



## Microprocessor Reset Monitors

### Pin Configuration SOT-23 (Top View)

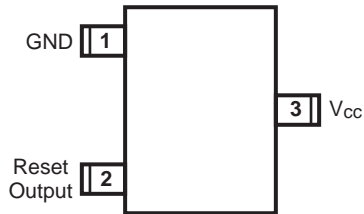
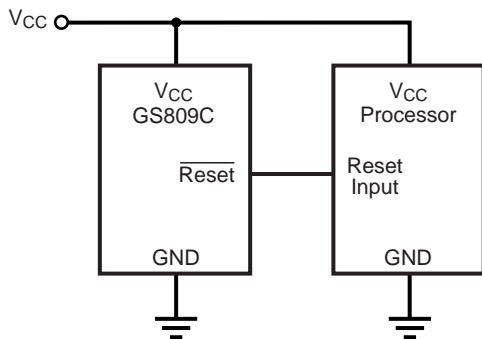


Fig. 1 – Typical Application Diagram



### Description

- The GS809C and 810C are system supervisor circuits designed to monitor  $V_{CC}$  in digital systems and provide a reset signal to the host processor when necessary. No external components are required.
- When the processor power supply voltage drops below the reset threshold, the reset output is driven active, in less than  $40\mu s$  ( $T_{D1}$ ). Reset is maintained active for a time period ( $T_{D2}$ ), after the  $V_{CC}$  rises above the threshold voltage.
- To prevent jitter, the reset threshold voltage has a built-in hysteresis of 0.4% of  $V_{TH}$ .
- The GS809C has an active-low  $\overline{\text{reset}}$  output, while the GS810C has an active-high reset output. Both devices have push/pull output drives.
- The reset signal is guaranteed valid, down to  $V_{CC} = 1.0V$ .
- Low supply current of  $3\mu A$  makes these devices well suited for battery powered applications. They are designed to reject fast transients from causing false resets.
- Both devices are available in a space-saving SOT-23 package.

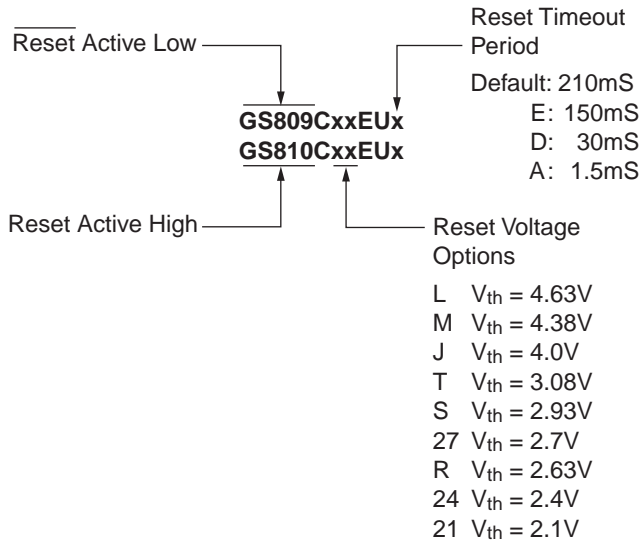
### Applications

- Computers
- Battery Powered Equipment
- Critical uProcessor and uController power supply monitoring

