



# SGM4871

## 2.4W Stereo Audio Power Amplifier with Shutdown Mode

### GENERAL DESCRIPTION

The SGM4871 is a mono bridge-connected audio power amplifier which operates from 2.5V to 5.5V supply voltage. It can deliver 2.4W into a 4Ω load from 5V supply at THD+N = 10%. It is designed for portable applications. The external gain-setting resistors can configure the unity-gain stable of the device.

The SGM4871 has low power consumption shutdown mode and thermal shutdown protection.

The SGM4871 is applied to low power portable systems. Output coupling capacitors, bootstrap capacitors or snubber networks are not needed.

The SGM4871 is available in Green SOIC-8 and SOIC-8 (Exposed Pad) packages. It operates over an ambient temperature range of -40°C to +85°C.

### FEATURES

- **Supply Voltage Range: 2.5V to 5.5V**
- **Output Power at THD+N = 10%, 1kHz**  
**SGM4871YPS8: 2.4W (TYP) into 4Ω Load**  
**SGM4871YS8: 1.5W (TYP) into 8Ω Load**
- **Shutdown Current: 0.07μA (TYP)**
- **No Output Coupling Capacitors**
- **External Gain Configuration Capability**
- **Unity Gain Stable**
- **Thermal Overload Protection Circuitry**
- **-40°C to +85°C Operating Temperature Range**
- **Available in Green SOIC-8 (Exposed Pad) and SOIC-8 Packages**

### APPLICATIONS

Mobile Phones, PDAs  
Portable Systems  
Wireless Handsets

## 2.4W Stereo Audio Power Amplifier with Shutdown Mode

# SGM4871

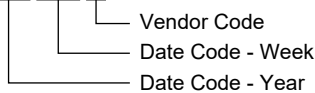
### PACKAGE/ORDERING INFORMATION

| MODEL   | PACKAGE DESCRIPTION     | SPECIFIED TEMPERATURE RANGE | ORDERING NUMBER | PACKAGE MARKING      | PACKING OPTION      |
|---------|-------------------------|-----------------------------|-----------------|----------------------|---------------------|
| SGM4871 | SOIC-8<br>(Exposed Pad) | -40°C to +85°C              | SGM4871YPS8/TR  | SGM4871YPS8<br>XXXXX | Tape and Reel, 2500 |
|         | SOIC-8                  | -40°C to +85°C              | SGM4871YS8/TR   | SGM4871YS8<br>XXXXX  | Tape and Reel, 2500 |

### 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.

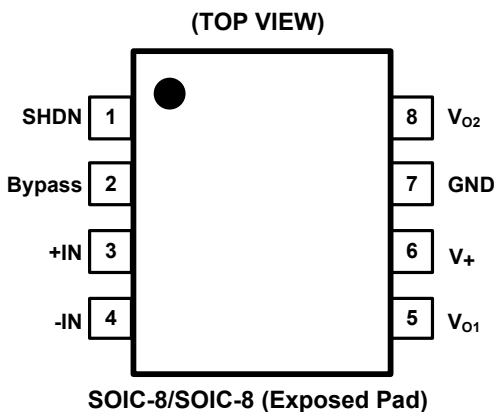
### ABSOLUTE MAXIMUM RATINGS

|  |                                   |
|--|-----------------------------------|
| Supply Voltage.....                    | 5.5V                              |
| Input Voltage.....                     | -0.1V to (V <sub>+</sub> ) + 0.1V |
| Junction Temperature.....              | +150°C                            |
| Storage Temperature Range .....        | -65°C to +150°C                   |
| Lead Temperature (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.

