

Micro-Power Voltage Detectors

General Description

The RT9809 is a micro-power voltage detector supervising the power supply voltage level for microprocessors (μ P) or digital systems. It provides internally fixed threshold levels with 0.1V per step ranging from 1.5V to 5V, which covers most digital applications. It features low supply current of 2.5 μ A.

The RT9809 performs supervisory function by sending out a reset signal whenever the VDD voltage falls below a preset threshold level. This reset signal will last the whole period before VDD recovering. Once VDD recovered up-crossing the threshold level, the reset signal will be released after a certain delay time. A 5% hysteresis splits the rising and falling threshold levels.

RT9809 is provided in SOT-23 package.

Applications

- Computers
- Controllers
- Intelligent Instruments
- Critical μ P and μ C Power Monitoring
- Portable/Battery-Powered Equipment

Ordering Information

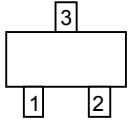
RT9809-□□□□

- Package Type
V : SOT-23
- Operating temperature range
C: Commercial standard
- Reset Threshold
15 : 1.5V
16 : 1.6V
:
49 : 4.9V
50 : 5.0V

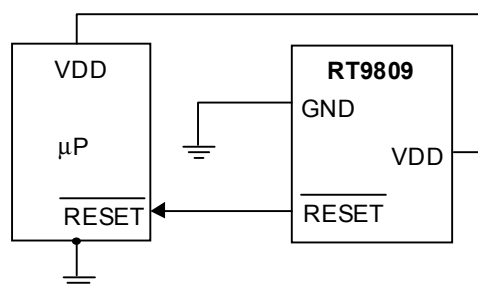
Features

- Internally Fixed Threshold 1.5V to 5V in 0.1V Step
- $\pm 2\%$ Accuracy
- Low Supply Current 2.5 μ A
- No External Components Required
- Quick Reset within 20 μ S
- Built-in Recovery Delay 400mS
- Low Functional Supply Voltage 0.9V
- Small 3-Pin SOT-23 Package

Pin Configurations

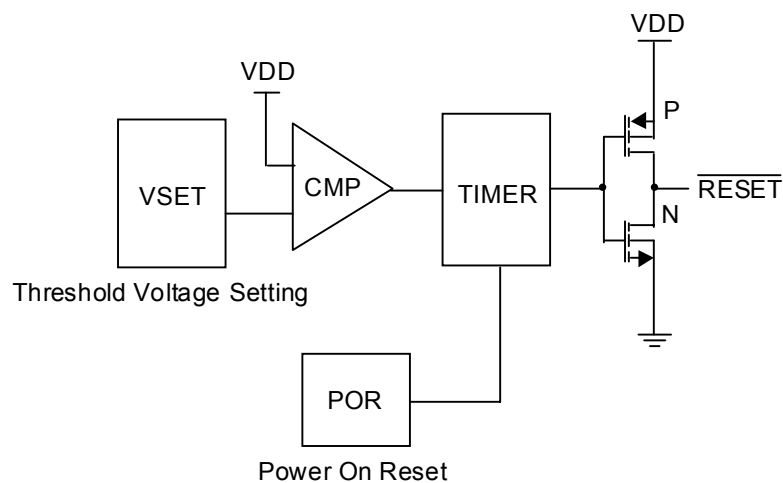
Part Number	Pin Configurations
RT9809-□□CV (SOT-23)	 TOP VIEW 1. GND 2. RESET 3. VDD

Typical Application Circuit



Pin Description

Pin Name	Pin Function
GND	Ground Pin
$\overline{\text{RESET}}$	Reset Pulse Output, Negative Pulse
VDD	Power Pin

Function Block Diagram

Absolute Maximum Ratings

- Terminal Voltage (with Respect to GND)
 - VDD -0.3V to 6.0V
 - All Other Inputs -0.3V to VDD+0.3V
- Input Current, VDD 20mA
- Output Current, $\overline{\text{RESET}}$ 20mA
- Power Dissipation, P_D @ $T_A = 25^\circ\text{C}$
 - SOT-23 0.25W
- Operating Junction Temperature Range $-40^\circ\text{C} \sim 125^\circ\text{C}$
- Storage Temperature Range $-65^\circ\text{C} \sim 125^\circ\text{C}$
- Package Thermal Resistance
 - SOT-23, θ_{JA} 250°C/W
- Lead Temperature (Soldering, 5sec.) 260°C

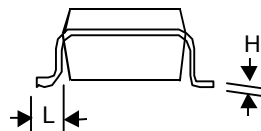
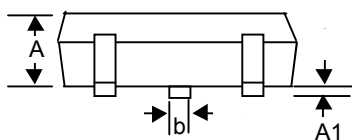
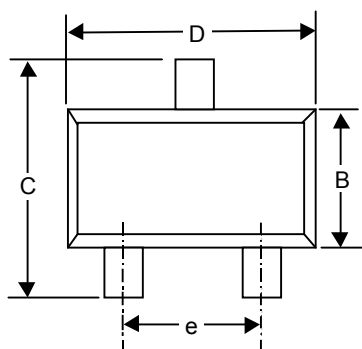
Electrical Characteristics

(VDD = 3.0, unless specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Operating VDD (V_{OUT}) Range	V_{DD}		0.9	--	6	V
Supply Current	I_{DD}	$V_{DD} = 1.5V \sim 5V, I_{OUT} = 0$	--	2.5	--	μA
Reset Threshold	V_{TH}	$T_A = 27^\circ\text{C}$	--	Note1	--	V
Threshold Voltage Accuracy	ΔV_{TH}	$T_A = 27^\circ\text{C}$	--	--	2	%
VCC Drop to Reset Delay	t_{RD}	$V_{DD} = 5V, \text{Drop} = -20mV$	--	25	--	μS
		$V_{DD} = 1.5V, \text{Drop} = -20mV$	--	5	--	
Reset Active Time Out Period	t_{RP}	$V_{DD} \geq 1.02 \times V_{TH}$	--	400	--	mS
$\overline{\text{RESET}}$ Output Voltage	V_{OH}	$V_{DD} > V_{TH}, I_{SOURCE} > 1mA$	--	$0.8V_{DD}$	--	V
	V_{OL}	$V_{DD} < V_{TH}, I_{SINK} > 3.5mA$	--	$0.2V_{DD}$	--	

Note1: 1.5V ~ 5V, step 0.1V

Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	--	0.152	--	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.508	0.014	0.020
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	1.803	2.007	0.071	0.079
H	0.102	0.254	0.004	0.010
L	0.356	0.610	0.014	0.024

SOT-23 Plastic Surface Mount

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