

GS810

Reset IC

Product Description

The GSR810 is microprocessor (μ P) supervisory circuit used to monitor the power supplies in μ P and digital systems. It provides excellent circuit reliability and low cost by eliminating external components and adjustments when used with +5V, +3.3V, +3.0V, or 2.5V powered circuits.

The circuit perform a single function: it asserts a reset signal whenever the V_{CC} supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after V_{CC} has risen above the reset threshold. Reset thresholds suitable for operation with a variety of supply voltages are available.

The GSR810 has push-pull output and has an active-high RESET output. The reset comparator is designed to ignore fast transients on V_{CC} , and the output is guaranteed to be in the correct logic state for V_{CC} down to 1.15V within the range of the operating temperature .

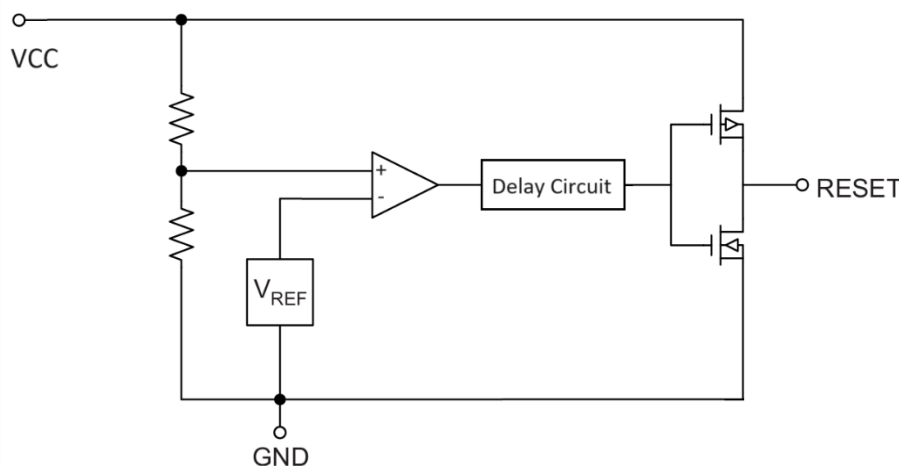
Features

- Precision monitoring of Supply Voltages
 - Available Threshold Options:
 - 4.63V (GSR810L)
 - 4.38V (GSR810M)
 - 4.00V (GSR810J)
 - 3.08V (GSR810T)
 - 2.93V (GSR810S)
 - 2.63V (GSR810R)
 - 2.32V (GSR810Z)
- 140ms Minimum Reset Pulse Width
- Push-Pull Configurations for RESET Output
- 10 μ A Supply Current Typically
- Power Supply Transient Immunity
- RoHS Compliant

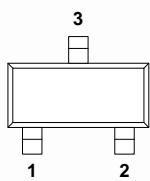
Applications

- Computers
- Controllers
- Intelligent Instruments
- Embedded Control Systems
- Battery-powered Equipment

Block Diagram



Packages & Pin Assignments

GSR810xZF (SOT-23)		
	Pin No.	Name
	1	GND
	2	RESET
	3	Vcc

Pin Description

Name	Type	Description
Vcc	I	Supply Voltage.
GND	-	Ground Pin.
RESET	O	Active-High Reset Output (Push-Pull). RESET Output remains High while Vcc is below the reset threshold, and for at least 140ms after Vcc rises above the reset threshold.

Ordering and Marking Information

GS P/N	Package	Marking	Reset Threshold
*GSR810LZF	SOT-23	AGAA	4.63V
*GSR810MZF	SOT-23	AHAA	4.38V
*GSR810JZF	SOT-23	AIAA	4.00V
GSR810TZF	SOT-23	AJAA	3.08V
GSR810SZF	SOT-23	AKAA	2.93V
GSR810RZF	SOT-23	ALAA	2.63V
*GSR810ZZF	SOT-23	AZZA	2.32V

★ Please contact a GS sales representative to inquire about production status.

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	-0.3 to +6.0	V
RESET	Output Pin	-0.3 to V _{CC} +0.3	V
I _{OUT}	Output Current	20	mA
T _{J(MAX)}	Maximum Junction Temperature	125	°C
T _{STG}	Storage Temperature Range	-65 to +150	°C
R _{θJA}	Junction-to-ambient thermal resistance	300	°C/W
P _D	Power Dissipation	320	mW
T _{SOD}	Lead temperature (Soldering, 10 s)	300	°C
V _{ESD}	Human-body model (HBM)	2000	V
	Charged-device model (CDM)	200	V

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.

