

3W BTL音频功率放大器 带关断模式

LM4871

■ 产品概述

LM4871为单声道桥接音频功率放大电路,在5V输入电压条件下,能够为3Ω负载提供3W功率的稳定输出,总谐波失真和噪声不超过10%。为了保证便携式设备的电池的续航能力,当LM4871使能端接VDD时,芯片进入关断模式,该模式下 $I_Q < 0.1\mu\text{A}$ (Typ.)。

LM4871专门为需要大功率输出和高保真要求的便携式产品所设计。仅需很少的外部元件,专用于高品质音频功率放大。可以工作的电压范围为2.0V到6V。

LM4871内置过热关断电路,同时内置了杂音消除电路,可以消除芯片启动和关断过程中的咔嚓声或噼噗声。增益稳定,外部增益可调。

■ 关键指标

功率输出@10% THD+N & VDD=5V 1KHz

$R_L=3\Omega, 4\Omega$

3W(typ.), 2.5W(typ.)

关断电流

0.1 μA (typ.)

供电电压

2.0V~6.0V

THD@1KHz 1W 8 Ω

0.5%(max)

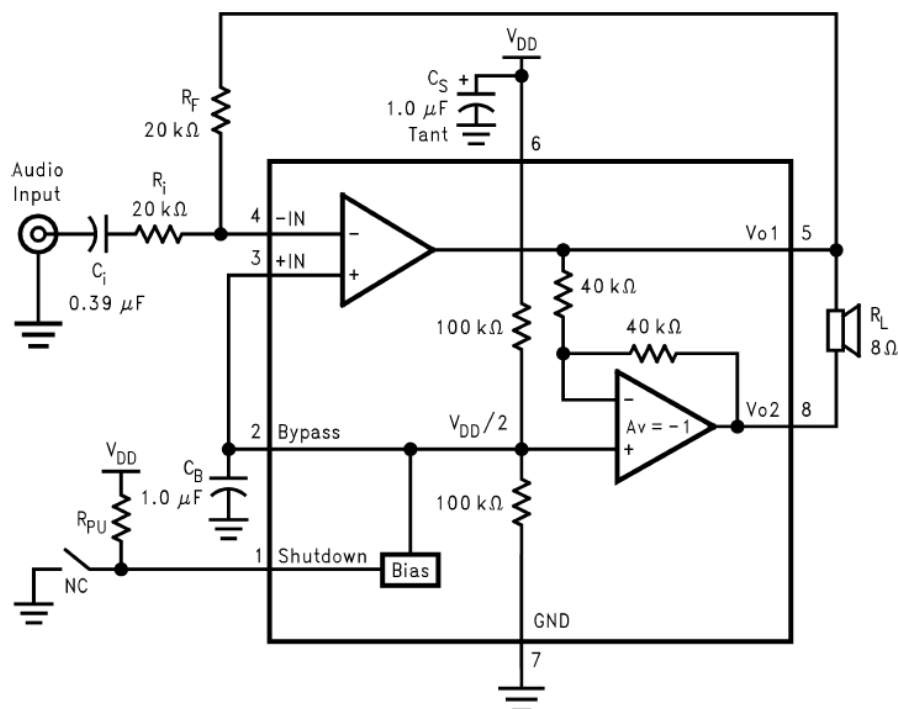
■ 产品特点

- 无输出耦合电容、自举电容或缓冲电路
- 稳定的固定增益
- 热关断功能
- 超小型封装: SOP, MOSP, DIP等
- 外部增益控制

■ 用途

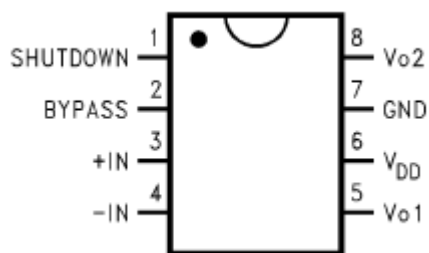
- 低电压供电的音频系统
- 笔记本和台式电脑
- 便携电视

■ 功能框图



