



# ACE809

## 3-Pin Microprocessor Reset Circuits

### Description

The ACE809 is a cost-effective system supervisor Integrated Circuit (IC) designed to monitor VCC in digital and mixed signal systems and provide a warning signal when the system power supply is out of working range, and a reset signal to the host processor when necessary. No external components are required.

The reset output is driven active within 20µsec of VCC falling through the reset voltage threshold. Reset is maintained active after VCC rises above the reset threshold. The ACE809 has an active-low RESET output. The output of the ACE809 is guaranteed valid down to VCC=1V.

The ACE809 is characterized for operation from -40°C to 85°C, junction temperature. The ACE809 is optimized to reject fast transient glitches on the VCC line. Low supply current of 7µA (VCC=3.3V) makes these devices suitable for battery powered applications. The output voltages range from 1.7V to 4.5V in 100mV increments. Standard voltage versions are 2.30, 2.63, 2.93, 3.08, 4.0, 4.38, and 4.63V.

### Features

- Precision Vcc Monitor for 2.8V, 3.0V, 3.3V and 5.0V Supplies
- 150ms Guaranteed Minimum RESET Output Duration
- RESET Output Guaranteed to Vcc=1.0V
- Low 7µA Supply Current.
- Vcc Transient Immunity.
- No External Components.
- ESD rating is 7KV(HBM)
- Wide operating temperature: -40°C to 85°C

### Application

- Embedded systems
- Computers
- Critical µP power supply monitoring
- Battery powered equipment

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

Parameter	Symbol	Max	Unit
Supply Voltage	V <sub>CC</sub>	5.5	V
Output Voltage	RESET	-0.3 to (V <sub>CC</sub> +0.3)	V
Input Current		20	mA
Output Current	I <sub>OUT</sub>	20	mA
Power Dissipation	P <sub>D</sub>	Internally Limited <sup>(3)</sup>	
Output short circuit duration		Infinite	
Thermal resistance junction to ambient	θ <sub>JA</sub>	230	°C/W
Operating Temperature Range	T <sub>A</sub>	-40~85	°C
Operating junction temperature range	T <sub>J</sub>	0 to 125	°C
Storage temperature range	T <sub>S</sub>	-60 to 150	°C



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### Operating Rating<sup>(2)</sup>

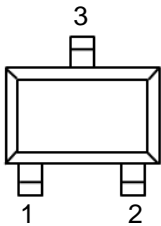
Parameter	Symbol	Value	Unit
Supply Input Voltage	V <sub>CC</sub>	2.0 to 5.5	V
Junction Temperature	T <sub>J</sub>	0 to 125	°C

Note:

1. Exceeding the absolute maximum rating may damage the device.
2. The device is not guaranteed to function outside its operating rating.
3. The maximum allowable power dissipation at any T<sub>A</sub> (ambient temperature) is calculated using:  
 $P_{D(MAX)} = (T_{J(MAX)} - T_A) / \theta_{JA}$ . Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown. See "Thermal Consideration" section for details
4. RESET threshold temperature coefficient is the worst case voltage change divided by the total temperature range.

### Packaging Type

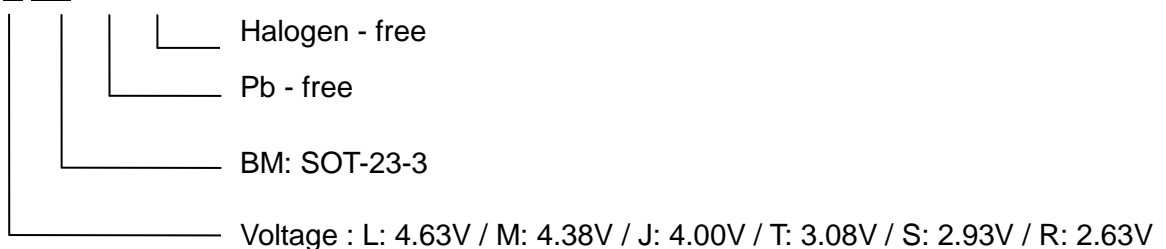
SOT-23-3



SOT-23-3	Description	Function
1	GND	Ground
2	RESET	RESET output remains low while V <sub>CC</sub> is below the reset voltage threshold and for 240msec(typ.) after V <sub>CC</sub> rises above reset threshold
3	V <sub>CC</sub>	Supply Voltage (typ.)