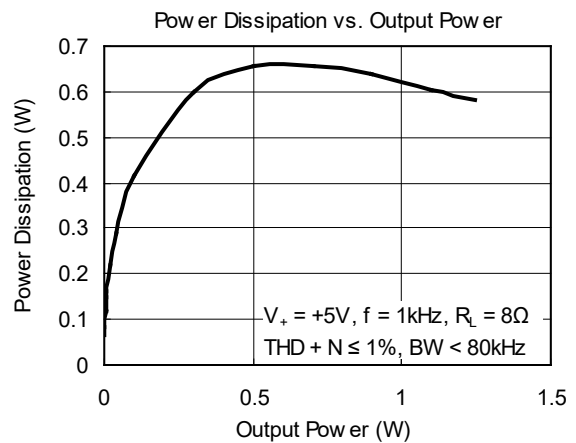
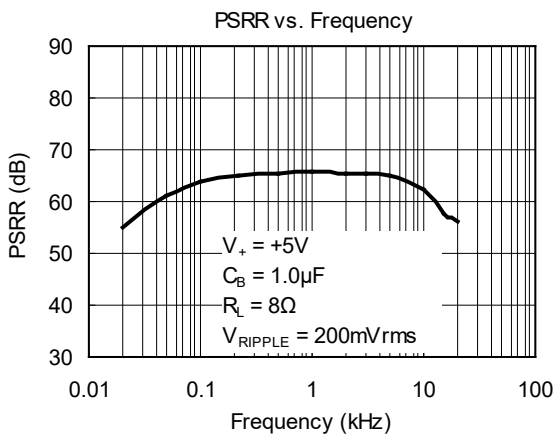
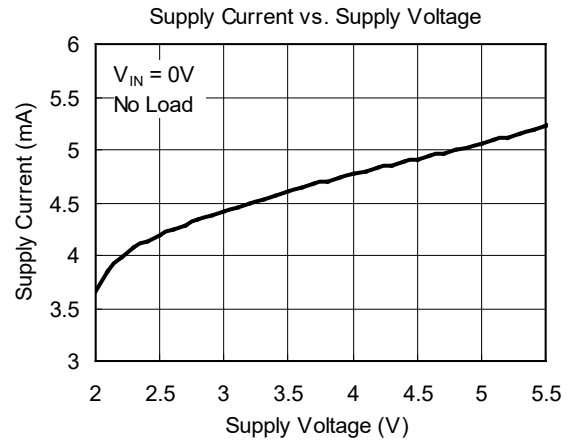
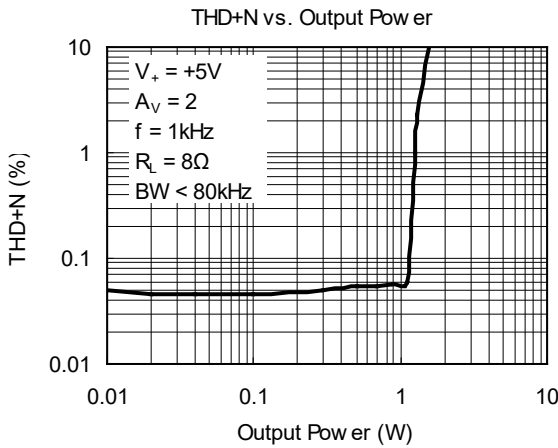
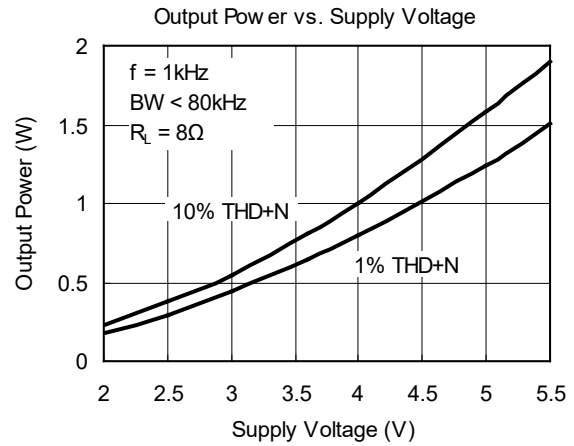
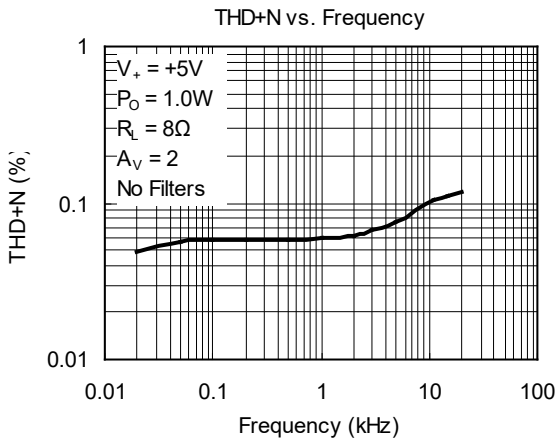
### DISCLAIMER

