



SGM4865

2.6W Stereo Audio Power Amplifier

GENERAL DESCRIPTION

The SGM4865 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 2.6W of continuous average power per channel into a 4Ω Load with 10% distortion (THD+N) from a 5V power supply.

The SGM4865 features an externally controlled, low-power consumption shutdown mode and thermal shutdown protection. It also utilizes circuitry to reduce “clicks and pops” during device turn-on.

The SGM4865 is unity-gain stable and can be configured by external gain-setting resistors.

The SGM4865 is available in Green TQFN4*4-16L package. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- 2.6W to 4Ω Load from 5V Supply at THD+N = 10% Typical (per Channel)
- Excellent PSRR: Direct Connection to the Battery
- Unity Gain Stable
- 2.6V to 5.5V Operation
- Shutdown Current: 0.01μA (TYP)
- Improved Pop & Click Circuitry
- No Output Coupling Capacitors
- External Gain Configuration Capability
- Thermal Shutdown Protection Circuitry
- -40°C to +85°C Operating Temperature Range
- Available in Green TQFN4*4-16L Package

APPLICATIONS

Cell phones, PDA, MP4, PMP
 Portable and desktop computers
 Desktops Audio System
 Multimedia monitors

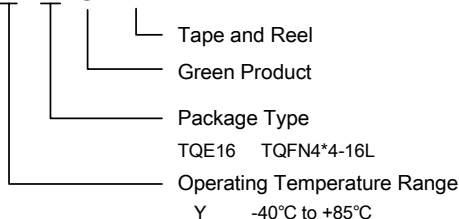


PACKAGE/ORDERING INFORMATION

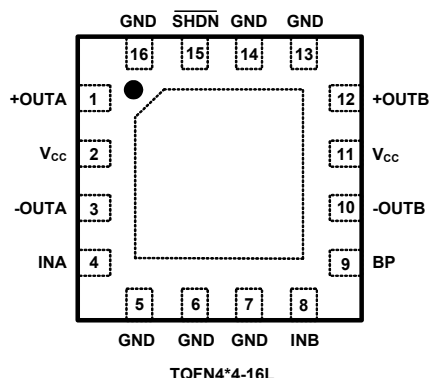
MODEL	ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	MARKING INFORMATION
SGM4865	SGM4865YTQE16G/TR	TQFN4*4-16L	Tape and Reel, 3000	SGM4865YTQE16

ORDER NUMBER

SGM4865 X X G / TR



PIN CONFIGURATION (Top View)



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.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	6V
Input Voltage	-0.3V to (V _{CC}) + 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	2000V
MM	200V

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.

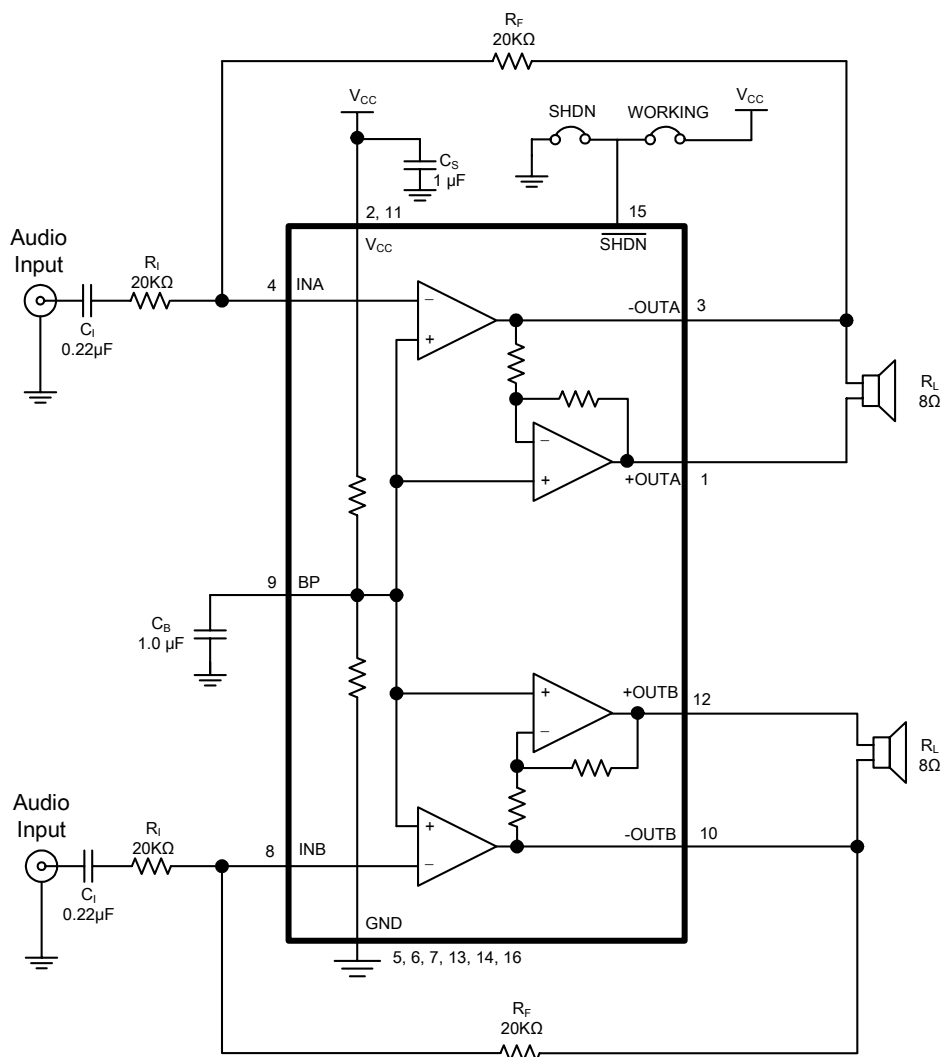
ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified.

