



# SGM4891

## 1.2W Audio Power Amplifier

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### GENERAL DESCRIPTION

The SGM4891 is a fully-integrated audio power amplifier which operates from 2.5V to 5.5V supply voltage. It can deliver 1.2W into an 8Ω BTL load from 5V supply at THD+N = 1%. It is designed for portable application that needs low-component count.

The SGM4891 has a low power consumption shutdown mode and thermal shutdown protection.

The SGM4891 is applied to low power portable systems. Output coupling capacitors or bootstrap capacitors are not needed.

The SGM4891 provides an externally controlled gain (with resistors), as well as an externally controlled turn-on time (with the bypass capacitor) for maximum flexibility.

The SGM4891 is available in a Green TDFN-2×2-8L package. It operates over an ambient temperature range of -40°C to +85°C.

### FEATURES

- **Supply Voltage Range: 2.5V to 5.5V**
- **1.2W into 8Ω BTL Load from 5V Power Supply at THD+N = 1% (Typical, per Channel)**
- **Shutdown Current: 0.02μA (TYP)**
- **High PSRR**
- **Fast Turn-On Time**
- **Unity-Gain Stable**
- **Thermal Shutdown Protection**
- **-40°C to +85°C Operating Temperature Range**
- **Available in a Green TDFN-2×2-8L Package**

### APPLICATIONS

Mobile Phones  
TVs  
GPS  
Portable Systems

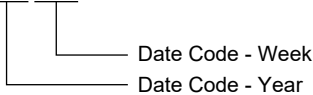
**PACKAGE/ORDERING INFORMATION**

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4891	TDFN-2x2-8L	-40°C to +85°C	SGM4891YDE8G/TR	4891 XXXX	Tape and Reel, 3000

**MARKING INFORMATION**

NOTE: XXXX = Date Code.

**XXXX**



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.

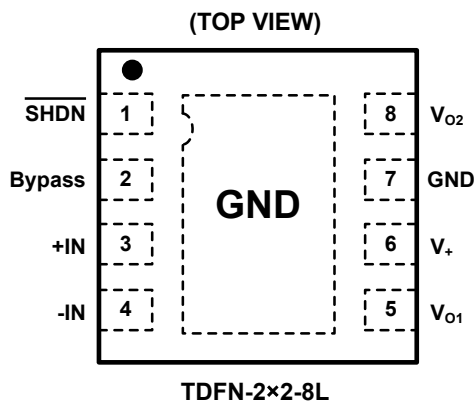
**ABSOLUTE MAXIMUM RATINGS**

- Supply Voltage.....6V
- Input Voltage.....-0.3V to (V<sub>+</sub>) + 0.3V
- Storage Temperature.....-65°C to +150°C
- Junction Temperature.....+150°C
- Lead Temperature Range (Soldering, 10s).....+260°C
- ESD Susceptibility
- HBM.....2000V
- MM.....200V

**RECOMMENDED OPERATING CONDITIONS**

- Supply Voltage Range .....2.5V to 5.5V
- Operating Temperature Range .....-40°C to +85°C

