

GENERAL DESCRIPTION

The SGM4865 is a stereo audio power amplifier which operates from 2.6V to 5.5V supply voltage. It can deliver 2.6W into a 4Ω load from 5V supply at THD+N = 1%. It is designed for portable applications. The external gain-setting resistors can configure the unity-gain stable of the device.

The SGM4865 has pop/click suppression circuitry, low power consumption shutdown mode and thermal shutdown protection.

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

FEATURES

- **Supply Voltage Range: 2.6V to 5.5V**
- **2.6W into 4Ω Load from 5V Supply at THD+N = 10% (Typical, per Channel)**
- **Shutdown Current: 0.03μA (TYP)**
- **Excellent PSRR: Direct Connection to Battery**
- **No Output Coupling Capacitors**
- **External Gain Configuration Capability**
- **Pop/Click Suppression Circuitry**
- **Unity Gain Stable**
- **Thermal Shutdown Protection**
- **-40°C to +85°C Operating Temperature Range**
- **Available in a Green TQFN-4×4-16L Package**

APPLICATIONS

Cell Phones, PDAs
Multimedia Monitors
Portable and Desktop Computers
Desktops Audio System

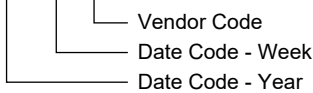
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4865	TQFN-4x4-16L	-40°C to +85°C	SGM4865YTQE16G/TR	SGM4865 YTQE16 XXXXX	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XXXXX = Date Code and Vendor Code.

XXXXX



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS

- Supply Voltage.....6V
- Input Voltage.....-0.3V to (V_{CC}) + 0.3V
- Junction Temperature.....+150°C
- Storage Temperature Range.....-65°C to +150°C
- Lead Temperature (Soldering, 10s).....+260°C
- ESD Susceptibility
- HBM.....4000V
- MM.....400V

RECOMMENDED OPERATING CONDITIONS

- Supply Voltage Range.....2.6V to 5.5V
- Operating Temperature Range.....-40°C to +85°C

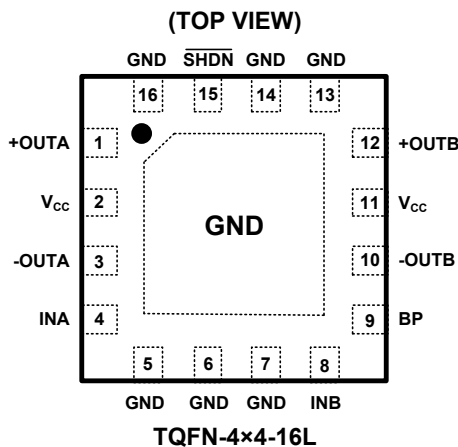
OVERSTRESS CAUTION

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. 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 even small parametric changes could cause the device not to meet the published specifications.