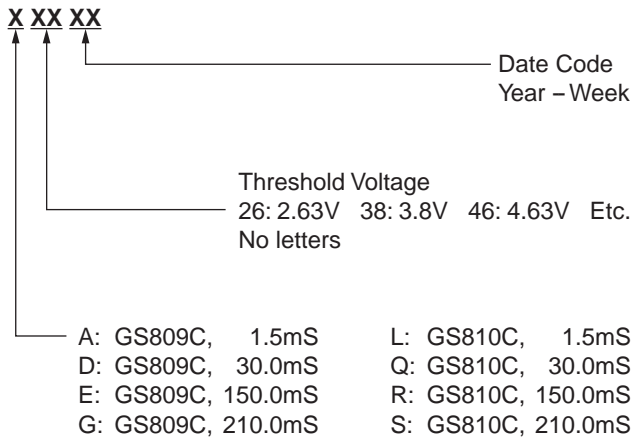
### Features

- Tight reset voltage tolerances  $\pm 1.5\%$
- 4 reset active timeout period options
- Low quiescent current:  $< 3\mu A$
- 9 reset threshold options from 2.1V to 4.63V
- $\overline{\text{Reset}}$  output guaranteed down to 1.0V
- No external components
- $V_{CC}$  Transient immunity
- Wide temperature range  $-40^{\circ}C$  to  $+85^{\circ}C$

## Ordering Information



## Marking Information





**Absolute Maximum Ratings<sup>(1)</sup>**

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	6.0	V
Reset/Reset		-0.3 to ( $V_{CC} + 0.3$ )	V
Input Current, $V_{CC}$		20	mA
Output Current, Reset/Reset		20	mA
dV/dT ( $V_{CC}$ )		100	V/ $\mu$ S
Operating Temperature Range	$T_A$	-40 to +85	$^{\circ}$ C
Storage Temperature Range	$T_{stg}$	-65 to +150	$^{\circ}$ C
Power Dissipation ( $T_A \leq 70^{\circ}$ C) SOT-23 (Derate 4mW/ $^{\circ}$ C above 70 $^{\circ}$ C)	$P_D$	260	mW

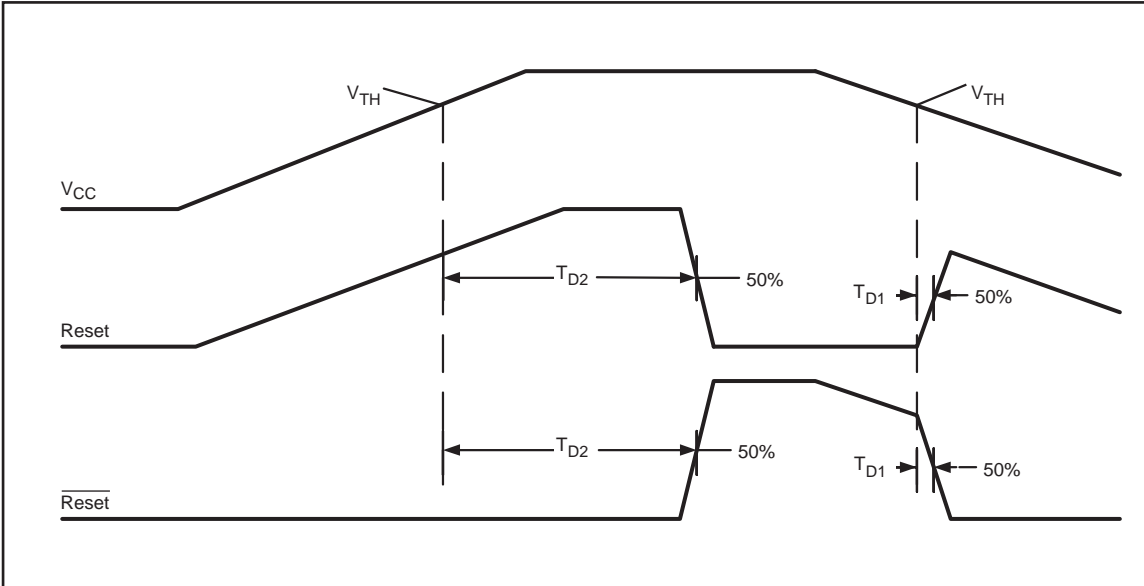
**Note:** (1) Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device.

