

GENERAL DESCRIPTION

The SGM708 is an integrated microprocessor supervisory device. Compared with a design using a single IC or discrete components, this integration design has the advantage of improving system stability and accuracy. The SGM708 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. And it also has a low-level active manual reset (\overline{MR}) function.

The SGM708 provides a 1.25V threshold detector. When the power supply fails, the battery power is low, or the additional power supply needs to be monitored, this detector can help.

The SGM708 is available in Green SOIC-8 package. It operates over an ambient temperature range of -40°C to $+85^{\circ}\text{C}$.

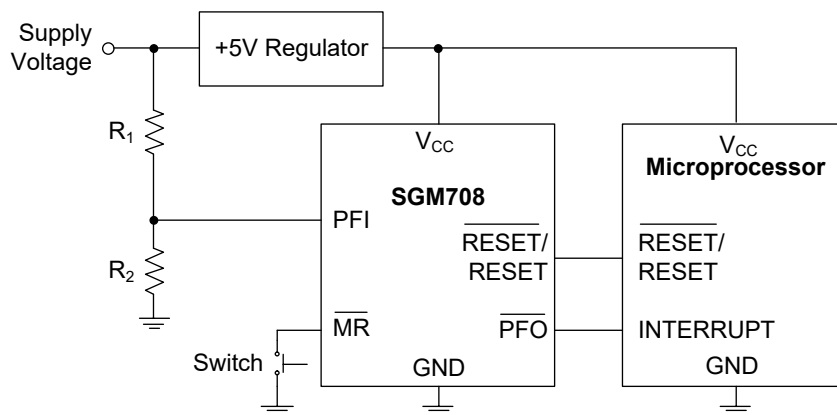
FEATURES

- **Precision Supply-Voltage Monitor**
4.65V for SGM708-L
4.40V for SGM708-M
4.0V for SGM708-J
3.08V for SGM708-T
2.93V for SGM708-S
2.63V for SGM708-R
- **Dual Reset Outputs: Active-High/Active-Low**
- **Guaranteed $\overline{\text{RESET}}$ Valid at $V_{CC} = 1\text{V}$**
- **Reset Pulse Width: 200ms (TYP)**
- **Debounced TTL/CMOS-Compatible**
- **Manual-Reset Input**
- **1.25V Threshold Detector for Power-Fail or Low-Battery Warning**
- **-40°C to $+85^{\circ}\text{C}$ Operating Temperature Range**
- **Available in Green SOIC-8 Package**

APPLICATIONS

Microprocessor Systems
 Computers
 Automotive Equipment
 Controllers
 Intelligent Instruments
 Critical μP Power Monitoring

TYPICAL APPLICATION



SGM708

PACKAGE/ORDERING INFORMATION

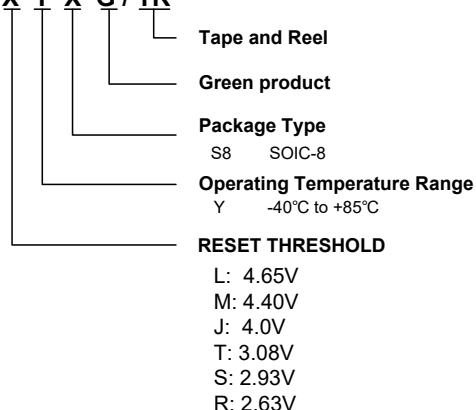
MODEL	RESET THRESHOLD (V)	PACKAGE DESCRIPTION	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM708	4.65	SOIC-8	SGM708-LYS8G/TR	SGM708-LYS8	Tape and Reel, 2500
	4.40	SOIC-8	SGM708-MYS8G/TR	SGM708-MYS8	Tape and Reel, 2500
	4.0	SOIC-8	SGM708-JYS8G/TR	SGM708-JYS8	Tape and Reel, 2500
	3.08	SOIC-8	SGM708-TYS8G/TR	SGM708-TYS8	Tape and Reel, 2500
	2.93	SOIC-8	SGM708-SYS8G/TR	SGM708-SYS8	Tape and Reel, 2500
	2.63	SOIC-8	SGM708-RYS8G/TR	SGM708-RYS8	Tape and Reel, 2500

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.