PIN CONFIGURATION



DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

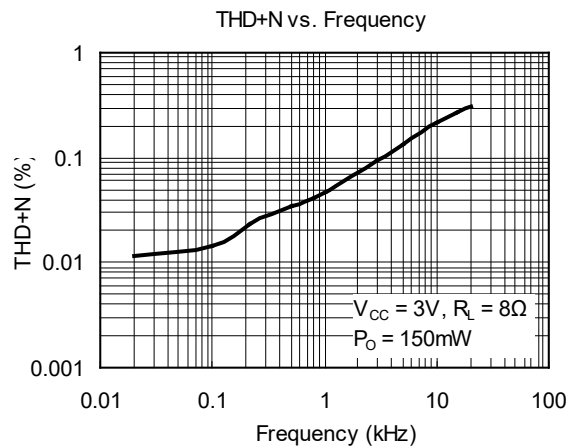
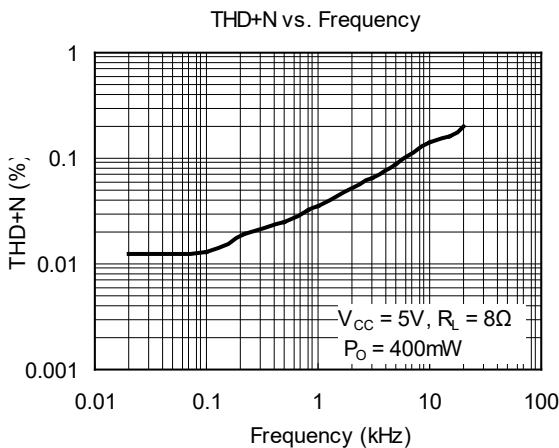
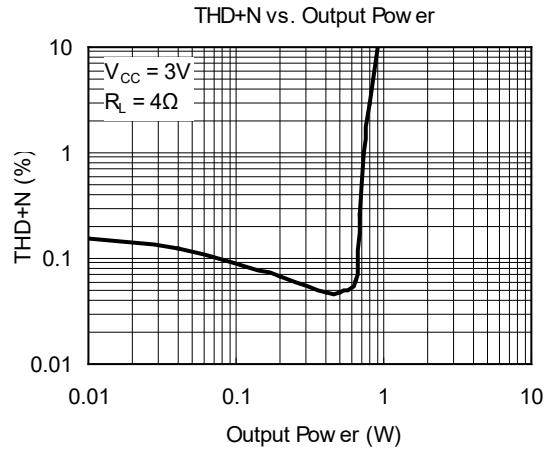
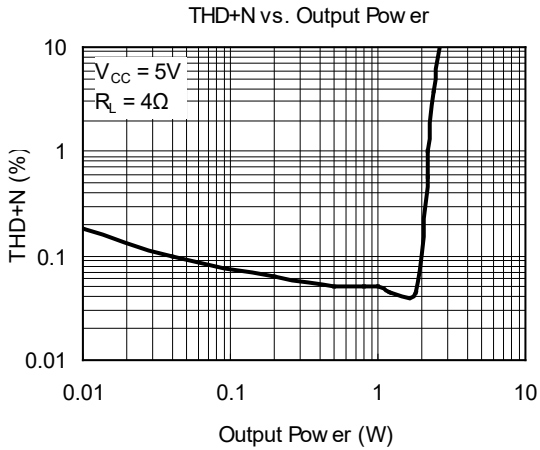
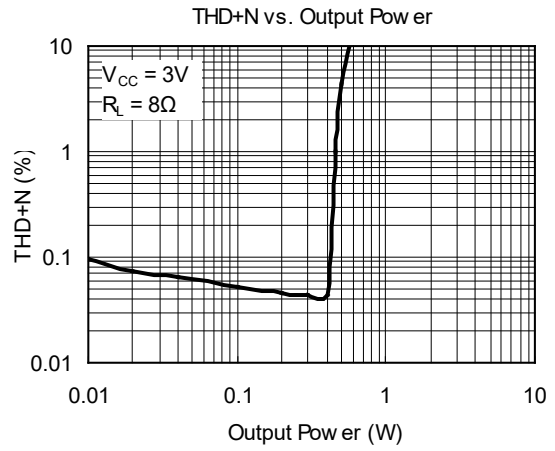
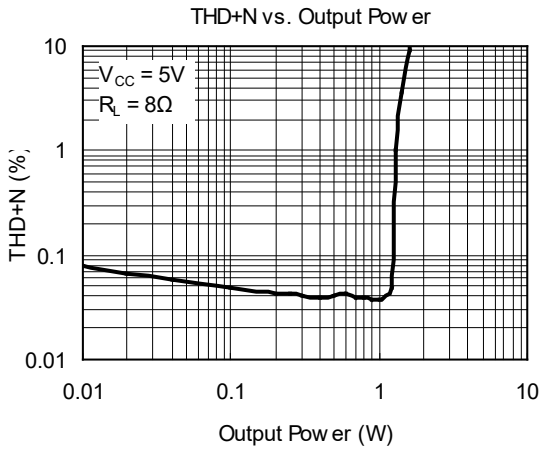
ELECTRICAL CHARACTERISTICS