**PIN CONFIGURATION**



**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.

**DISCLAIMER**

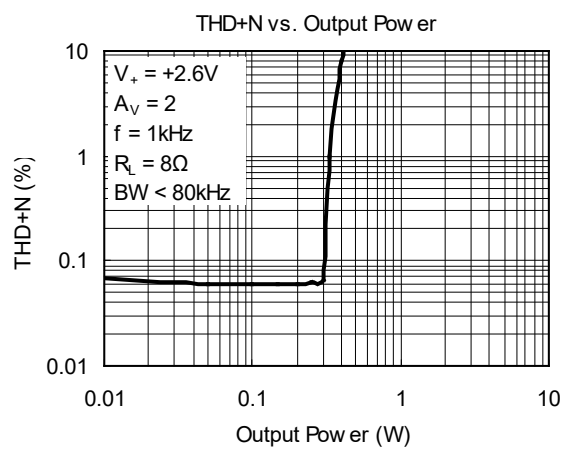
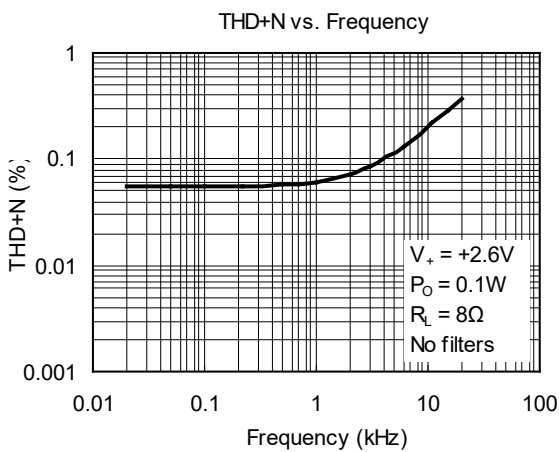
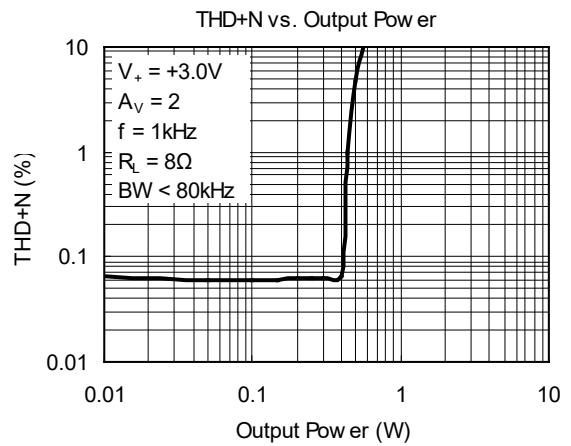
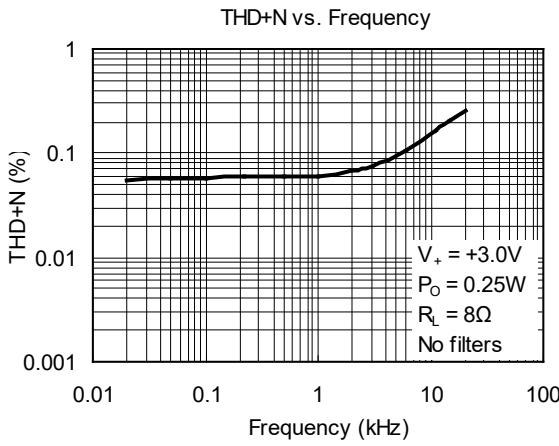
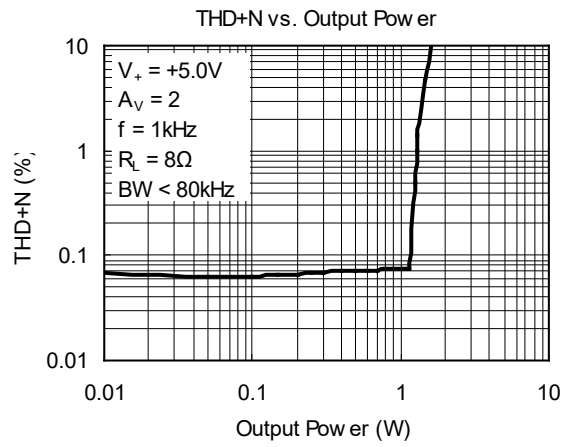
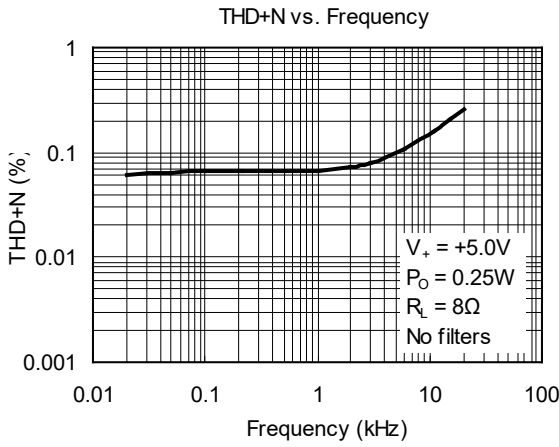
SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