NOTE: Order number is defined as the follow:

ORDER NUMBER

SGM 708- X Y X G / TR



ABSOLUTE MAXIMUM RATINGS

(Typical values are at $T_A = +25^\circ\text{C}$, unless otherwise noted.)

Terminal Voltage (with respect to GND)

V_{CC}	-0.3V to 6.0V
All Other Inputs	-0.3V to ($V_{CC} + 0.3V$)
Input Current, V_{CC}	20mA
GND	20mA
Output Current, (all outputs)	20mA
Operating Temperature Range	-40°C to +85°C
Junction Temperature	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility	
HBM	4000V
MM	300V

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

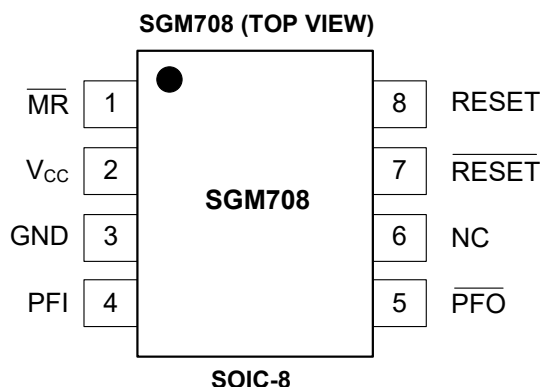
This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance 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.

SGM708

PIN CONFIGURATION



PIN DESCRIPTION

PIN	NAME	FUNCTION
1	$\overline{\text{MR}}$	Manual Reset Input Pin. It is an active-low reset input with an internal 250 μA ($V_{\text{CC}} = +5\text{V}$) pull-up current. $\overline{\text{MR}}$ can be driven by a CMOS/TTL logic or by a switch shorting to GND. If not used, leave it open or connect it to V_{CC} .
2	V_{CC}	Supply Voltage Pin.
3	GND	Ground Pin.
4	PFI	Power-Fail Voltage Monitor Input Pin. $\overline{\text{PFO}}$ will go low when PFI is lower than 1.25V. If not used, connect PFI to GND or V_{CC} .
5	$\overline{\text{PFO}}$	Power-Fail Voltage Monitor Output Pin. $\overline{\text{PFO}}$ will go low when PFI is lower than 1.25V. $\overline{\text{PFO}}$ will remain high when PFI is more than 1.25V.
6	NC	Not Connection.
7	$\overline{\text{RESET}}$	Active-Low Reset Output Pin. It delivers a 200ms (TYP) low pulse when activated. $\overline{\text{RESET}}$ remains low if V_{CC} is below the reset threshold or $\overline{\text{MR}}$ is logic low. It goes (or remains) low for 200ms after any of the following events: V_{CC} rises above the reset threshold, a watchdog expiry triggers a reset, or the $\overline{\text{MR}}$ input goes from low to high.
8	RESET	Active-High Reset Output Pin. It is the inverse of $\overline{\text{RESET}}$.