PARAMETER	SYMBOL	CONDITIONS		SGM4865			UNITS
				MIN	TYP	MAX	
Supply Voltage	V _{CC}			2.6		5.5	V
Quiescent Power Supply Current	I _Q	V _{IN} = 0V, I _O = 0A, V _{SHDN} = V _{CC}	V _{CC} = 5V, No Load		5.58		mA
			V _{CC} = 5V, 8 Ω Load		6.15		
			V _{CC} = 3.0V, No Load		5.00		
			V _{CC} = 3.0V, 8 Ω Load		5.30		
			V _{CC} = 2.6V, No Load		4.78		
			V _{CC} = 2.6V, 8 Ω Load		5.07		
Shutdown Current	I _{SD}	V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 5.0V			0.01		μA
		V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 3.0V			0.01		
		V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 2.6V			0.01		
Shutdown Voltage Input High	V _{SDIH}			1.2			V
Shutdown Voltage Input Low	V _{SDIL}					0.4	
Output Offset Voltage	V _{OS}	V _{IN} = 0V, V _{SHDN} = V _{CC} = 5.0V			8.00		mV
		V _{IN} = 0V, V _{SHDN} = V _{CC} = 3.0V			5.50		
		V _{IN} = 0V, V _{SHDN} = V _{CC} = 2.6V			5.00		
Output Power per Channel (8Ω)	P _O	f = 1kHz, THD+N = 1%	V _{CC} = 5V		1.30		W
			V _{CC} = 3.6V		0.70		
			V _{CC} = 3.0V		0.45		
		f = 1kHz, THD+N = 10%	V _{CC} = 5V		1.60		
			V _{CC} = 3.6V		0.85		
			V _{CC} = 3.0V		0.55		
Output Power per Channel (4Ω)		f = 1kHz, THD+N = 1%	V _{CC} = 5V		2.10		W
			V _{CC} = 3.6V		1.00		
			V _{CC} = 3.0V		0.70		
		f = 1kHz, THD+N = 10%	V _{CC} = 5V		2.60		
			V _{CC} = 3.6V		1.30		
			V _{CC} = 3.0V		0.90		
Total Harmonic Distortion + Noise	THD+N	V _{CC} = 5V, R _L = 8Ω, P _O = 0.6W, f = 1kHz			0.16		%
Power Supply Rejection Ratio	PSRR	f = 217Hz, Input Grounded with 10Ω	V _{CC} = 5V		-70		dB
			V _{CC} = 3.6V		-70		
			V _{CC} = 3.0V		-70		
		f = 1kHz Input Grounded with 10Ω	V _{CC} = 5V		-71		
			V _{CC} = 3.6V		-71		
			V _{CC} = 3.0V		-71		
Crosstalk	X _{talk}	V _{CC} = 5V, P _O = 1W, C _{BYPASS} = 1μF			-90		dB
Turn-On Time	T _{ON}	C _{BYPASS} = 1μF	V _{CC} = 5V		180		ms
			V _{CC} = 3.6V		160		
			V _{CC} = 3.0V		120		

