



## SGM4871

### 1.5W Audio Power Amplifier with Shutdown Mode

#### GENERAL DESCRIPTION

The SGM4871 is a mono bridged audio power amplifier that is designed for portable communication device applications and demanding applications in mobile phones. It is capable of delivering 1.5W of continuous average power to an 8Ω load with less than 10% distortion (THD+N) from a 5V battery voltage. It operates from 2.5V to 5.5V power supply.

The SGM4871's micro-power shutdown mode ( $I_{SD} = 0.7\mu\text{A}$  TYP) is activated when  $V_+$  is applied to the SHDN pin. Since the SGM4871 does not require output coupling capacitors, bootstrap capacitors, or snubber networks, it is ideally suited for low-power portable systems that require minimum volume and weight.

The SGM4871 is unity-gain stable and can be configured by external gain-setting resistors. Additionally, the SGM4871 features an internal thermal shutdown protection mechanism.

The SGM4871 is available in SO-8 package. It operates over an ambient temperature range of  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$ .

#### FEATURES

- 1.5W to 8Ω BTL Load from 5V Supply at THD+N = 10% (TYP)
- Unity Gain Stable
- 2.5V to 5.5V Operation
- Shutdown Current: 0.7μA (TYP)
- Thermal Overload Protection Circuitry
- No Output Coupling Capacitors, Bootstrap Capacitors or Snubber Networks Required
- External Gain Configuration Capability
- $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  Operating Temperature Range
- Small SO-8 Package

#### APPLICATIONS

Portable System  
Wireless Handset  
Mobile Phone  
PDAs



**PACKAGE/ORDERING INFORMATION**

MODEL	ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	MARKING INFORMATION
SGM4871	SGM4871YPS8/TR	SO-8(PP)	Tape and Reel, 2500	SGM4871YPS8
	SGM4871YS8/TR	SO-8	Tape and Reel, 2500	SGM4871YS8

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage ..... 5.5V  
 Input Voltage ..... - 0.1V to (V+) + 0.1V  
 Storage Temperature Range ..... - 65°C to +150°C  
 Junction Temperature ..... 150°C  
 Operating Temperature Range ..... - 40°C to +85°C  
 Lead Temperature Range (Soldering 10 sec)  
 ..... 260°C

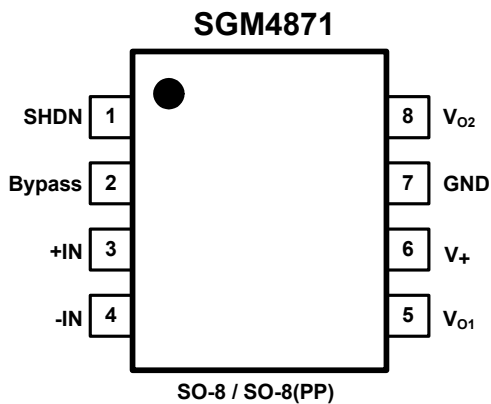
**NOTES**

1. Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**CAUTION**

This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.  
 ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