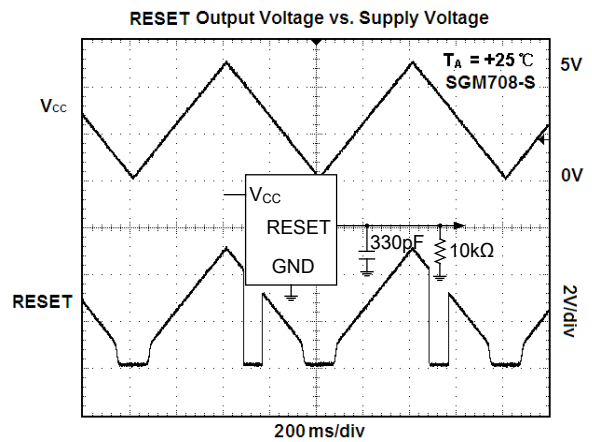
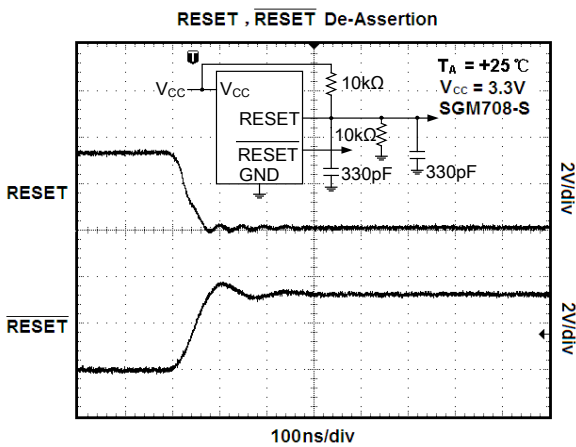
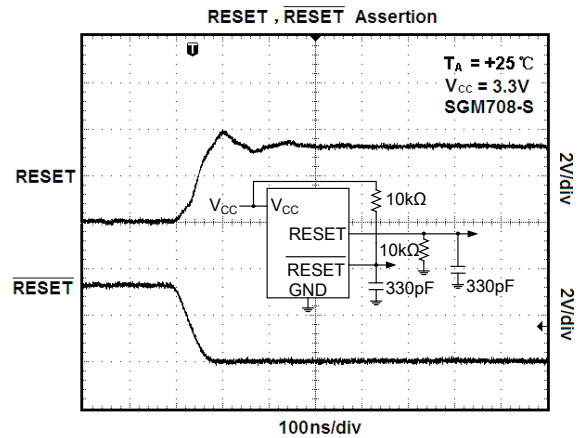
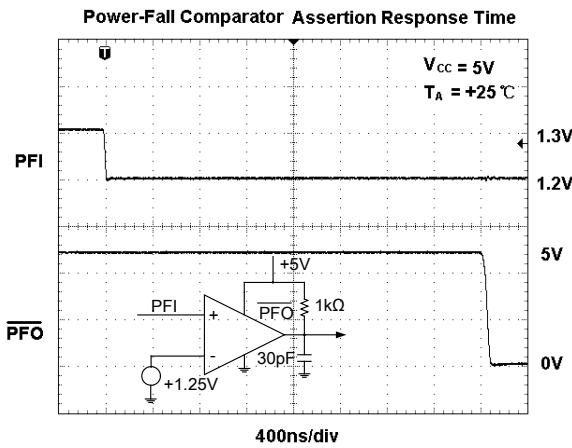
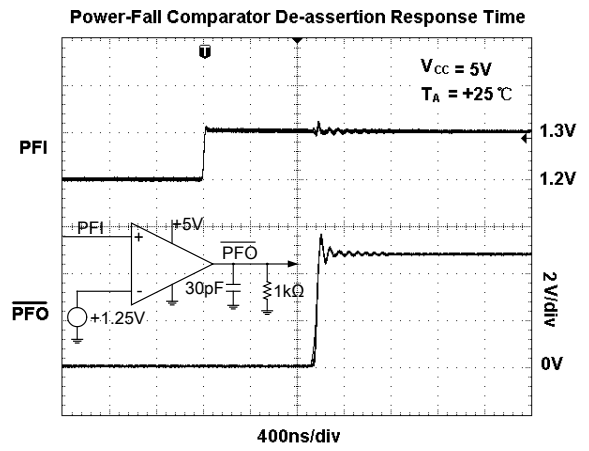
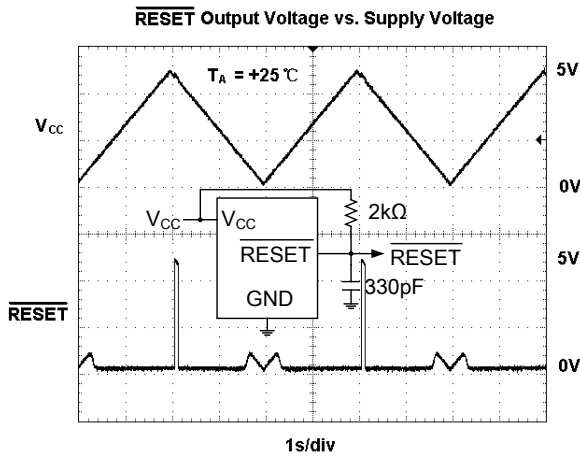
SGM708

