



# SGM4992

## 1.1W Stereo Audio Power Amplifier

### GENERAL DESCRIPTION

The SGM4992 is a stereo audio power amplifier that is designed for demanding applications in mobile phones and other portable communication device applications. It is capable of delivering 1.1W of continuous average power per channel into an 8Ω Bridge Tied Load (BTL) with less than 1% distortion (THD+N) from a 5V power supply.

The SGM4992 features independent shutdown control for each channel and a low-power consumption shutdown mode, which is achieved by driving both shutdown pins with logic low. Additionally, it features an internal thermal shutdown protection mechanism.

The SGM4992 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 SGM4992 contains advanced pop & click circuitry which eliminates noise which would otherwise occur during turn-on and turn-off transitions.

The SGM4992 is unity-gain stable and can be configured by external gain-setting resistors.

The SGM4992 is available in Pb-free TDFN-14 (4.0mm×3.0mm) package. It operates over an ambient temperature range of -40°C to +85°C.

### FEATURES

- **1.1W to 8Ω BTL Load from 5V Supply at THD+N = 1% Typical (per Channel)**
- **Excellent PSRR: Direct Connection to the Battery**
- **Unity Gain Stable**
- **2.5V to 5.5V Operation**
- **Shutdown Current: 0.1μA (TYP)**
- **Shutdown Pin is Compatible with 1.8V Logic**
- **Improved Pop & Click Circuitry**
- **No Output Coupling Capacitors**
- **External Gain Configuration Capability**
- **-40°C to +85°C Operating Temperature Range**
- **Available in Pb-Free TDFN-14 (4.0mm×3.0mm) Package**

### APPLICATIONS

Portable Systems  
MP3 Players  
Mobile Phones  
PDAs  
GPS

**PACKAGE/ORDERING INFORMATION**

MODEL	ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	MARKING INFORMATION
SGM4992	SGM4992YDA14/TR	TDFN-14 (4.0mm × 3.0mm)	Tape and Reel, 3000	SGM4992DA

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage	6V
Input Voltage	-0.3V to (V <sub>+</sub> ) + 0.3V
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
ESD Susceptibility	
HBM	4000V
MM	400V

**NOTES**

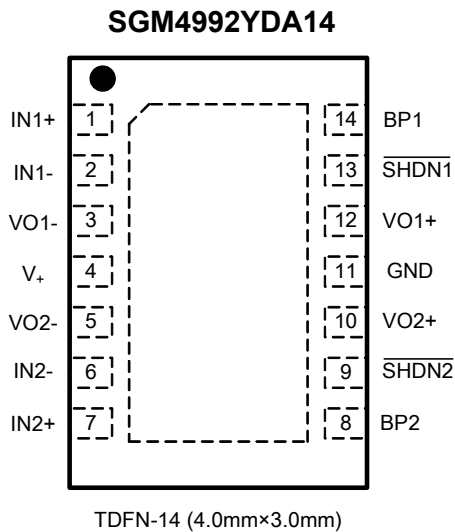
1. Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to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

