ACE *Technology*

Description

The ACE809 microprocessor supervisory circuits can be used to monitor the power supplies in microprocessor and digital systems. They provide s reset to the microprocessor during power-up, power-down and brown-out conditions.

The function of the ACE809 is to monitor the V_{CC} supply voltage, and assert a reset signal whenever this voltage declines below the factory-programmed reset threshold. The reset signal remains asserted for 240ms after V_{CC} rises above the threshold. The ACE809 has an active-low $\overline{RESET}$ output. The output of the ACE809 is guaranteed valid down to V_{CC} =1V. The device is available in a SOT-23-3L package.

The ACE809 is optimized to reject fast transient glitches on the V_{CC} line. Low supply current of 25μA, (V_{CC}=3.3V) makes these devices suitable for battery powered applications.

Features

- Precision Vcc Monitor for 3.0V,3.3V and 5.0V Supplies
- 140ms Guaranteed Minimum $\overline{RESET}$ Output Duration
- $\overline{RESET}$ Output Guaranteed to Vcc=1.0V
- Low 25μA Supply Current.
- Vcc Transient Immunity.
- No External Components.

Application

- Embedded systems
- Computers
- Critical μP Power Supply Monitoring
- Battery Powered equipment

Absolute Maximum Ratings

| Parameter	Symbol	Max	Unit
Supply Voltage	V_{CC}	5.5	V
Output Voltage	RESET	-0.3 to (Vcc+0.3)	V
Input Current		20	mA
Output Current	I_{OUT}	20	mA
Power Dissipation	P_D	Internally Limited	
Thermal resistance junction to ambient SOT-23-3	θ_{JA}	230	℃/W
Operating junction temperature range	T_J	0 to 125	℃
Storage temperature range	T_{STG}	-60 to 150	℃

Note 1: Exceeding these rating could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of the specified terminal.

Note 2: Voltage values are with respect to the anode terminal unless otherwise noted.

Packaging Type

SOT-23-3
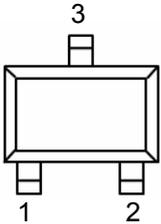
Pin No	Symbol	Description
1	GND	Ground
2	RESET	RESET output remains low while Vcc is below the reset voltage threshold and for 240msec(typ.) after Vcc rises above reset threshold
3	Vcc	Supply Voltage (typ.)

Ordering information

Selection Guide

ACE809   X XX   +   H

└─── Halogen - free

└─── Pb - free

└─── BM: SOT-23-3

Vout Volts :
L : 4.63V
M : 4.38V
J : 4.00V
T : 3.08V
S : 2.93V
R : 2.63V

Power Dissipation Table

Package	θ_{JA} (^oC /W)	Df(mW/℃) TA≧25℃	$T_A \leq 25\,^oC$ Power rating(mW)	T_A=70^oC Power rating(mW)	T_A= 85^oC Power rating (mW)
BM	230	3.5	543	348	283

Note:1.Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into Thermal shutdown.

2.T_J: Junction Temperature Calculation $T_J = T_A + (P_D \times \theta_{JA})$

The θ_{JA} numbers are guidelines for the thermal performance of the device/PC-board system. All of the above assume no Ambient airflow.

3.θ_{JA} : Thermal Resistance-Junction to Ambient, D_F: Derating factor, Po: Power consumption
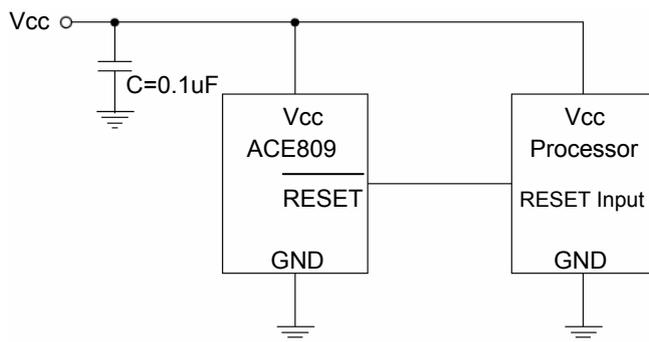
Recommended Work Conditions