**PIN CONFIGURATION (Top View)**



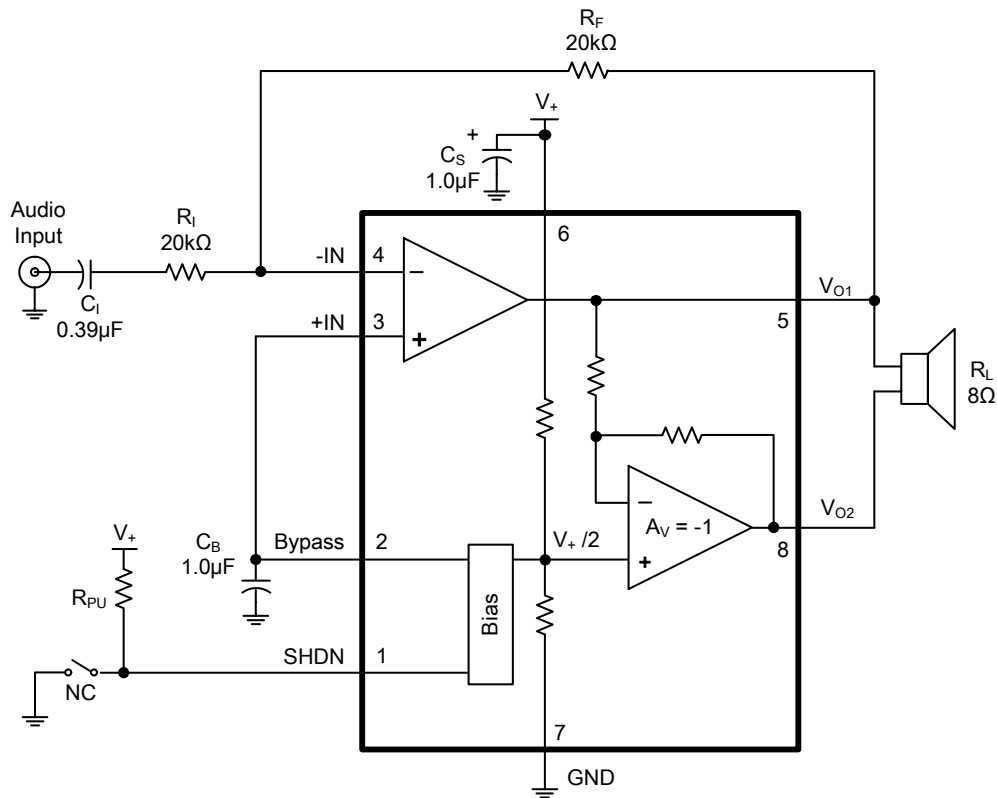
**ELECTRICAL CHARACTERISTICS**

The following specifications apply for  $T_A = 25^\circ\text{C}$ ,  $V_+ = 5\text{V}$  and  $R_L = 8\Omega$ , unless otherwise specified.

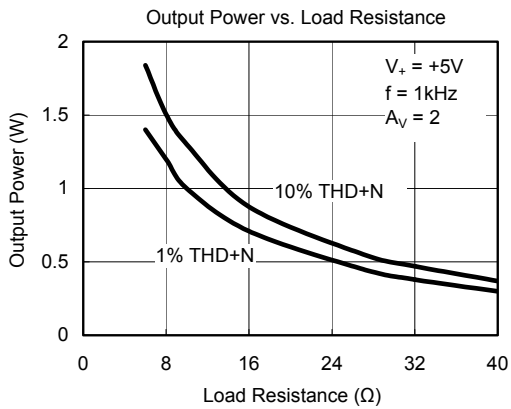
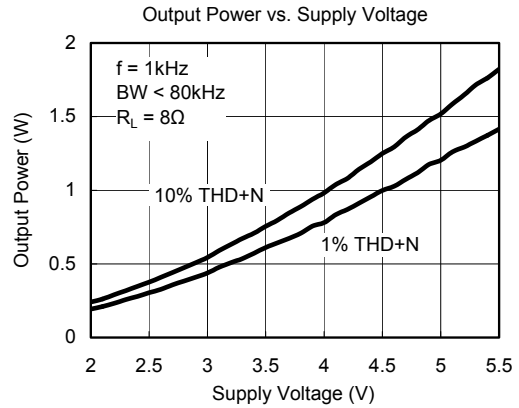
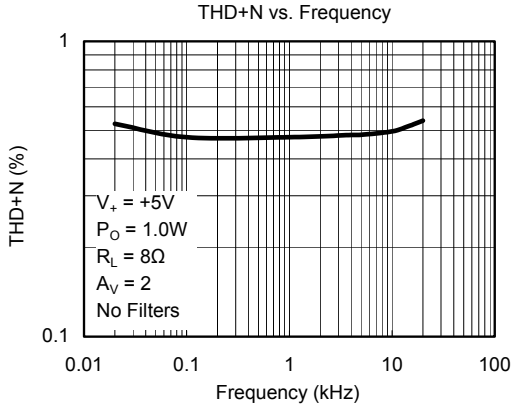
PARAMETER	SYMBOL	CONDITIONS	SGM4871			UNITS
			MIN	TYP	MAX	
Supply Voltage	$V_+$		2.5		5.5	V
Quiescent Power Supply Current	$I_Q$	$V_{\text{SHDN}} = \text{GND}$	No Load	4.9		mA
			$R_L = 8\Omega$	5.1		
Shutdown Current	$I_{\text{SD}}$	$V_+ = 5.0\text{V}$ , $V_{\text{SHDN}} = 5.0\text{V}$ , $I_O = 0\text{mA}$		0.7		$\mu\text{A}$
Shutdown Voltage Input High	$V_{\text{SDIH}}$		1.2			V
Shutdown Voltage Input Low	$V_{\text{SDIL}}$				0.4	
Output Power (8 $\Omega$ )	$P_O$	$f = 1\text{kHz}$ , THD+N = 1%		1.2		W
		$f = 1\text{kHz}$ , THD+N = 10%		1.5		W
Total Harmonic Distortion + Noise	THD+N	$20\text{Hz} < f < 20\text{kHz}$ , $R_L = 8\Omega$ , $P_O = 1\text{W}$		0.4		%
Power Supply Rejection Ratio	PSRR	$V_{\text{SHDN}} = \text{GND}$ , $V_+ = 4.9\text{V}$ to $5.1\text{V}$		70		dB

