3Watt Audio Amplifier With Shutdown Mode

General Description

The FH4871 is an audio power amplifier primarily designed for demanding applications in low-power portable systems. It is capable of delivering 3 watts of continuous average power to an 3Ω BTL load with less than 10% distortion (THD) from a 5V DC power supply.

The FH4871 does not require output coupling capacitors or bootstrap capacitors, and therefore is ideally suited for mobile phone and other low voltage applications where minimal power consumption is a primary requirement. The FH4871 features a low-power consumption shutdown mode.

The FH4871 contains advanced pop & click circuitry which eliminates noise which would otherwise occur during turn-on and turn-off transitions. The FH4871 is unity-gain stable and can be configured by external gain-setting resistors

Key Specifications

Power Output at 5.0V, 10% THD+N, 3Ω 3W (typ)
Power Output at 5.0V,10% THD+N,4Ω 2.5W (typ)
Power Output at 5.0V,10% THD+N,8Ω 1.5W (typ)
Shutdown Current 0.6μA (typ)

Applications

- Portable computers
- Desktop computers
- Low voltage audio systems

Features

- Available in space-saving packages: SOP, MSOP
- Improved pop & click circuitry eliminates noise during turn-on and turn-off transitions
- 2.20- 5.5V operation
- No output coupling capacitors, snubber networks or bootstrap capacitors required
- Unity-gain stable
- External gain configuration capability

Typical Application

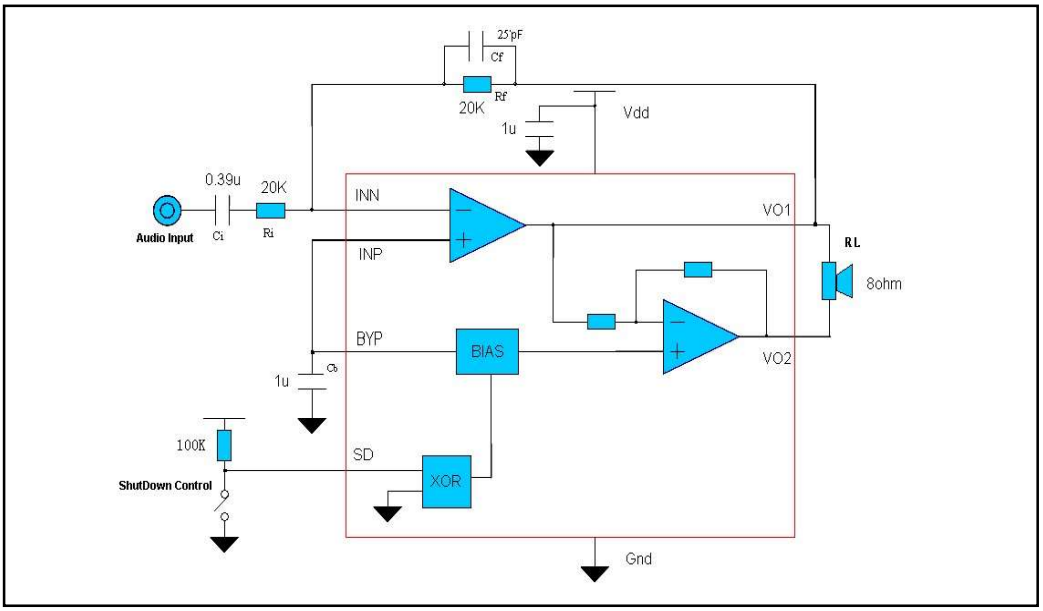


FIGURE 1.Typical Audio Amplifier Application Circuit

External Components Description

Components		Functional Description
1	R_i	Inverting input resistance which sets the closed-loop gain in conjunction with Rf. This resistor also forms a high pass filter with Ci at fC= 1/(2π RiCi).
2	C_i	Input coupling capacitor which blocks the DC voltage at the amplifiers input terminals. Also creates a highpass filter with Ri at fc = 1/(2π RiCi). Refer to the section, Proper Selection of External Components, for an explanation of how to determine the value of Ci.
3	R_f	Feedback resistance which sets the closed-loop gain in conjunction with Ri.
4	C_S	Supply bypass capacitor which provides power supply filtering. Refer to the Power Supply Bypassingsection for information concerning proper placement and selection of the supply bypass capacitor.
5	C_B	Bypass pin capacitor which provides half-supply filtering. Refer to the section, Proper Selection of External Components, for information concerning proper placement and selection of CB.

