



SGM811C/SGM812C Microprocessor Supervisory Circuits with Manual Reset Input

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 seven reset threshold voltage options for 1.8V, 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°C to $+125^{\circ}\text{C}$.

FEATURES

- Superior Upgrade for MAX811/MAX812 and ADM811/ADM812
- High Accuracy Fixed Detection Options: 1.8V, 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 μP Power Monitoring

TYPICAL APPLICATION

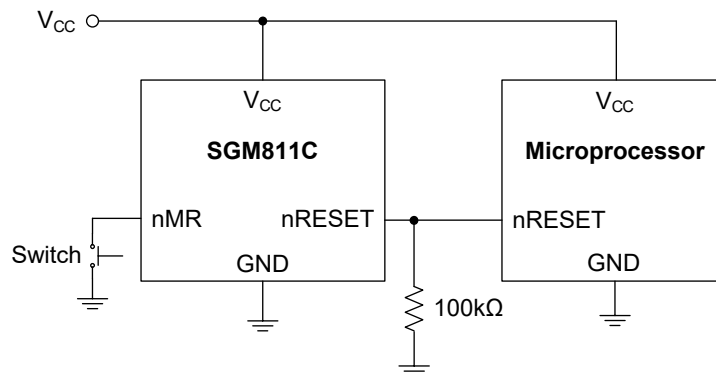


Figure 1. Typical Application Circuit Example

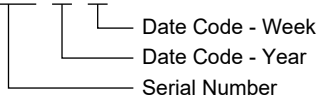
PACKAGE/ORDERING INFORMATION

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
	1.67	SOT-143	-40°C to +125°C	SGM811C-WXKA4G/TR	MCRXX	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
	1.67	SOT-143	-40°C to +125°C	SGM812C-WXKA4G/TR	1Z0XX	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XX = Date Code.

YYY X X



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 _{CC}	-0.3V to 6V
All Other Inputs.....	-0.3V to V _{CC} + 0.3V
Input Current	
V _{CC} , nMR	20mA
Output Current	
nRESET/RESET.....	20mA
Package Thermal Resistance	
SOT-143, θ_{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
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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.

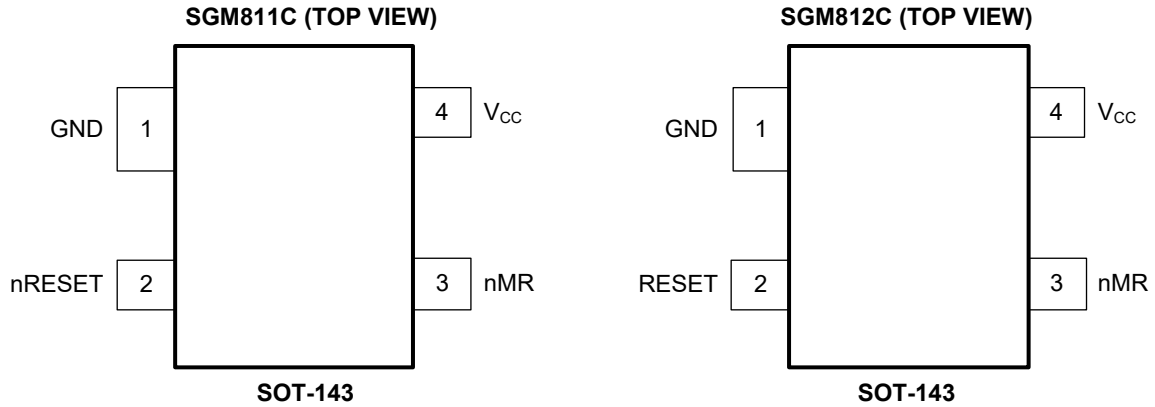
ESD SENSITIVITY CAUTION

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

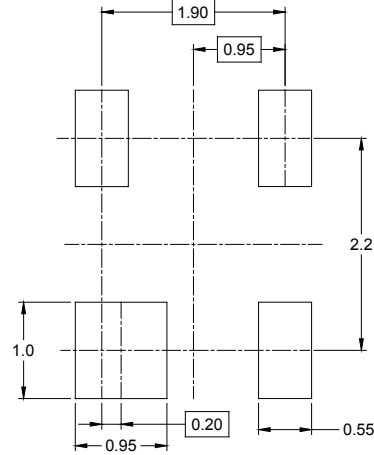
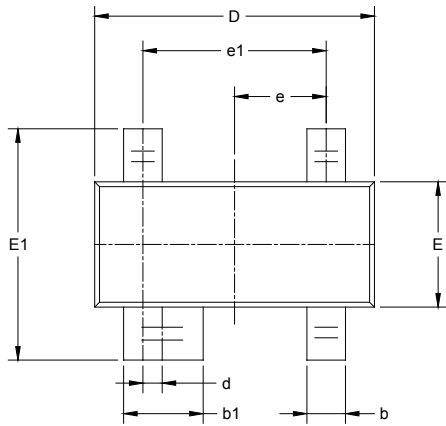


PIN DESCRIPTION

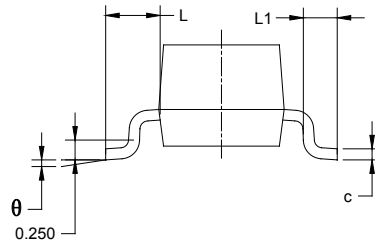
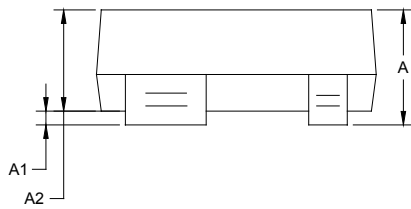
NAME	PIN NUMBER		FUNCTION
	SGM811C	SGM812C	
GND	1	1	Ground.
nRESET	2	—	Active-Low Reset Output Pin. If V _{CC} falls below the reset threshold or nMR is low, nRESET will keep low. If V _{CC} exceeds the reset threshold, the nRESET will keep low for 200ms (TYP).
RESET	—	2	Active-High Reset Output Pin. If the V _{CC} falls below the reset threshold or nMR is low, RESET will keep high. If the V _{CC} 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 _{CC} .
V _{CC}	4	4	Supply Voltage Pin.

PACKAGE OUTLINE DIMENSIONS

SOT-143



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions 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
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-143	7"	9.5	3.20	2.80	1.30	4.0	4.0	2.0	8.0	Q3

DD0001

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

DD0002