

### GENERAL DESCRIPTION

The SGM811C and SGM812C are integrated microprocessor supervisory devices which can be reset under power-up, power-down or even voltage reduction brownout conditions. When  $V_{CC}$  is as low as 1V, the reset output can still operate. On the power-on state, the internal timer maintains a 200ms reset assertion, which keeps the microprocessor in the reset state until the condition is stable.

The SGM811C has an active-low nRESET output, while the SGM812C has an active-high RESET output. These devices provide six reset threshold voltage options for 2.5V, 3V, 3.3V and 5V voltage monitoring.

These devices also provide a manual reset (nMR) function. It can reduce damage if the device loses its control or is locked.

The SGM811C and SGM812C are available in a Green SOT-143 package. They operate over a junction temperature range of  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

### FEATURES

- Superior Upgrade for MAX811/MAX812 and ADM811/ADM812
- High Accuracy Fixed Detection Options: 2.5V, 3V, 3.3V and 5V
- Low Supply Current:  $< 1\mu\text{A}$  (TYP)
- 200ms (TYP) Power-on Reset Pulse Width
- Reset Output Options:
  - ◊ Active-Low nRESET Output: SGM811C
  - ◊ Active-High RESET Output: SGM812C
- Manual Reset Input
- Reset Valid Down to  $V_{CC} = 1\text{V}$
- Available in a Green SOT-143 Package

### APPLICATIONS

- Computers
- Battery-Powered Applications
- Portable Equipment
- Automotive Equipment
- Safety Systems
- Intelligent Instruments
- Critical  $\mu\text{P}$  Power Monitoring

### TYPICAL APPLICATION

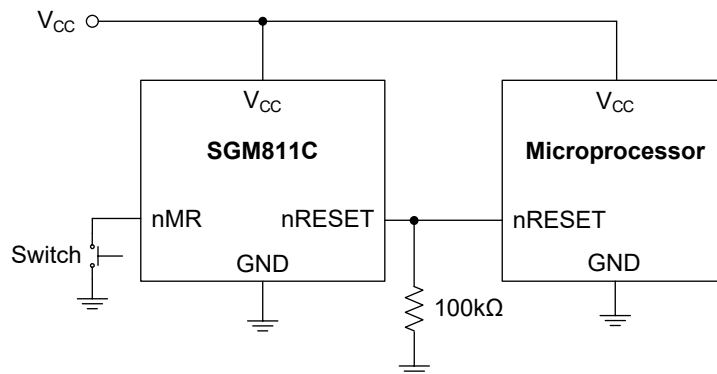


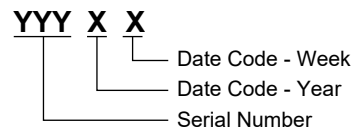
Figure 1. Typical Application Circuit Example

**PACKAGE/ORDERING INFORMATION**

| MODEL   | RESET THRESHOLD (V) | PACKAGE DESCRIPTION | SPECIFIED TEMPERATURE RANGE | ORDERING NUMBER   | PACKAGE MARKING | PACKING OPTION      |
|---------|---------------------|---------------------|-----------------------------|-------------------|-----------------|---------------------|
| SGM811C | 4.43                | SOT-143             | -40°C to +125°C             | SGM811C-MXKA4G/TR | 045XX           | Tape and Reel, 3000 |
|         | 4.05                | SOT-143             | -40°C to +125°C             | SGM811C-JXKA4G/TR | 047XX           | Tape and Reel, 3000 |
|         | 3.09                | SOT-143             | -40°C to +125°C             | SGM811C-TXKA4G/TR | 044XX           | Tape and Reel, 3000 |
|         | 2.93                | SOT-143             | -40°C to +125°C             | SGM811C-SXKA4G/TR | MCQXX           | Tape and Reel, 3000 |
|         | 2.63                | SOT-143             | -40°C to +125°C             | SGM811C-RXKA4G/TR | 010XX           | Tape and Reel, 3000 |
|         | 2.33                | SOT-143             | -40°C to +125°C             | SGM811C-ZXKA4G/TR | 011XX           | Tape and Reel, 3000 |
| SGM812C | 4.43                | SOT-143             | -40°C to +125°C             | SGM812C-MXKA4G/TR | 0AOXX           | Tape and Reel, 3000 |
|         | 4.05                | SOT-143             | -40°C to +125°C             | SGM812C-JXKA4G/TR | 0APXX           | Tape and Reel, 3000 |
|         | 3.09                | SOT-143             | -40°C to +125°C             | SGM812C-TXKA4G/TR | 0AQXX           | Tape and Reel, 3000 |
|         | 2.93                | SOT-143             | -40°C to +125°C             | SGM812C-SXKA4G/TR | 0ARXX           | Tape and Reel, 3000 |
|         | 2.63                | SOT-143             | -40°C to +125°C             | SGM812C-RXKA4G/TR | 0ASXX           | Tape and Reel, 3000 |
|         | 2.33                | SOT-143             | -40°C to +125°C             | SGM812C-ZXKA4G/TR | 0ATXX           | Tape and Reel, 3000 |

