

3W BTL 音频功率放大器带关断模式

产品概述

LN4871 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 LN4871 使能端接 VDD 时, 芯片进入关断模式, 该模式下 $I_{Q} < 0.1\mu A$ (Typ.)。

LN4871 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。

LN4871 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嗒声或噼噓声。增益稳定, 外部增益可调。

用途

- 低电压供电的音频系统
- 笔记本和台式电脑
- 便携电视

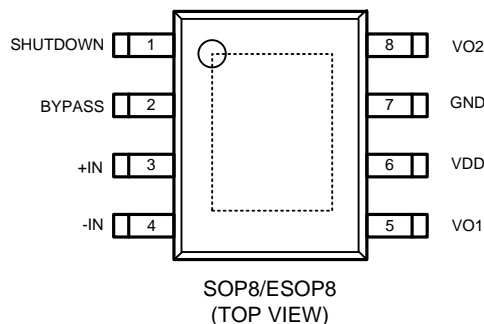
订购信息

订购型号	封装形式
LN4871M	SOP8
LN4871MP	ESOP8

额定工作参数

工作温度范围	-----	$T_{MIN} \leq T_A \leq T_{MAX}$ -40°C ≤ T _A ≤ 85°C
工作电压范围	-----	2.0V ≤ VDD ≤ 6.0V

引脚配置



订购名称: LN4871M(LN4871MP)

关键指标

- 功率输出 @ 10% THD+N & VDD=5V 1KHz

R _L =3Ω	3W(typ.)
R _L =4Ω	2.5W(typ.)
- 关断电流 0.1μA(typ.)
- 供电电压 2.0V~6.0V
- THD@1KHz 1W 8 Ω 0.5%(max)

产品特点

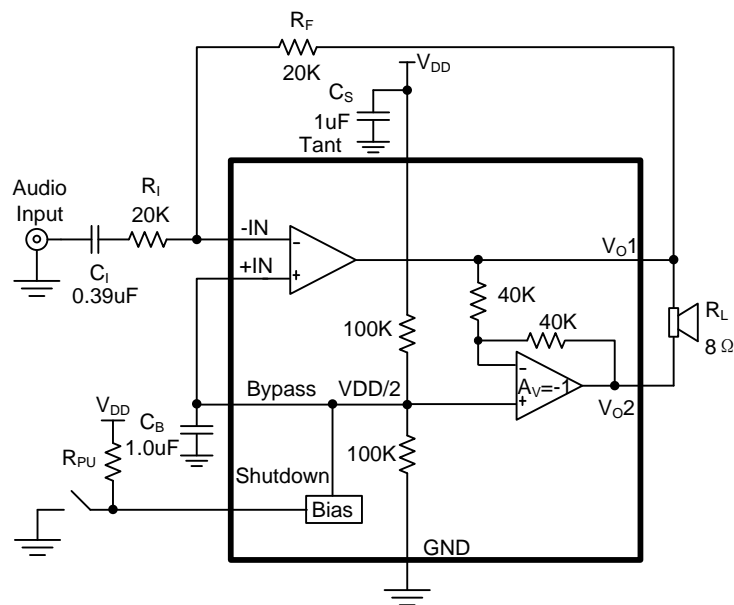
- 无输出耦合电容、自举电容或缓冲电路
- 稳定的固定增益
- 热关断功能
- 超小型封装: SOP8, ESOP8 等
- 外部增益控制

封装

- SOP8
- ESOP8

引脚功能描述

名称	引脚号	输入/输出	功能描述
SHUTDOWN	1	I	关断控制，高电平关断
BYPASS	2	-	外接旁路电容
+IN	3	I	通道正端输入
-IN	4	I	通道负端输入
VO1	5	O	通道输出 1
VDD	6	-	工作电压
GND	7	-	接地
VO2	8	O	通道输出 2