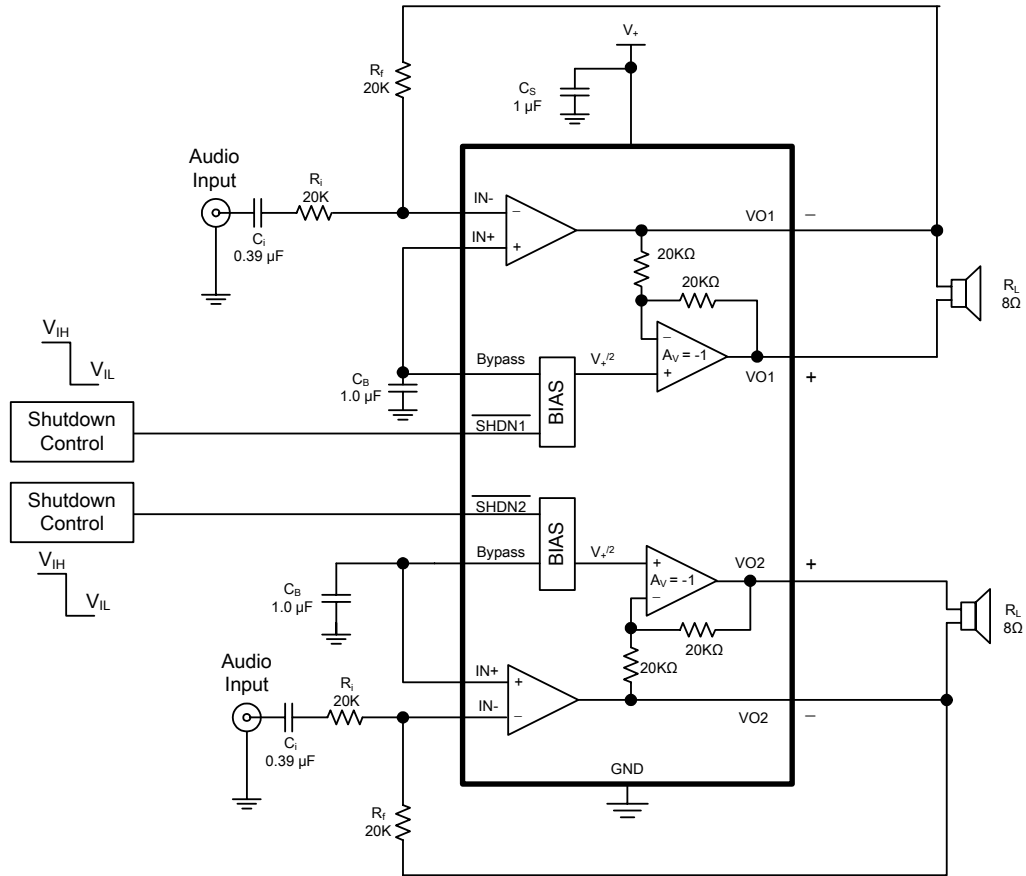


**ELECTRICAL CHARACTERISTICS:  $T_A = 25^\circ\text{C}$** 

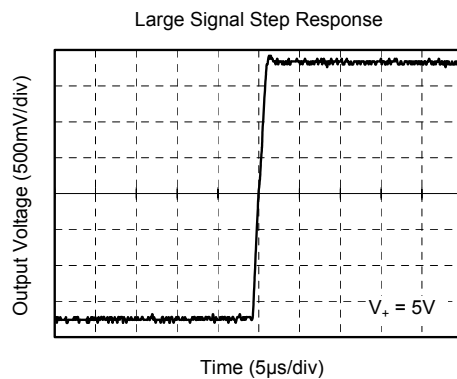
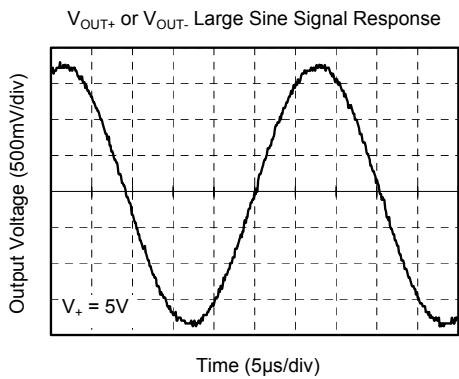
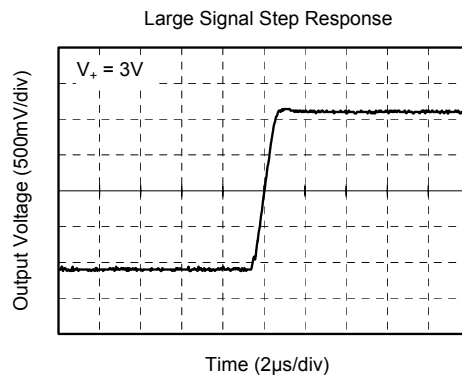
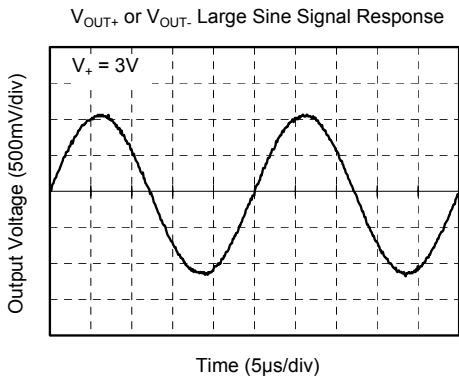
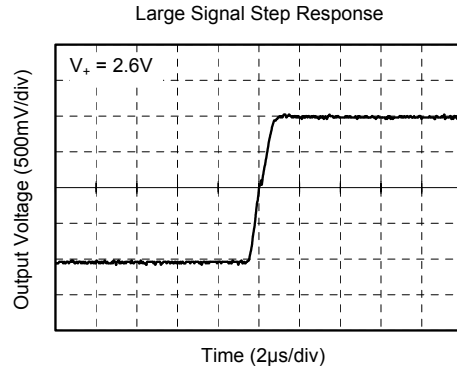
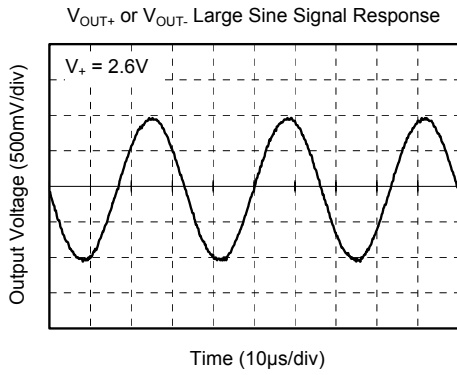
PARAMETER	SYMBOL	CONDITIONS		SGM4992			UNITS
				MIN	TYP	MAX	
Supply Voltage	$V_+$			2.5		5.5	V
Quiescent Power Supply Current	$I_Q$	$V_{IN} = 0V,$ $I_O = 0A$	$V_+ = 5.0V, \text{No Load}$		8	16	mA
			$V_+ = 5.0V, 8\Omega \text{ Load}$		10	20	
			$V_+ = 3.3V, \text{No Load}$		7.5	14	
			$V_+ = 3.3V, 8\Omega \text{ Load}$		9.5	17	
			$V_+ = 2.6V, \text{No Load}$		7		
			$V_+ = 2.6V, 8\Omega \text{ Load}$		9		
Shutdown Current	$I_{SD}$	$V_{SHDN} = 0V$			0.1	3	$\mu A$
Shutdown Voltage Input High	$V_{SDIH}$			1.8			V
Shutdown Voltage Input Low	$V_{SDIL}$					0.4	V
