



# SGM803/SGM809/SGM810 Microprocessor Supervisory Circuit in 3-Pin SOT-23

## GENERAL DESCRIPTION

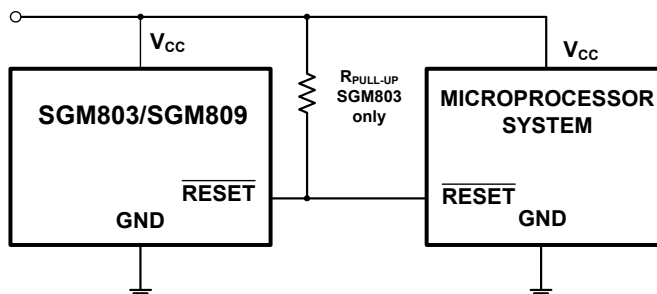
The SGM803/SGM809/SGM810 supervisory circuits monitor the power supply voltage in microprocessor and digital systems. They provide a reset output during power-up, power-down and brownout conditions. On power-up, an internal timer holds reset asserted for 240ms. This holds the microprocessor in a reset state until conditions have stabilized. The  $\overline{\text{RESET}}$  output remains operational with  $V_{CC}$  as low as 1V. The SGM803/SGM809 provides an active low reset signal ( $\overline{\text{RESET}}$ ) while the SGM810 provides an active high signal (RESET) output. The SGM809/SGM810 has push-pull outputs, whereas the SGM803 has an open-drain output, which requires an external pull-up resistor.

Eight reset threshold voltage options are available suitable for monitoring 1.8V, 2.5V, 3V, 3.3V and 5V supply voltages.

The reset comparator features built-in glitch immunity, making it immune to fast transients on  $V_{CC}$ .

The low supply current of typically 13 $\mu$ A makes the SGM803/SGM809/SGM810 ideal for use in portable, battery operated equipment. All are specified over the extended -40°C to +125°C temperature range.

## TYPICAL OPERATION CIRCUIT



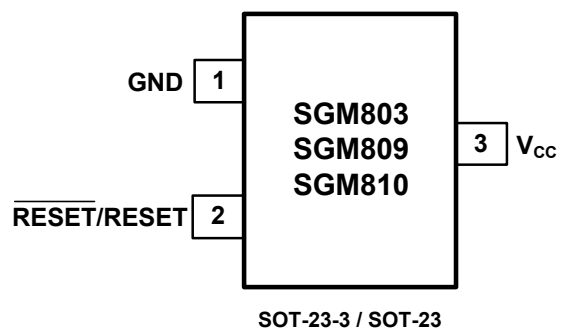
## FEATURES

- Precision Voltage Monitor: 1.8V, 2.5V, 3V, 3.3V, 5V Options
- Superior Upgrade for MAX803/MAX809/MAX810 and ADM803/ADM809/ADM810
- Fully Specified over Temperature
- Low Power Consumption (13 $\mu$ A TYP)
- Reset Assertion Down to 1V  $V_{CC}$
- 150ms Min Power-On Reset
  - Open-Drain  $\overline{\text{RESET}}$  Output (SGM803)
  - Push-Pull  $\overline{\text{RESET}}$  Output (SGM809)
  - Push-Pull RESET Output (SGM810)
- -40°C to +125°C Operating Temperature Range
- Small Packaging
  - SGM803 Available in SOT-23-3 and SOT-23
  - SGM809 Available in SOT-23-3 and SOT-23
  - SGM810 Available in SOT-23-3 and SOT-23

## APPLICATIONS

Microprocessor Systems  
 Controllers  
 Intelligent Instruments  
 Automotive Systems  
 Safety Systems  
 Portable Instruments