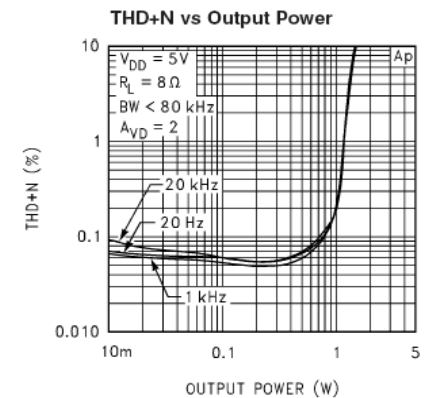
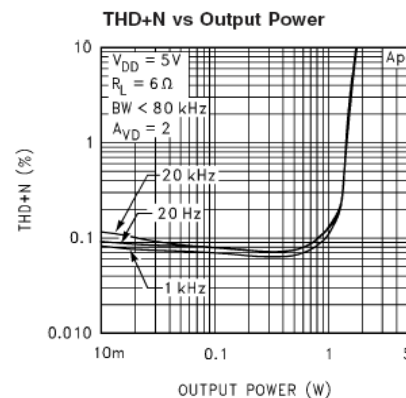
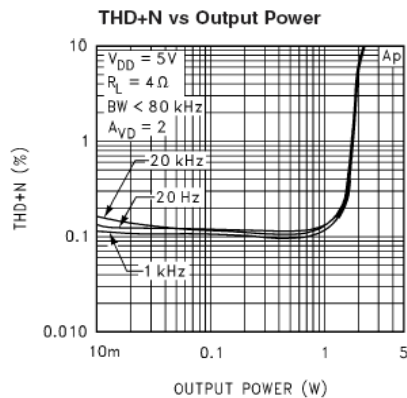
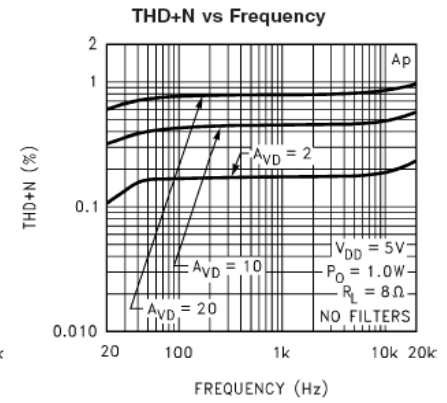
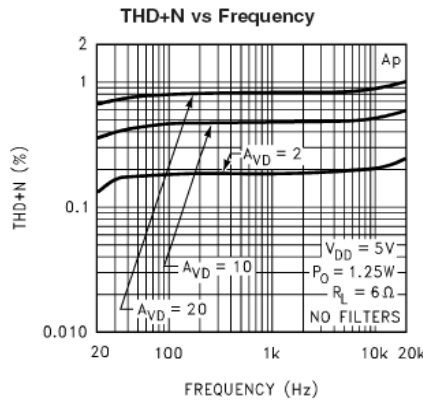
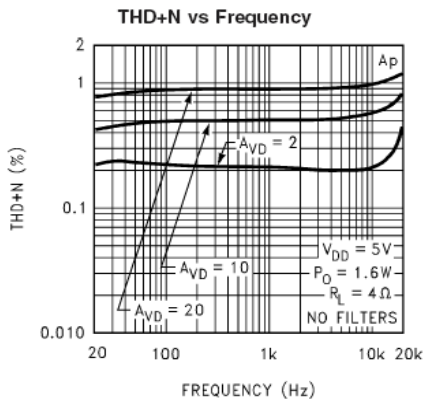
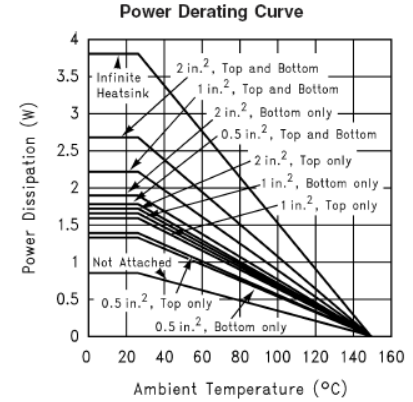
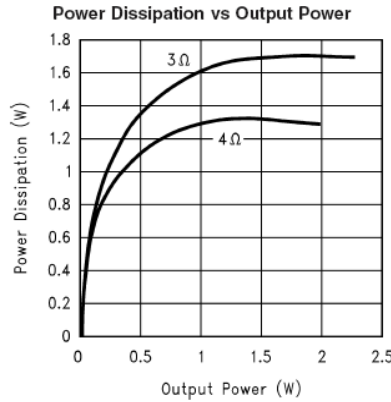
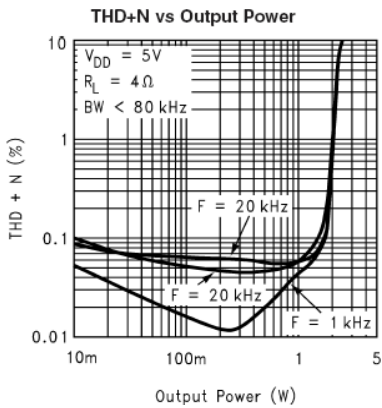
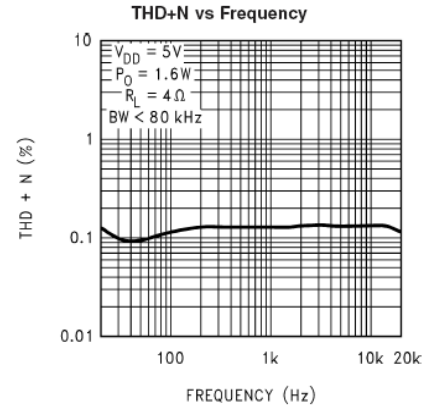
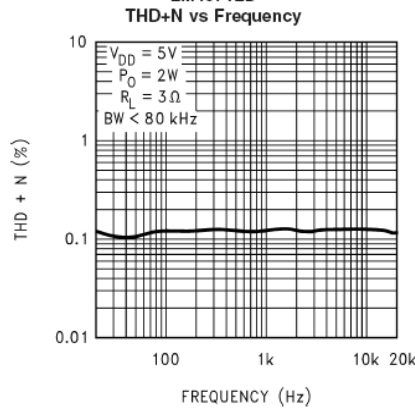
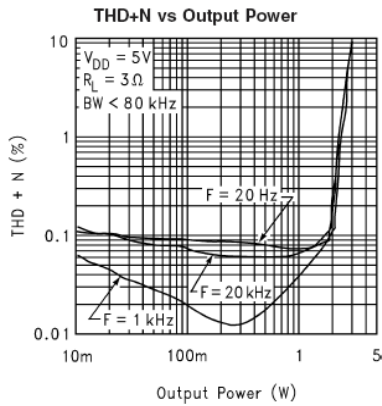
功能框图

