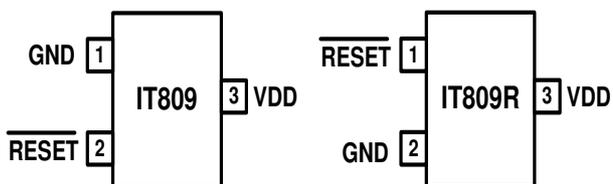


### Description

The IT809 is a micro-power voltage detector supervising the power supply voltage level for microprocessors ( $\mu\text{P}$ ) or digital systems. It provides internally fixed threshold levels with 2.67V, 3.0V, 3.3V and 4V which cover most digital applications. It features low supply current of  $10\mu\text{A}$ . The IT809 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 upcrossing the threshold level, the reset signal will be released after a certain delay time. IT809 is provided in SOT-23-3 packages.

### Pin Configuration



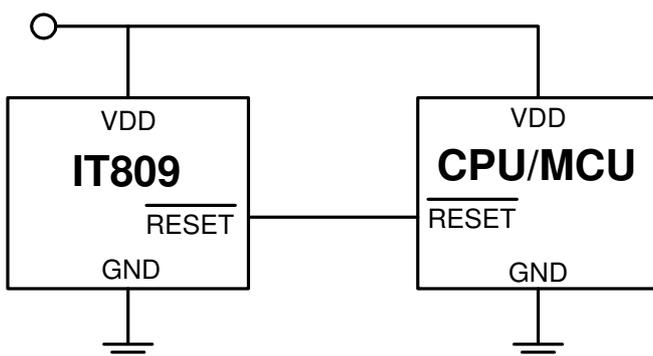
### Features

- Internally Fixed Threshold 2.67V when  $VDD \geq 3V$
- High Accuracy  $\pm 2\%$
- Low Supply Current  $10\mu\text{A}$
- No External Components Required
- Quick Reset within  $15\mu\text{s}$
- Built-in Recovery Delay 260ms
- Low Functional Supply Voltage 1.3V
- CMOS Push-Pull Output
- Small SOT-23-3 Packages
- RoHS Compliant and 100% Lead (Pb)-Free

### Applications

- Computers
- Controllers
- Intelligent Instruments
- Critical  $\mu\text{P}$  and  $\mu\text{C}$  Power Monitoring
- Portable/Battery-Powered Equipment

### Typical Application



## ABSOLUTE MAXIMUM RATINGS

(Typical values are at TA = 25°C, unless otherwise noted.)

V <sub>DD</sub> .....	-0.3V to 6V	Package Thermal Resistance	
$\overline{\text{RESET}}$ .....	-0.3V to V <sub>DD</sub> +0.3V	SOT-23-3, $\theta_{JA}$ .....	250°C/W
Input Current, V <sub>DD</sub> .....	20mA	Operating Temperature	
Output Current, RESET .....	20mA	Range.....	-40°C to +125°C
Rate of Rise, V <sub>DD</sub> .....	100V/ $\mu$ s	Junction Temperature.....	150°C
Power Dissipation, P <sub>D</sub> @ TA = 25°C		Storage Temperature.....	-65°C to +150°C
SOT-23-3 .....	0.4W	Lead Temperature (soldering, 10s).....	260°C
		ESD Susceptibility	
		HBM.....	4000V
		MM.....	400V

### 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.

## CAUTION

INNOCHIP recommends that all this integrated circuit could be damaged by ESD if you don't pay attention to ESD protection and recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

INNOCHIP reserves the right to make any change in circuit design, specification or other related things if necessary without notice at any time. Please contact INNOCHIP sales office to get the last datasheet.

## PIN DESCRIPTION of IT809

NAME	PIN NUMBER	FUNCTION
GND	1	Ground
$\overline{\text{RESET}}$	2	Active Low reset. $\overline{\text{RESET}}$ remains low while VDD is below the reset threshold, and remains low for 260ms (TYP) after VDD rises above the reset threshold.
VDD	3	Power supply voltage that is monitored.

