



### 3W Audio Power Amplifier With Shutdown Mode

#### General Description

The LN4871 is a bridge-connected audio power amplifier capable of delivering typically 3W of continuous average power to an  $3\Omega$  load with 10% (THD) from a 5V power supply.

Boomer audio power amplifiers were designed specifically to provide high quality output power with a minimal amount of external components. Since the LN4871 does not require output coupling capacitors, bootstrap capacitors, or snubber networks, it is optionally suited for low-power portable systems.

The LN4871 features an externally controlled, low-power consumption shutdown mode, as well as an internal thermal shutdown protection mechanism. The unity-gain stable LN4871 can be configured by external gain-setting resistors.

#### Key Specifications

- Power Output @10% THD+N & VDD=5V 1KHZ
  - $R_L=3\Omega$  3W (TYP)
  - $R_L=4\Omega$  2.5W (TYP)
- THD+N@ 1KHZ 1W  $8\Omega$  0.5%(MAX)
- Shutdown current 0.1uA(TYP.)
- Supply voltage 2.0V~6.0V

#### Ordering Information

Ordering Number	Package Type
LN4871M	SOP-8
LN4871MM	MSOP-8
LN4871LD	DFN-8

#### Operating Ratings

Temperature Range

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

Supply Voltage -----  $2.0\text{V} \leq V_{DD} \leq 6.0\text{V}$

#### Features

- No output coupling capacitors, bootstrap capacitors, or snubber circuits are necessary
- Small Outline packaging
- Unity-gain stable
- External gain configuration capability
- Thermal shutdown protection

#### Applications

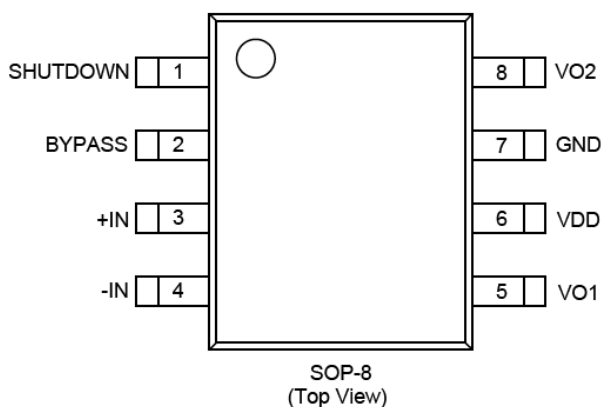
- Portable Computers
- Desktop Computers
- Low Voltage Audio Systems