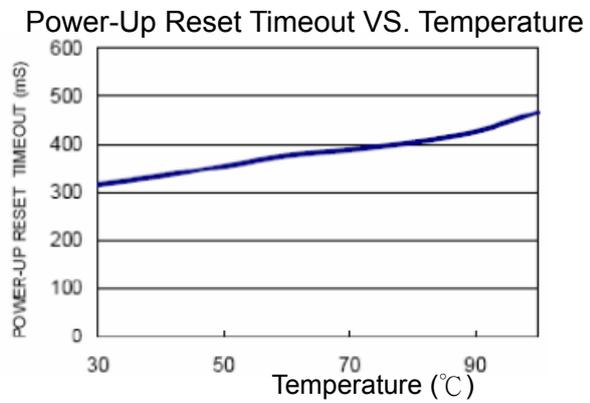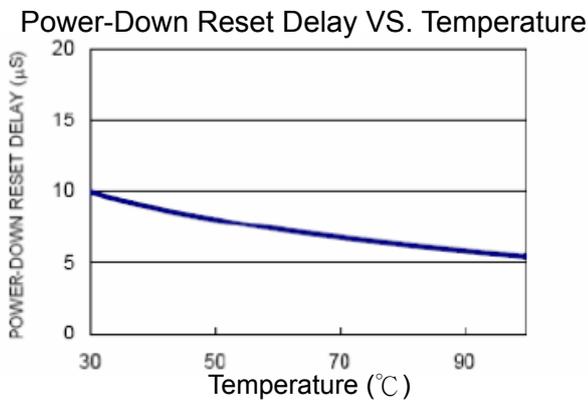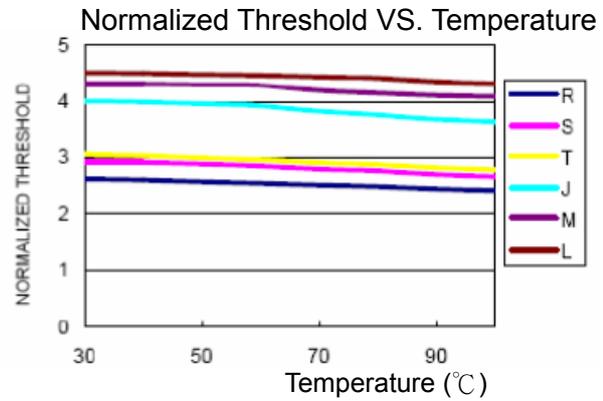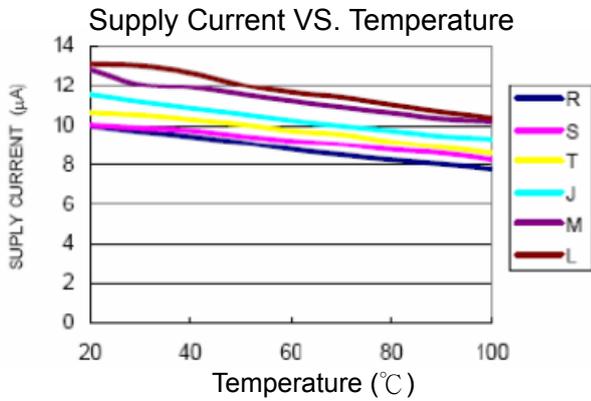| Item	Min	Typ.	Max	Unit
Input Voltage (Vin)	2.0		5.5	V
Junction Temperature (T_J)		0~125		℃

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	Vcc		2.0		5.5	V
Supply Current	Icc			18	25	uA
Reset Threshold	V_{TH}	ACE809-4.63 ACE809-4.38 ACE809-4.00 ACE809-3.08 ACE809-2.93 ACE809-2.63	4.54 4.29 3.92 3.02 2.87 2.58	4.63 4.38 4.00 3.08 2.93 2.63	4.72 4.47 4.08 3.14 2.99 2.68	V
Reset Threshold Temperature Coefficient (Note)				30		ppm/℃
Vcc to Reset Delay Vcc=V_{TH} to (V_{TH}-100mV)				20		usec
Reset Active Timeout Period				240		msec
RESET Output Voltage Low	V_{OL}	I_{SINK}=3mA			0.4	V
RESET Output Voltage High	V_{OH}	I_{SOURCE}=800uA	0.8Vcc			V