## PIN CONFIGURATIONS (TOP VIEW)



## PACKAGE/ORDERING INFORMATION

| MODEL  | RESET THRESHOLD (V) | PACKAGE DESCRIPTION | ORDERING NUMBER | PACKAGE MARKING | PACKAGE OPTION      |
|--------|---------------------|---------------------|-----------------|-----------------|---------------------|
| SGM803 | 4.63                | SOT-23-3            | SGM803-LXN3/TR  | 803L            | Tape and Reel, 3000 |
|        | 4.63                | SOT-23              | SGM803-LXN3L/TR | 803LL           | Tape and Reel, 3000 |
|        | 4.38                | SOT-23-3            | SGM803-MXN3/TR  | 803M            | Tape and Reel, 3000 |
|        | 4.38                | SOT-23              | SGM803-MXN3L/TR | 803ML           | Tape and Reel, 3000 |
|        | 4.00                | SOT-23-3            | SGM803-JXN3/TR  | 803J            | Tape and Reel, 3000 |
|        | 4.00                | SOT-23              | SGM803-JXN3L/TR | 803JL           | Tape and Reel, 3000 |
|        | 3.08                | SOT-23-3            | SGM803-TXN3/TR  | 803T            | Tape and Reel, 3000 |
|        | 3.08                | SOT-23              | SGM803-TXN3L/TR | 803TL           | Tape and Reel, 3000 |
|        | 2.93                | SOT-23-3            | SGM803-SXN3/TR  | 803S            | Tape and Reel, 3000 |
|        | 2.93                | SOT-23              | SGM803-SXN3L/TR | 803SL           | Tape and Reel, 3000 |
|        | 2.63                | SOT-23-3            | SGM803-RXN3/TR  | 803R            | Tape and Reel, 3000 |
|        | 2.63                | SOT-23              | SGM803-RXN3L/TR | 803RL           | Tape and Reel, 3000 |
|        | 2.32                | SOT-23-3            | SGM803-ZXN3/TR  | 803Z            | Tape and Reel, 3000 |
|        | 2.32                | SOT-23              | SGM803-ZXN3L/TR | 803ZL           | Tape and Reel, 3000 |
|        | 1.63                | SOT-23-3            | SGM803-XXN3/TR  | 803X            | Tape and Reel, 3000 |
|        | 1.63                | SOT-23              | SGM803-XXN3L/TR | 803XL           | Tape and Reel, 3000 |
| SGM809 | 4.63                | SOT-23-3            | SGM809-LXN3/TR  | 809L            | Tape and Reel, 3000 |
|        | 4.63                | SOT-23              | SGM809-LXN3L/TR | 809LL           | Tape and Reel, 3000 |
|        | 4.38                | SOT-23-3            | SGM809-MXN3/TR  | 809M            | Tape and Reel, 3000 |
|        | 4.38                | SOT-23              | SGM809-MXN3L/TR | 809ML           | Tape and Reel, 3000 |
|        | 4.00                | SOT-23-3            | SGM809-JXN3/TR  | 809J            | Tape and Reel, 3000 |
|        | 4.00                | SOT-23              | SGM809-JXN3L/TR | 809JL           | Tape and Reel, 3000 |
|        | 3.08                | SOT-23-3            | SGM809-TXN3/TR  | 809T            | Tape and Reel, 3000 |
|        | 3.08                | SOT-23              | SGM809-TXN3L/TR | 809TL           | Tape and Reel, 3000 |
|        | 2.93                | SOT-23-3            | SGM809-SXN3/TR  | 809S            | Tape and Reel, 3000 |
|        | 2.93                | SOT-23              | SGM809-SXN3L/TR | 809SL           | Tape and Reel, 3000 |
|        | 2.63                | SOT-23-3            | SGM809-RXN3/TR  | 809R            | Tape and Reel, 3000 |
|        | 2.63                | SOT-23              | SGM809-RXN3L/TR | 809RL           | Tape and Reel, 3000 |
|        | 2.32                | SOT-23-3            | SGM809-ZXN3/TR  | 809Z            | Tape and Reel, 3000 |
|        | 2.32                | SOT-23              | SGM809-ZXN3L/TR | 809ZL           | Tape and Reel, 3000 |
|        | 1.63                | SOT-23-3            | SGM809-XXN3/TR  | 809X            | Tape and Reel, 3000 |
|        | 1.63                | SOT-23              | SGM809-XXN3L/TR | 809XL           | Tape and Reel, 3000 |

**PACKAGE/ORDERING INFORMATION (Cont.)**

| MODEL  | RESET THRESHOLD (V) | PACKAGE DESCRIPTION | ORDERING NUMBER | PACKAGE MARKING | PACKAGE OPTION      |
|--------|---------------------|---------------------|-----------------|-----------------|---------------------|
| SGM810 | 4.63                | SOT-23-3            | SGM810-LXN3/TR  | 810L            | Tape and Reel, 3000 |
|        | 4.63                | SOT-23              | SGM810-LXN3L/TR | 810LL           | Tape and Reel, 3000 |
|        | 4.38                | SOT-23-3            | SGM810-MXN3/TR  | 810M            | Tape and Reel, 3000 |
|        | 4.38                | SOT-23              | SGM810-MXN3L/TR | 810ML           | Tape and Reel, 3000 |
|        | 4.00                | SOT-23-3            | SGM810-JXN3/TR  | 810J            | Tape and Reel, 3000 |
|        | 4.00                | SOT-23              | SGM810-JXN3L/TR | 810JL           | Tape and Reel, 3000 |
|        | 3.08                | SOT-23-3            | SGM810-TXN3/TR  | 810T            | Tape and Reel, 3000 |
|        | 3.08                | SOT-23              | SGM810-TXN3L/TR | 810TL           | Tape and Reel, 3000 |
|        | 2.93                | SOT-23-3            | SGM810-SXN3/TR  | 810S            | Tape and Reel, 3000 |
|        | 2.93                | SOT-23              | SGM810-SXN3L/TR | 810SL           | Tape and Reel, 3000 |
|        | 2.63                | SOT-23-3            | SGM810-RXN3/TR  | 810R            | Tape and Reel, 3000 |
|        | 2.63                | SOT-23              | SGM810-RXN3L/TR | 810RL           | Tape and Reel, 3000 |
|        | 2.32                | SOT-23-3            | SGM810-ZXN3/TR  | 810Z            | Tape and Reel, 3000 |
|        | 2.32                | SOT-23              | SGM810-ZXN3L/TR | 810ZL           | Tape and Reel, 3000 |
|        | 1.63                | SOT-23-3            | SGM810-XXN3/TR  | 810X            | Tape and Reel, 3000 |
|        | 1.63                | SOT-23              | SGM810-XXN3L/TR | 810XL           | Tape and Reel, 3000 |

**ABSOLUTE MAXIMUM RATINGS**

(Typical values are at T<sub>A</sub> = 25°C, unless otherwise noted.)