**MARKING INFORMATION**

NOTE: XX = Date Code.



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**

|  |                                 |
|--|---------------------------------|
| V <sub>CC</sub> .....                  | -0.3V to 6V                     |
| All Other Inputs.....                  | -0.3V to V <sub>CC</sub> + 0.3V |
| Input Current                          |                                 |
| V <sub>CC</sub> , nMR .....            | 20mA                            |
| Output Current                         |                                 |
| nRESET/RESET.....                      | 20mA                            |
| Package Thermal Resistance             |                                 |
| SOT-143, $\theta_{JA}$ .....           | 305°C/W                         |
| Junction Temperature.....              | +150°C                          |
| Storage Temperature Range.....         | -65°C to +150°C                 |
| Lead Temperature (Soldering, 10s)..... | +260°C                          |
| ESD Susceptibility                     |                                 |
| HBM.....                               | 4000V                           |
| CDM .....                              | 1000V                           |

**RECOMMENDED OPERATING CONDITIONS**

|   |                 |
|---|-----------------|
| Operating Junction Temperature Range..... | -40°C to +125°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.

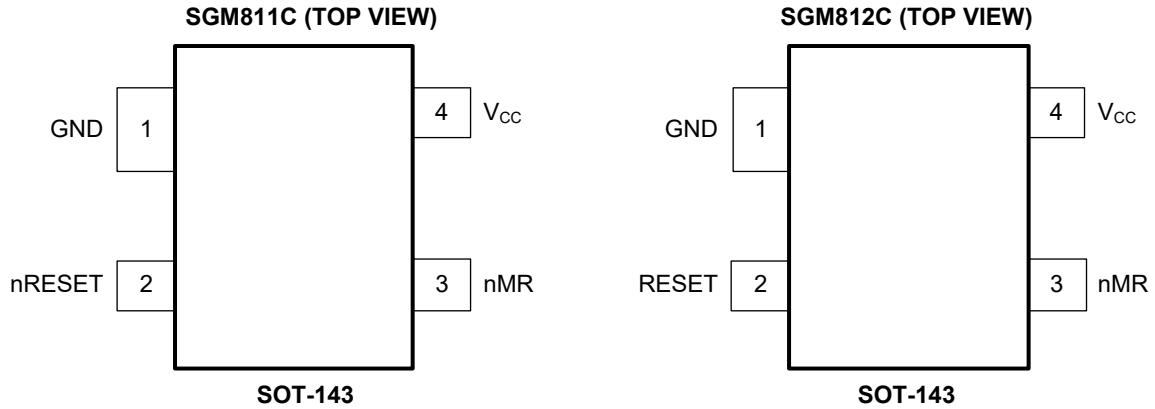
**ESD SENSITIVITY CAUTION**

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.

**DISCLAIMER**

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

**PIN CONFIGURATION**

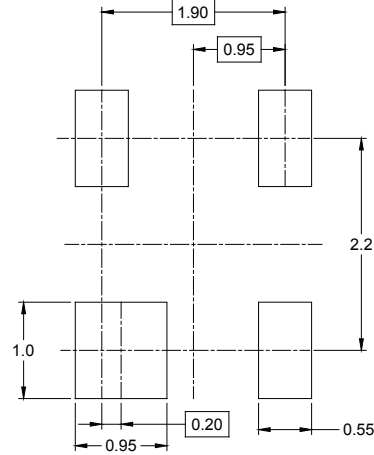
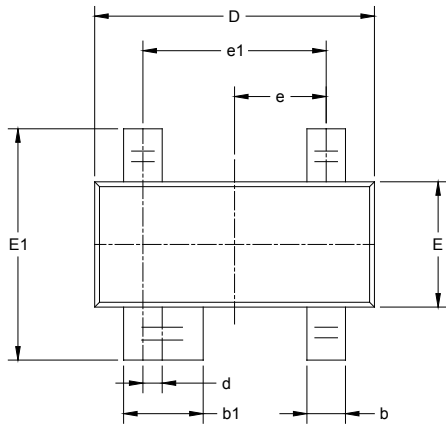


