在  $V_{DD} = 8.5V$ 、 $THD+N=10\%$ 、1kHz信号条件下，能连续输出2×9.5W功率（4Ω负载、BTL模式），或18W功率（2Ω负载、PBTL模式）；另外，芯片后期还可支持AB类模式。

HT876具有可任意配置的限幅(Limiter)功能。限幅功能开启后，即使输入信号很大，音乐输出也能被限制在指定的功率和THD+N之内，满足不同音质体验和保护喇叭的需求。

HT876还具有自动限温控制(TFB)功能，在高功率输出、高环境温度、AB类模式低效率等情况下导致芯片片内温度较高时，芯片能自动降低系统增益，避免芯片进入过温关断保护模式，在保证音乐品质的前提下显著提升音乐峰值功率。

此外，HT876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、片内过温保护和电源欠压异常保护等功能。



## 2x9.5W Class D Audio Amplifier with Flexible Limiter

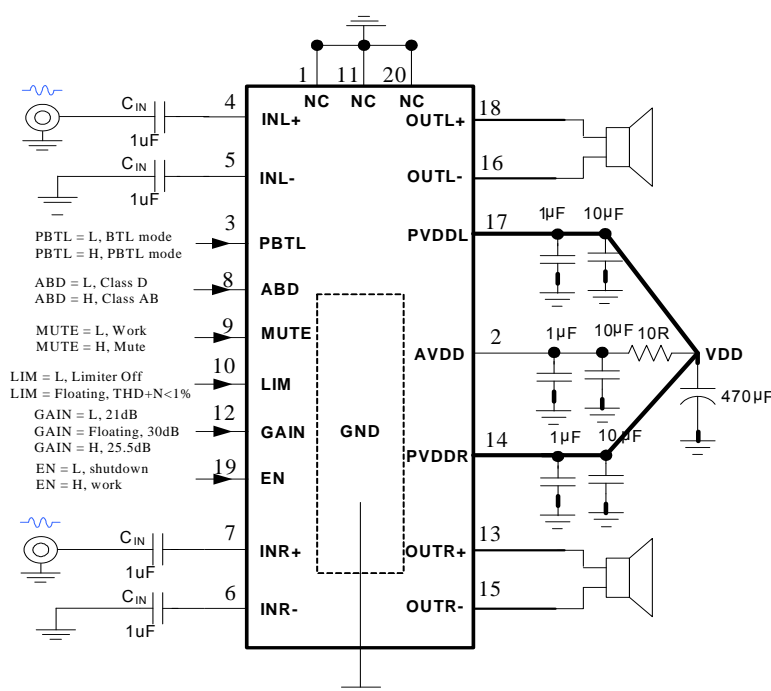
### FEATURES

- Flexible Limiter Function adjusted by external resistor so that the output music is limited under a preset THD+N and power
- Integrated Thermal Foldback (TFB) Function Significantly increase the peak audio power
- Paralleled Bridge Tied Load (PBTL) Mode
- Both Class D and Class AB is available (**To Be Announced**)
- THD+N: 0.03% ( $V_{DD} = 8.5V$ ,  $R_L = 4\Omega$ ,  $f_{IN} = 1kHz$ ,  $P_o = 2 \times 1.0W$ , BTL)
- Output Power ( $f_{IN} = 1kHz$ , THD+N = 10%)  
2x9.5W ( $V_{DD}=8.5V$ ,  $R_L=4\Omega$ , BTL)  
18W ( $V_{DD}=8.5V$ ,  $R_L=2\Omega$ , PBTL)
- Power Supply  $V_{DD}$ : 2.5V~9V
- Multiple Gain Available: 21dB, 25.5dB, 30dB
- Filter-less Modulation
- Thermal/Low voltage malfunction prevention function with auto recovery
- Pb-free Packages, TSSOP20L-PP

### APPLICATIONS

- Bluetooth/Smart Speakers
- Portable Speakers
- 2.1Channel Speakers
- Megaphone
- Portable Gamers
- MP4, GPS
- LCD TV/Monitor
- Tablet PC/Note Book

### TYPICAL APPLICATION



### DESCRIPTION

HT876 is a stereo Class D audio amplifier, which can deliver 2x9.5W (4Ω Load, BTL mode) or 18W (2Ω Load, PBTL mode) power at the condition of  $V_{DD} = 8.5V$ , THD+N = 10%, 1kHz sine wave. Class AB is also available in later version.