Output Offset Voltage	$V_{OS}$			-55	2	55	mV
Output Power per Channel (8 $\Omega$ )	$P_O$	$f = 1\text{kHz},$ $\text{THD+N}=1\%$	$V_+ = 5.0V$		1.10		W
			$V_+ = 3.6V$		0.58		
			$V_+ = 3.0V$		0.40		
			$V_+ = 2.6V$		0.30		
Total Harmonic Distortion + Noise	THD+N	$P_O = 0.5W_{rms}, f = 1\text{kHz}$			0.01		%
Power Supply Rejection Ratio	PSRR	$f = 217\text{Hz}$	$V_+ = 5.0V$		-66		dB
			$V_+ = 3.6V$		-63		
			$V_+ = 3.0V$		-63		
			$V_+ = 2.6V$		-62		
		$f = 1\text{kHz}$	$V_+ = 5.0V$		-72		
			$V_+ = 3.6V$		-68		
			$V_+ = 3.0V$		-66		
			$V_+ = 2.6V$		-64		
Crosstalk	$X_{talk}$	$f = 1\text{kHz}, V_+ = 5V, V_O = 250mW$			-120		dB
Wake-up Time	$T_{WU}$	$C_B = 1\mu F$	$V_+ = 5.0V$		110		ms
			$V_+ = 3.6V$		110		
			$V_+ = 3.0V$		100		
			$V_+ = 2.6V$		100		
Shut Down Time	$T_{SDT}$	8 $\Omega$ Load	$V_+ = 5.0V$		10		$\mu s$
			$V_+ = 3.6V$		16		
			$V_+ = 3.0V$		17.8		
			$V_+ = 2.6V$		17.8		

Specifications subject to changes without notice.

