

# 125mW免输出耦合电容的立体声线路驱动器/耳机放大器

## ■ 特点

- 输出无需隔直流电容
- 卓越的低音效果
- 无咔嗒/噼噗声
- 低THD+N: 最低0.001%
- 低噪声,  $V_N: 7\mu V$
- 支持单端输入和全差分输入
- 2.5V至5.2V较宽的电源工作范围
- 输出功率: 125mW ( $f_{IN} = 1kHz$ ,  $V_{DD} = 5V$ ,  $R_L = 32\Omega$ ,  $THD+N = 1\%$ )
- 无铅封装, QFN3×3-16L

## ■ 应用

- 耳机
- 多媒体音频接口
- 机顶盒
- 蓝光/DVD播放器
- LCD电视
- 音频消费电子产品

## ■ 概述

HT97220是一款差分输入/单端输入、可直接输出驱动的耳机放大器/线路驱动器。5V供电时, 器件可为32ohm耳机提供125mW的功率。器件可通过外部电阻调节增益 (固定增益6dB版本需要提前定制)。器件在音频范围内具有卓越的THD+N表现。

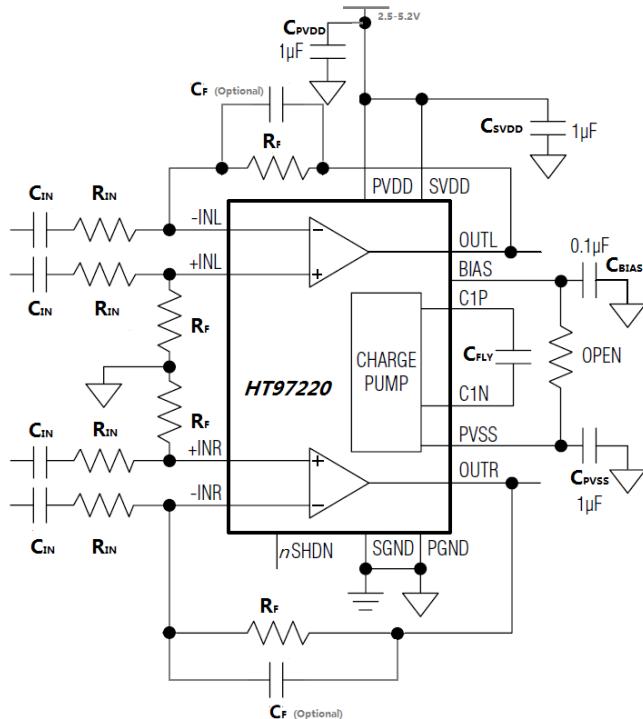
器件的启动时间为4.2ms, 另130ms的版本需要提前定制。

器件内部集成电荷泵产生负电压, 器件输出级由输入正电压和该负电压驱动, 使得输出偏置在零电位, 省去了大尺寸、容易引入失真的输出耦合电容。

器件使能开关时, 没有咔嗒/噼噗声。

器件封装为QFN3×3-16L, 能在 -40°C 至 +85°C 温度范围内工作。

## ■ 典型应用



## 125mW Direct Drive Line Drivers/Headphone Amplifiers

## ■ FEATURES

- Direct Drive Outputs Eliminate DC-Blocking Capacitors, Save Space
- Excellent Bass Fidelity
- Shutdown and Startup without any Click-Pop Noise
- Exceptional Low THD+N: 0.001% Minimum
- Absolutely Low Noise Performance

V<sub>N</sub>: 7µV

- Differential or Single-Ended Input
- Wide 2.5V to 5.2V Operating Range
- Output Power: 125mW ( $f_{IN} = 1\text{kHz}$ ,  $V_{DD}=5\text{V}$ ,  
 $R_L=32\Omega$ , THD+N=1%);
- Pb Free Packages, QFN3x3-16L, Extremely Simple BOM Needed

## ■ APPLICATIONS

- Headphones • Simple Multimedia Interfaces
- Set-Top Boxes • Blue-ray and DVD Players
- LCD Televisions • Prosumer Audio Devices