## ELECTRICAL CHARACTERISTICS

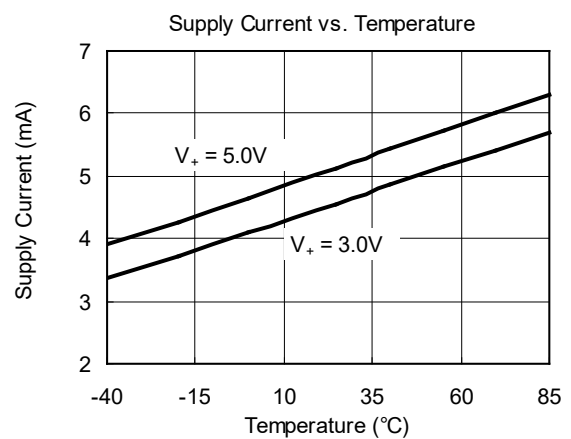
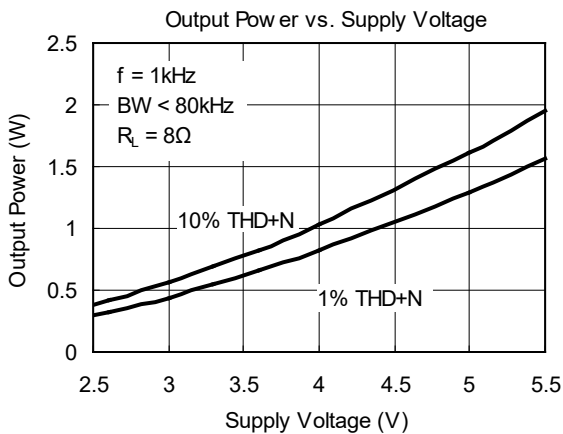
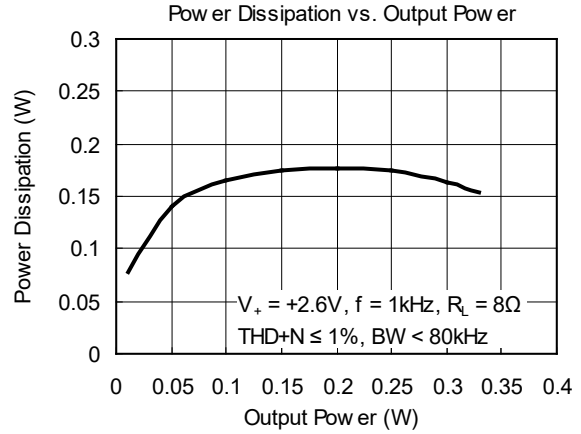
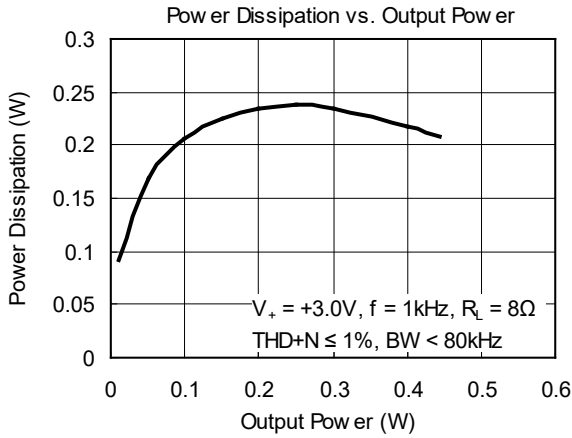
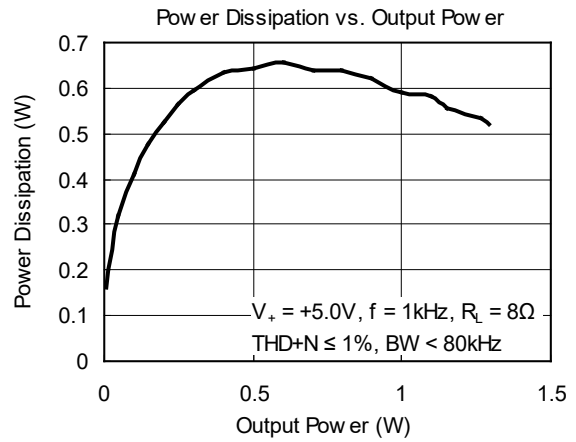
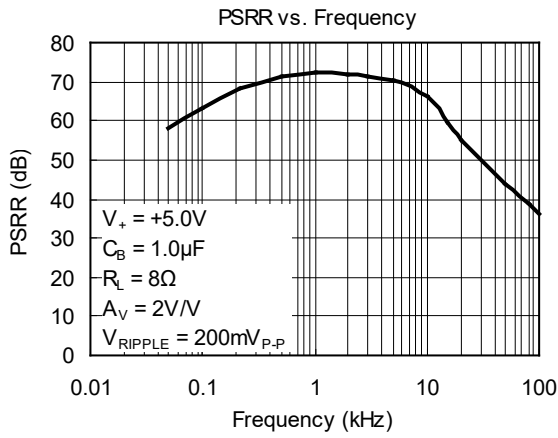
(T<sub>A</sub> = +25°C, unless otherwise specified.)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNITS
Quiescent Power Supply Current	I <sub>Q</sub>	V <sub>IN</sub> = 0V, I <sub>O</sub> = 0A	V <sub>+</sub> = +5.0V, No Load		5.45	10	mA
			V <sub>+</sub> = +5.0V, 8Ω Load		5.50	12	
			V <sub>+</sub> = +3.6V, No Load		5.10		
			V <sub>+</sub> = +3.6V, 8Ω Load		5.20		
			V <sub>+</sub> = +3.0V, No Load		5.00	8	
			V <sub>+</sub> = +3.0V, 8Ω Load		5.10	10.5	
			V <sub>+</sub> = +2.6V, No Load		4.70		
			V <sub>+</sub> = +2.6V, 8Ω Load		4.75		
Shutdown Current	I <sub>SD</sub>	V <sub>SHUTDOWN</sub> = 0V			0.02	2	μA
Shutdown Voltage Input High	V <sub>SDIH</sub>			1.2			V