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

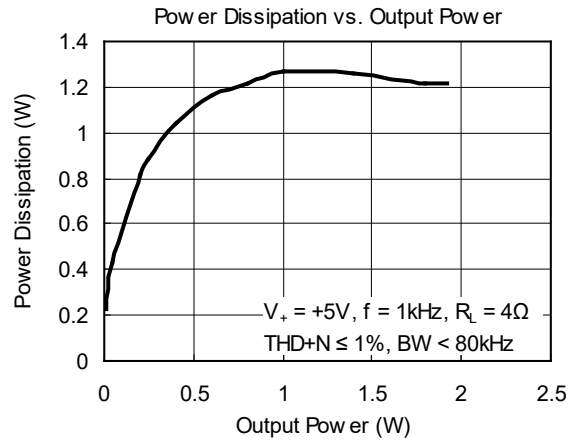
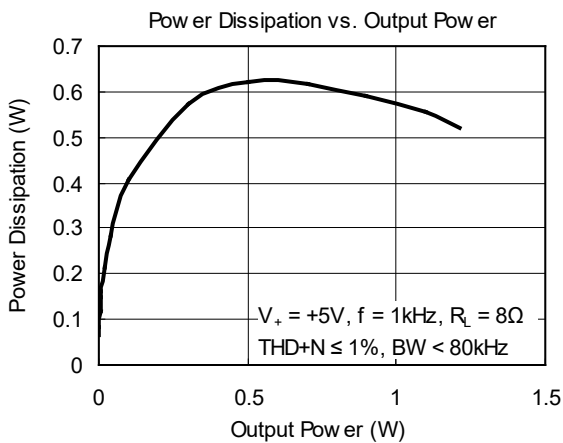
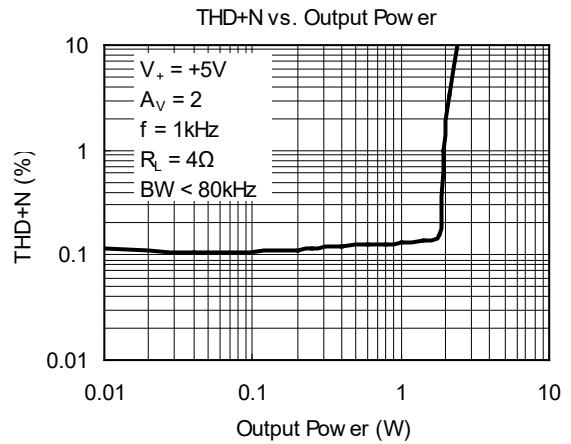
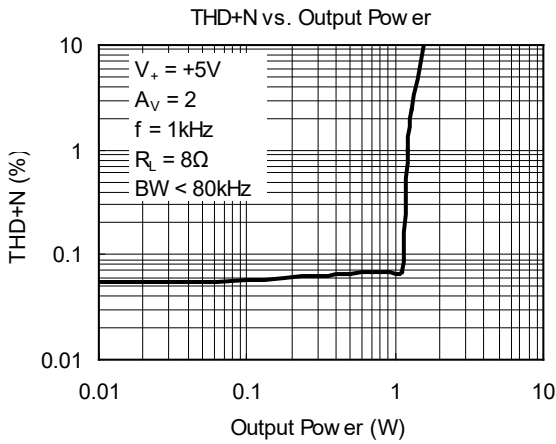
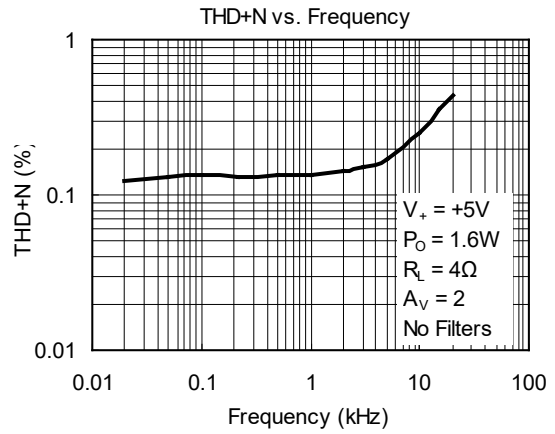
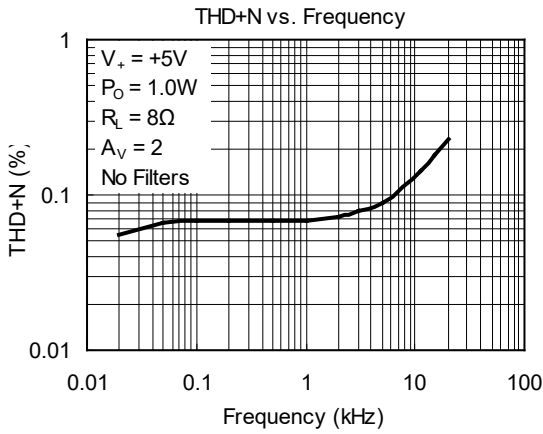
**ELECTRICAL CHARACTERISTICS**(The following specifications apply for  $T_A = +25^\circ\text{C}$ ,  $V_+ = 5\text{V}$  and  $R_L = 8\Omega$ , unless otherwise specified.)