Typical   Applications
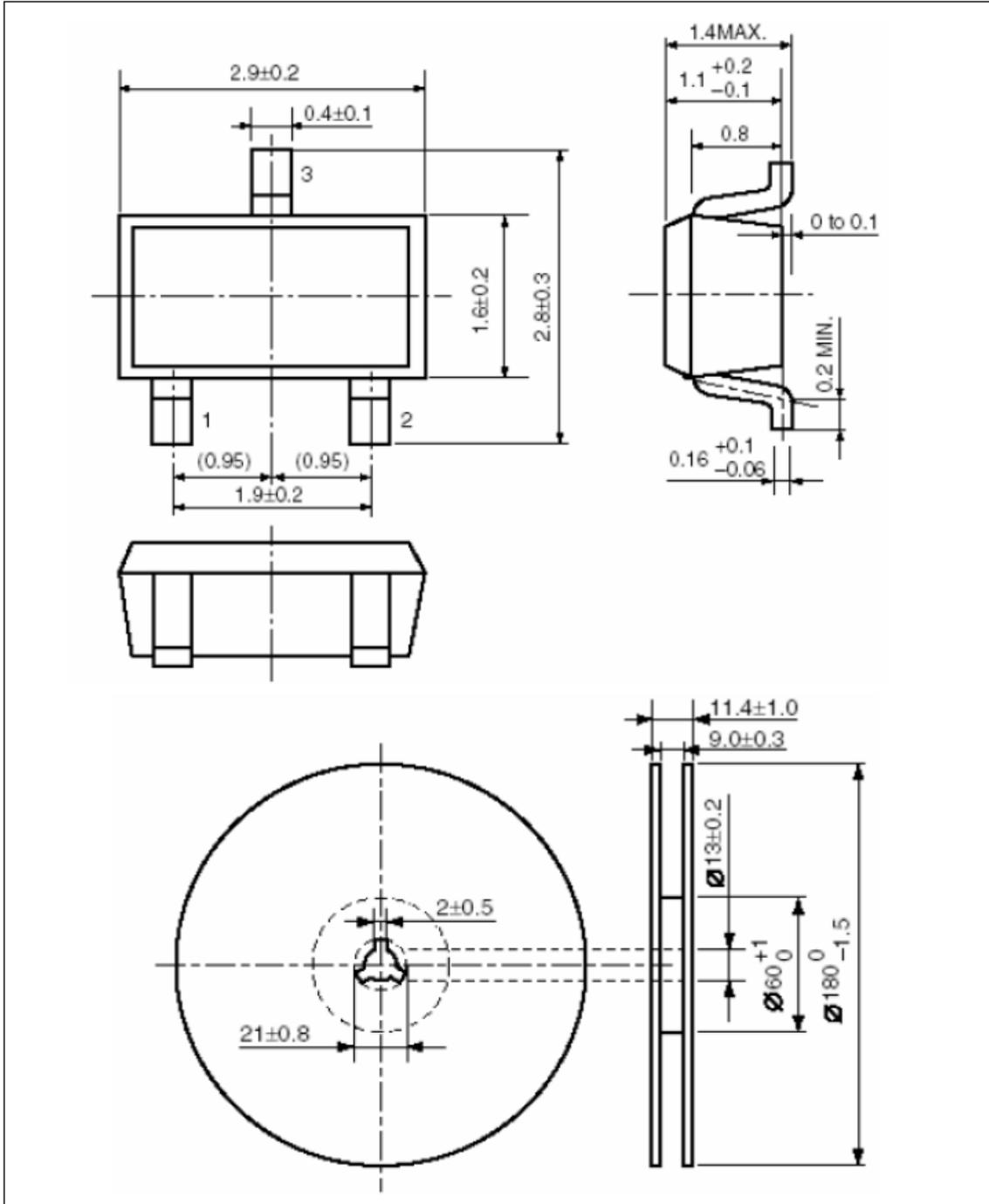
Typical Performance Characteristics

Supply Current VS. Temperature

Normalized Threshold VS. Temperature

Power-Down Reset Delay VS. Temperature

Power-Up Reset Timeout VS. Temperature

Packing Information

SOT-23-3

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 shoes 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.

ACE Technology Co., LTD.
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