绝对最大额定值

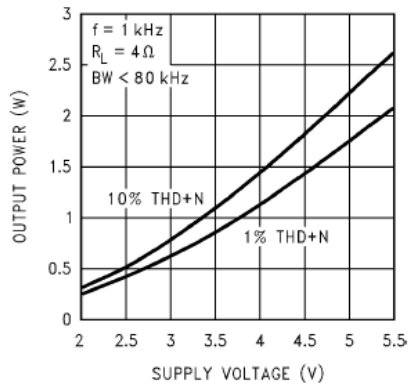
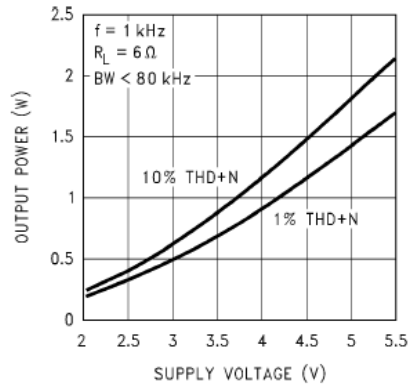
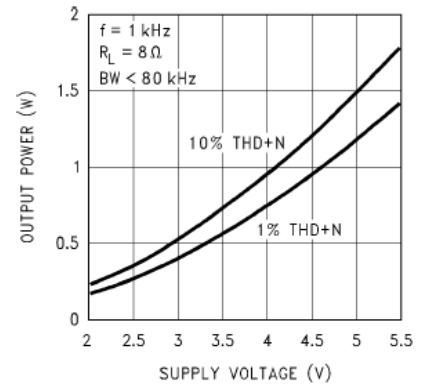
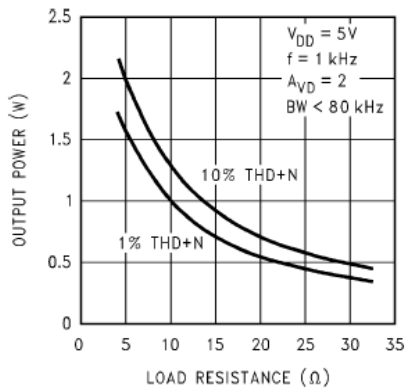
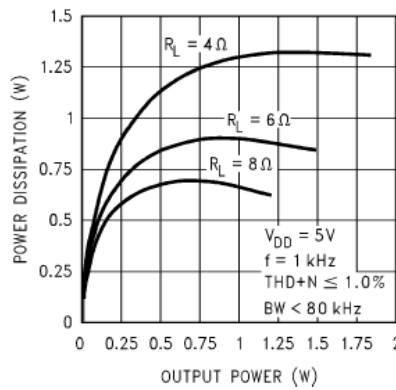
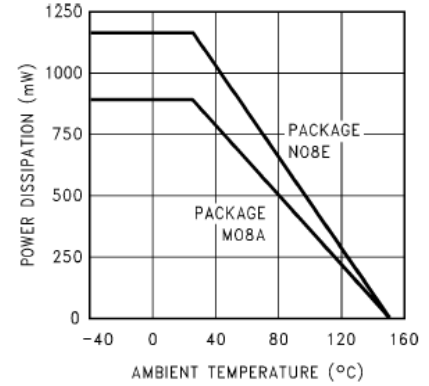
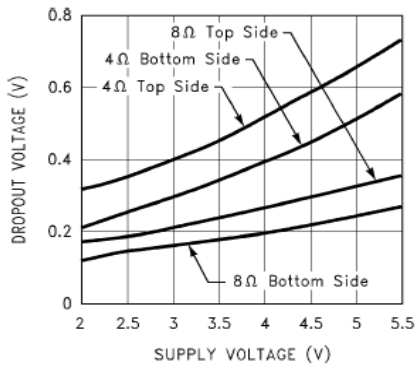
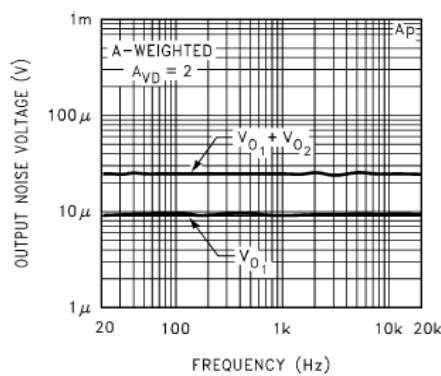