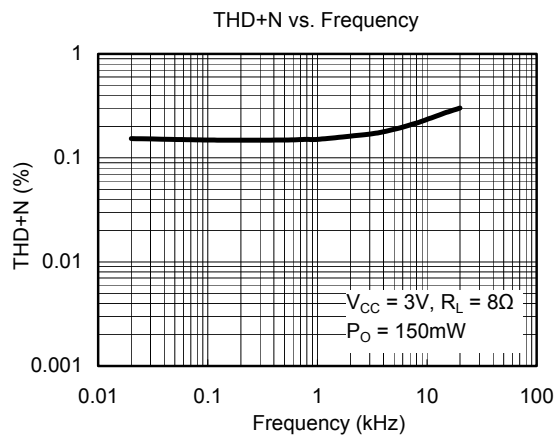
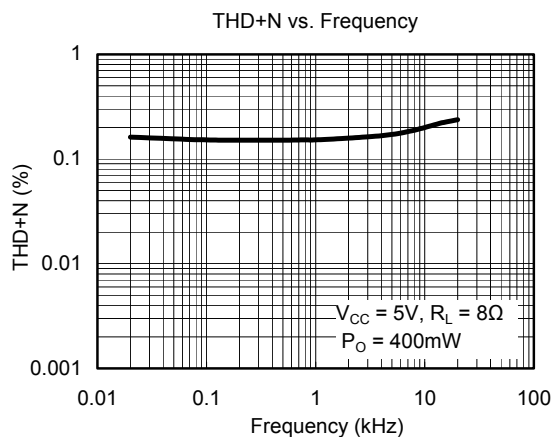
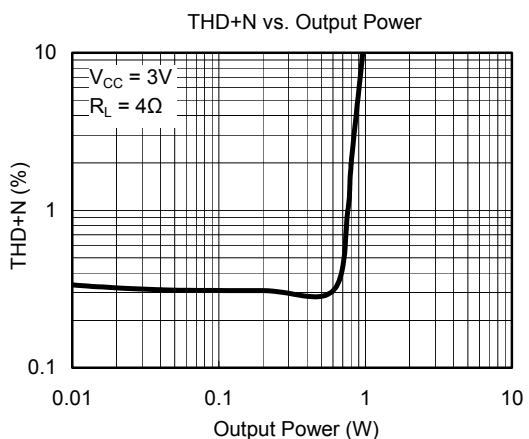
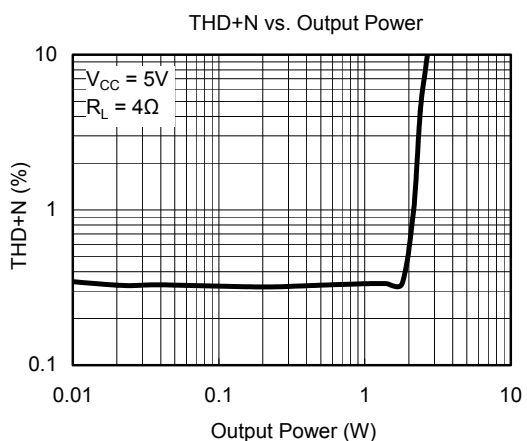
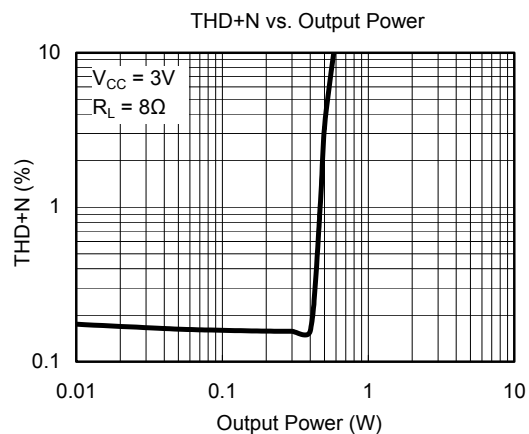
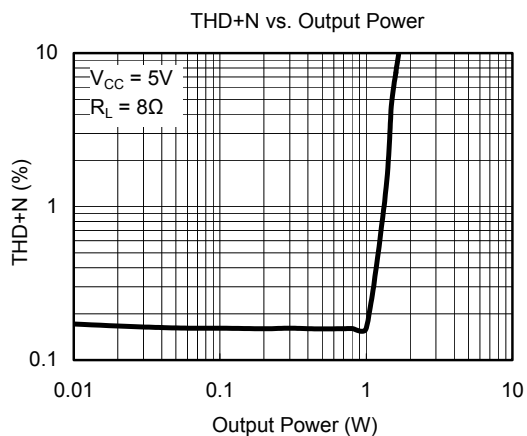
Specifications subject to changes without notice.