**Electrical Characteristics**  $T_A = 25^{\circ}$ C unless otherwise noted.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
$V_{CC}$ Range	$V_{RANGE}$		1	-	5.5	V
		$T_A = -40$ to $+85^{\circ}$ C	1	-	5.5	
Supply Current	$I_{CC}$	$V_{CC} = 3.0V$	-	-	3.0	$\mu$ A
		$V_{CC}=3.0V, T_A = -40$ to $+85^{\circ}$ C	-	-	5.0	
Reset Threshold	$V_{TH}$		$V_{THNOM}-1.5\%$	$V_{THNOM}$	$V_{THNOM}+1.5\%$	V
		$T_A = -40$ to $+85^{\circ}$ C	$V_{THNOM}-2.0\%$	$V_{THNOM}$	$V_{THNOM}+2.0\%$	
Threshold Hysteresis	$V_{TH HIST}$			0.4		$\%V_{TH}$
Reset Threshold Temperature Coefficient			-	30	-	ppm/ $^{\circ}$ C
Reset Output Voltage Low 809C/810C	$V_{OL}$	809C $V_{CC} < V_{TH min}$ 810C $V_{CC} > V_{TH max}$ $T_A = -40$ to $+85^{\circ}$ C $I_{SINK} = 1.2mA$	-	-	0.5	V
Reset Output Voltage High 809C/810C	$V_{OH}$	809C $V_{CC} > V_{TH max}$ 810C $V_{CC} < V_{TH min}$ $T_A = -40$ to $+85^{\circ}$ C $I_{SOURCE} = 0.5mA$	$0.8V_{CC}$	-	-	V
$V_{CC}$ to Reset Delay	$T_{D1}$	$V_{CC} = V_{TH} - 100mV$ $T_A = -40$ to $+85^{\circ}$ C	-	40	-	$\mu$ S
Reset Timeout Period	$T_{D2}$	$T_A = -40$ to $+85^{\circ}$ C	$T_{D2NOM}-35\%$	$T_{D2NOM}$	$T_{D2NOM}+35\%$	mS

**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

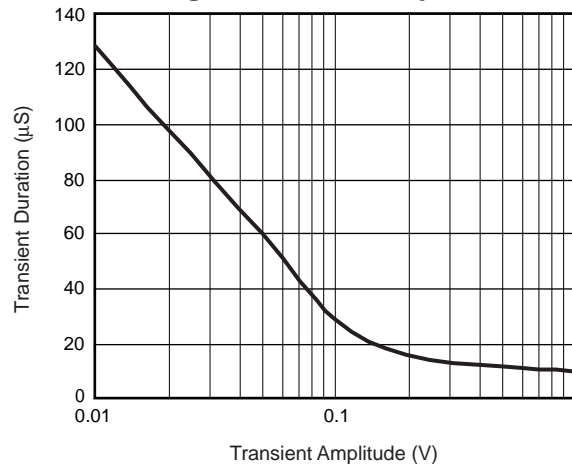
**Fig. 2 – Timing Diagram**



**Supply ( $V_{CC}$ ) Transients**

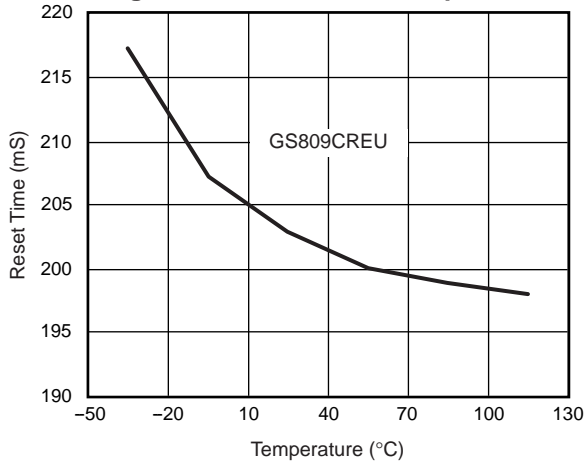
These devices have a certain immunity to fast negative going transients. The graph titled “Transient Rejection” shows the maximum allowable transient amplitude and duration to avoid triggering an unintended reset. As shown in the graph shorter transients can have larger amplitudes without triggering resets.