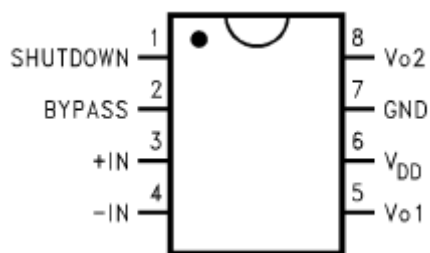
■ 封装及引脚配置

MSOP-8



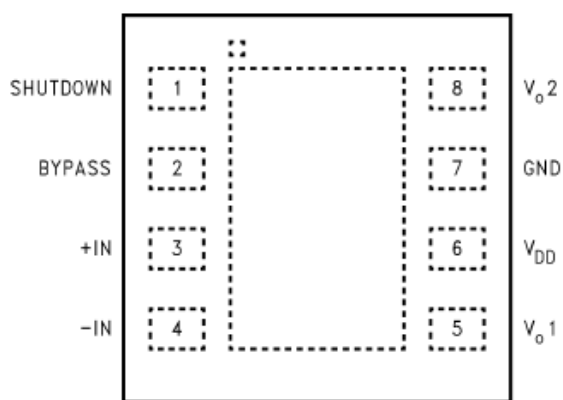
订购名称: LM4871MM

SOP-8



订购名称: LM4871M

DFN-8



订购名称: LM4871LD

■ 绝对最大额定值

项目	符号	值	单位
工作电压	V_{DD}	-0.3—6.5	V
输入电压	V_{IN}	-0.3— V_{DD} —0.3	V
功耗	—	内部限制	
贮存温度	T_{stg}	-65—150	°C
结点温度	—	-150	°C
ESD 参数	—	8000	V

■ 额定工作参数

工作温度范围

$$T_{MIN} \leq T_A \leq T_{MAX}$$

$$-40^{\circ}\text{C} \leq T_A \leq 85^{\circ}\text{C}$$

工作电压范围

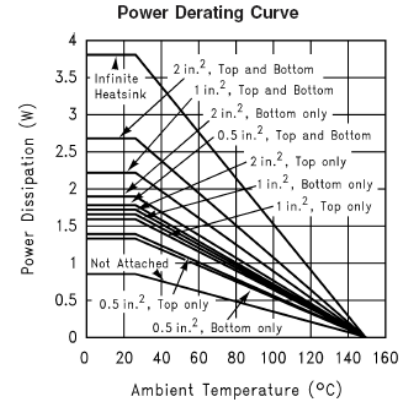
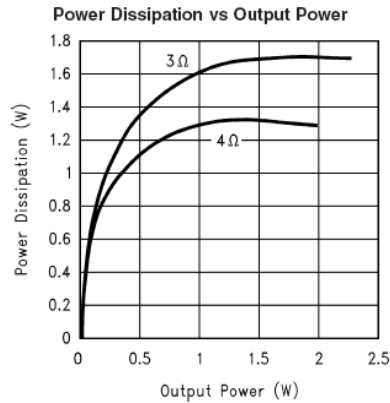
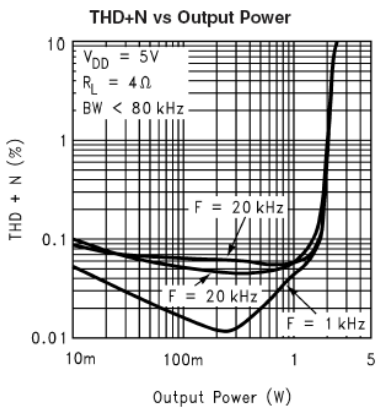
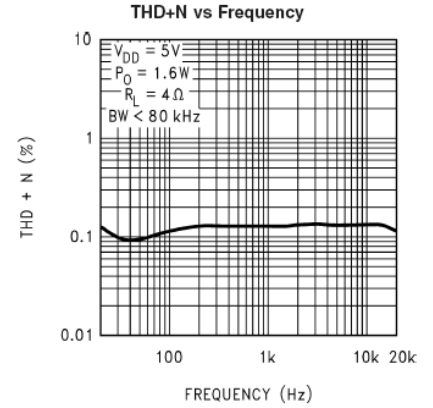
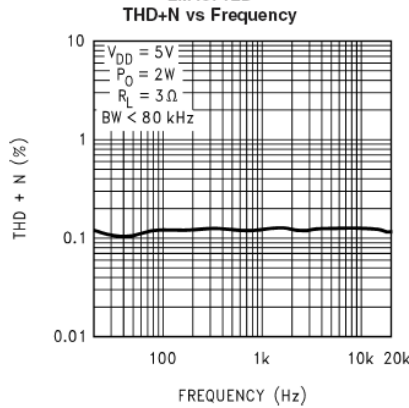
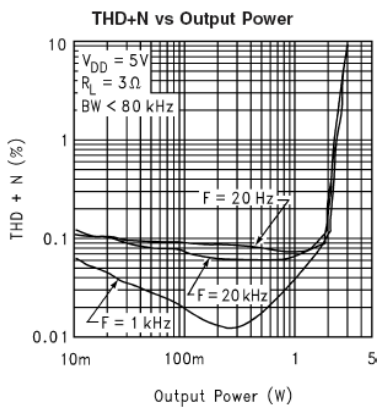
$$2.0\text{V} \leq V_{DD} \leq 6.0\text{V}$$