### Ordering information

ACE809 X XX + H



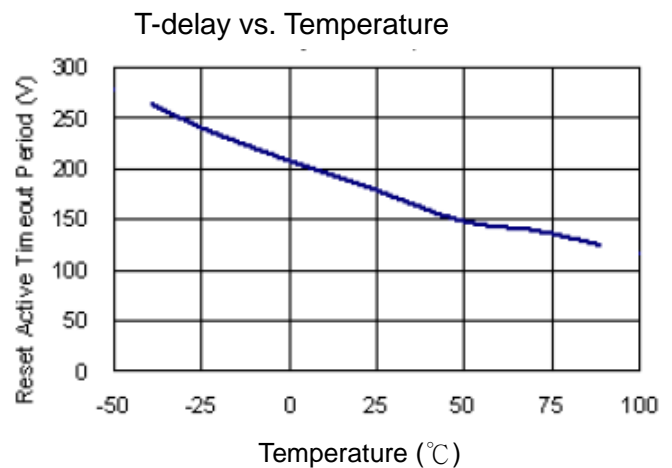
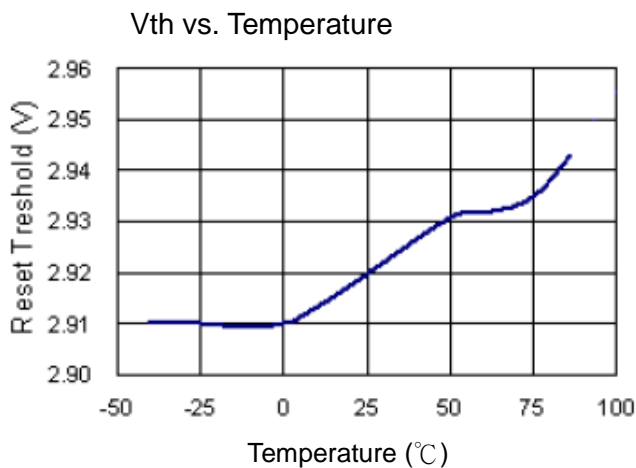


### Electrical Characteristics

V<sub>CC</sub>=5V for L/M/J ;3.3V for T/S ;3.0V for R ,T<sub>A</sub> = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Voltage	V <sub>CC</sub>		2.0		5.5	V
Supply Current	I <sub>CC</sub>			7	10	uA
Reset Threshold	V <sub>TH</sub>	ACE809-4.63	4.51	4.63	4.75	V
		ACE809-4.38	4.27	4.38	4.49	
		ACE809-4.00	3.90	4.00	4.10	
		ACE809-3.08	3.00	3.08	3.16	
		ACE809-2.93	2.85	2.93	3.00	
		ACE809-2.63	2.56	2.63	2.70	
		ACE809-2.3V	2.18	2.25	2.33	
Reset Threshold Temperature Coefficient <sup>(4)</sup>				30		ppm/ °C
V <sub>CC</sub> to Reset Delay V <sub>CC</sub> =V <sub>TH</sub> to (V <sub>TH</sub> -100mV)				20		usec
Reset Active Timeout Period				150		msec
RESET Output Voltage Low	V <sub>OL</sub>	I <sub>SINK</sub> =3mA			0.4	V
RESET Output Voltage High	V <sub>OH</sub>	I <sub>SOURCE</sub> =800uA	0.8V <sub>CC</sub>			V

### Typical Performance Characteristics



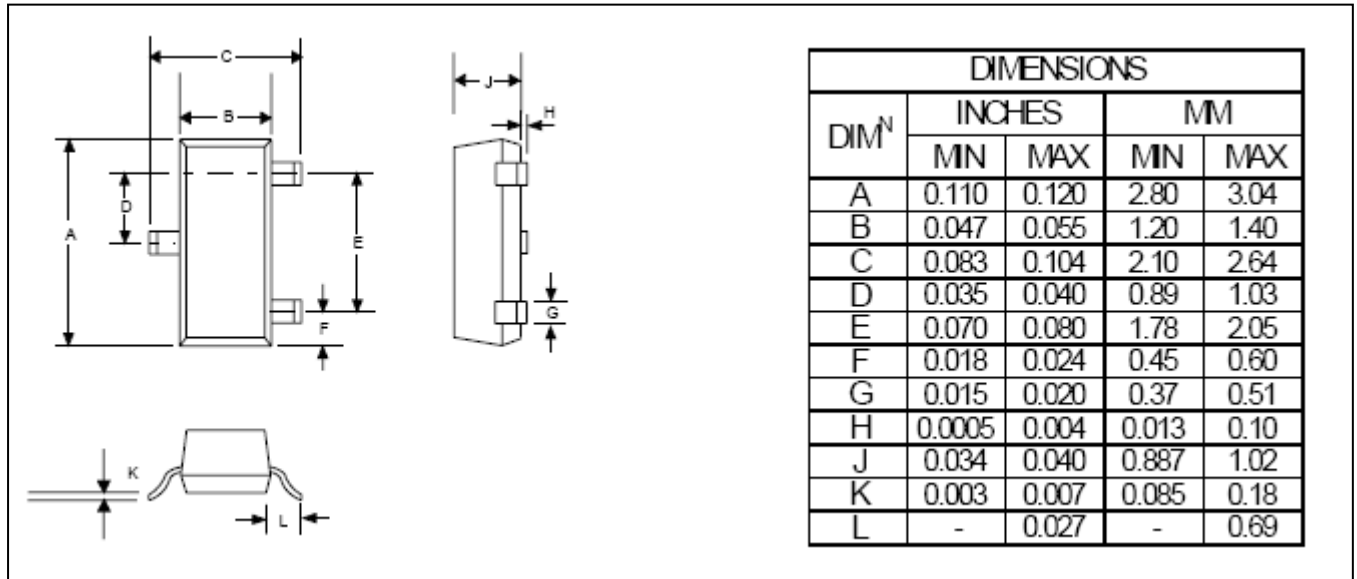


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### Packing Information

#### SOT-23-3





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### Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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