Shutdown Voltage Input Low	V <sub>SDIL</sub>					0.4	V
Output Offset Voltage	V <sub>OS</sub>			-65	1	65	mV
Output Power (8Ω)	P <sub>O</sub>	f = 1kHz, THD+N = 1%	V <sub>+</sub> = +5.0V		1.2		W
			V <sub>+</sub> = +3.6V		0.6		
			V <sub>+</sub> = +3.0V		0.4		
			V <sub>+</sub> = +2.6V		0.3		
		f = 1kHz, THD+N = 10%	V <sub>+</sub> = +5.0V		1.5		
			V <sub>+</sub> = +3.6V		0.8		
			V <sub>+</sub> = +3.0V		0.5		
			V <sub>+</sub> = +2.6V		0.4		
Total Harmonic Distortion + Noise	THD+N	P <sub>O</sub> = 0.4Wrms, f = 1kHz			0.07		%
Power Supply Rejection Ratio	PSRR	f = 217Hz	V <sub>+</sub> = +5.0V		68		dB
			V <sub>+</sub> = +3.6V		68		
			V <sub>+</sub> = +3.0V		68		
			V <sub>+</sub> = +2.6V		67		
		f = 1kHz	V <sub>+</sub> = +5.0V		72		
			V <sub>+</sub> = +3.6V		72		
			V <sub>+</sub> = +3.0V		71		
			V <sub>+</sub> = +2.6V		70		
Wake-Up Time	T <sub>WU</sub>	C <sub>BYPASS</sub> = 1μF	V <sub>+</sub> = +5.0V		145		ms