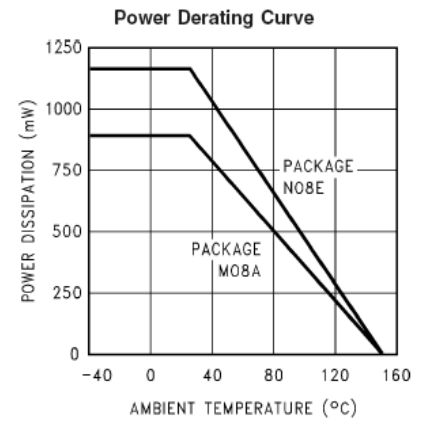
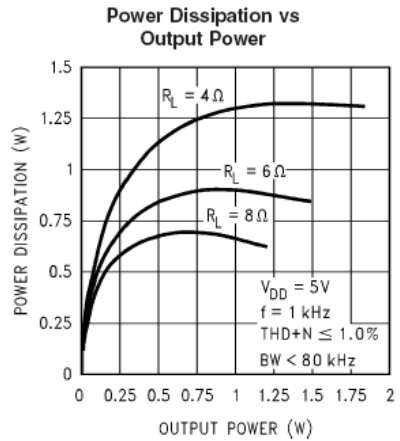
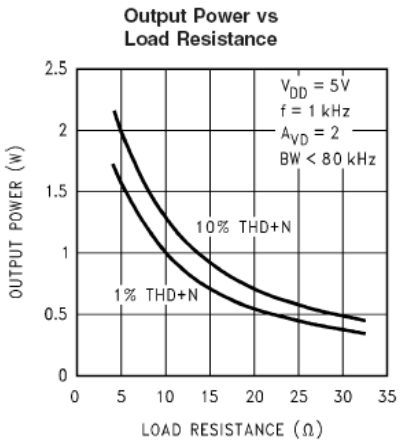
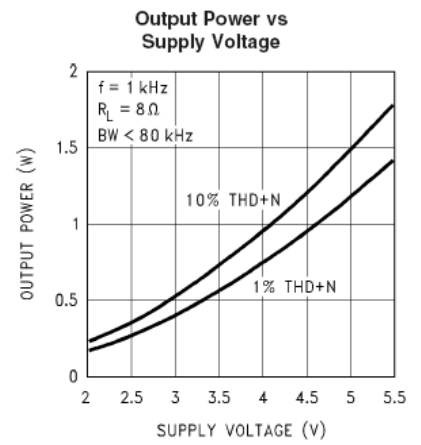
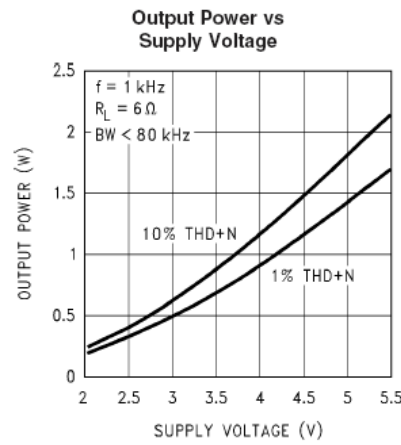
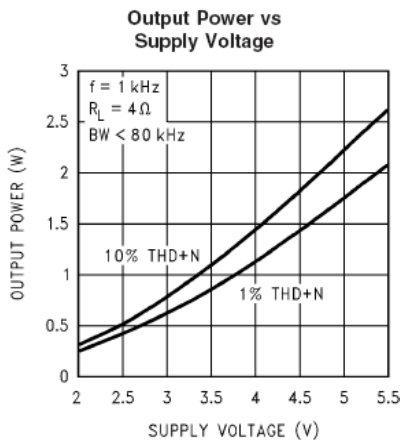
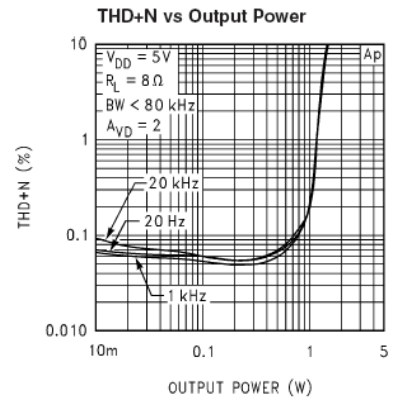
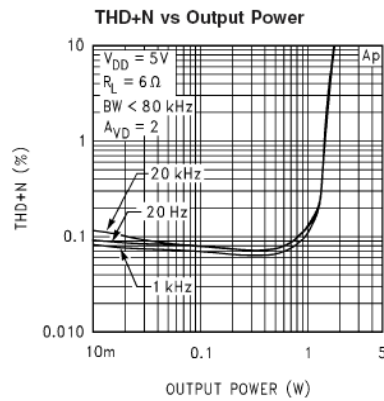
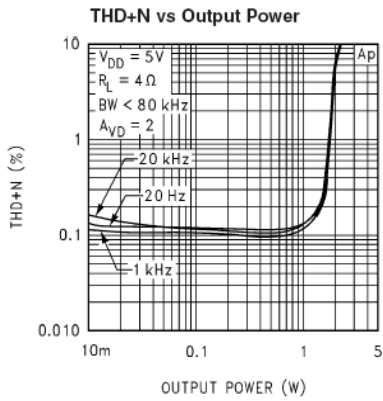
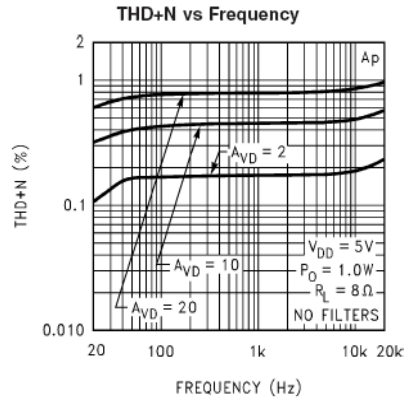
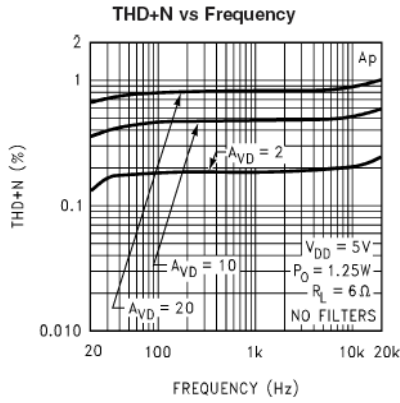
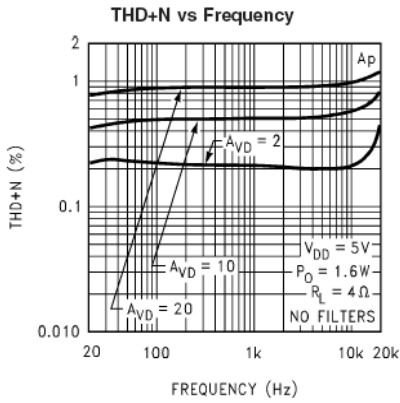
■ 电气特性