Recommended Operating Conditions

Symbol	Parameter	Value	Unit
T _A	Operating Temperature Range	-40 to +85	°C

Electrical Characteristics

Over operating free-air temperature range (unless otherwise noted) (Note 1)

Symb ol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CC}	Operating Voltage Range	T _A =0°C ~ +70°C	1.0	-	5.5	V
		T _A =-40°C ~ +85°C	1.15	-	5.5	
I _{CC}	Supply Current (T _A =-40°C ~ +85°C)	V _{CC} <5.5V, GSR810(L/M/J)	-	10	25	μA
		V _{CC} <3.6V, GSR810(T/S/R/Z)	-	8	25	μA
V _{TH}	GSR810L	T _A =25°C	4.54	4.63	4.72	V
	Reset Threshold Voltage	T _A =-40 to 85°C	4.50	-	4.75	
	GSR810M	T _A =25°C	4.29	4.38	4.47	V
	Reset Threshold Voltage	T _A =-40 to 85°C	4.25	-	4.50	
	GSR810J	T _A =25°C	3.92	4.00	4.08	V
	Reset Threshold Voltage	T _A =-40 to 85°C	3.89	-	4.10	

Electrical Characteristics (Continued)

V _{TH}	GSR810T	T _A =25°C	3.01	3.08	3.15	V
	Reset Threshold Voltage	T _A =-40 to 85°C	3.00	-	3.17	
	GSR810S	T _A =25°C	2.86	2.93	3.00	V
	Reset Threshold Voltage	T _A =-40 to 85°C	2.85	-	3.01	
	GSR810R	T _A =25°C	2.56	2.63	2.69	V
	Reset Threshold Voltage	T _A =-40 to 85°C	2.55	-	2.70	
	GSR810Z	T _A =25°C	2.26	2.32	2.37	V
	Reset Threshold Voltage	T _A =-40 to 85°C	2.25	-	2.38	
-	Reset Threshold Temp Coefficient			30		ppm/°C
-	V _{CC} to Reset Delay	V _{CC} = V _{TH} ~ (V _{TH} -100mV)		20		μs
t _{RS}	Reset Active Timeout Period	T _A =-40 to 85°C	140	240	560	ms
V _{OH}	GSR810(L/M/J/T/S/R/Z) Output High Voltage	1.8V < V _{CC} < V _{TH} (min), I _{SOURCE} = 150μA	0.8 x V _{CC}	-	-	V
V _{OL}	GSR810(L/M/J) Output Low Voltage	V _{CC} = V _{TH} (max), I _{SINK} = 3.2mA	-	-	0.4	V
	GSR810(T/S/R/Z) Output Low Voltage	V _{CC} = V _{TH} (max), I _{SOURCE} = 1.2mA	-	-	0.3	

Note: Production testing done at T_A = 25°C, over temperature limits specified by design only.

Application Information

Typical Application Circuit

The GSR810 is a supervisor circuit for microprocessor and digital systems. With a low supply current of only 10 μA is ideal for use in portable equipment.

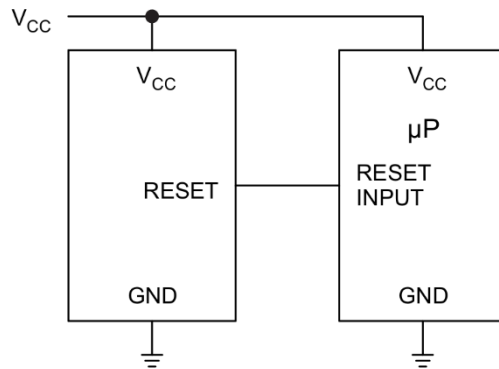


Figure. 1

Negative-Going Vcc Transients

GSR810 is relatively immune to short negative-going transients or glitches on Vcc. Figure 2 shows the maximum pulse width a negative-going Vcc transient can have without causing a reset pulse. In general, as the magnitude of the transient increases, going further below the threshold, the maximum allowable pulse width decreases. Typically, for the 4.63V and 4.38V version of the GSR810, a Vcc transient that goes 100 mV below the reset threshold and lasts 20 μs or less will not cause a reset pulse. A 0.1 μF bypass capacitor mounted as close as possible to the Vcc pin will provide additional transient rejection.