#### Package

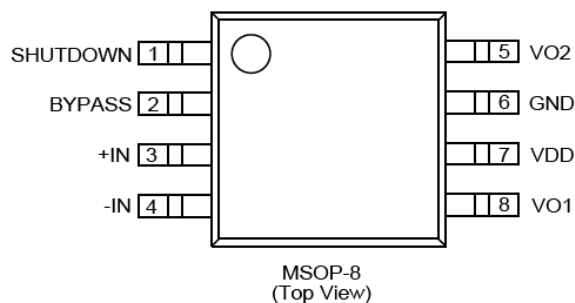
- SOP-8
- MSOP-8
- DFN-8



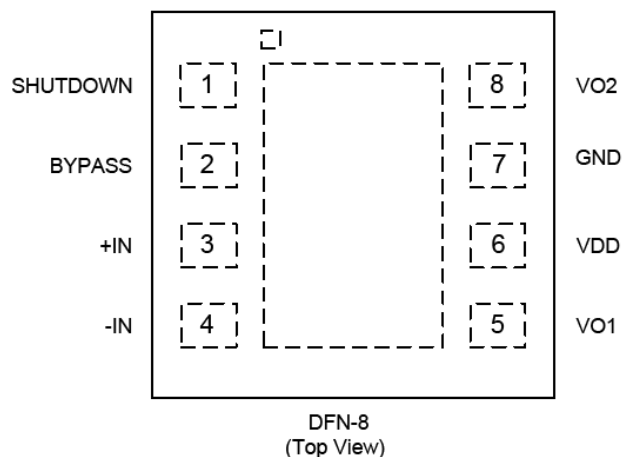
### Pin Configuration



Ordering Number: LN4871M



Ordering Number: LN4871MM



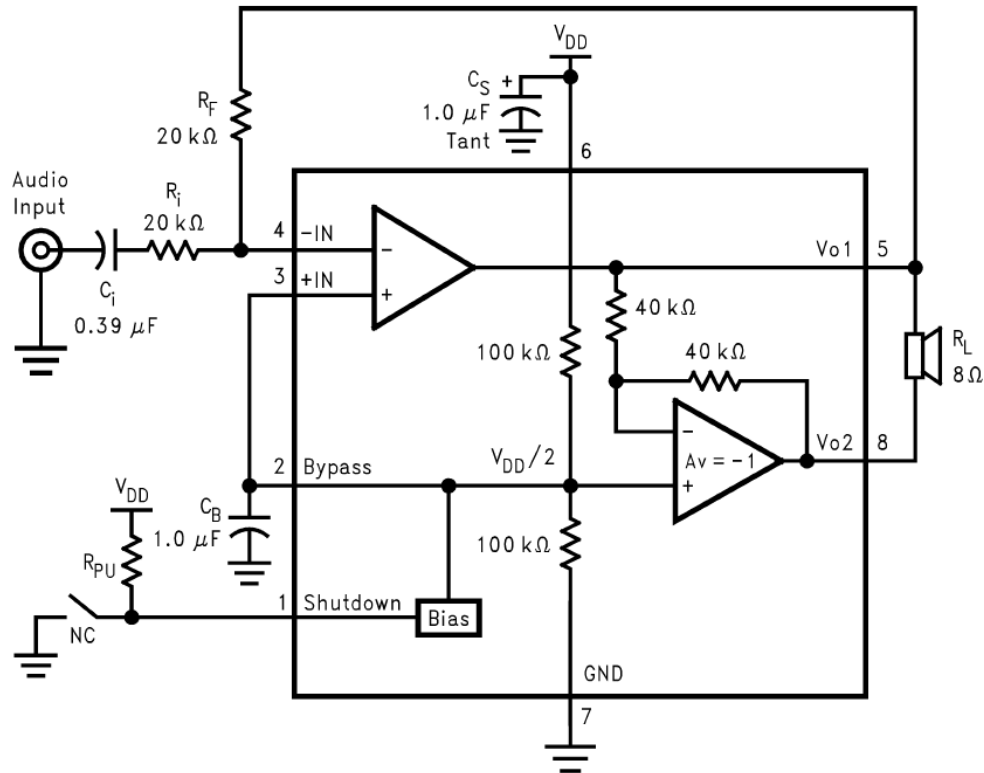
Ordering Number:LN4871LD

### Pin Function Description

Pin Name	Pin Number	I/O	Function Description
SHUTDOWN	1	I	Shutdown terminal (active high logic)
BYPASS	2		Adding a bypass capacitor
+IN	3	I	Channel positive input
-IN	4	I	Channel negative input
VO1	5	O	Channel output 1
VDD	6		Power supply
GND	7		High-current ground
VO2	8	O	Channel output 2



# ■ Function Block Diagram



# ■ Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{DD}$	-0.3—6.5	V
Input Voltage	$V_{IN}$	-0.3— $V_{DD}+0.3$	V
Power Output	—	Internal limit	
Junction Temperature	—	-150	°C
Storage Temperature	Tstg	-65—150	°C
ESD Susceptibility	-	8000	V