Specifications subject to changes without notice.

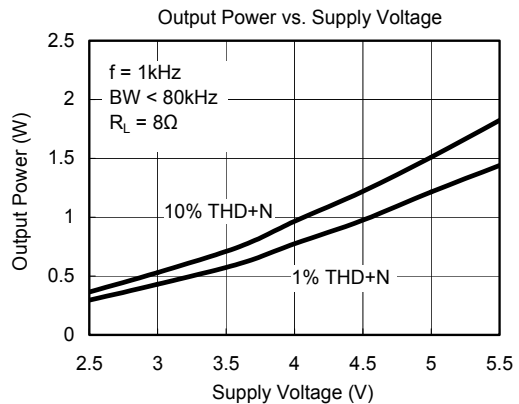
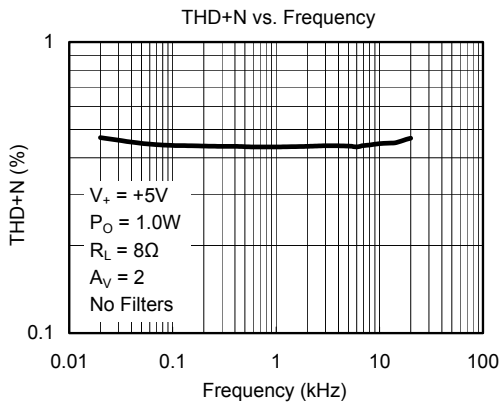
TYPICAL APPLICATION