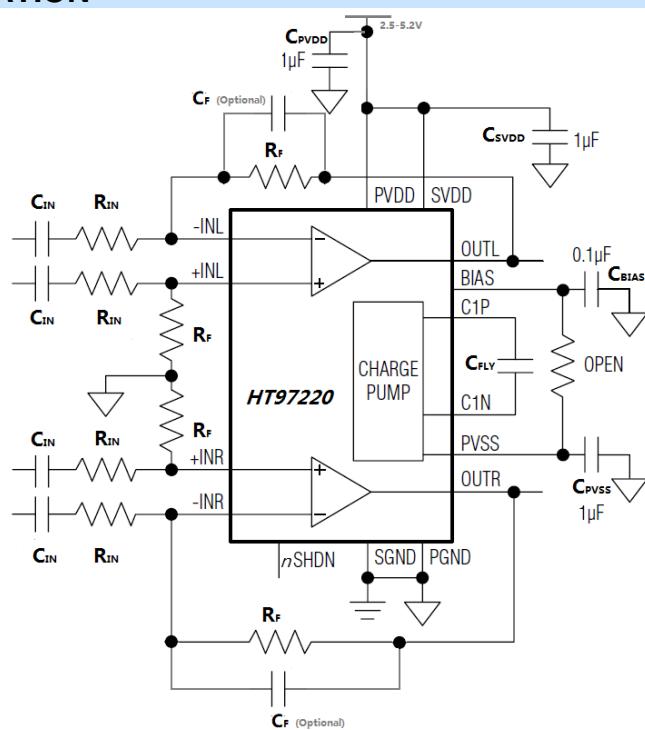
## ■ DESCRIPTION

The HT97220(L) is a differential input Direct Drive line driver/headphone amplifier, which can also drive single-ended input signal. It is capable of being driven with 125mW into  $32\Omega$  with a 5V supply. The IC is offered with an externally set gain through external resistors (or an internally fixed 6dB gain which needs to be pre-booked. The external gain setting nodes can also be used to configure filters for set-top box applications. The IC has exceptional THD+N over the full audio bandwidth.

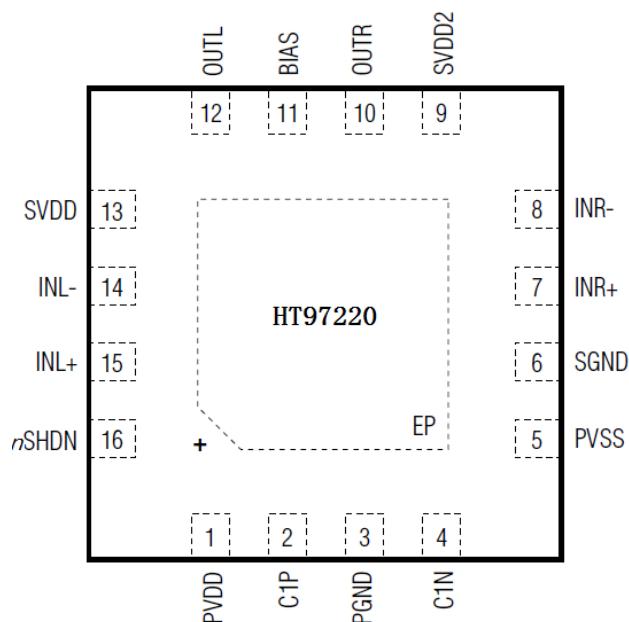
Two versions of the IC can be chosen with different turn-on times ( $t_{ON}$ ). The versions for headphone applications feature a  $t_{ON}$  of 4.2ms while the version, intended for set-top-box applications, which needs to be pre-booked, feature a 130ms  $t_{ON}$ . An on-chip charge pump inverts the power-supply input, creating a negative rail. The output stage of the amplifier is powered between the positive input supply and the output of the charge pump. The bipolar supplies bias the output about ground, eliminating the need for large, distortion-introducing output coupling capacitors. The IC shutdowns and startups without click-pop noise.

The IC is available in a QFN3×3-16L and is specified over the extended -40°C to +85°C temperature range.