TYPICAL APPLICATION CIRCUIT



TYPICAL PERFORMANCE CHARACTERISTICS

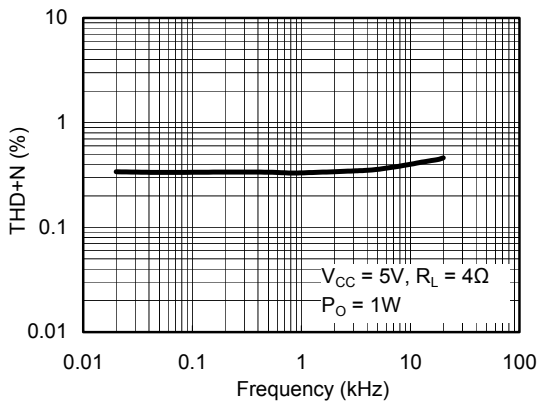
At $T_A = +25^\circ\text{C}$, $A_V = 2$, $f = 1\text{kHz}$, $C_B = 1\mu\text{F}$, unless otherwise noted.



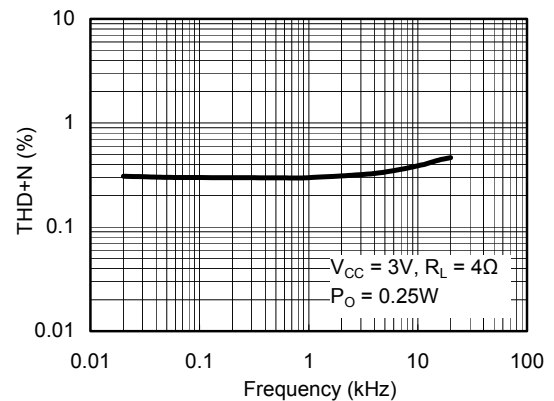
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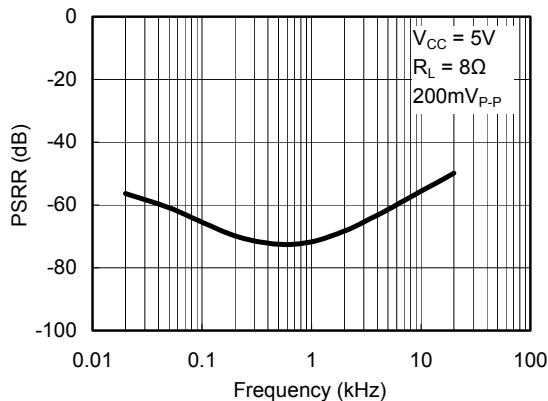
THD+N vs. Frequency



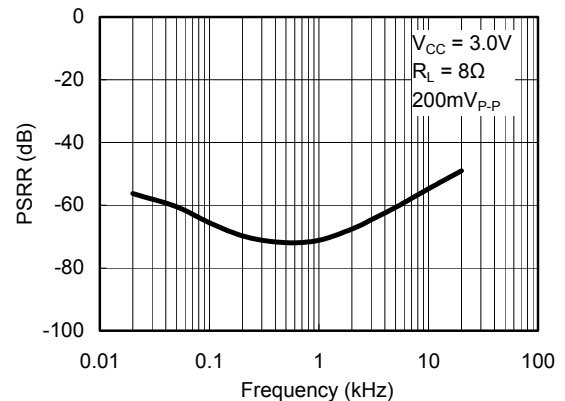
THD+N vs. Frequency



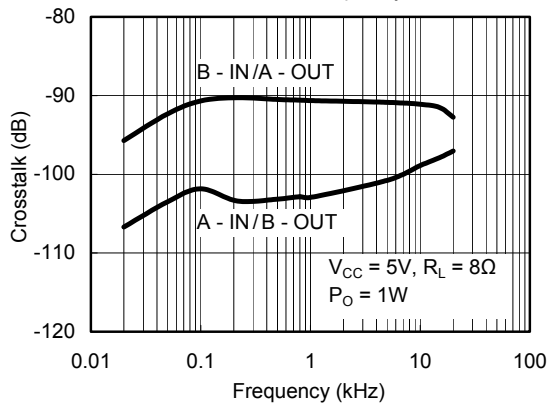
Power-Supply Rejection Ratio vs. Frequency