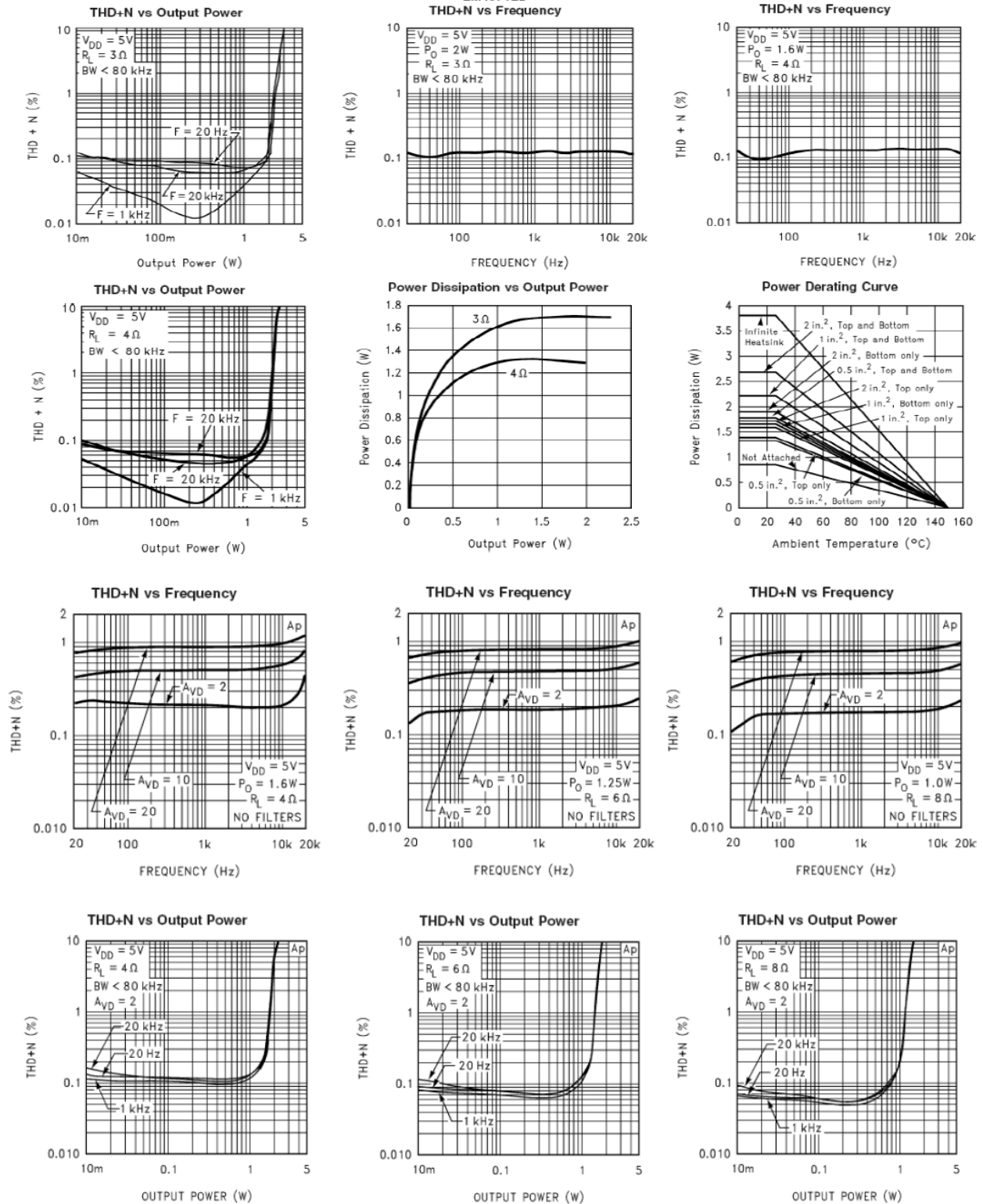
### ■ Electrical Characteristics

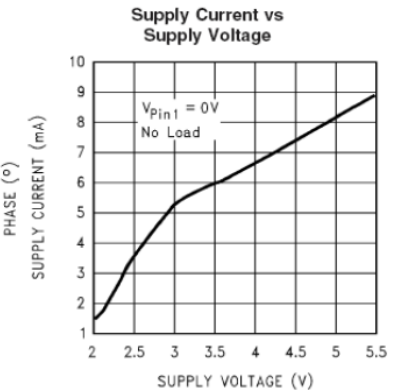
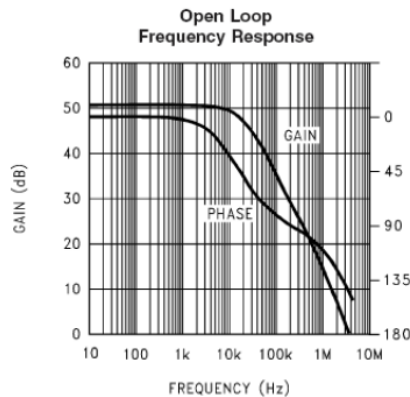
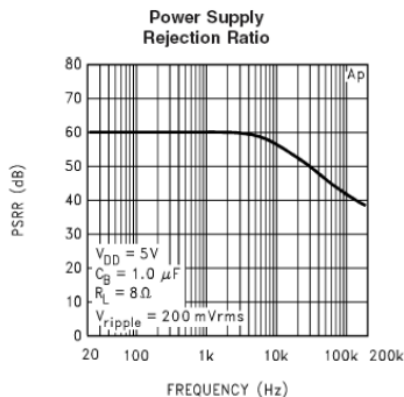
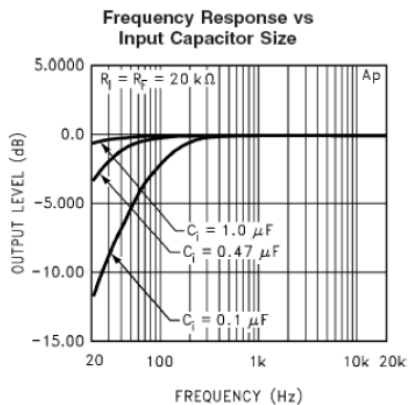
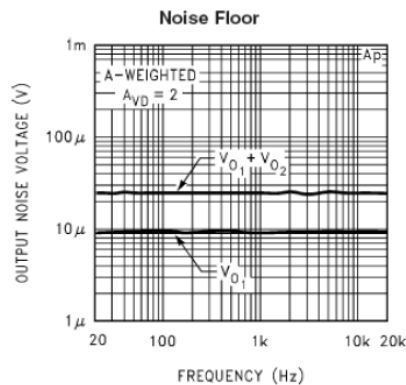
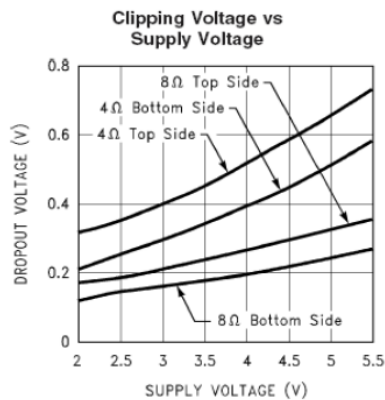