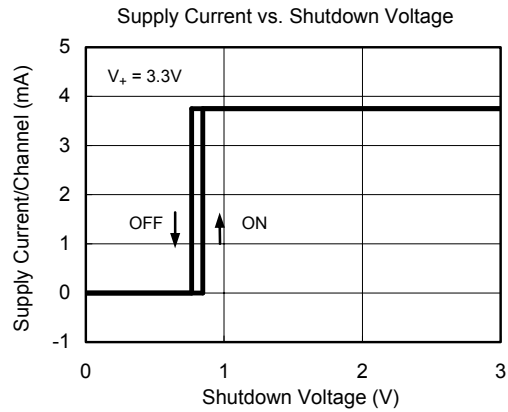
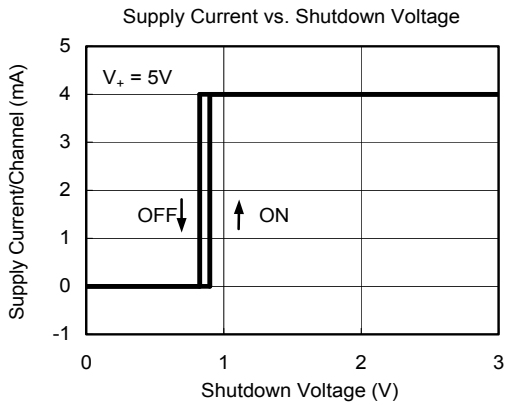
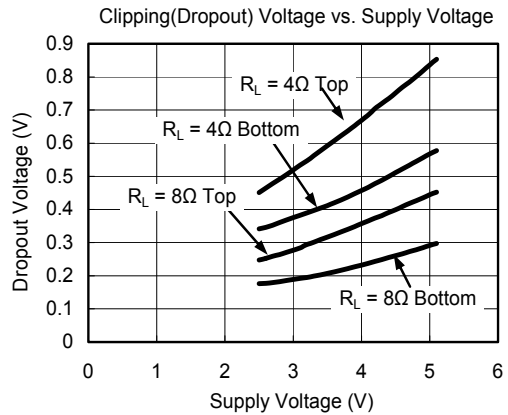
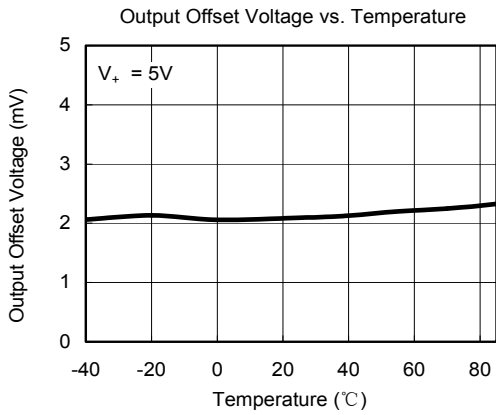
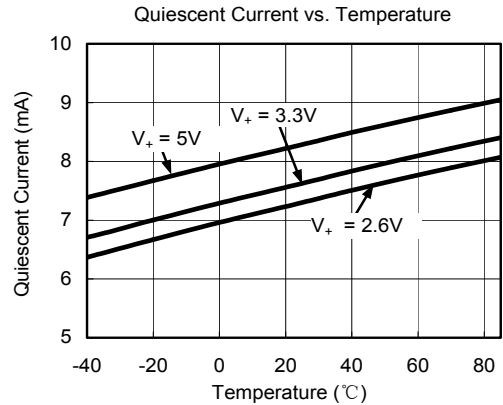
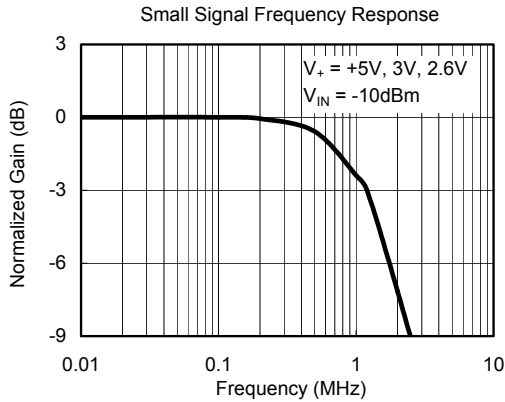
TYPICAL APPLICATION



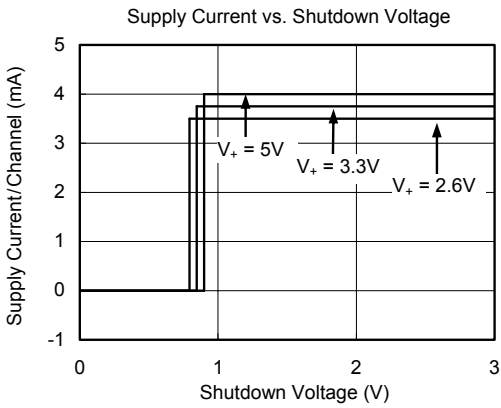
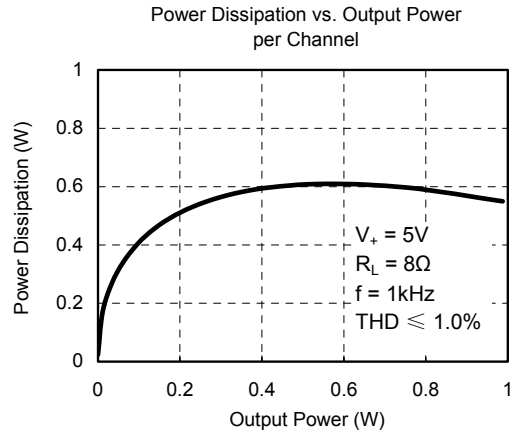
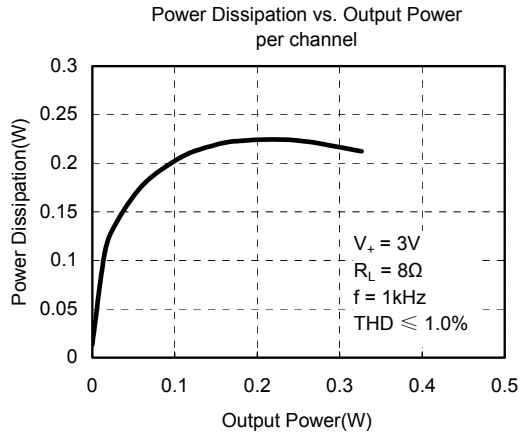
TYPICAL PERFORMANCE CHARACTERISTICS