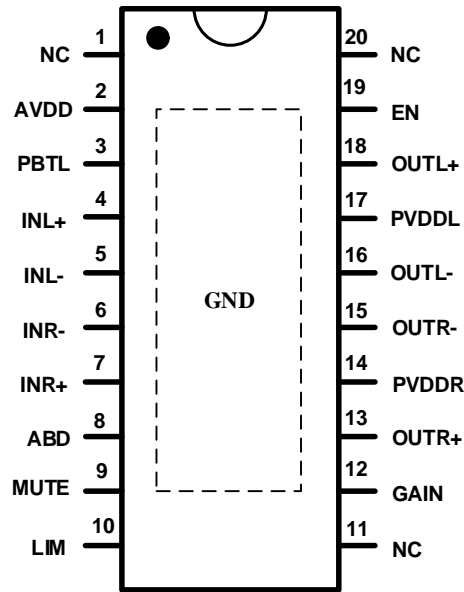
HT876 integrates adjustable Limiter Function, which can be set by connecting a resistor from LIM pin to ground or AVDD, so that the output music can be limited below the preset power and THD+N.

The HT876 Thermal Foldback (TFB) is designed to protect the HT876 from excessive die temperature in case of the device being operated beyond the recommended temperature or power limit (more easily happened in Class AB mode), or with a weaker thermal system than recommended. The TFB works by reducing the on-die power dissipation by reducing Gain if the temperature trig point is exceeded, so that the peak audio power is significantly increased.

HT876 has a filter-less modulation circuit which can directly drive speakers. HT876 can be shut down so that the power consumption can be minimized. As for protection function, over temperature protection function and low supply voltage malfunction preventing function are also prepared.



## ■ TERMINAL CONFIGURATION



HT876 Top View

## ■ TERMINAL FUNCTION\*1

Terminal No.	NAME	I/O	Description
1, 11, 20	NC	/	No connection inside the device, connect to GND for better thermal performance
2	AVDD	P	Analog power supply terminal
3	PBTL	I	Configure the device to operate in paralleled bridge tied load (PBTL) mode when it is pulled high
4	INL+	I	Positive input terminal (differential+) for left channel
5	INL-	I	Negative input terminal (differential-) for left channel
6	INR-	I	Negative input terminal (differential-) for right channel
7	INR+	I	Positive input terminal (differential+) for right channel
8	ABD	I	Class AB and Class D switch terminal; configure the device to operate in Class AB mode when it is pulled high, and Class D mode when it is pulled low
9	MUTE	I	Mute control terminal; configure the device to operate in mute mode when it is pulled high
10	LIM	I	Limiter function terminal; disable the function when it is pulled low
12	GAIN	I	Gain selection terminal
13	OUTR+	O	Positive output terminal (BTL+) for right channel
14	PVDDR	O	Power supply terminal for right channel
15	OUTR-	O	Negative output terminal (BTL-) for right channel
16	OUTL-	O	Negative output terminal (BTL-) for left channel
17	PVDDL	P	Power supply terminal for left channel
18	OUTL+	O	Positive output terminal (BTL+) for left channel
19	EN	I	Enable terminal; the device goes into shutdown mode when it is pulled low
PAD	GND	G	Power ground

\*1 I: input, O: output, P: power, G: ground



## ORDERING INFORMATION

H T 8 7 6 XX

Package Type

Part Number	Package Type	Marking	Operating Temperature Range	MOQ/Shipping Package
HT876MTE	TSSOP20L-PP	HT876 <sup>MTE</sup> UVWXYZ *2	-40°C ~ 85°C	Tape 46PCS/Tape

\*2: WXYZ/UVWXYZ is production track code.