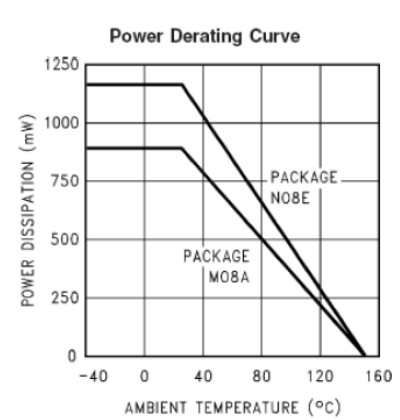
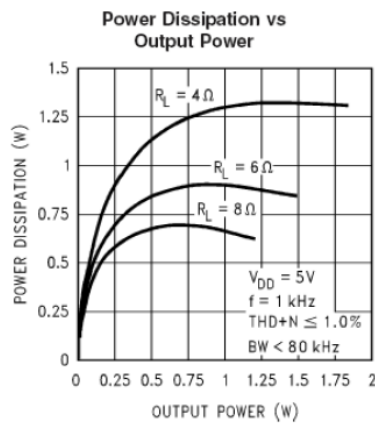
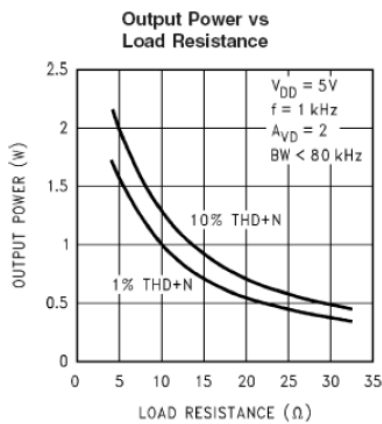
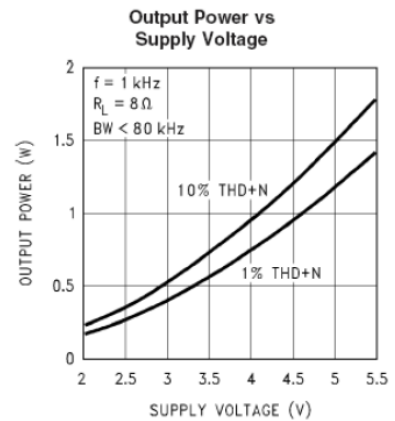
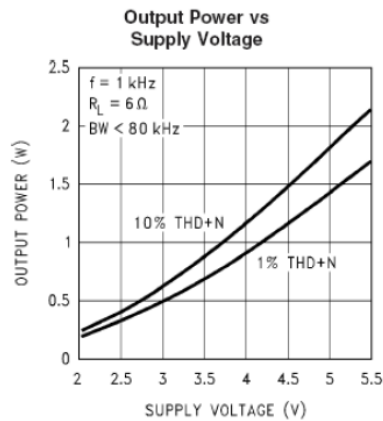
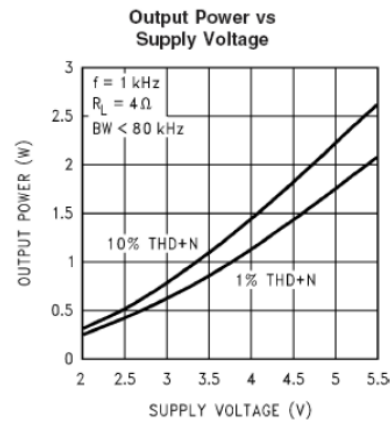
(VDD = 5V Unless otherwise specified. Limits apply for TA = 25°C.)