Connetction Diagrams

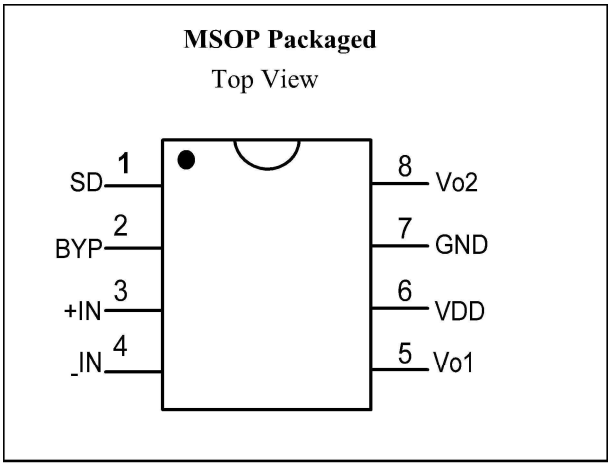


FIGURE 2. Packages Note

Absolute Maximum Ratings

Supply Voltage 6.0V
Storage Temperature −65°C to +150°C
Input Voltage −0.3V to VDD +0.3V
Power Dissipation Internally Limited
ESD Susceptibility 2000V
ESD Susceptibility 200V
Junction Temperature 150°C

Thermal Resistance
θJC (MSOP) 56°C/W
θJA (MSOP) 190°C/W
θJA (9 Bump micro SMD) (Note 15) 180°C/W
θJA (LLP) 63°C/W (Note 13)
θJC (LLP) 12°C/W (Note 13)
Soldering 210℃ less 10seconds

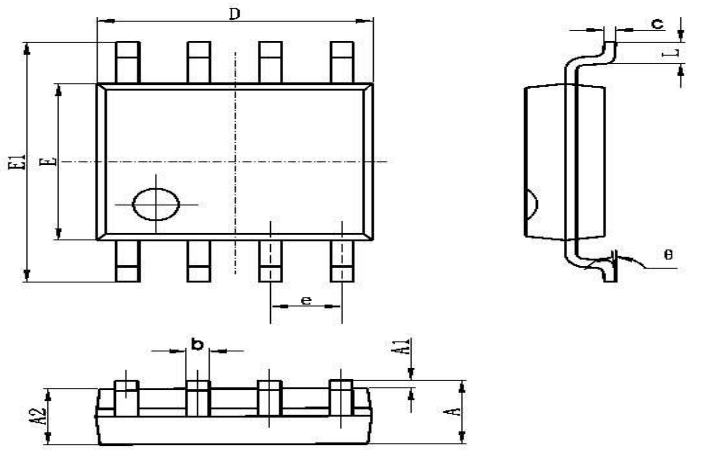
Operating Ratings

Temperature Range: TMIN ≤ TA ≤ TMAX −40°C ≤ TA ≤ 85°C

Supply Voltage: 2.0V ≤ VDD ≤ 5.5V

Package Information

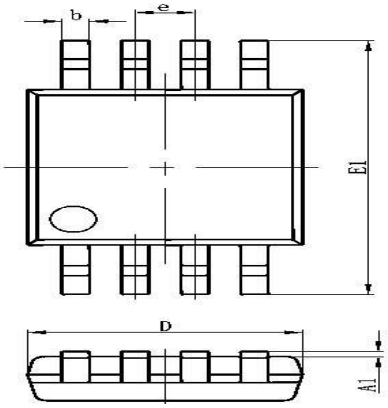
Type: SOP-8L



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°

FIGURE 3. The Package of SOP-8

Type: MSOP-8L



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°

FIGURE 4. The Package of MSOP-8

Ordering Information

Part Number	Description	Package	Mark	SPQ
FH4871S08	Type:AB class 10% THD,0.6uA(typ)	SOP-8L	FH(LM) 4871S ******	2500
FH4871MS08		MSOP-8L	FH(LM)4871M ******	2500

- Statement:
  The device surface imprint we may change during the production process;
  If the electrical parameters of the chip are not involved, we will not be notified separately.