**Fig. 3 – Transient Rejection**

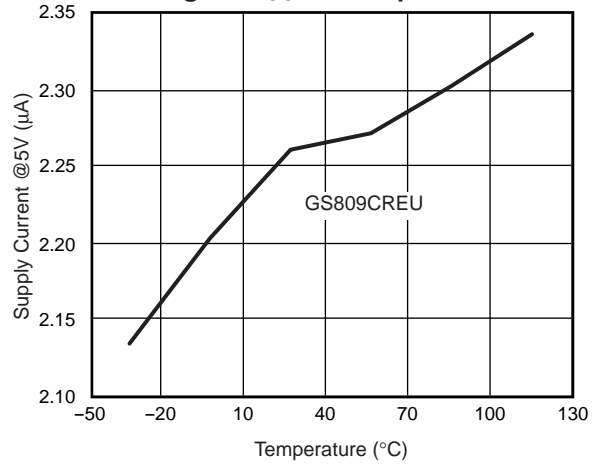


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

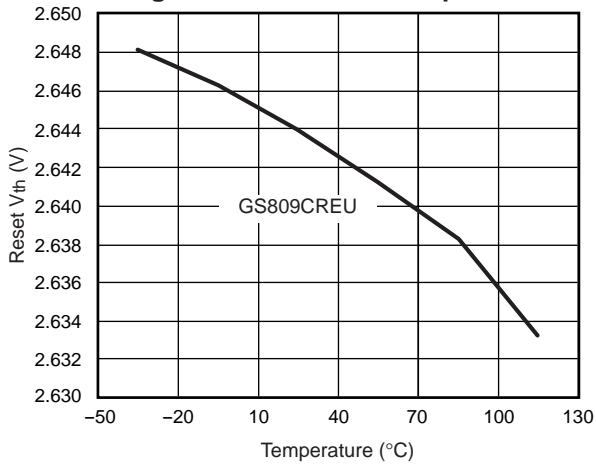
**Fig. 4 – Reset Time vs. Temperature**



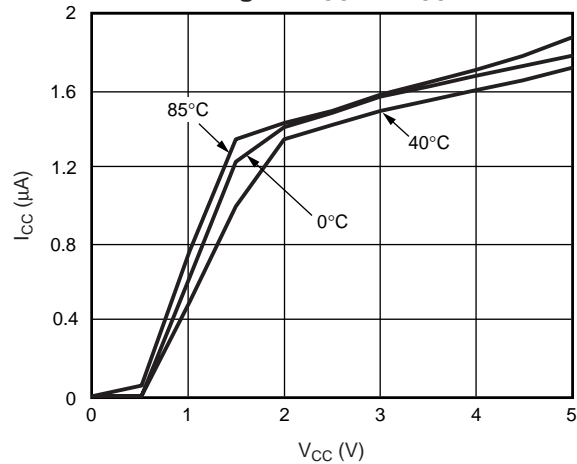
**Fig. 5 –  $I_{CC}$  vs. Temperature**



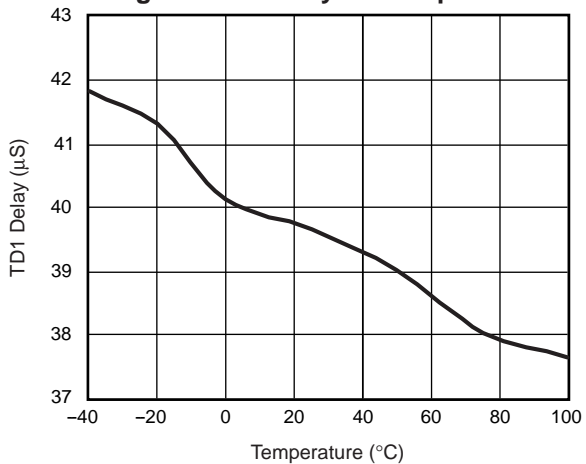
**Fig. 6 – Reset  $V_{th}$  vs. Temperature**