Symbol	Parameters	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>DD</sub>	Supply voltage		2.0		6.0	V
I <sub>DD</sub>	Quiescent Power Supply Current	V <sub>IN</sub> = 0V, I <sub>O</sub> = 0A		6.5	10	mA
I <sub>SD</sub>	Shutdown Current	V <sub>SHUTDOWN</sub> = V <sub>DD</sub>		0.1	2	μA
P <sub>O</sub>	Output Power	THD+N = 1%; f = 1 kHz RL=3Ω RL=4Ω RL=8Ω		2.38 2 1.2		W
		THD+N = 1%; f = 1 kHz RL=3Ω RL=4Ω RL=8Ω		3 2.5 1.5		W
THD+N	Total Harmonic Distortion+Noise	AVD=2; 20Hz<=f<=20kHz RL=4Ω, PO=1.6W RL=8Ω, PO=1W		0.13 0.25		%



■ Typical Performance Characteristics

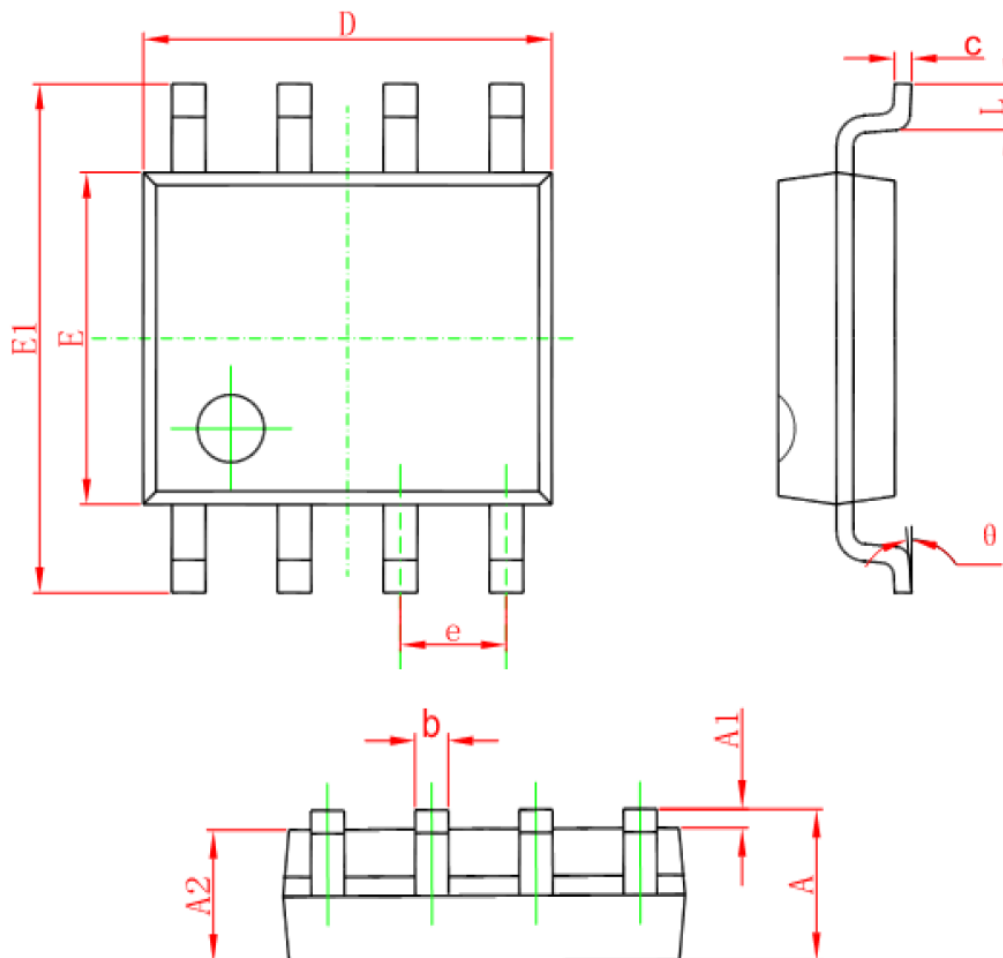






■ Package Information

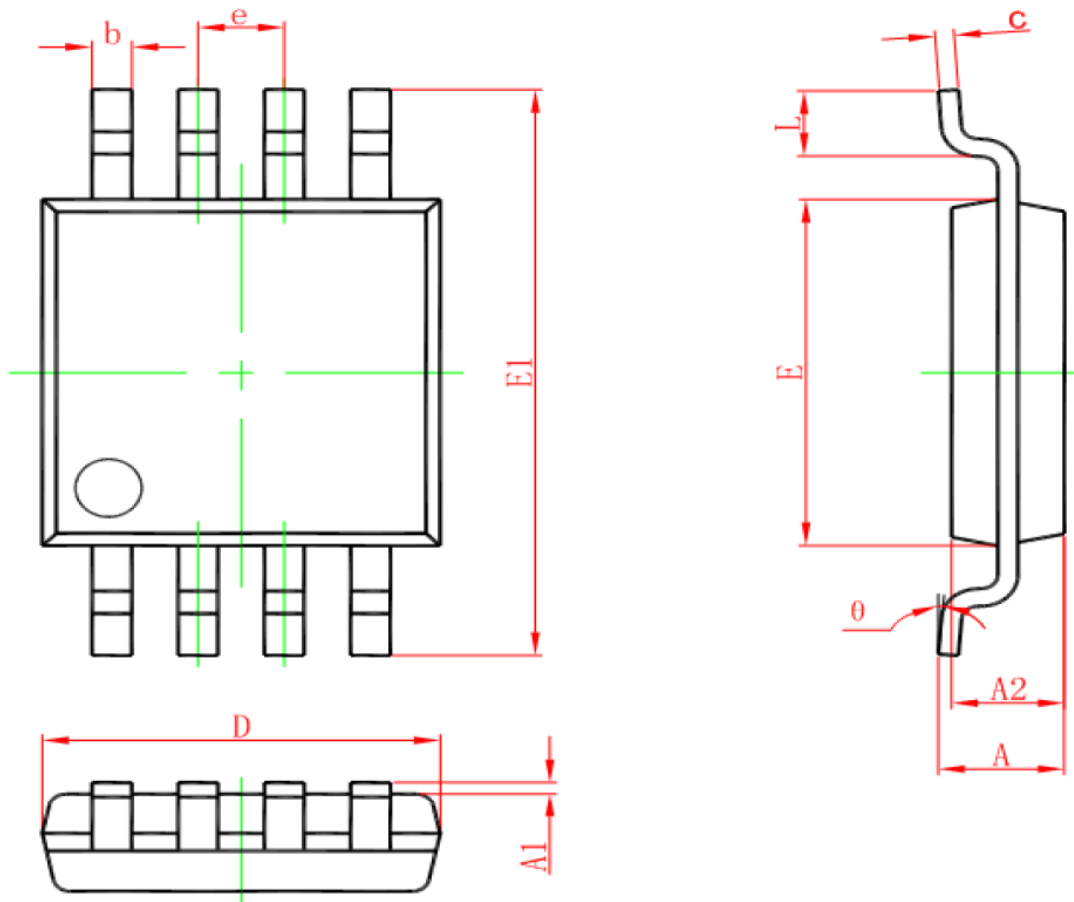
- SOP-8 (LN4871M)



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	0.006	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°



● MSOP-8 (LN4871MM)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
e	0.650(BSC)		0.026(BSC)	
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
L	0.400	0.800	0.016	0.031
θ	0°	6°	0°	6°





● DFN-8 (LN4871LD)