|   |                                 |
|---|---------------------------------|
| V <sub>CC</sub> .....                                     | -0.3V to 6V                     |
| RESET, $\overline{\text{RESET}}$ .....                    | -0.3V to V <sub>CC</sub> + 0.3V |
| Input Current, V <sub>CC</sub> .....                      | 20mA                            |
| Output Current, RESET, $\overline{\text{RESET}}$ .....    | 20mA                            |
| Rate of Rise, V <sub>CC</sub> .....                       | 100V/μs                         |
| Power Dissipation, P <sub>D</sub> @ T <sub>A</sub> = 25°C |                                 |
| SOT-23-3.....   | 0.4W                            |

|  |                 |
|--|-----------------|
| Package Thermal Resistance             |                 |
| SOT-23-3, θ <sub>JA</sub> .....        | 250°C/W         |
| Operating Temperature Range.....       | -40°C to +125°C |
| Junction Temperature.....              | 150°C           |
| Storage Temperature.....               | -65°C to +150°C |
| Lead Temperature (Soldering, 10s)..... | 260°C           |
| ESD Susceptibility                     |                 |
| HBM.....                               | 4000V           |
| MM.....                                | 400V            |

**NOTE:**

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**CAUTION**

This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. SGMICRO recommends that all 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.

SGMICRO reserves the right to make any change in circuit design, specification or other related things if necessary without notice at any time. Please contact SGMICRO sales office to get the last datasheet.

**PIN DESCRIPTION**

| NAME                      | Pin Number |        |        | FUNCTION   |
|---------------------------|------------|--------|--------|--|
|                           | SGM803     | SGM809 | SGM810 |  |
| GND                       | 1          | 1      | 1      | Ground   |
| $\overline{\text{RESET}}$ | 2          | 2      | —      | Active Low reset. $\overline{\text{RESET}}$ remains low while V <sub>CC</sub> is below the reset threshold, and remains low for 240ms (TYP) after V <sub>CC</sub> rises above the reset threshold. |
| RESET                     | —          | —      | 2      | Active High reset. RESET remains high while V <sub>CC</sub> is below the reset threshold, and remains high for 240ms (TYP) after V <sub>CC</sub> rises above the reset threshold.                  |
| V <sub>CC</sub>           | 3          | 3      | 3      | Power supply voltage that is monitored.  |

# SGM803/SGM809/SGM810

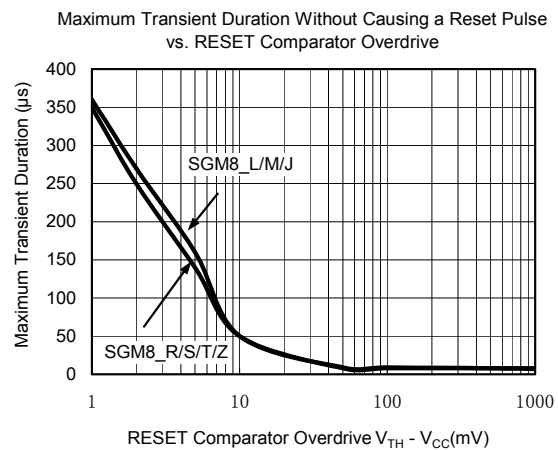
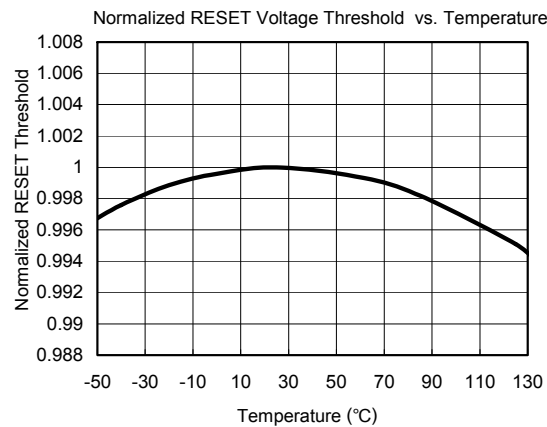
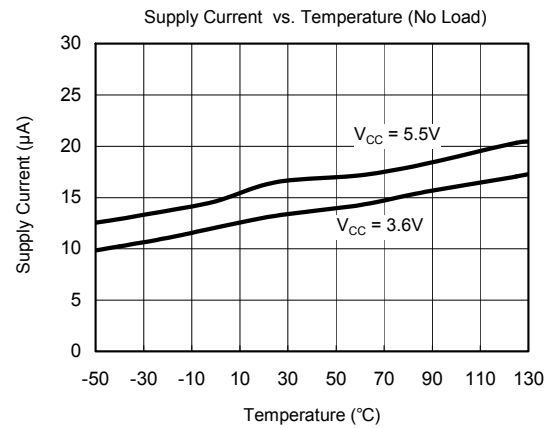
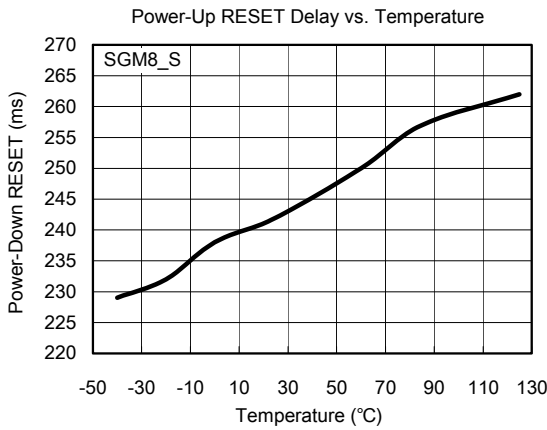
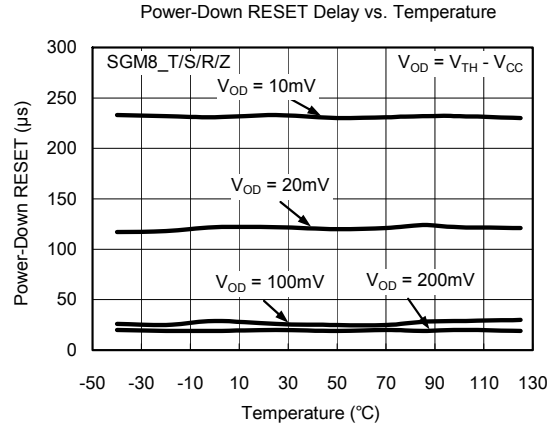
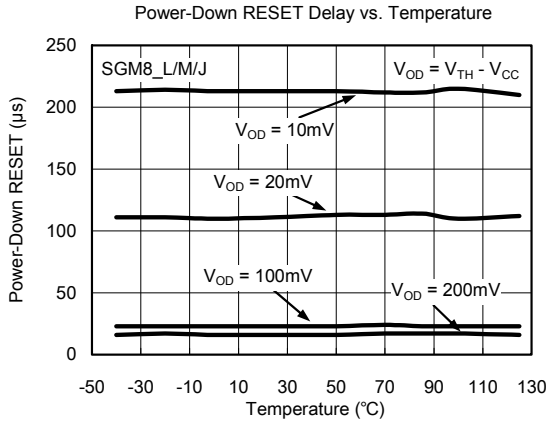
# Microprocessor Supervisory Circuit in 3-Pin SOT-23

## ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> TYP = 5V for L/M/J Models, 3.3V for T/S Models, 3V for R Models, 2.5V for Z Models, 1.8V for X Models; unless otherwise noted.)

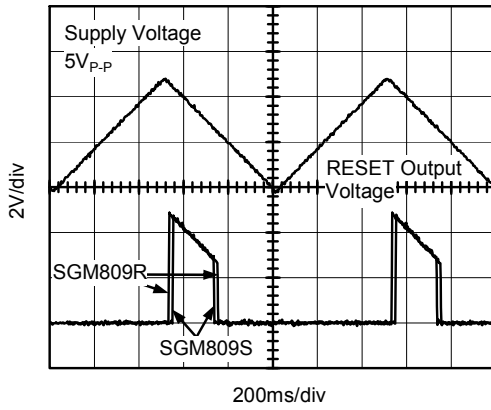
| PARAMETER  | CONDITIONS  | MIN                   | TYP  | MAX   | UNITS  |
|--|---|-----------------------|------|-------|--------|
| <b>SUPPLY</b>  |   |                       |      |       |        |
| Voltage  | T <sub>A</sub> = 0°C to +70°C   | 1.0                   |      | 5.5   | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 1.2                   |      | 5.5   | V      |
| Current  | V <sub>CC</sub> < 5.5V, SGM8_L/M/J, T <sub>A</sub> = +25°C                  |                       | 17   | 30    | μA     |
|  | V <sub>CC</sub> < 5.5V, SGM8_L/M/J, T <sub>A</sub> = -40°C to +125°C        |                       |      | 50    | μA     |
|  | V <sub>CC</sub> < 3.6V, SGM8_R/S/T/Z/X, T <sub>A</sub> = +25°C              |                       | 13   | 25    | μA     |
|  | V <sub>CC</sub> < 3.6V, SGM8_R/S/T/Z/X, T <sub>A</sub> = -40°C to +125°C    |                       |      | 45    | μA     |
| <b>RESET VOLTAGE THRESHOLD</b>                                       |   |                       |      |       |        |
| SGM8_L   | T <sub>A</sub> = +25°C  | 4.537                 | 4.63 | 4.723 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 4.40                  |      | 4.86  | V      |
| SGM8_M   | T <sub>A</sub> = +25°C  | 4.292                 | 4.38 | 4.468 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 4.16                  |      | 4.56  | V      |
| SGM8_J   | T <sub>A</sub> = +25°C  | 3.92                  | 4.00 | 4.08  | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 3.8                   |      | 4.2   | V      |
| SGM8_T   | T <sub>A</sub> = +25°C  | 3.003                 | 3.08 | 3.157 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 2.92                  |      | 3.23  | V      |
| SGM8_S   | T <sub>A</sub> = +25°C  | 2.857                 | 2.93 | 3.003 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 2.78                  |      | 3.08  | V      |
| SGM8_R   | T <sub>A</sub> = +25°C  | 2.564                 | 2.63 | 2.696 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 2.50                  |      | 2.76  | V      |
| SGM8_Z   | T <sub>A</sub> = +25°C  | 2.262                 | 2.32 | 2.378 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 2.22                  |      | 2.42  | V      |
| SGM8_X   | T <sub>A</sub> = +25°C  | 1.589                 | 1.63 | 1.671 | V      |
|  | T <sub>A</sub> = -40°C to +125°C  | 1.55                  |      | 1.71  | V      |
| Reset Threshold Temperature Coefficient                              |   |                       | 30   |       | ppm/°C |
| V <sub>CC</sub> to RESET/ $\overline{\text{RESET}}$ Delay            | V <sub>CC</sub> = V <sub>TH</sub> to (V <sub>TH</sub> - 100mV)              |                       | 20   |       | μs     |
| Reset Active Timeout Period  | T <sub>A</sub> = -40°C to +85°C   | 150                   | 240  | 560   | ms     |
|  | T <sub>A</sub> = -40°C to +125°C  | 100                   |      | 840   | ms     |
| <b>RESET/RESET OUTPUT VOLTAGE</b>                                    |   |                       |      |       |        |
| Low (SGM803R/S/T/Z/X)<br>Low (SGM809R/S/T/Z/X)                       | V <sub>CC</sub> = V <sub>TH(MIN)</sub> , I <sub>SINK</sub> = 1.2mA          |                       |      | 0.3   | V      |
| Low (SGM803L/M/J)<br>Low (SGM809L/M/J)                               | V <sub>CC</sub> = V <sub>TH(MIN)</sub> , I <sub>SINK</sub> = 3.2mA          |                       |      | 0.4   | V      |
| Low (SGM803R/S/T/L/M/J/Z/X)<br>Low (SGM809R/S/T/L/M/J/Z/X)           | V <sub>CC</sub> > 1.0V, I <sub>SINK</sub> = 50μA                            |                       |      | 0.3   | V      |
| High (SGM809R/S/T/Z/X)   | V <sub>CC</sub> > V <sub>TH(MAX)</sub> , I <sub>SOURCE</sub> = 500μA        | 0.8 × V <sub>CC</sub> |      |       | V      |
| High (SGM809L/M/J)   | V <sub>CC</sub> > V <sub>TH(MAX)</sub> , I <sub>SOURCE</sub> = 800μA        | V <sub>CC</sub> - 1.5 |      |       | V      |
| Low (SGM810R/S/T/Z/X)  | V <sub>CC</sub> = V <sub>TH(MAX)</sub> , I <sub>SINK</sub> = 1.2mA          |                       |      | 0.3   | V      |
| Low (SGM810L/M/J)  | V <sub>CC</sub> = V <sub>TH(MAX)</sub> , I <sub>SINK</sub> = 3.2mA          |                       |      | 0.4   | V      |
| High (SGM810R/S/T/L/M/J/Z)   | 1.8V < V <sub>CC</sub> < V <sub>TH(MIN)</sub> , I <sub>SOURCE</sub> = 150μA | 0.8 × V <sub>CC</sub> |      |       | V      |
| High (SGM810X)   | 1.2V < V <sub>CC</sub> < V <sub>TH(MIN)</sub> , I <sub>SOURCE</sub> = 150μA | 0.8 × V <sub>CC</sub> |      |       | V      |
| $\overline{\text{RESET}}$ Open-Drain Output Leakage Current (SGM803) | V <sub>CC</sub> > V <sub>TH</sub> , reset de-asserted                       |                       |      | 1     | μA     |