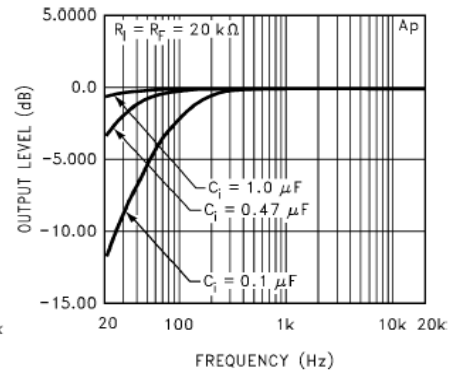
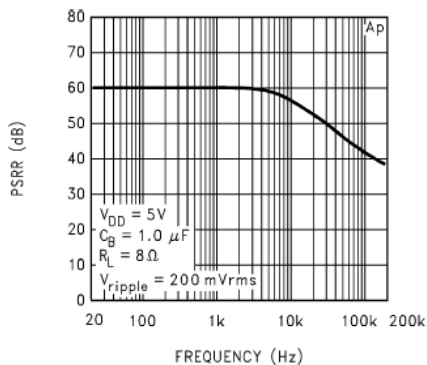
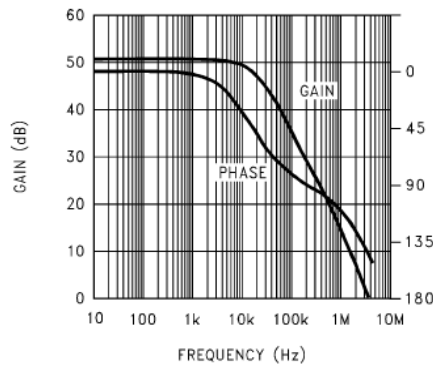
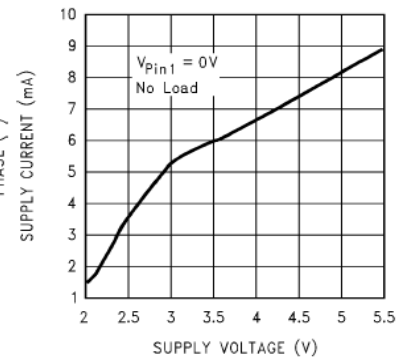
项目	符号	值	单位
工作电压	V_{DD}	-0.3—6.5	V
输入电压	V_{IN}	-0.3— $V_{DD}+0.3$	V
功耗	—	内部限制	-
贮存温度	T_{stg}	-65—150	°C
结点温度	—	-150	°C
ESD 参数	—	8000	V