**PIN DESCRIPTION**

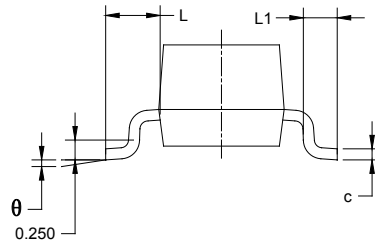
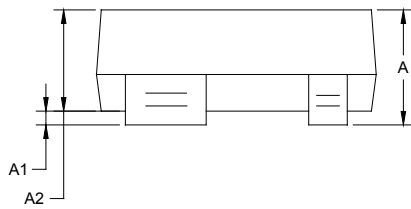
| NAME            | PIN NUMBER |         | FUNCTION   |
|-----------------|------------|---------|--|
|                 | SGM811C    | SGM812C |  |
| GND             | 1          | 1       | Ground.  |
| nRESET          | 2          | —       | Active-Low Reset Output Pin. If V <sub>CC</sub> falls below the reset threshold or nMR is low, nRESET will keep low. If V <sub>CC</sub> exceeds the reset threshold, the nRESET will keep low for 200ms (TYP).   |
| RESET           | —          | 2       | Active-Low Reset Output Pin. If the V <sub>CC</sub> falls below the reset threshold or nMR is low, RESET will keep high. If the V <sub>CC</sub> exceeds the reset threshold, RESET will keep high for 200ms (TYP).   |
| nMR             | 3          | 3       | Manual Reset Input Pin. It is an active-low reset input with an internal pull-up resistor of 60kΩ. nRESET keeps low when nMR is low. When nMR is high, nRESET becomes high after a timeout period. The nMR can be driven by a CMOS logic or by a switch shorting to GND. If not used, leave it open or connect it to V <sub>CC</sub> . |
| V <sub>CC</sub> | 4          | 4       | Supply Voltage Pin.  |

PACKAGE OUTLINE DIMENSIONS

SOT-143



RECOMMENDED LAND PATTERN (Unit: mm)



| Symbol   | Dimensions<br>In Millimeters |       | Dimensions<br>In Inches |       |
|----------|------------------------------|-------|-------------------------|-------|
|          | MIN                          | MAX   | MIN                     | MAX   |
| A        | 0.900                        | 1.150 | 0.035                   | 0.045 |
| A1       | 0.000                        | 0.100 | 0.000                   | 0.004 |
| A2       | 0.900                        | 1.050 | 0.035                   | 0.041 |
| b        | 0.300                        | 0.500 | 0.012                   | 0.020 |
| b1       | 0.750                        | 0.900 | 0.030                   | 0.035 |
| c        | 0.080                        | 0.150 | 0.003                   | 0.006 |
| D        | 2.800                        | 3.000 | 0.110                   | 0.118 |
| d        | 0.200 TYP                    |       | 0.008 TYP               |       |
| E        | 1.200                        | 1.400 | 0.047                   | 0.055 |
| E1       | 2.250                        | 2.550 | 0.089                   | 0.100 |
| e        | 0.95 TYP                     |       | 0.037 TYP               |       |
| e1       | 1.800                        | 2.000 | 0.071                   | 0.079 |
| L        | 0.55 REF                     |       | 0.022 REF               |       |
| L1       | 0.300                        | 0.500 | 0.012                   | 0.020 |
| $\theta$ | 0°                           | 8°    | 0°                      | 8°    |

# 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 |
|--------------|---------------|--------------------|---------|---------|---------|---------|---------|---------|--------|---------------|
| SOT-143      | 7"            | 9.5                | 3.20    | 2.80    | 1.30    | 4.0     | 4.0     | 2.0     | 8.0    | Q3            |

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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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