| PARAMETER                         | SYMBOL     | CONDITIONS   | MIN             | TYP  | MAX | UNITS         |
|-----------------------------------|------------|--|-----------------|------|-----|---------------|
| Supply Voltage                    | $V_+$      |  | 2.5             |      | 5.5 | V             |
| Output Offset Voltage             | $V_{OS}$   |  |                 | 5.5  | 65  | mV            |
| Quiescent Power Supply Current    | $I_Q$      | $V_{SHDN} = \text{GND}$  | No Load         | 5.2  | 9   | mA            |
|                                   |            |  | $R_L = 8\Omega$ | 5.3  |     |               |
| Shutdown Current                  | $I_{SD}$   | $V_+ = 5.0\text{V}$ , $V_{SHDN} = 5.0\text{V}$ , $I_O = 0\text{mA}$    |                 | 0.07 | 2   | $\mu\text{A}$ |
| Shutdown Voltage Input High       | $V_{SDIH}$ |  | 1.2             |      |     | V             |
| Shutdown Voltage Input Low        | $V_{SDIL}$ |  |                 |      | 0.4 |               |
| Output Power (4 $\Omega$ )        | $P_O$      | $f = 1\text{kHz}$ , THD+N = 1%   |                 | 1.9  |     | W             |
|                                   |            | $f = 1\text{kHz}$ , THD+N = 10%  |                 | 2.4  |     | W             |
| 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      | $20\text{Hz} < f < 20\text{kHz}$ , $R_L = 8\Omega$ , $P_O = 1\text{W}$ |                 | 0.2  |     | %             |
| Power Supply Rejection Ratio      | PSRR       | $V_{SHDN} = \text{GND}$ , $V_+ = 4.9\text{V}$ to $5.1\text{V}$         |                 | 70   |     | dB            |