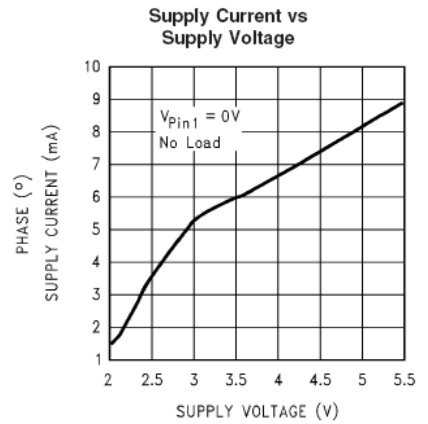
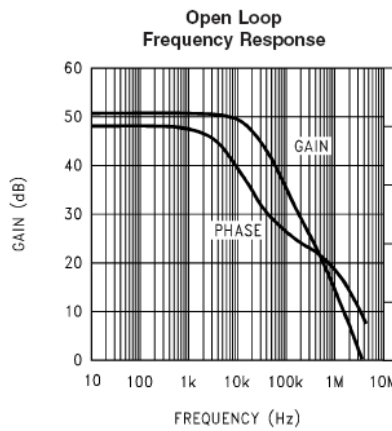
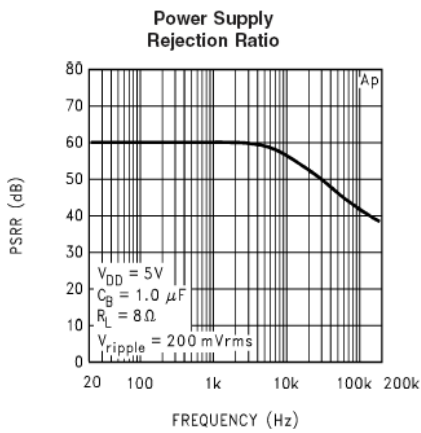
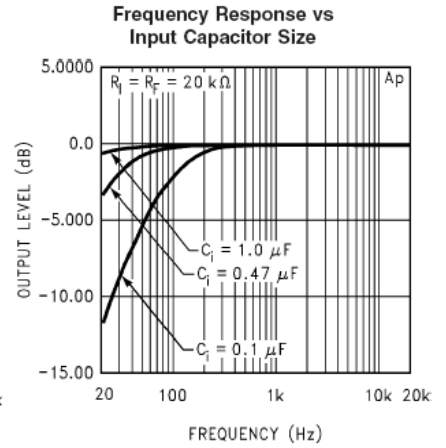
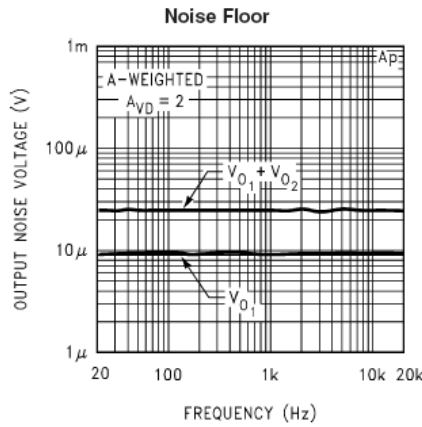
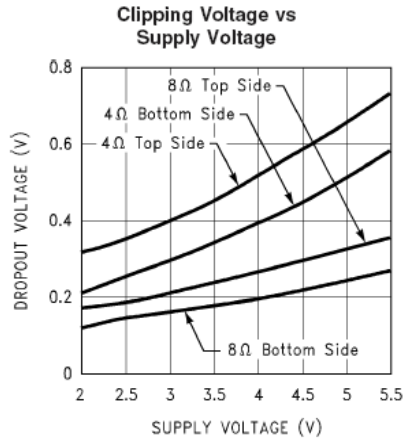
V_{DD}=5V (除非特别说明, T_a=25°C)