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS

RESET Output Voltage vs. Supply Voltage



## APPLICATION NOTES

### BENEFITS OF AN ACCURATE RESET THRESHOLD

In other microprocessor supervisory circuits, tolerances in supply voltages lead to an overall increase in reset tolerance levels due to the deterioration of the microprocessor reset circuit's power supply. The possibility of a malfunction during a power failure is greatly reduced because the SGM803/SGM809/SGM810 series can operate effectively even when there are large degradations of the supply voltages. Another advantage of the SGM803/SGM809/SGM810 series is its very accurate internal voltage reference circuit. These benefits combine to produce an exceptionally reliable voltage monitor circuit.

### INTERFACING TO MICROPROCESSORS WITH MULTIPLE INTERRUPTS

In a number of cases, it is necessary to interface many interrupts from different devices (for example, thermal, altitude, and velocity sensors). The SGM803/SGM809/SGM810 can easily be integrated into existing interrupt-handling circuits, as shown in Figure 1, or can be used as a standalone device.

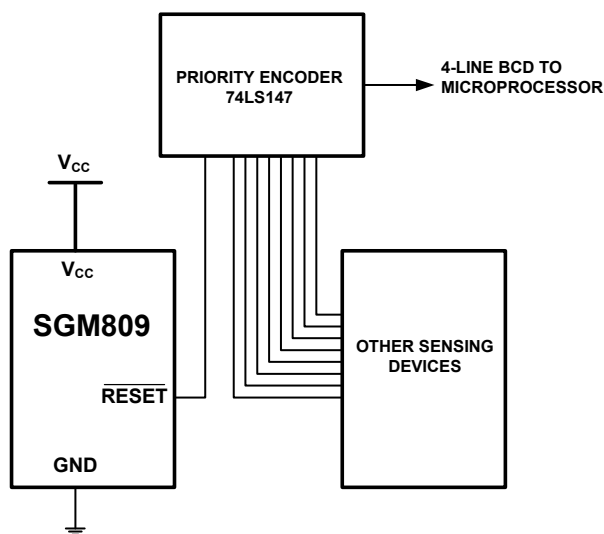


Figure 1. Interfacing to Microprocessors with Multiple Interrupts

### INTERFACING TO OTHER DEVICES' OUTPUT

The SGM803/SGM809/SGM810 series is designed to integrate with as many devices as possible and, therefore, has a standard output dependent on  $V_{CC}$ . This enables the parts to be used in both 3V and 5V, or any nominal voltage within the minimum and maximum specifications for  $V_{CC}$ . This design simplifies interfacing this device to other devices.