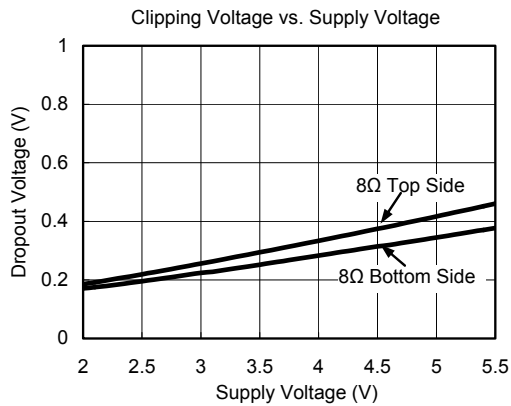
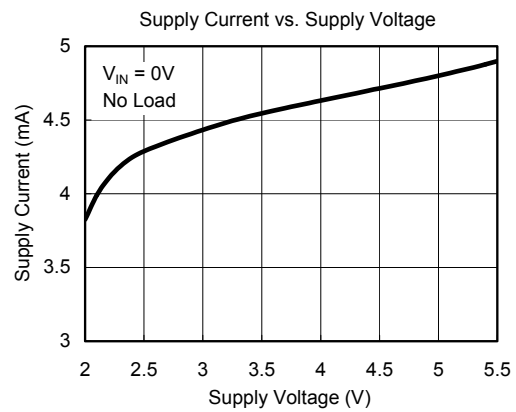
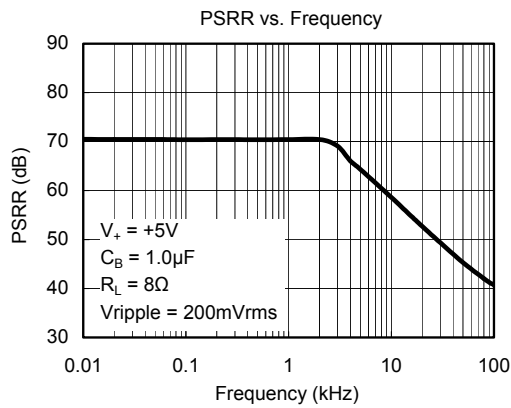
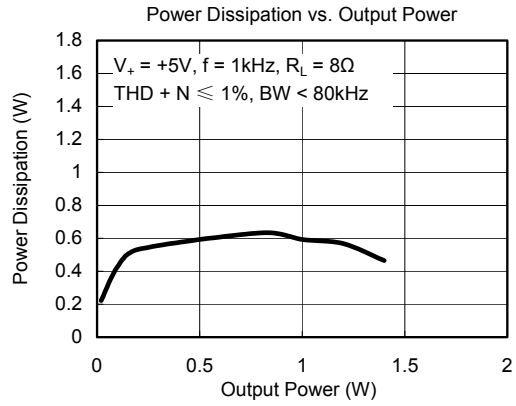
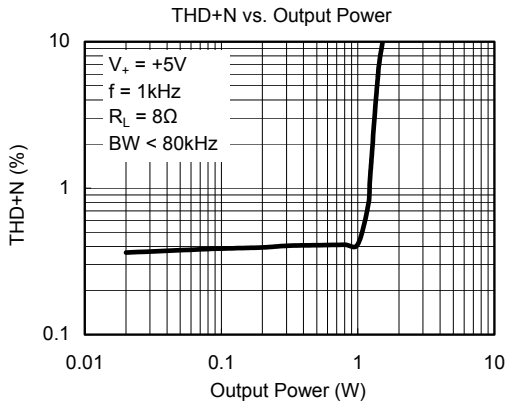
TYPICAL PERFORMANCE CHARACTERISTICS (SGM4871YS8)



TYPICAL PERFORMANCE CHARACTERISTICS (SGM4871YPS8)

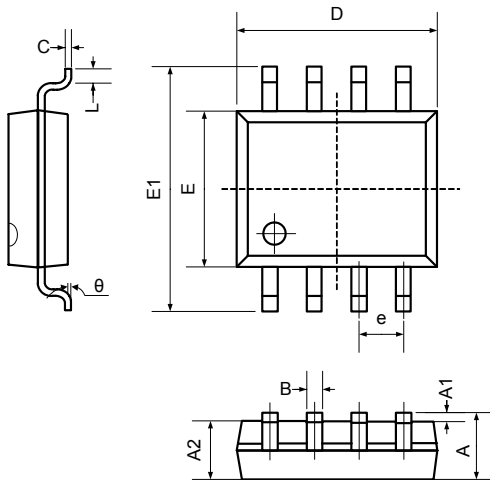


TYPICAL PERFORMANCE CHARACTERISTICS (SGM4871YPS8) Cont.