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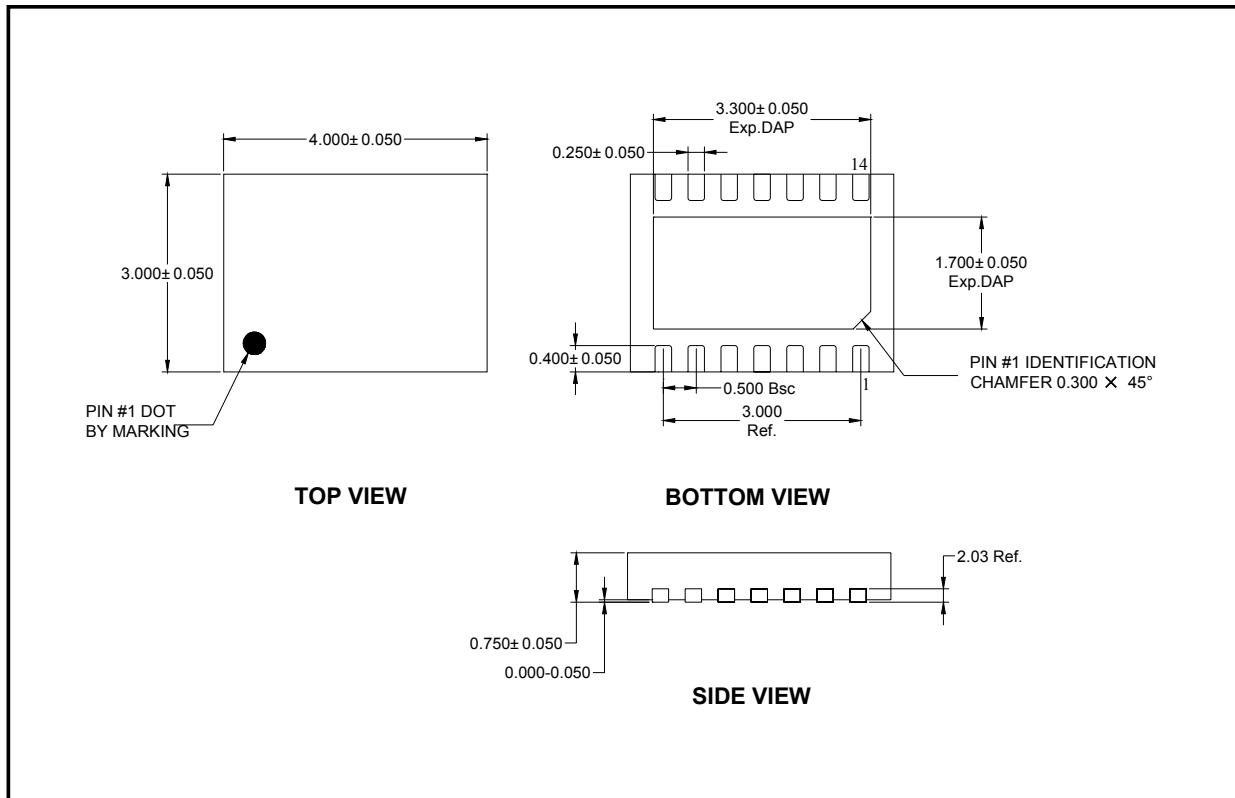


TYPICAL PERFORMANCE CHARACTERISTICS



PACKAGE OUTLINE DIMENSIONS

TDFN-14



Note: All linear dimensions are in millimeters.

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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