ELECTRICAL CHARACTERISTICS

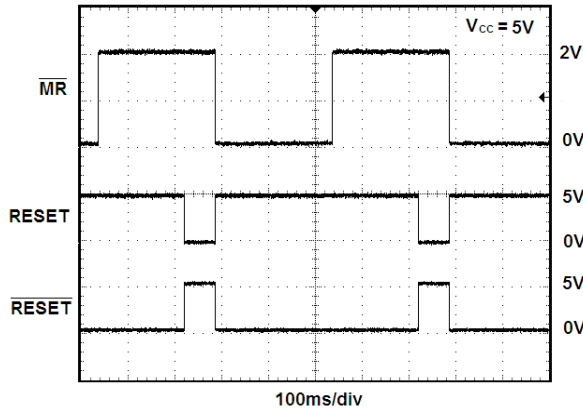
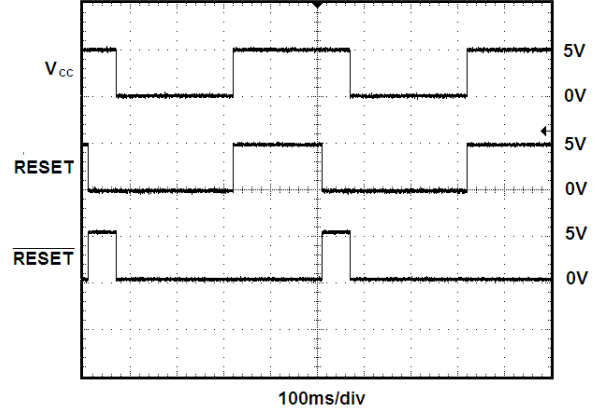
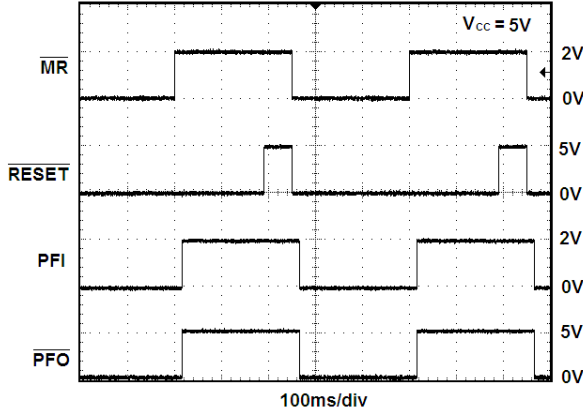
($V_{CC} = 4.75V$ to $5.5V$ for SGM708-L; $V_{CC} = 4.5V$ to $5.5V$ for SGM708-M; $V_{CC} = 4.07V$ to $5.5V$ for SGM708-J; $V_{CC} = 3.14V$ to $5.5V$ for SGM708-T; $V_{CC} = 2.95V$ to $5.5V$ for SGM708-S; $V_{CC} = 2.68V$ to $5.5V$ for SGM708-R; $T_A = -40^{\circ}C$ to $+85^{\circ}C$, unless otherwise noted.)