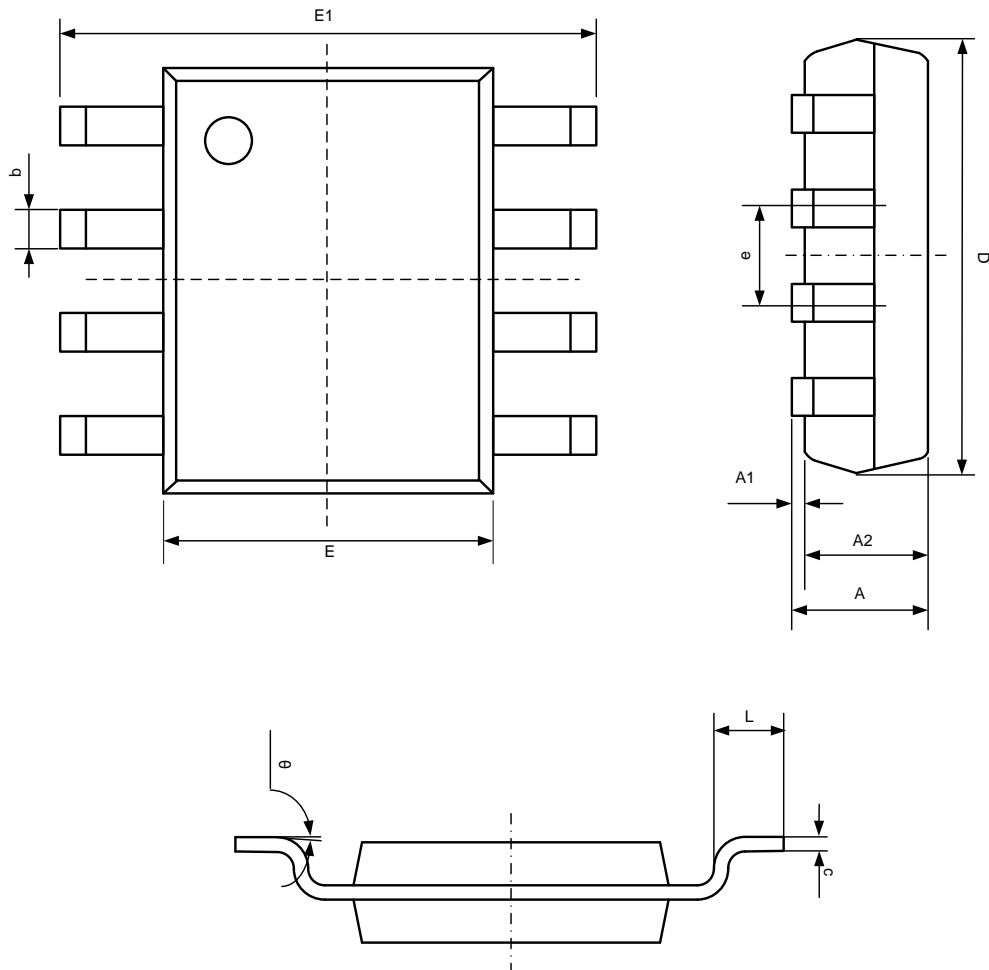
电学特性参数
VDD=5V

 (除非特别说明, $T_a=25^{\circ}\text{C}$)