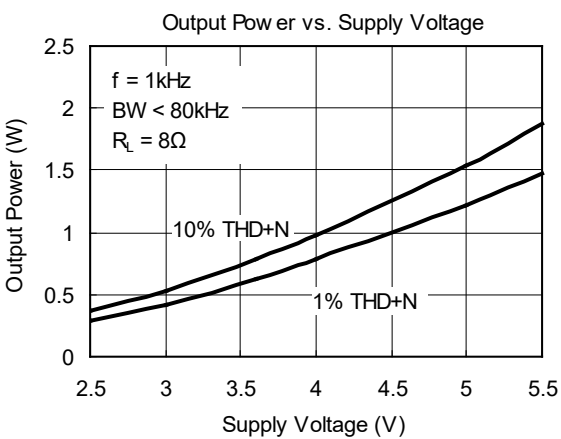
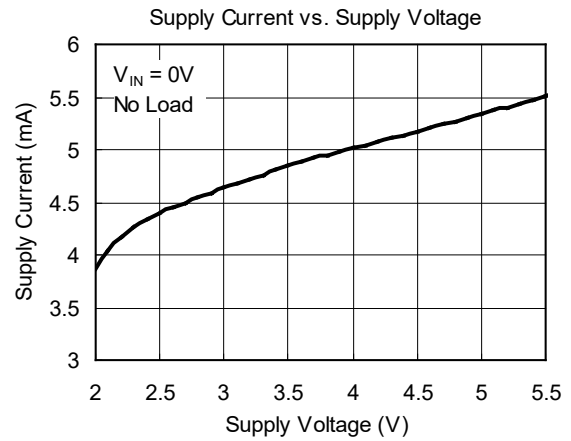
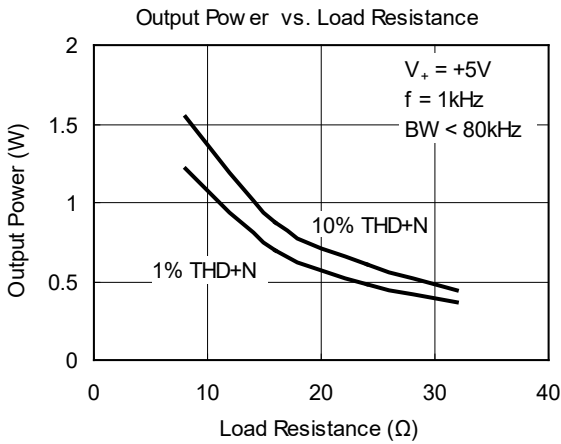
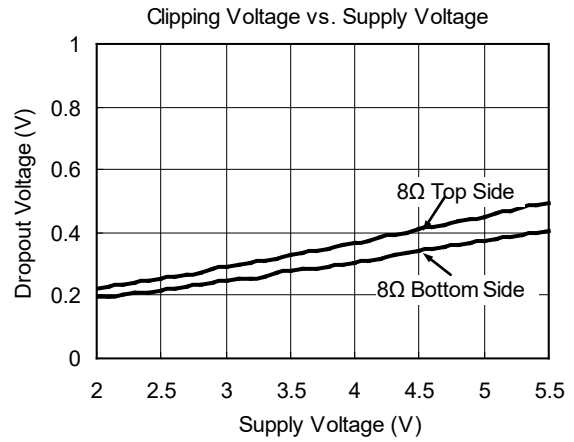
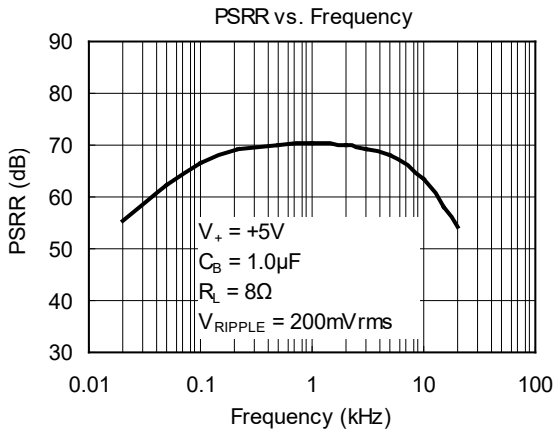
TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)

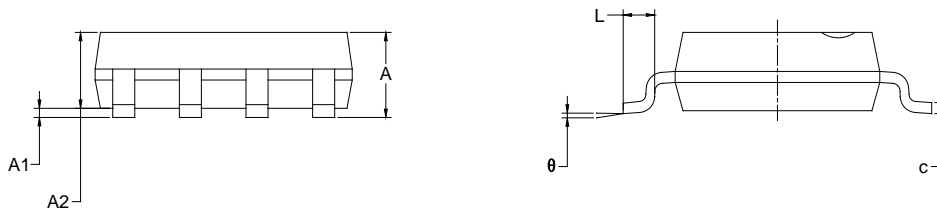
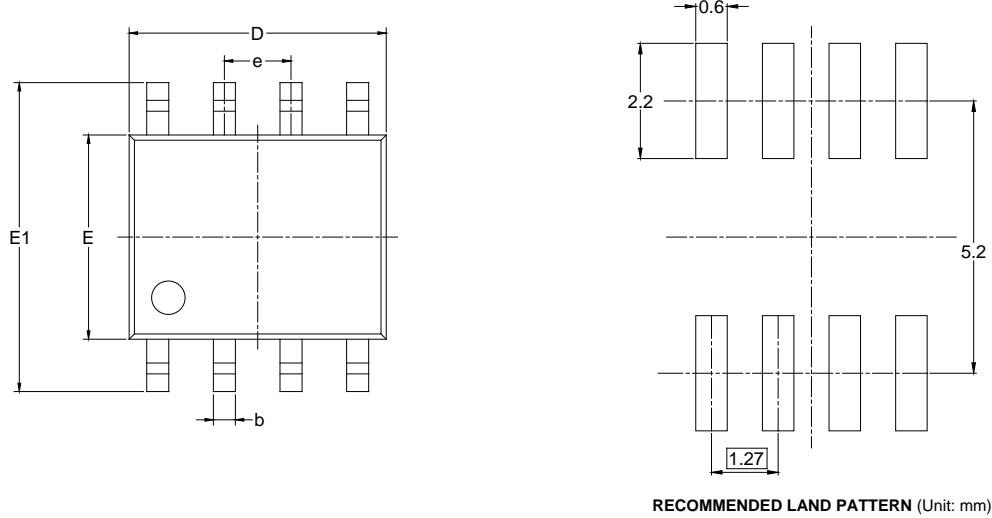