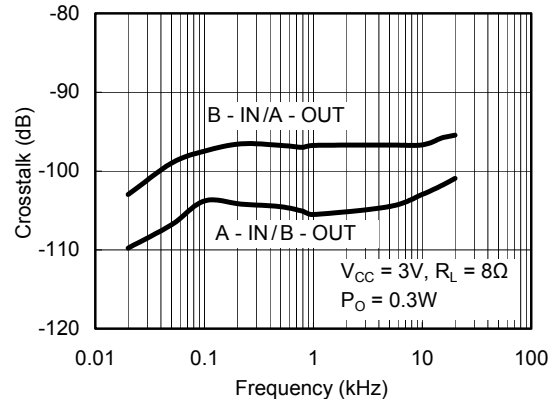
Power-Supply Rejection Ratio vs. Frequency



Crosstalk vs. Frequency

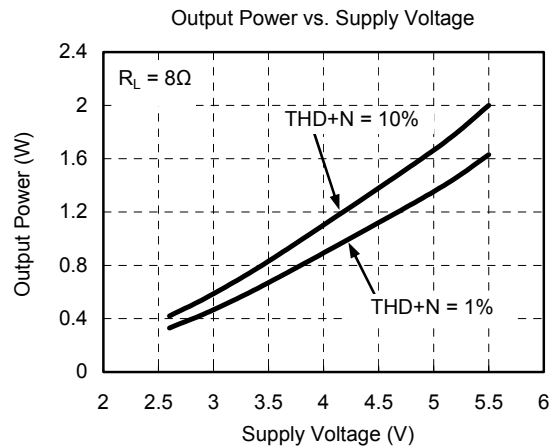
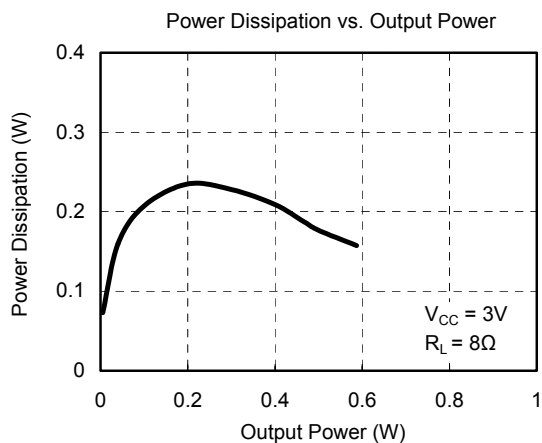
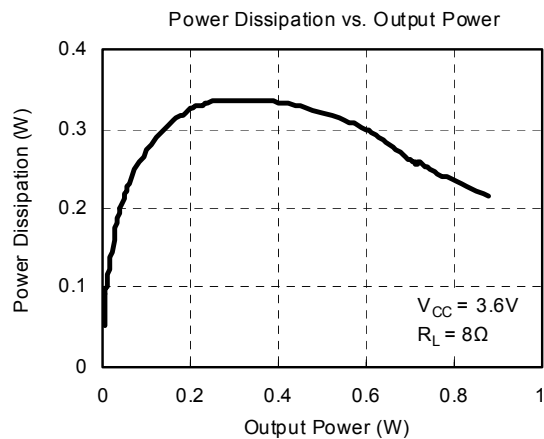
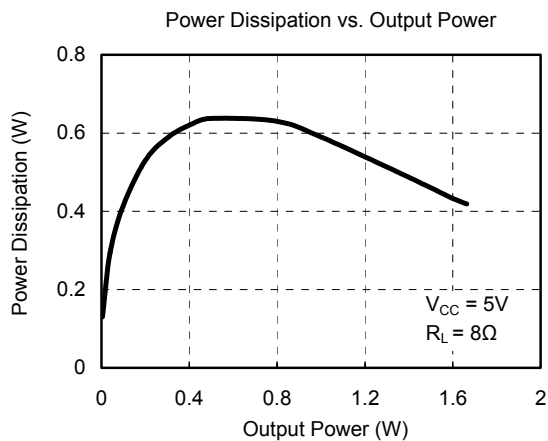