符号	参数	测试条件	最小	典型	最大	单位
V _{DD}	供电电压		2.0		6.0	V
I _{DD}	静态电流	V _{IN} = 0V, I _O = 0A		6.5	10	mA
I _{SD}	关断电流	V _{SHUTDOWN} = V _{DD}		0.1	2	μA
P _O	输出功率	THD+N = 1%; f = 1 kHz R _L =3Ω R _L =4Ω R _L =8Ω		2.38 2 1.2		W
		THD+N = 1%; f = 1 kHz R _L =3Ω R _L =4Ω R _L =8Ω		3 2.5 1.5		W
THD+N	总谐波失真 +噪声	A _{VD} =2; 20Hz≤f≤20kHz R _L =4Ω, P _O =1.6W R _L =8Ω, P _O =1W		0.13 0.25		%

■ 特征曲线

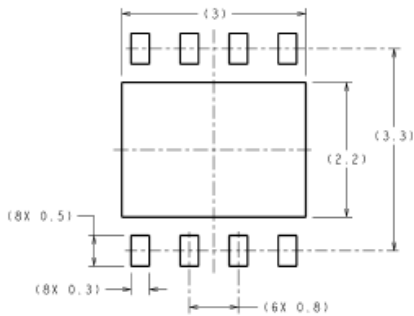




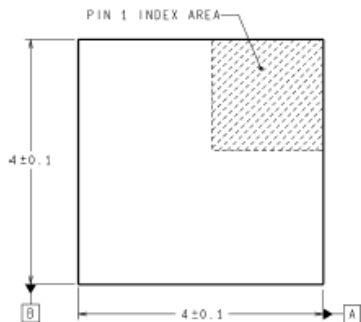


■ 物理尺寸

● DFN-8 (LM4871LD)



RECOMMENDED LAND PATTERN
1:1 RATION WITH PKG SOLDER PADS



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