TYPICAL PERFORMANCE CHARACTERISTICS (continued)



PACKAGE OUTLINE DIMENSIONS

SOIC-8

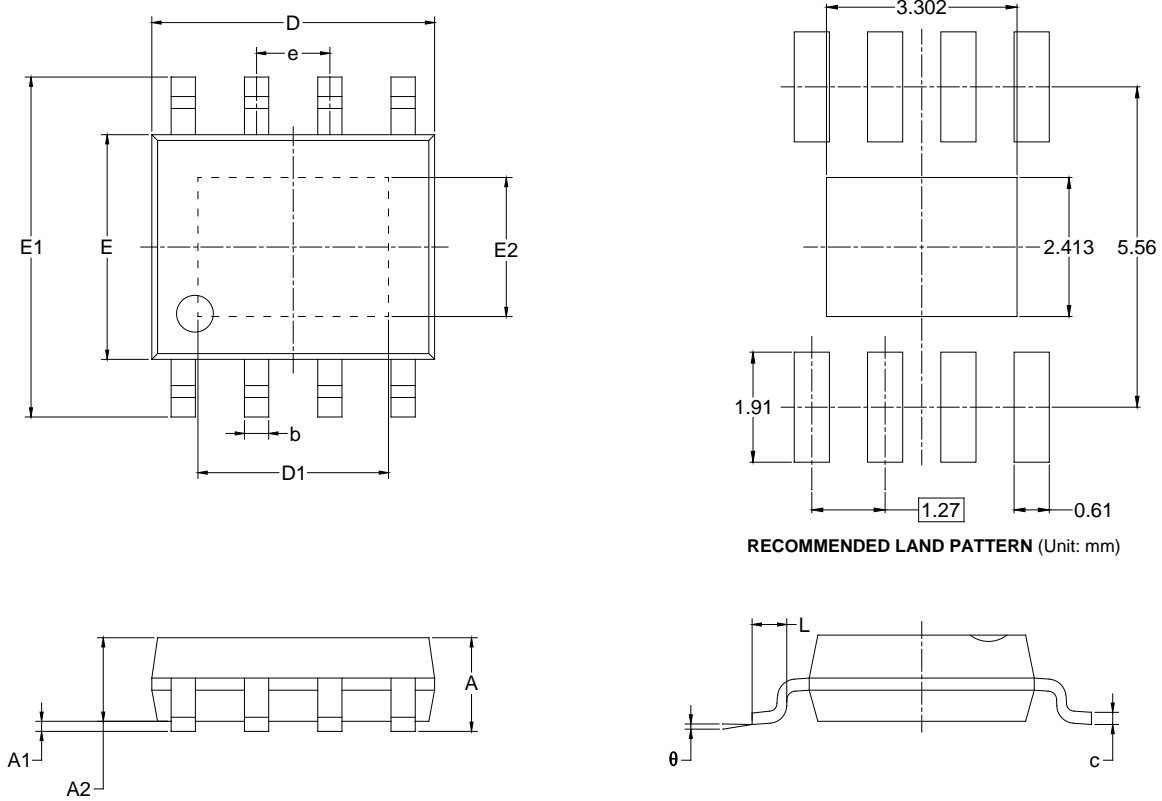


| Symbol | Dimensions<br>In Millimeters |       | Dimensions<br>In Inches |       |
|--------|------------------------------|-------|-------------------------|-------|
|        | MIN                          | MAX   | MIN                     | MAX   |
| A      | 1.350                        | 1.750 | 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      | 0.170                        | 0.250 | 0.006                   | 0.010 |
| D      | 4.700                        | 5.100 | 0.185                   | 0.200 |
| E      | 3.800                        | 4.000 | 0.150                   | 0.157 |
| E1     | 5.800                        | 6.200 | 0.228                   | 0.244 |
| e      | 1.27 BSC                     |       | 0.050 BSC               |       |
| L      | 0.400                        | 1.270 | 0.016                   | 0.050 |
| θ      | 0°                           | 8°    | 0°                      | 8°    |