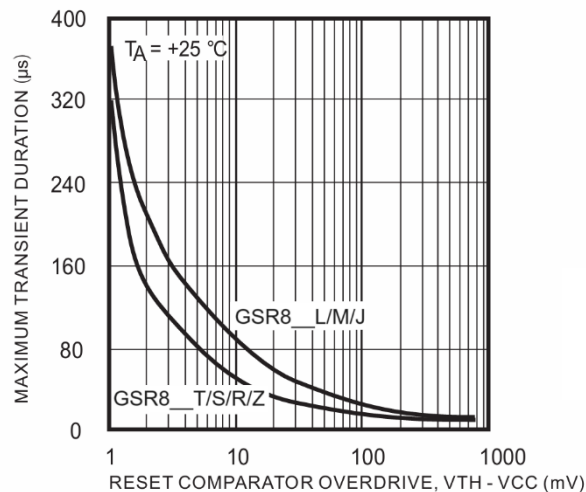


Figure. 2

Ensuring a Valid Reset Output for Vcc < 1.15V

A 100k Ω pullup resistor to Vcc is also recommended for the GSR810 if RESET is required to remain valid for Vcc < 1.15V.

Reference of Reset Curve

When Vcc supply voltage declines below the reset threshold, the active-high RESET output is High.
When the Vcc supply voltage rises above the reset threshold, the active-high RESET output drops Low after 240 ms typically.

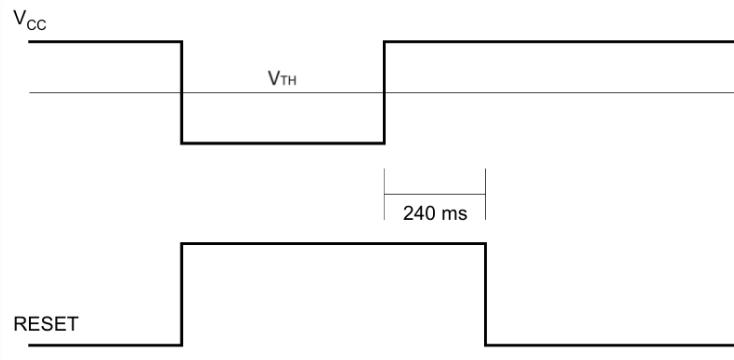
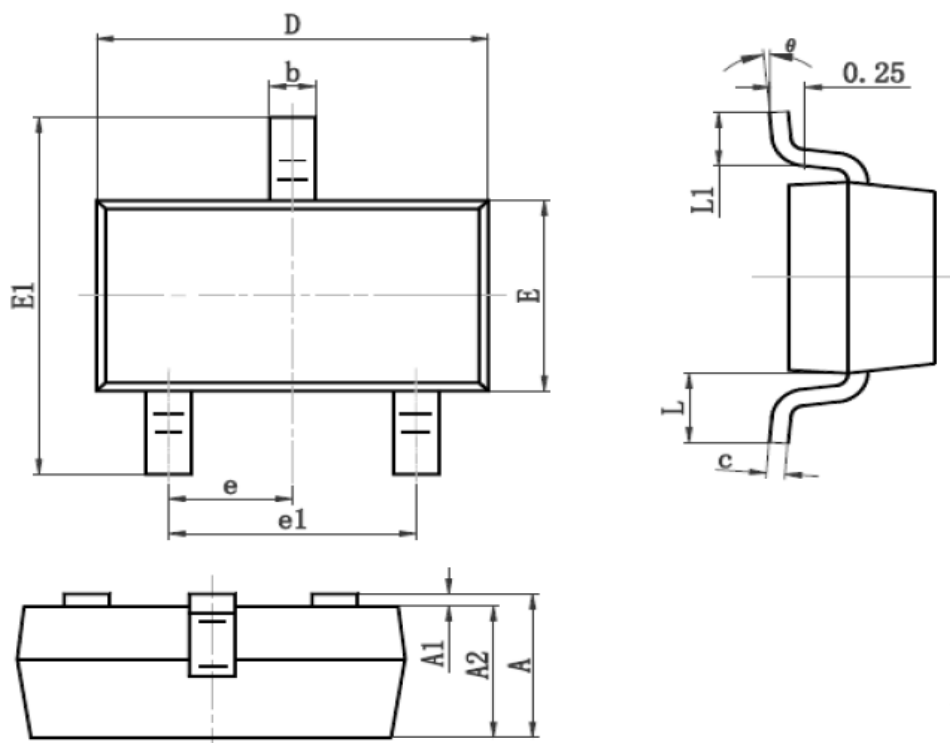


Figure. 3

Package Dimension

SOT-23







Dimensions



SYMBOL	Millimeters		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 (TYP)		0.037 (TYP)	
e1	1.800	2.000	0.071	0.079
L	0.550 (REF)		0.022 (REF)	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

NOTICE

Information furnished is believed to be accurate and reliable. However Globaltech Semiconductor assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Globaltech Semiconductor. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information without express written approval of Globaltech Semiconductor.

CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd NeiHu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587