### ENSURING A VALID RESET OUTPUT DOWN TO $V_{CC} = 0V$

When  $V_{CC}$  falls below 1.0V, the SGM803/SGM809  $\overline{RESET}$  no longer sinks current. A high impedance CMOS logic input connected to  $\overline{RESET}$  may, therefore, drift to undetermined logic levels. To eliminate this problem, a 100k $\Omega$  resistor should be connected from  $\overline{RESET}$  to ground.

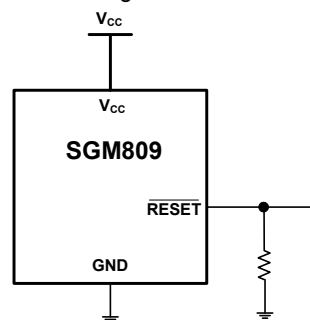


Figure 2. Ensuring a Valid Reset Output Down to  $V_{CC} = 0V$

### PREVENTING THE HIGH VOLTAGE SPIKE AND LOW POWER DESIGN

To prevent the high voltage spike damage or input  $V_{CC}$  current limitation low power design, It is always to connect a resistor R1(0 $\Omega$  to 1k $\Omega$ ) in series to  $V_{CC}$ , for such application, one capacitance C1(0.1 $\mu F$  to 4.7 $\mu F$ ) should be connected between  $V_{CC}$  Pin and GND. the schematic is shown in Figure 3. The input resistor will affect output driving capability.

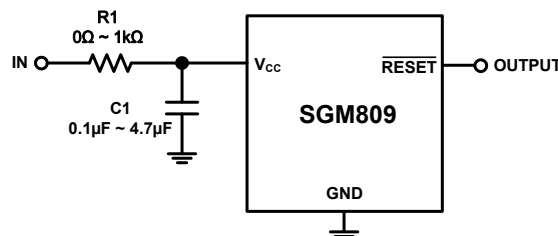


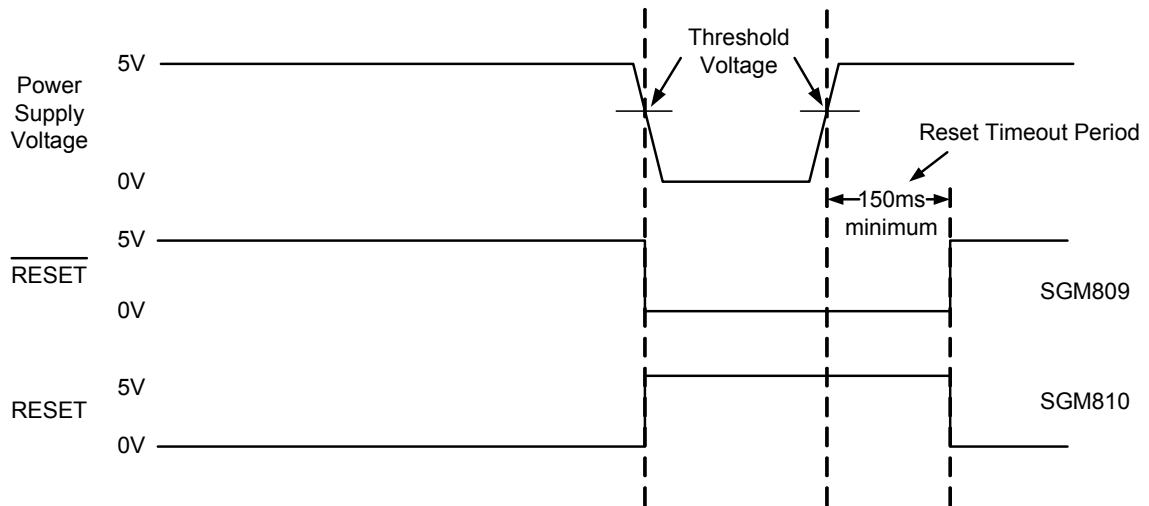
Figure 3. Preventing the High Voltage Spike and Low Power Design



**DETAILED DESCRIPTIONS**

**RESET TIMING**

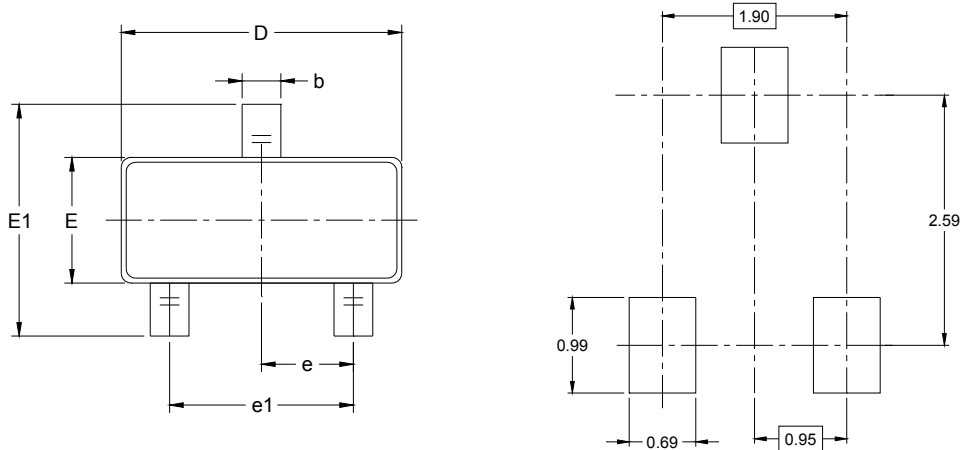
The reset signal is asserted LOW for the SGM809 and HIGH for the SGM810 when the power supply voltage falls below the threshold trip voltage and remains asserted for at least 150ms after the power supply voltage has risen above the threshold.