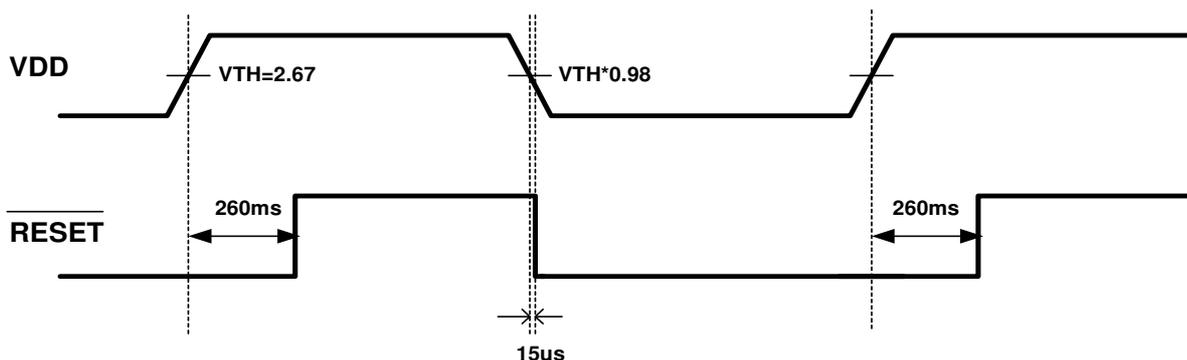
Note:  $\overline{\text{RESET}}$  is PIN1 and GND is PIN2 for **IT809R**.

## ELECTRICAL CHARACTERISTICS

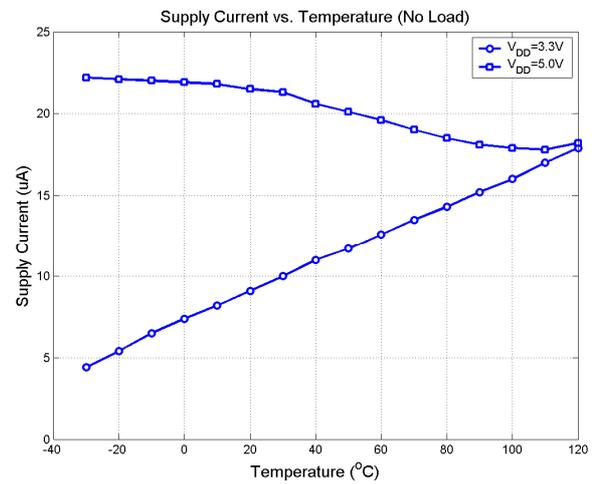
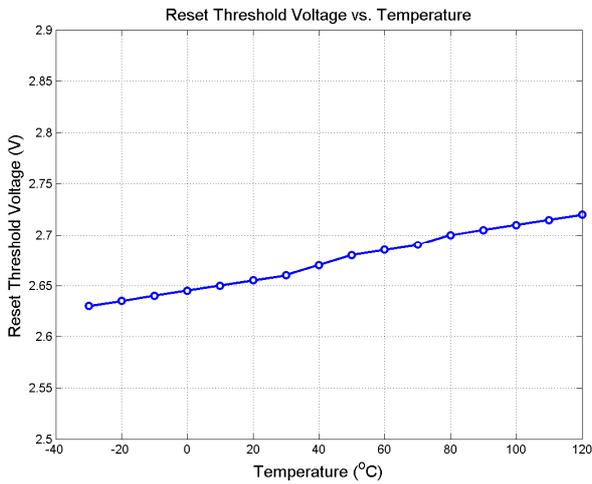
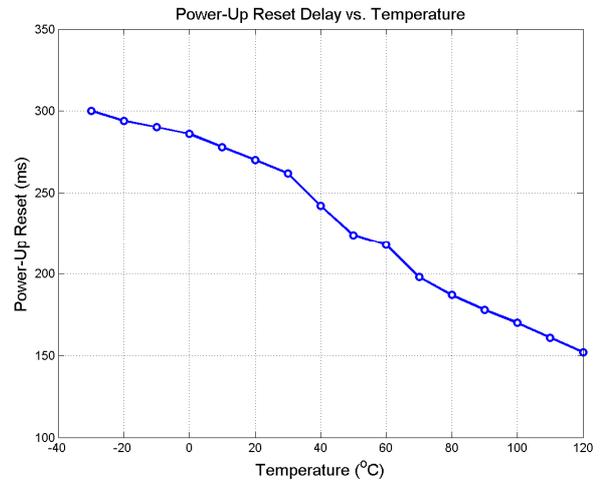
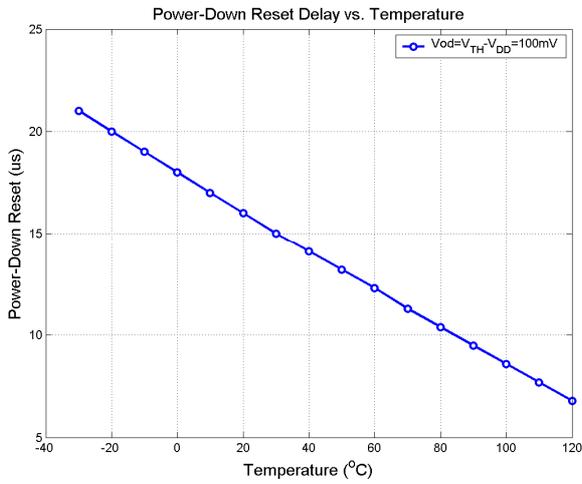
(VDD TYP = 5V unless otherwise noted.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>SUPPLY</b>					
Voltage	TA = -40°C to +125°C	1.0		5.5	V
Current	TA = -40°C to +125°C, VDD=5V		20	35	μA
Current	TA = -40°C to +125°C, VDD=3.3V		11	25	μA
<b>RESET VOLTAGE THRESHOLD</b>					
$\overline{\text{RESET}}$ THRESHOLD	TA = -40°C to +125°C	2.60	2.67	2.75	V
Reset Threshold Temperature Coefficient					ppm/°C
VDD to $\overline{\text{RESET}}$ Delay	V <sub>DD</sub> = V <sub>TH</sub> to (V <sub>TH</sub> - 100mV)		15		μs
Reset Active Timeout Period	TA = -40°C to +125°C	150	260	350	ms
<b>RESET OUTPUT VOLTAGE</b>					
$\overline{\text{RESET}}$ Output Low	V <sub>DD</sub> = V <sub>TH</sub> , I <sub>SINK</sub> =3mA			0.4	V
$\overline{\text{RESET}}$ Output High	V <sub>DD</sub> > V <sub>TH</sub> , I <sub>SOURCE</sub> =800μA	V <sub>CC</sub> -1.5			V