**Fig. 7 –  $I_{CC}$  vs.  $V_{CC}$**



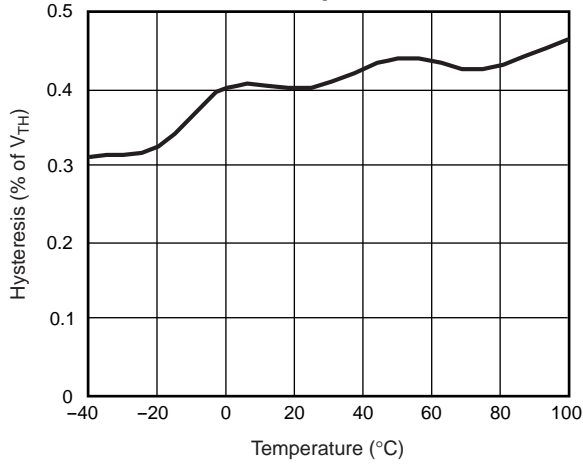
**Fig. 8 – TD1 Delay vs. Temperature**



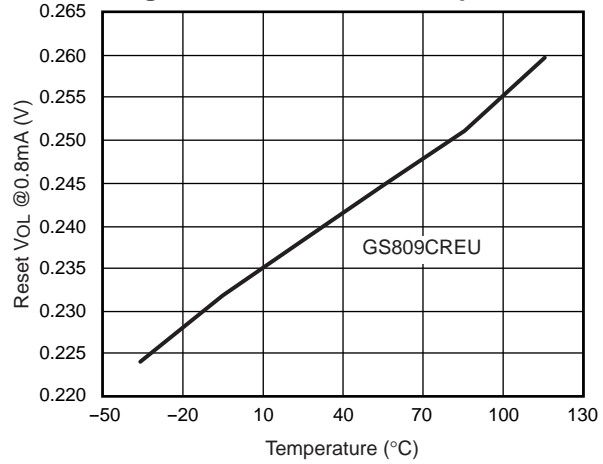
Vishay  
formerly General Semiconductor

## Ratings and Characteristic Curves (T<sub>A</sub> = 25°C unless otherwise noted)

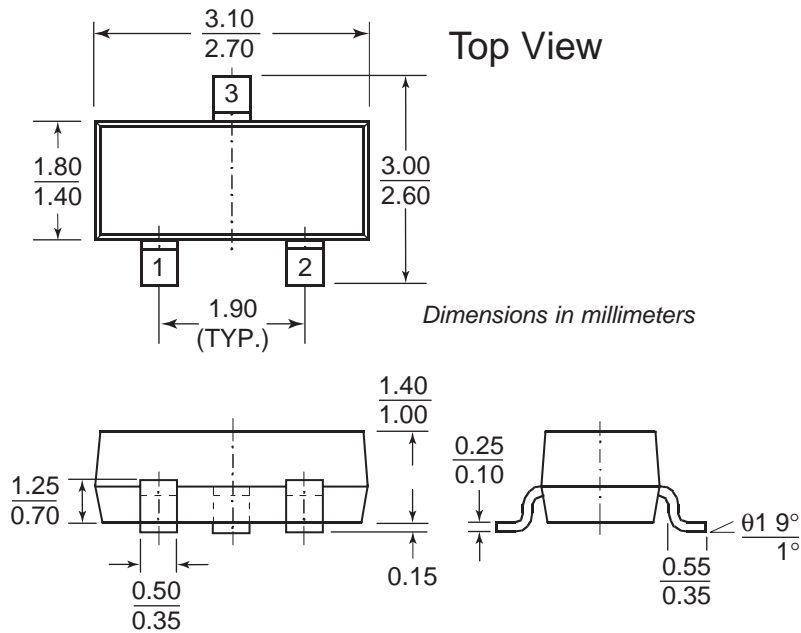
**Fig. 9 – Threshold Hysteresis vs. Temperature**



**Fig. 10 – Reset V<sub>OL</sub> vs. Temperature**



### SOT-23 Case Outline



### Mounting Pad Layout