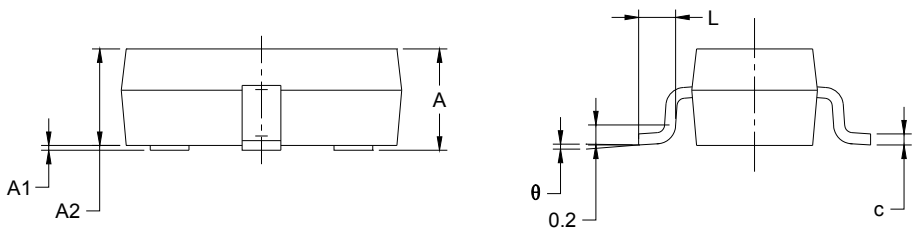
**Figure 4. Reset Timing Diagram**

PACKAGE OUTLINE DIMENSIONS

SOT-23-3



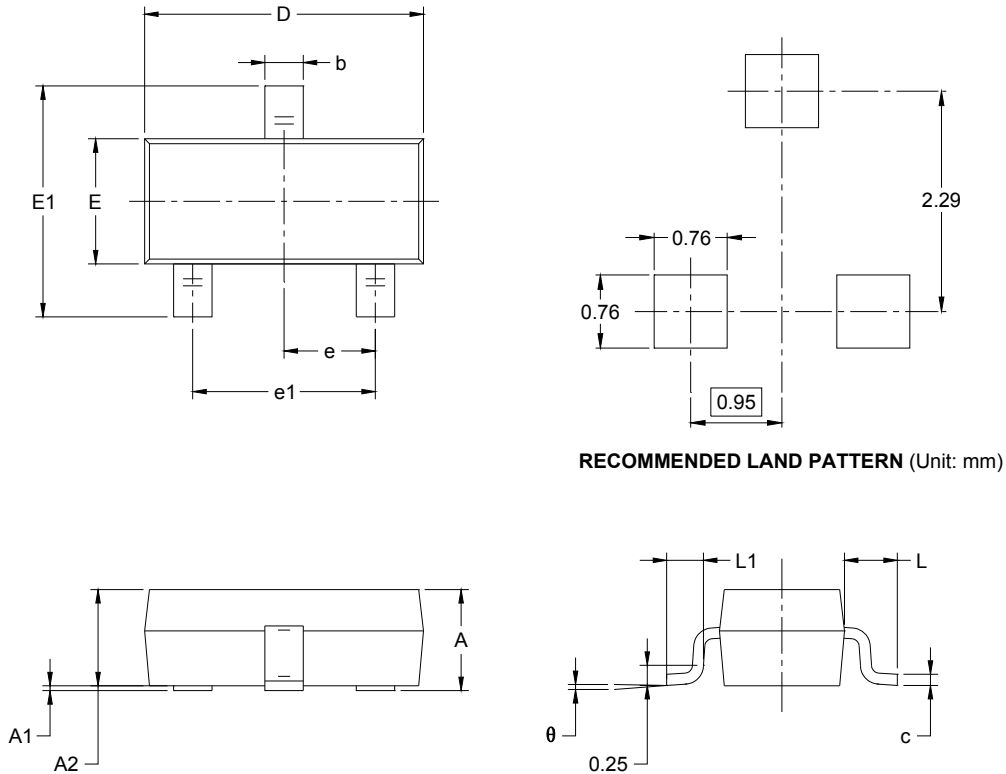
RECOMMENDED LAND PATTERN (Unit: mm)



| Symbol | Dimensions<br>In Millimeters |       | Dimensions<br>In Inches |       |
|--------|------------------------------|-------|-------------------------|-------|
|        | MIN                          | MAX   | MIN                     | MAX   |
| A      | 1.050                        | 1.250 | 0.041                   | 0.049 |
| A1     | 0.000                        | 0.100 | 0.000                   | 0.004 |
| A2     | 1.050                        | 1.150 | 0.041                   | 0.045 |
| b      | 0.300                        | 0.500 | 0.012                   | 0.020 |
| c      | 0.100                        | 0.200 | 0.004                   | 0.008 |
| D      | 2.820                        | 3.020 | 0.111                   | 0.119 |
| E      | 1.500                        | 1.700 | 0.059                   | 0.067 |
| E1     | 2.650                        | 2.950 | 0.104                   | 0.116 |
| e      | 0.950 BSC                    |       | 0.037 BSC               |       |
| e1     | 1.900 BSC                    |       | 0.075 BSC               |       |
| L      | 0.300                        | 0.600 | 0.012                   | 0.024 |
| θ      | 0°                           | 8°    | 0°                      | 8°    |