Crosstalk vs. Frequency



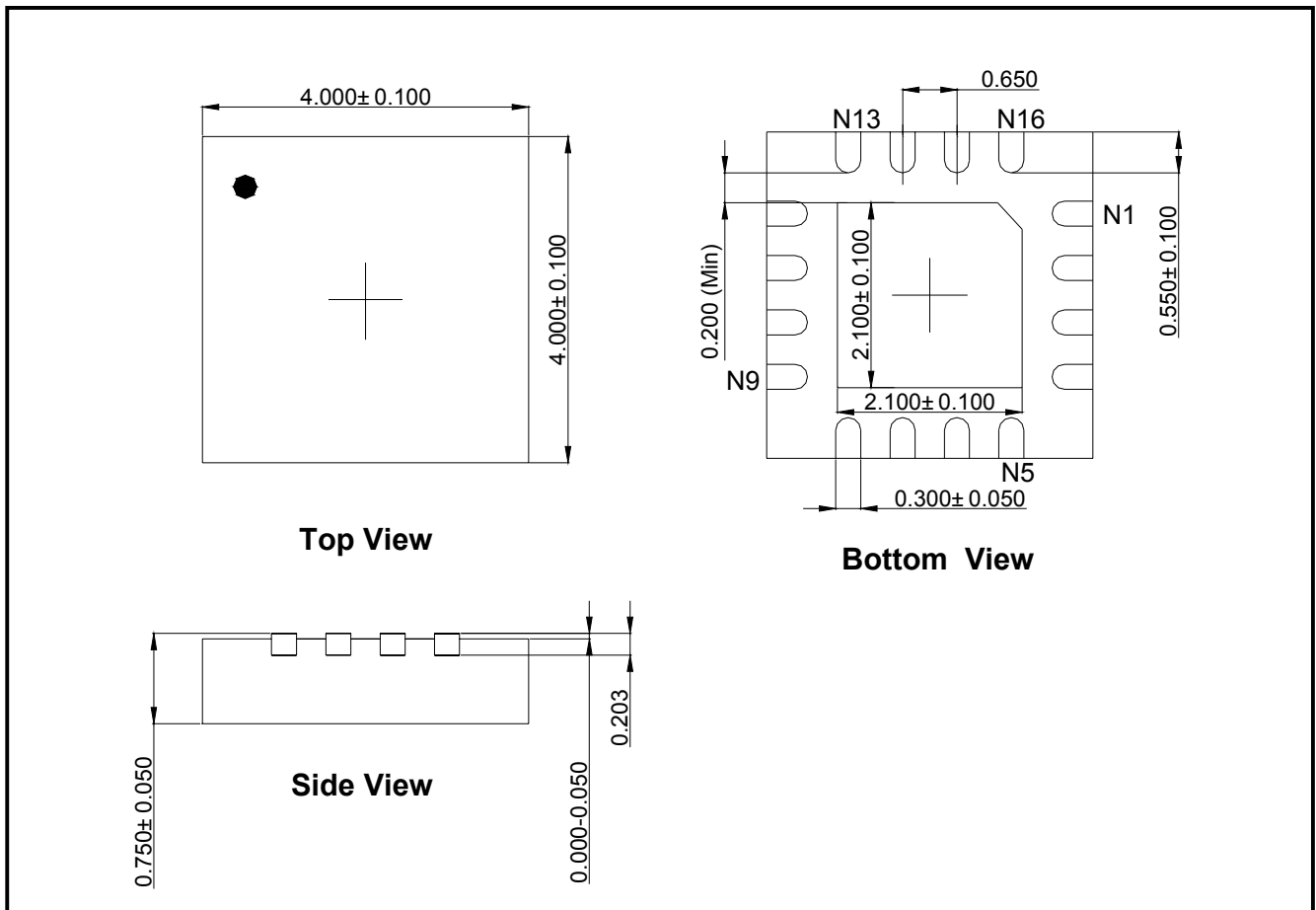
TYPICAL PERFORMANCE CHARACTERISTICS

At $T_A = +25^\circ\text{C}$, $A_V = 2$, $f = 1\text{kHz}$, $C_B = 1\mu\text{F}$, unless otherwise noted.



PACKAGE OUTLINE DIMENSIONS

TQFN4*4-16L



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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