PARAMETER		CONDITIONS	MIN	TYP	MAX	UNITS
Operating Voltage Range (V_{CC})			1.0		5.5	V
Supply Current (I_{SUPPLY})				20	60	μA
Reset Threshold (V_{RT})	SGM708-L		4.5	4.65	4.75	V
	SGM708-M		4.25	4.4	4.5	
	SGM708-J		3.91	4.0	4.07	
	SGM708-T		3.02	3.08	3.14	
	SGM708-S		2.85	2.93	2.95	
	SGM708-R		2.56	2.63	2.68	
Reset Threshold Hysteresis	SGM708-T, SGM708-S, SGM708-R			25		mV
	SGM708-J			35		
	SGM708-L, SGM708-M			40		
Reset Pulse Width (t_{RS})			120	200	290	ms
\overline{RESET} Output Voltage	$I_{SOURCE} = 800\mu A$		$0.7 \times V_{CC}$			V
	$I_{SINK} = 3.2mA$				0.4	
	$V_{CC} = 1V, I_{SINK} = 50\mu A$				0.3	
RESET Output Voltage	$I_{SOURCE} = 800\mu A$		$0.7 \times V_{CC}$			V
	$I_{SINK} = 1.2mA$				0.4	V
\overline{MR} Pull-Up Current		$\overline{MR} = 0V$	100	250	600	μA
\overline{MR} Pulse Width (t_{MR})			250			ns
\overline{MR} Input Threshold	Low	$T_A = +25^{\circ}C$			0.8	V
	High		2			
\overline{MR} to Reset Out Delay (t_{MD})				100	350	ns
PFI Input Threshold		$V_{CC} = 5V$	1.17	1.25	1.3	V
PFI Input Current				0.2		nA
\overline{PFO} Output Voltage	$I_{SOURCE} = 800\mu A$		$0.7 \times V_{CC}$			V
	$I_{SINK} = 3.2mA$				0.4	

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



REVISION HISTORY

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

DECEMBER 2017 – REV.A.3 to REV.A.4

Changed Electrical Characteristics section 5

JANUARY 2013 – REV.A.2 to REV.A.3

Added Recommended Land Pattern Information 10
Added Tape and Reel Information 11, 12

MARCH 2011 – REV.A.1 to REV.A.2

Updated Package Description All

MAY 2010 – REV.A to REV.A.1

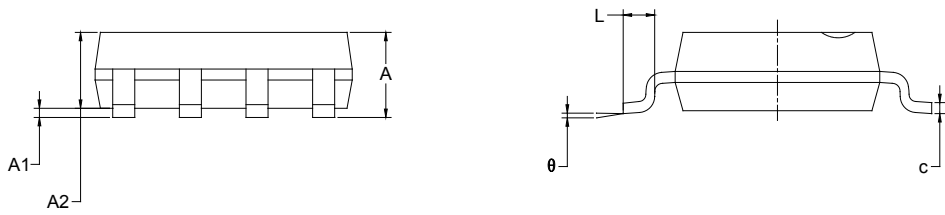
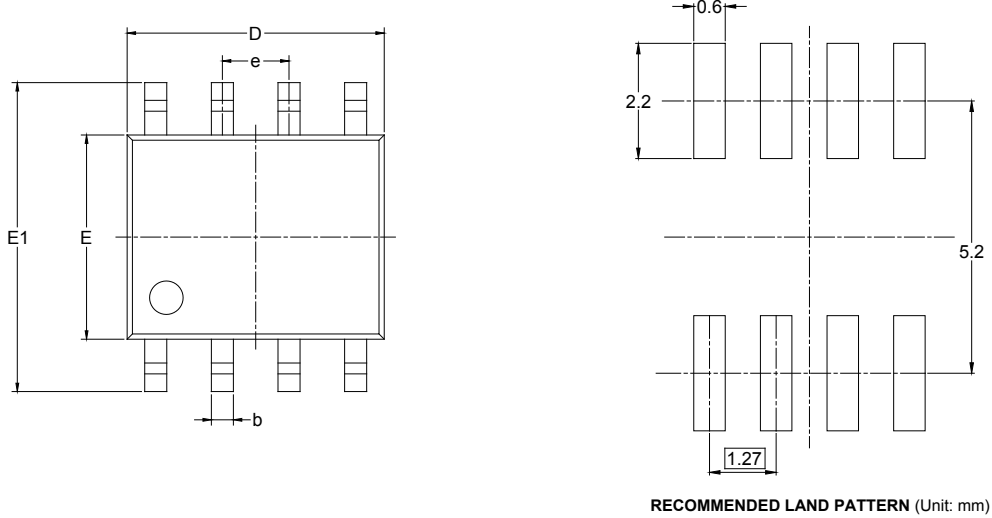
Added Reset Threshold All

Changes from Original (APRIL 2010) to REV.A

Changed from product preview to production data All

PACKAGE OUTLINE DIMENSIONS

SOIC-8



Symbol	Dimensions In Millimeters		Dimensions 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°

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

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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