(T_A = +25°C, unless otherwise specified.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
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		6.40		mA
			V _{CC} = 5V, 8Ω Load		7.00	10.5	
			V _{CC} = 3.0V, No Load		5.60		
			V _{CC} = 3.0V, 8Ω Load		5.90		
			V _{CC} = 2.6V, No Load		5.30		
			V _{CC} = 2.6V, 8Ω Load		5.60		
Shutdown Current	I _{SD}	V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 5.0V		0.03	4	μA	
		V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 3.0V		0.03			
		V _{IN} = 0V, V _{SHDN} = GND, V _{CC} = 2.6V		0.03			
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	-25	8.00	25	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)	P _O	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		0.04		%	
Power Supply Rejection Ratio	PSRR	f = 217Hz, C _B = 1μF, Input grounded with 10Ω	V _{CC} = 5V		-70	dB	
			V _{CC} = 3.6V		-70		
			V _{CC} = 3.0V		-70		
		f = 1kHz, C _B = 1μF, 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 _B = 1μF		-90		dB	
Turn-On Time	t _{ON}	C _B = 1μF	V _{CC} = 5V		180	ms	
			V _{CC} = 3.6V		160		
			V _{CC} = 3.0V		120		

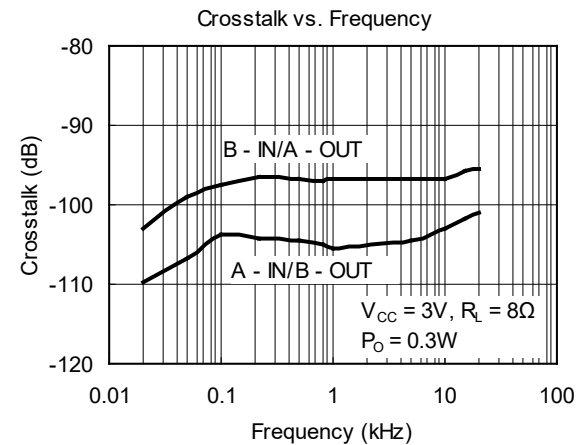
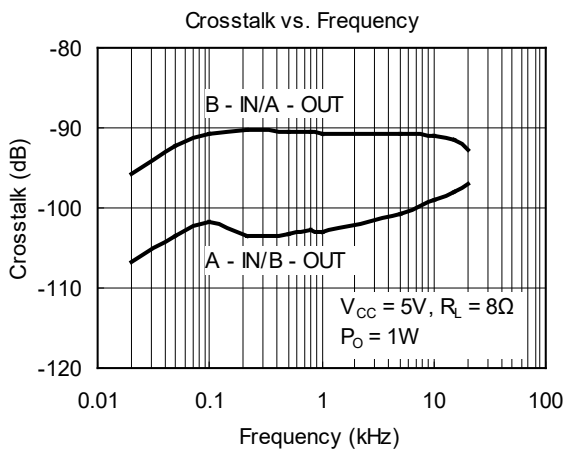
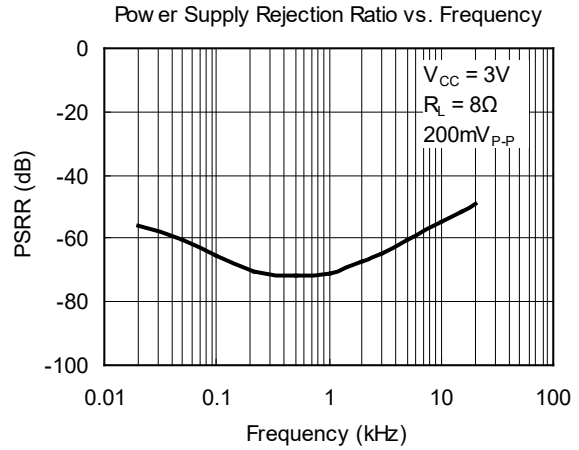
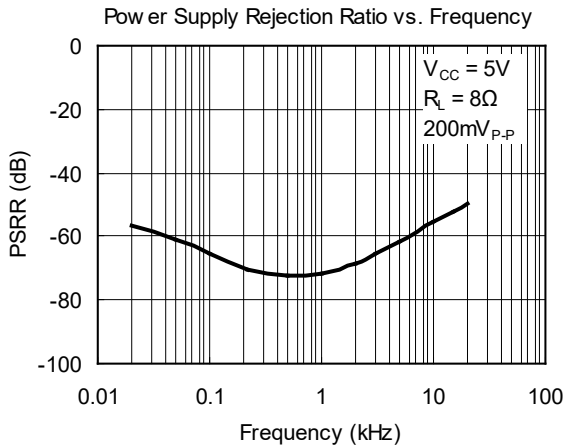
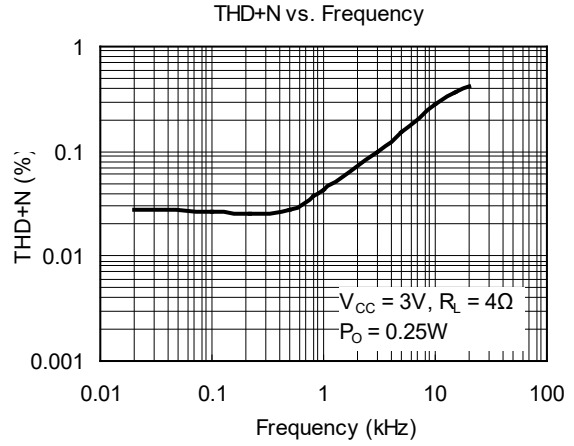
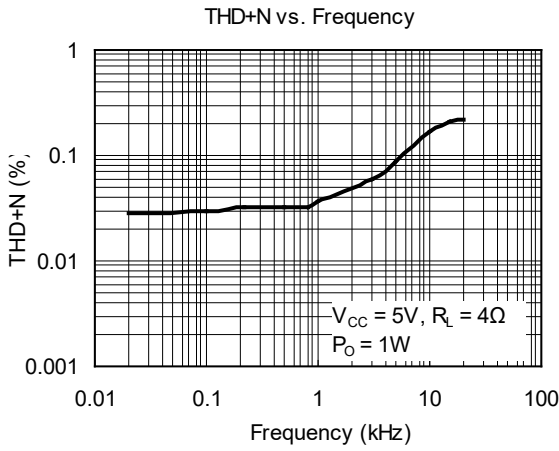
TYPICAL PERFORMANCE CHARACTERISTICS