## ELECTRICAL CHARACTERISTIC

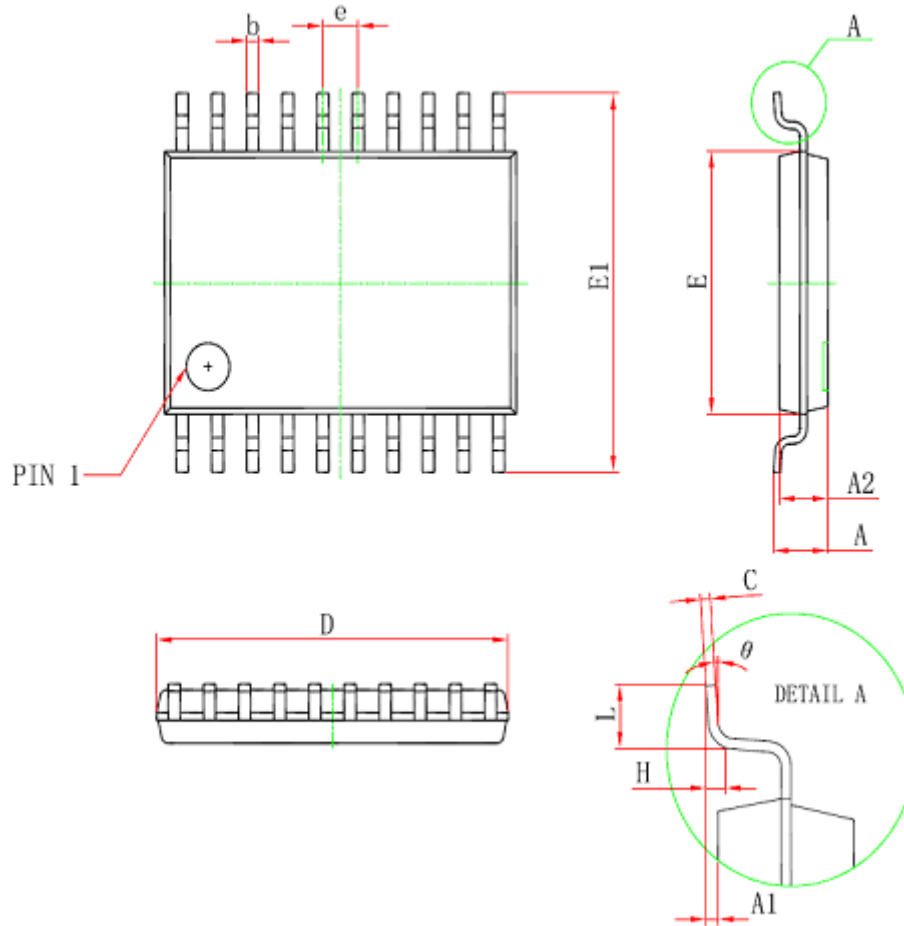
### Absolute Maximum Ratings<sup>\*3</sup>

PARAMETER	Symbol	MIN	MAX	UNIT
Supply voltage range (PVDDL, PVDDR, AVDD)	V <sub>DD</sub>	-0.3	9	V
Input voltage range	V <sub>IN</sub>	-0.3	V <sub>DD</sub> +0.3	V
Operating temperature range	T <sub>A</sub>	-40	85	°C
Operating junction temperature range	T <sub>J</sub>	-40	170	°C
Storage temperature range	T <sub>STG</sub>	-50	170	°C

\*3: Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.



■ Package Outline



Symbol	Size (mm)		Size (inch)	
	MIN	MAX	MIN	MAX
D	6.400	6.600	0.252	0.259
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.700	0.02	0.028
H	0.25(TYP)		0.01(TYP)	
theta	1°	7°	1°	7°