## ■ TYPICAL APPLICATION



## ■ TERMINAL CONFIGURATION



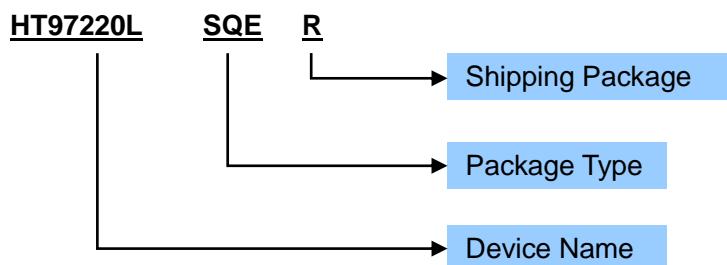
## ■ TERMINAL FUNCTION

PIN	NAME	Description
1	PVDD	Charge-Pump Power-Supply Input. Bypass to PGND with 1 $\mu$ F.
2	C1P	Positive Flying Capacitor Connection. Connect a 1 $\mu$ F capacitor between C1P and C1N.
3	PGND	Power Ground. Connect PGND and SGND together at the system ground plane.
4	C1N	Negative Flying Capacitor Connection. Connect a 1 $\mu$ F capacitor between C1P and C1N.
5	PVSS	Negative Charge-Pump Output. Bypass to PGND with 1 $\mu$ F.
6	SGND	Signal Ground. Connect PGND and SGND together at the system ground plane.
7	INR+	Right Positive Polarity Input
8	INR-	Right Negative Polarity Input
9	SVDD2	Signal Path Power-Supply Input. Bypass to PGND with 1 $\mu$ F. Connect directly to PVDD.
10	OUTR	Right Direct Drive Output
11	BIAS	Internal Supply Node. Bypass to PGND with 0.1 $\mu$ F.
12	OUTL	Left Direct Drive Output
13	SVDD	Signal Path Power-Supply Input. Bypass to PGND with 1 $\mu$ F. Connect directly to PVDD.
14	INL-	Left Negative Polarity Input
15	INL+	Left Positive Polarity Input
16	nSHDN	Active-Low Shutdown. Drive nSHDN high for normal operation.
—	EP	Exposed Pad. Electrically connect to PGND or leave unconnected.

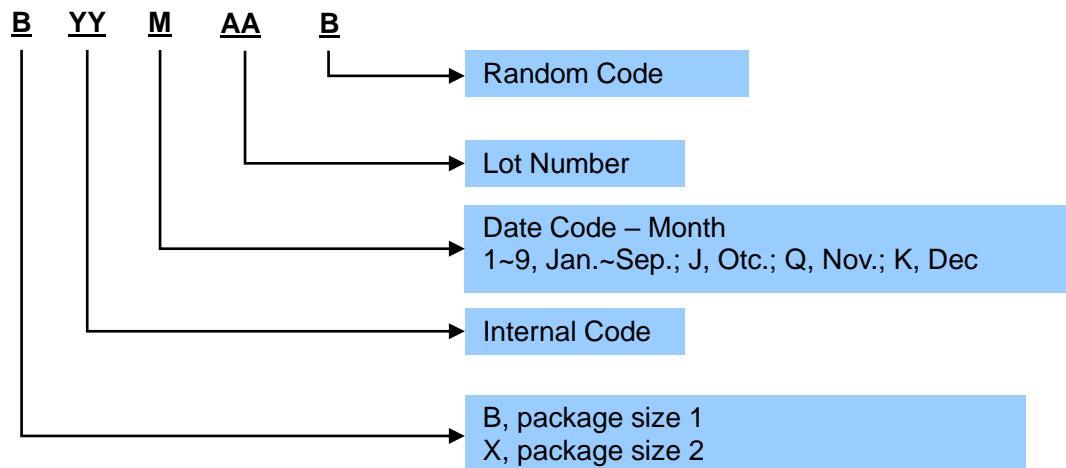
## ■ ORDERING INFORMATION

Part Number	Package Type	Marking	Operating Temperature Range	MOQ/Shipping Package
HT97220LSQER	QFN3×3-16L (SQE)	HT97220 BYYMAAB <sup>1</sup>	-40°C ~ 85°C	5000PCS / Tape & Reel (R)
HT97220SQER	QFN3×3-16L (SQE)	HT97220 BYYMAAB	-40°C ~ 85°C	5000PCS / Tape & Reel (R)

### Part Number



### Production Tracking Code



<sup>1</sup> Production Tracking Code

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**禾润电子科技（嘉兴）股份有限公司**  
**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: 0573-82583866, sales@heroic.com.cn

Support: 0573-82585539, support@heroic.com.cn

Fax: 0573-82585078

E-mail: support@heroic.com.cn

Website: [www.heroic.com.cn](http://www.heroic.com.cn); [wap.heroic.com.cn](http://wap.heroic.com.cn)

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