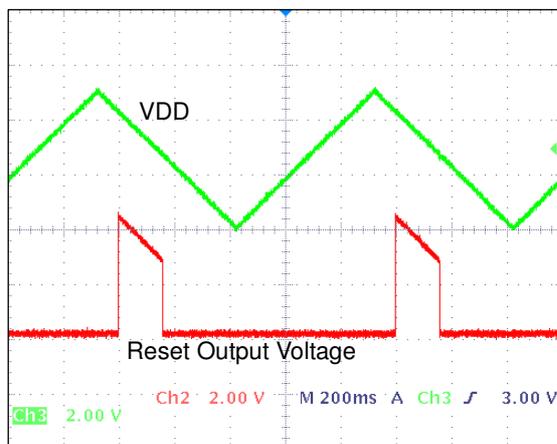
## Typical Timing Diagram



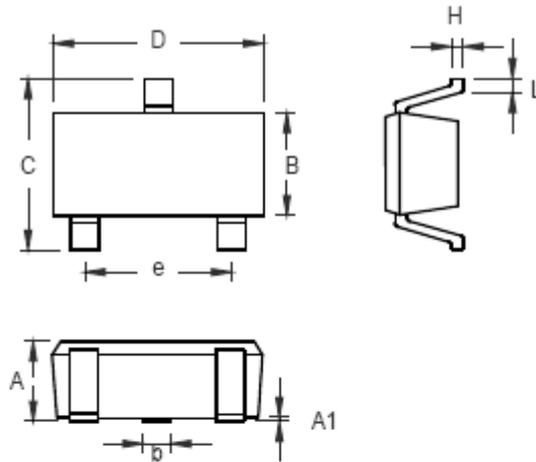
## Typical Performance Characteristics



**Reset Output Voltage vs. Supply Voltage**



## Package Outline Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	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	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024

**SOT-23-3 Surface Mount Package**