

内置BOOST升压和防破音功能的11W D/AB类音频功率放大器

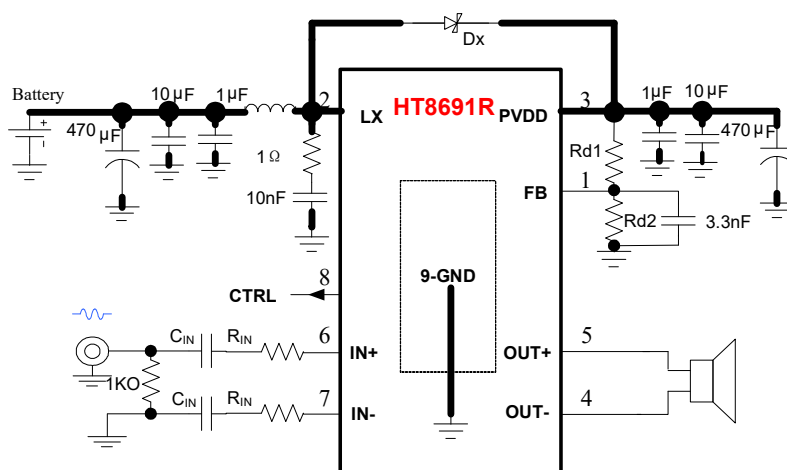
■ 特点

- 防削顶失真功能(防破音, Anti-Clipping Function, ACF)
- 免滤波器数字调制, 直接驱动扬声器
- 输出功率
 - 9.0W ($V_{BAT}=3.7V$, $PVDD = 7.5V$, $R_L=3\Omega$, $THD+N=10\%$)
 - 11.0W ($V_{BAT}=3.7V$, $PVDD = 7.5V$, $R_L=2\Omega$, $THD+N=10\%$)
 - 5.5W ($V_{BAT}=3.7V$, $PVDD = 6.5V$, $R_L=4\Omega$, $THD+N=10\%$)
- 电源
 - 升压输入 V_{BAT} : 2.5V至5.5V
 - 升压输出 $PVDD$: V_{BAT} 至7.5V
- BOOST输出电压可调
- AB/D类可切换
- 保护功能:过流/过热/欠压异常保护功能
- 无铅封装, SOP8L-PP

■ 应用

- | | |
|---|--|
| <ul style="list-style-type: none"> · 蓝牙音箱 · 2.1声道小音箱 · iphone/ipod/ipod docking · 平板电脑, 笔记本电脑 · 小尺寸LCD电视/监视器 | <ul style="list-style-type: none"> · 便携式音箱 · 扩音器 · MP4, 导航仪 · 智能手机 · 便携式游戏机 |
|---|--|

■ 典型应用图



■ 概述

HT8691R是一款内置BOOST升压模块的D类音频功率放大器。内置的BOOST升压模块可通过外置电阻调节升压值,即使是锂电池供电,在升压至7.5V, 2Ω负载条件下则能连续输出11W功率。其支持外部设置调节BOOST输出电压。

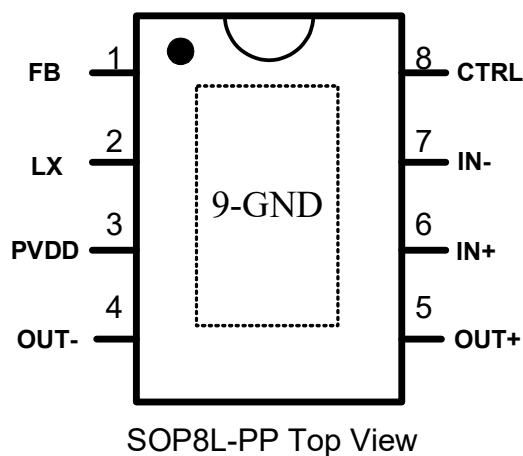
HT8691R的最大特点是防削顶失真 (ACF) 输出控制功能,可检测并抑制由于输入音乐、语音信号幅度过大所引起的输出信号削顶失真 (破音),也能自适应地防止在BOOST升压电压下降所造成的输出削顶,显著提高音质,创造非常舒适的听音享受,并保护扬声器免受过载损坏。同时芯片具有ACF-Off 模式。

HT8691R具有AB类和D类的自由切换功能,在受到D类功放EMI干扰困扰时,可随时切换至AB类音频功放模式。

HT8691R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, HT8691R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。

■ 引脚信息



■ 引脚定义¹

SOP Terminal No.	Name	I/O	ESD Protection	Function
1	FB	I	PN	升压反馈点
2	LX	I	-	升压整流管输入
3	PVDD	Power	PN	升压输出和功率电源
4	OUT-	O	-	输出负端(BTL-)
5	OUT+	O	-	输出正端(BTL+)
6	IN+	I	PN	输入正端 (differential +)
7	IN-	I	PN	输入负端 (differential -)
8	CTRL	I	PN	模式控制输入端
9	GND ²	GND	PN	电源地

■ 订货信息

产品型号	封装形式	顶面标记	工作温度范围	包装和最小起订量
HT8691RSPET	SOP8L-PP	HT8691R _{SP}	-40°C~85°C	料管 / 100颗
HT8691RSPER	SOP8L-PP	HT8691R _{SP}	-40°C~85°C	编带 / 2500颗