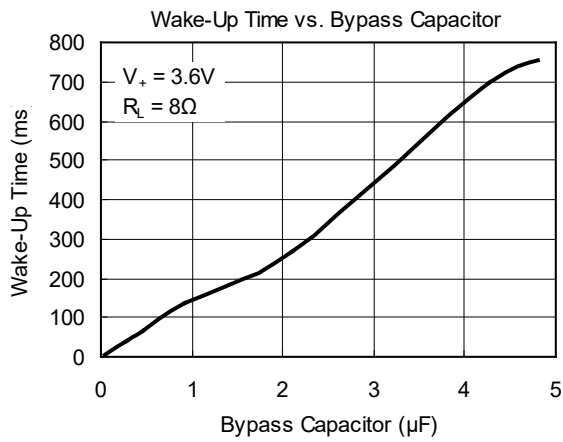
TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)

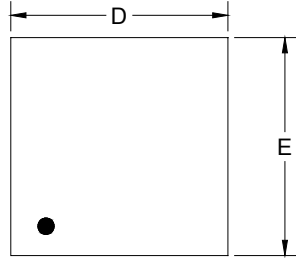


TYPICAL PERFORMANCE CHARACTERISTICS (continued)

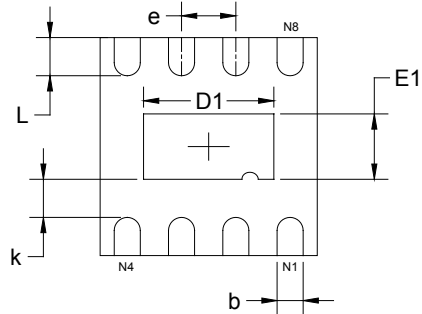


PACKAGE OUTLINE DIMENSIONS

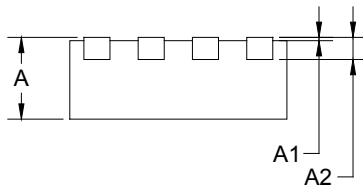
TDFN-2x2-8L



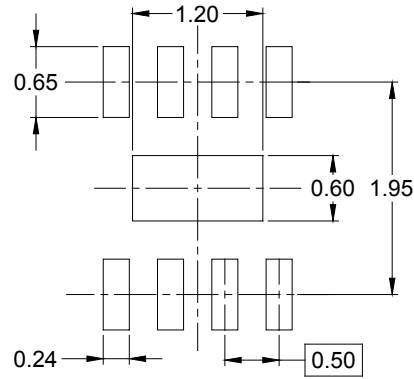
TOP VIEW



BOTTOM VIEW



SIDE VIEW



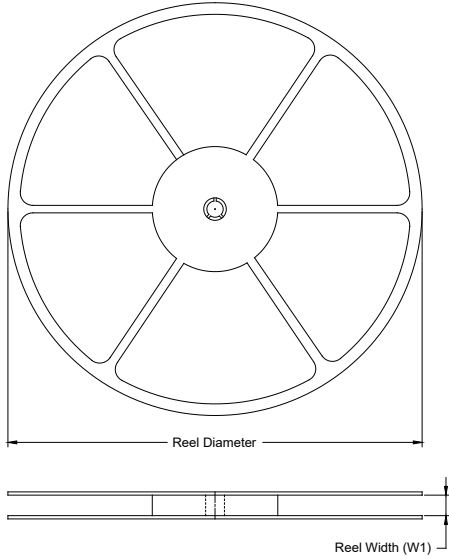
RECOMMENDED LAND PATTERN (Unit: mm)

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	1.900	2.100	0.075	0.083
D1	1.100	1.300	0.043	0.051
E	1.900	2.100	0.075	0.083
E1	0.500	0.700	0.020	0.028
k	0.200 MIN		0.008 MIN	
b	0.180	0.300	0.007	0.012
e	0.500 TYP		0.020 TYP	
L	0.250	0.450	0.010	0.018

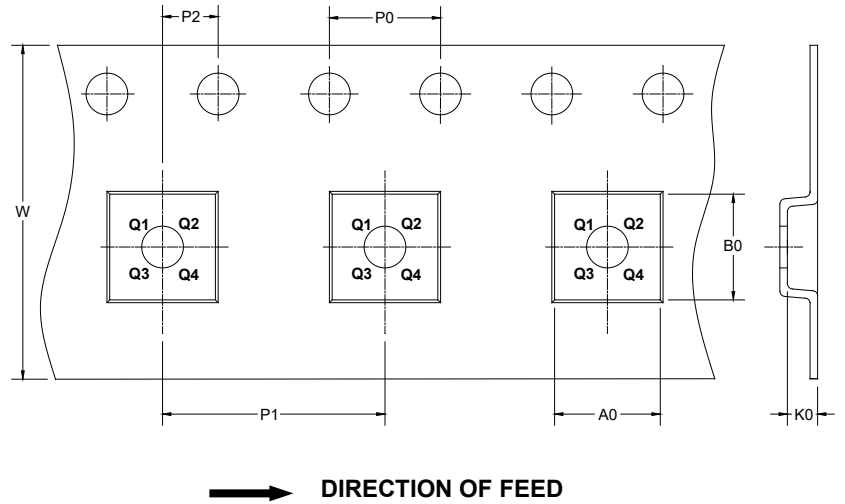
# PACKAGE INFORMATION

## 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
TDFN-2×2-8L	7"	9.5	2.30	2.30	1.10	4.0	4.0	2.0	8.0	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
7" (Option)	368	227	224	8
7"	442	410	224	18

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