PACKAGE OUTLINE DIMENSIONS

SOT-23

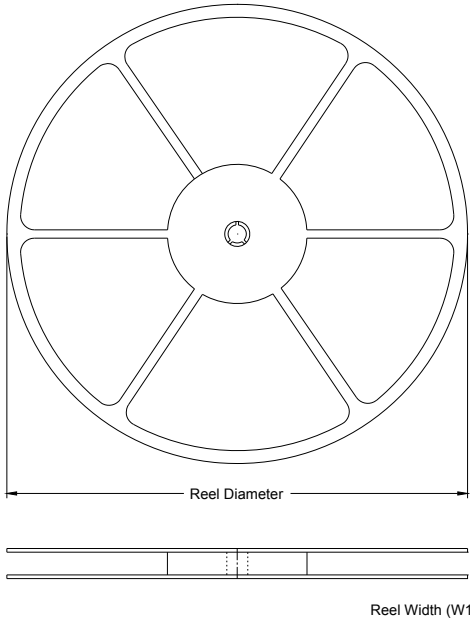


RECOMMENDED LAND PATTERN (Unit: mm)

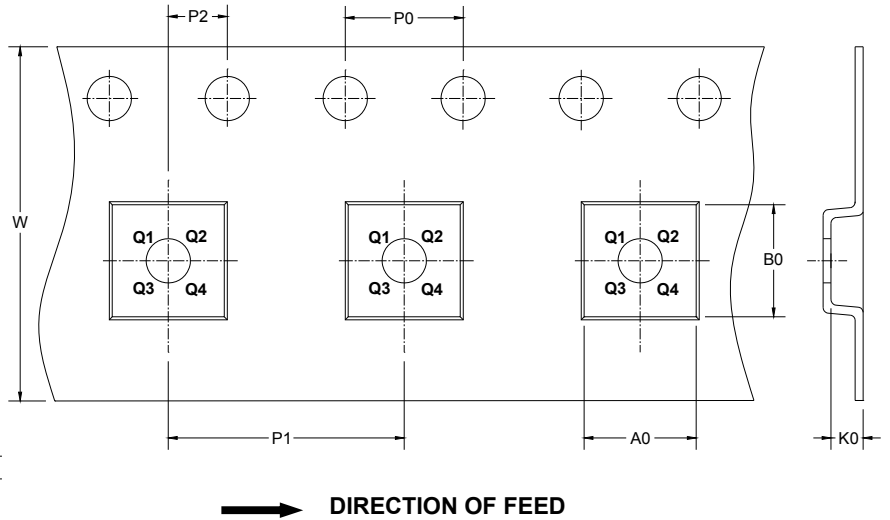
| Symbol | Dimensions<br>In Millimeters |       | Dimensions<br>In Inches |       |
|--------|------------------------------|-------|-------------------------|-------|
|        | MIN                          | MAX   | MIN                     | MAX   |
| A      | 0.900                        | 1.150 | 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 |
| c      | 0.080                        | 0.150 | 0.003                   | 0.006 |
| D      | 2.800                        | 3.000 | 0.110                   | 0.118 |
| E      | 1.200                        | 1.400 | 0.047                   | 0.055 |
| E1     | 2.250                        | 2.550 | 0.089                   | 0.100 |
| e      | 0.950 BSC                    |       | 0.037 BSC               |       |
| e1     | 1.900 BSC                    |       | 0.075 BSC               |       |
| L      | 0.550 REF                    |       | 0.022 REF               |       |
| L1     | 0.300                        | 0.500 | 0.012                   | 0.020 |
| θ      | 0°                           | 8°    | 0°                      | 8°    |

**TAPE AND REEL INFORMATION**

**REEL DIMENSIONS**



**TAPE DIMENSIONS**



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

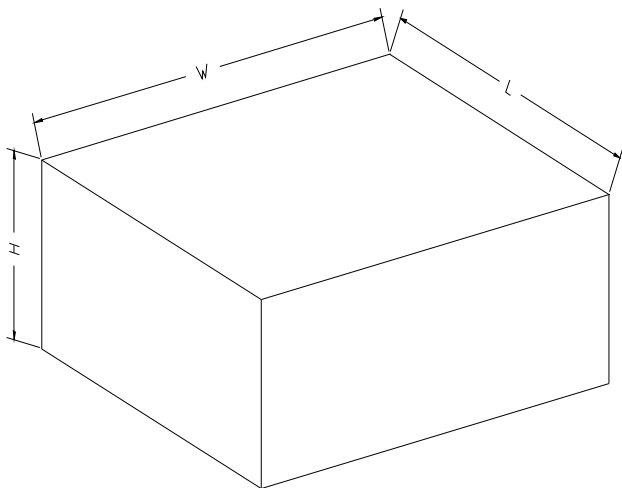
**KEY PARAMETER LIST OF TAPE AND REEL**

| 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-23-3     | 7"            | 9.0                | 3.2     | 3.3     | 1.3     | 4.0     | 4.0     | 2.0     | 8.0    | Q3            |
| SOT-23       | 7"            | 9.5                | 3.15    | 2.77    | 1.22    | 4.0     | 4.0     | 2.0     | 8.0    | Q3            |

## SGM803/SGM809/SGM810

## Microprocessor Supervisory Circuit in 3-Pin SOT-23

### 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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