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 RL=3 Ω RL=4 Ω RL=8 Ω	-	2.38 2 1.2	-	W
		THD+N = 10%; f = 1 kHz RL=3 Ω RL=4 Ω RL=8 Ω	-	3 2.5 1.5	-	W
THD+N	总谐波失真 +噪声	AVD=2; 20Hz $\leq f \leq$ 20kHz RL=4 $\Omega, P_O=1.6W$ RL=8 $\Omega, P_O=1W$	-	0.13 0.25	-	%

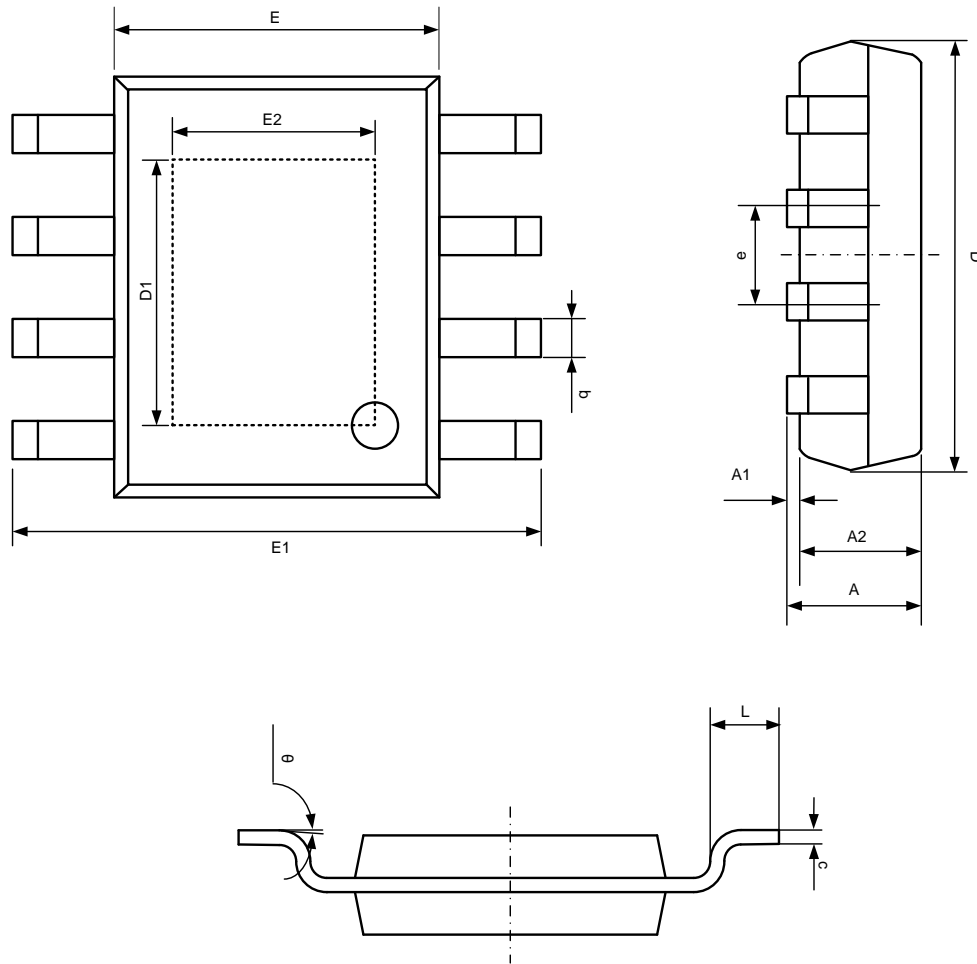
特性曲线


Output Power vs Supply Voltage

Output Power vs Supply Voltage

Output Power vs Supply Voltage

Output Power vs Load Resistance

Power Dissipation vs Output Power

Power Derating Curve

Clipping Voltage vs Supply Voltage

Noise Floor

Frequency Response vs Input Capacitor Size

Power Supply Rejection Ratio

Open Loop Frequency Response

Supply Current vs Supply Voltage


封装信息
● SOP8 (LN4871M)


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

● ESOP8 (LN4871MP)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.050	0.150	0.002	0.006
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.200
D1	3.202	3.420	0.126	0.134
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
E2	2.313	2.513	0.091	0.099
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°