NOTES:  
 1. Body dimensions do not include mode flash or protrusion.  
 2. This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

SOIC-8 (Exposed Pad)



RECOMMENDED LAND PATTERN (Unit: mm)

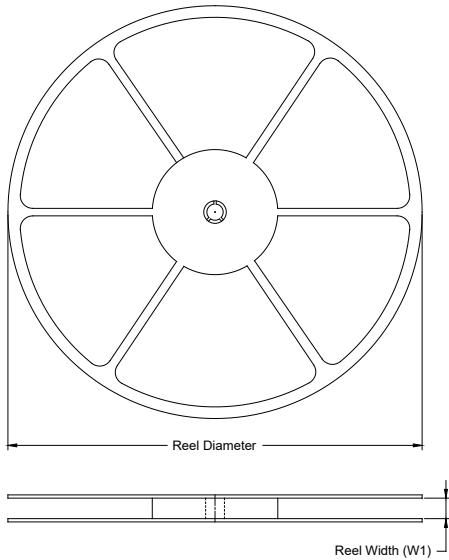
| Symbol | Dimensions<br>In Millimeters |       | Dimensions<br>In Inches |       |
|--------|------------------------------|-------|-------------------------|-------|
|        | MIN                          | MAX   | MIN                     | MAX   |
| A      |                              | 1.700 |                         | 0.067 |
| A1     | 0.000                        | 0.100 | 0.000                   | 0.004 |
| A2     | 1.350                        | 1.550 | 0.053                   | 0.061 |
| b      | 0.330                        | 0.510 | 0.013                   | 0.020 |
| c      | 0.170                        | 0.250 | 0.007                   | 0.010 |
| D      | 4.700                        | 5.100 | 0.185                   | 0.201 |
| D1     | 3.202                        | 3.402 | 0.126                   | 0.134 |
| E      | 3.800                        | 4.000 | 0.150                   | 0.157 |
| E1     | 5.800                        | 6.200 | 0.228                   | 0.244 |
| E2     | 2.313                        | 2.513 | 0.091                   | 0.099 |
| e      | 1.27 BSC                     |       | 0.050 BSC               |       |
| L      | 0.400                        | 1.270 | 0.016                   | 0.050 |
| θ      | 0°                           | 8°    | 0°                      | 8°    |

NOTES:  
 1. Body dimensions do not include mode flash or protrusion.  
 2. This drawing is subject to change without notice.

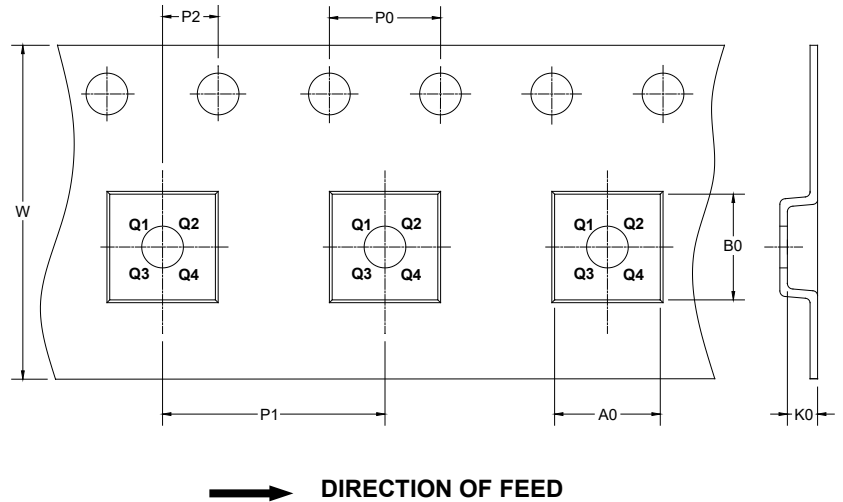


## TAPE AND REEL INFORMATION

### 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 |
|----------------------|---------------|--------------------|---------|---------|---------|---------|---------|---------|--------|---------------|
| SOIC-8               | 13"           | 12.4               | 6.40    | 5.40    | 2.10    | 4.0     | 8.0     | 2.0     | 12.0   | Q1            |
| SOIC-8 (Exposed Pad) | 13"           | 12.4               | 6.40    | 5.40    | 2.10    | 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

单击下面可查看定价，库存，交付和生命周期等信息

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