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



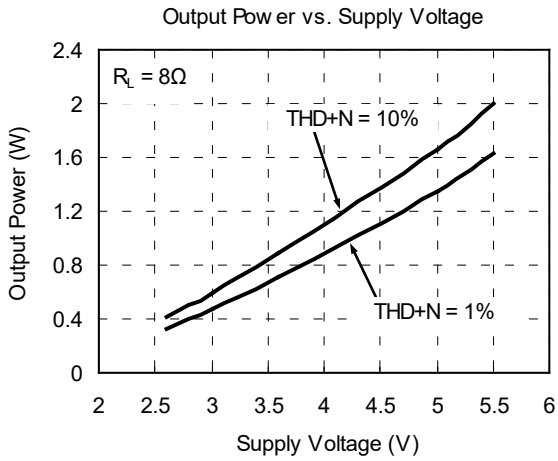
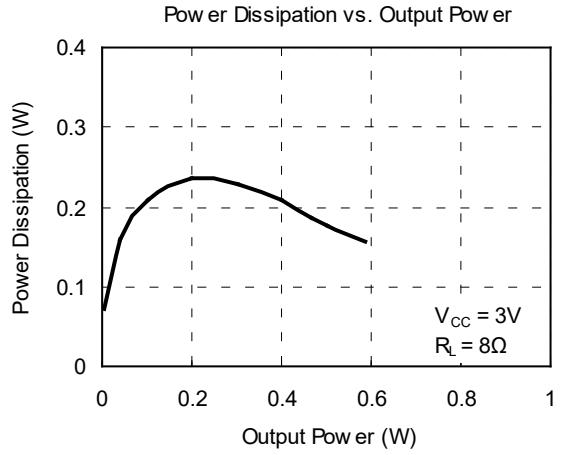
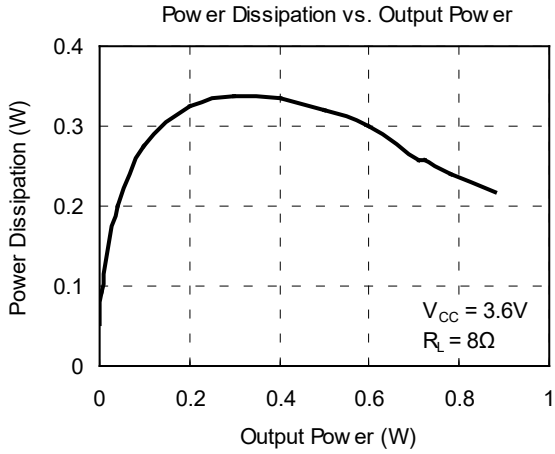
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

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



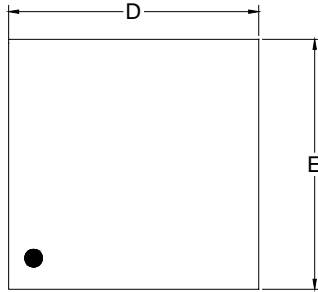
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

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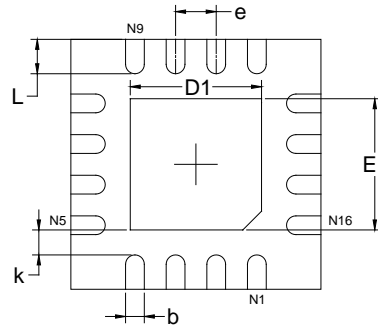


PACKAGE OUTLINE DIMENSIONS

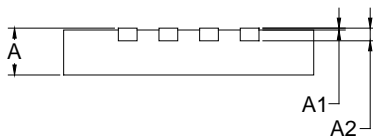
TQFN-4x4-16L



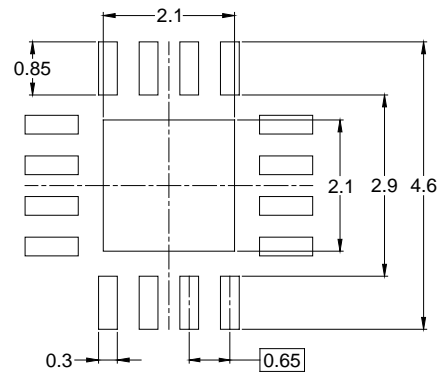
TOP VIEW



BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.203 REF		0.008 REF	
D	3.900	4.100	0.154	0.161
D1	2.000	2.200	0.079	0.087
E	3.900	4.100	0.154	0.161
E1	2.000	2.200	0.079	0.087
k	0.200 MIN		0.008 MIN	
b	0.250	0.350	0.010	0.014
e	0.650 TYP		0.026 TYP	
L	0.450	0.650	0.018	0.026

NOTE: This drawing is subject to change without notice.

PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TQFN-4×4-16L	13"	12.4	4.30	4.30	1.10	4.0	8.0	2.0	12.0	Q1

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PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002