PACKAGE OUTLINE DIMENSIONS

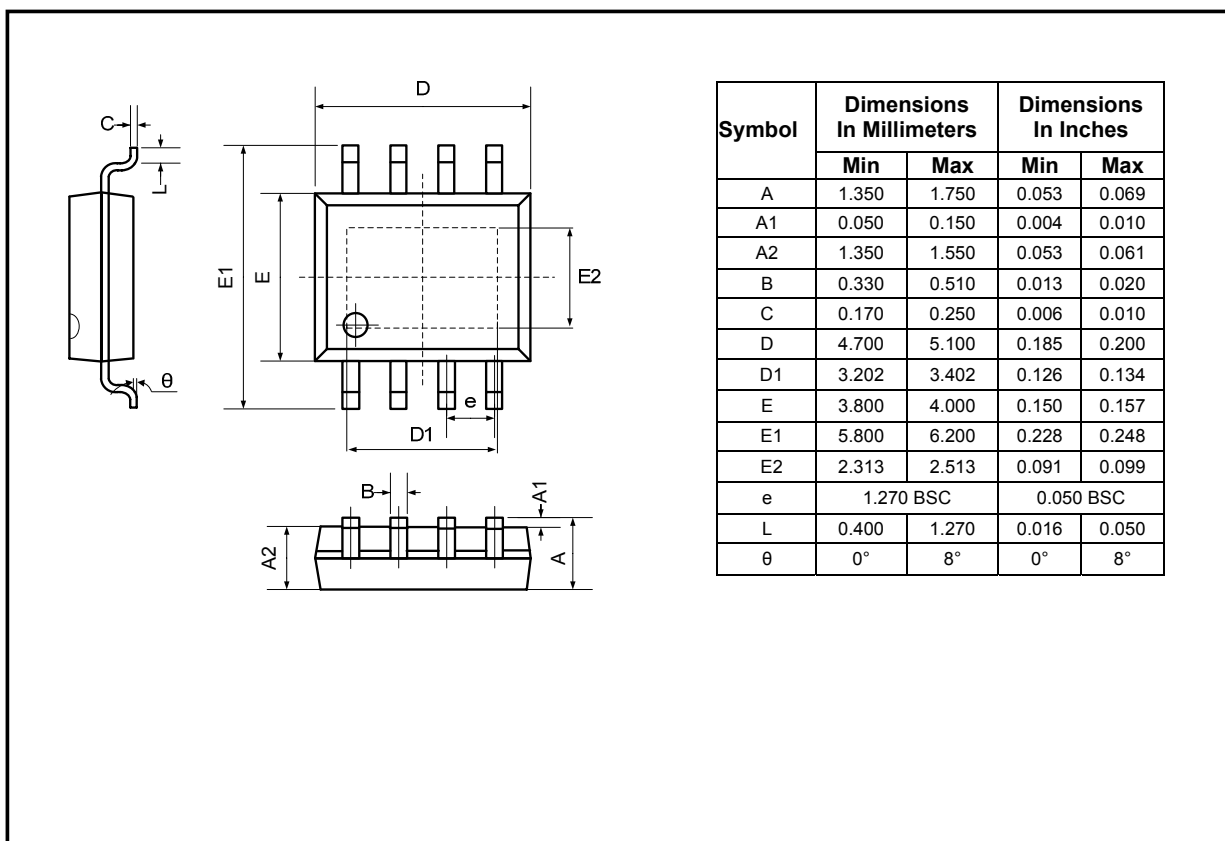
SO-8



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	0.190	0.250	0.007	0.010
D	4.780	5.000	0.188	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.248
e	1.270TYP		0.050TYP	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

PACKAGE OUTLINE DIMENSIONS

SO-8(PP)



SGMICRO is dedicated to provide high quality and high performance analog IC products to customers. All SGMICRO products meet the highest industry standards with strict and comprehensive test and quality control systems to achieve world-class consistency and reliability.

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