¹ I: 输入端 O: 输出端

² 请确保 GND 脚连接至电源地。

11W Anti-Clipping Mono Class D/AB Audio Amplifier with Boost Converter

■ FEATURE

- Anti-Clipping Function (ACF)
- Filter-less Modulation, Eliminating Output Filter
- Output Power
 - 9.0W ($V_{BAT}=3.7V$, $PVDD = 7.5V$, $R_L=3\Omega$, $THD+N=10\%$)
 - 11.0W ($V_{BAT}=3.7V$, $PVDD = 7.5V$, $R_L=2\Omega$, $THD+N=10\%$)
 - 5.5W ($V_{BAT}=3.7V$, $PVDD = 6.5V$, $R_L=4\Omega$, $THD+N=10\%$)
- Power Supply
 - Boost Input V_{BAT} : 2.5V to 5.5V
 - Boost Output $PVDD$: V_{BAT} to 7.5V
- Adjustable BOOST Output Voltage
- Class AB / Class D
- Over Current Protection, Thermal Protection, Low voltage malfunction prevention function included
- Pb-Free Packages , SOP8L-PP

■ APPLICATIONS

- | | |
|----------------------------|---------------------|
| • Bluetooth Speakers | • Portable Speakers |
| • 2.1 Channel Speakers | • Megaphone |
| • iphone/ipod/ipod docking | • MP4/GPS |
| • Tablet PC/Note Book | • Smart Phones |
| • LCD TV/Monitor | • Portable Gamers |

■ GENERAL DESCRIPTION

HT8691R integrates a boost converter with a filter-less stereo class D audio power amplifier to provide 11W continuous power into a 2Ω speaker when operating from a Li-battery voltage boosted to 7.5V. Meanwhile, the boost output voltage is adjustable.

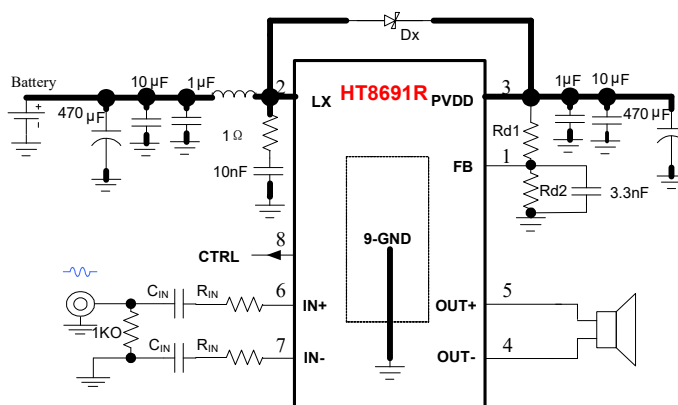
HT8691R features Anti-Clipping Function (ACF) which detects output signal clip due to the over input signal and suppresses the output signal clip automatically. Also, the ACF function can adapt the output clip caused by power supply voltage down with battery. It can significantly improve the sound quality, creating a very comfortable musical enjoyment, and to protect the speakers from overload damage. It also supplies ACF OFF mode.

Class AB amplifier mode is also available for HT8691R. Once the EMI Interference from class D and Boost Converter becomes an annoying problem, HT8691R can be changed into Class AB mode.

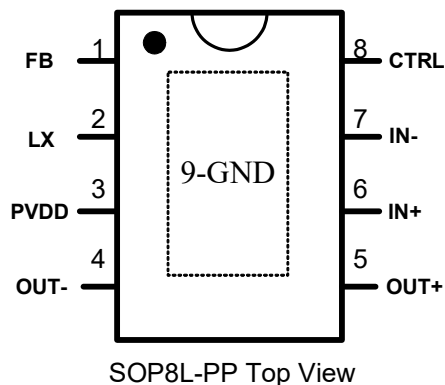
HT8691R has a filter-less modulation circuit which directly drives speakers while realizes low distortion and low noise characteristics. Thanks to filter-less, circuit design with fewer external parts can be made in portable applications.

HT8691R has the independent Shutdown function which can minimize the power consumption at standby and MUTE 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.

■ TYPICAL APPLICATION



■ TERMINAL CONFIGURATION



■ TERMINAL FUNCTION ¹

SOP Terminal No.	Name	I/O	ESD Protection	Function
1	FB	I	PN	Regulator Feedback Input
2	LX	I	-	Internal Switch Input
3	PVDD	Power	PN	Boost Converter Output Voltage and Power Supply
4	OUT-	O	-	Negative Output Terminal (BTL-)
5	OUT+	O	-	Positive Output (BTL+)
6	IN+	I	PN	Positive Input Terminal (differential +)
7	IN-	I	PN	Negative Input Terminal (differential -)
8	CTRL	I	PN	Mode Control Terminal
9	GND ²	GND	PN	Power Ground

■ ORDERING INFORMATION

Part Number	Package Type	Marking	Operating Temperature Range	MOQ/Shipping Package
HT8691RSPET	SOP8L-PP	HT8691RSP	-40°C~85°C	100PCS / Tube
HT8691RSPER	SOP8L-PP	HT8691RSP	-40°C~85°C	2500PCS / Tape and Reel

¹ I: Input O: Output

² Do make sure that the GND pin is grounded into the Ground plane connecting into the power ground.

IMPORTANT NOTICE

注意

Jiaxing Heroic Electronic Technology 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.

嘉兴禾润电子科技有限公司（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得到的信息是最新、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：

嘉兴禾润电子科技有限公司

Jiaxing Heroic Electronic Technology Co., Ltd.

地址：浙江省嘉兴市凌公塘路3339号JRC大厦A座三层

Add: A 3rd floor, JRC Building, No. 3339, LingGongTang Road, Jiaxing, Zhejiang Province

Sales: 0573-82585539, 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！

