HT809

GENERAL DESCRIPTION

The HT809 is microprocessor (μP) supervisory circuits used to monitor the power supplies in μP and digital systems. It provides excellent circuit reliability and low cost by eliminating external components and adjustments when used with 5V-powered or 3V-powered circuits.

The circuits perform a single function: It asserts a reset signal whenever the VCC supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after VCC has risen above the reset threshold. The reset comparator is designed to ignore fast transients on VCC. Reset thresholds suitable for operation with a variety of supply voltages are available.

Low supply current makes the HT809 ideal for use in portable equipment. The HT809 comes in a 3-pin SOT23 package.

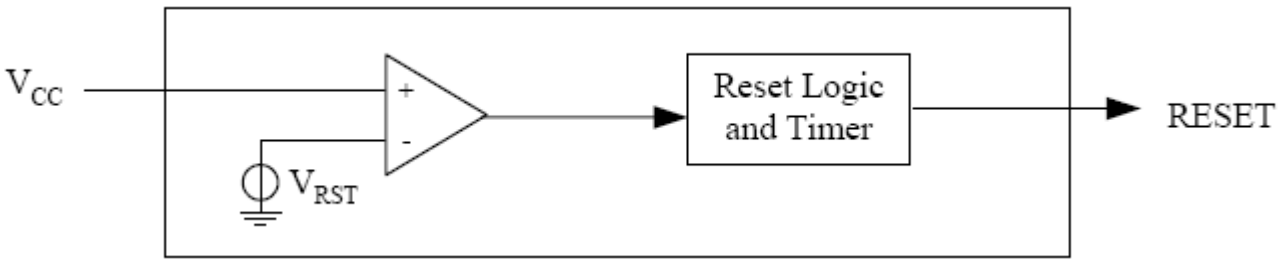
FEATURES

- Precision Monitoring of 3V, 3.3V, and 5V Power-Supply Voltages
- Fully Specified Over Temperature
- 140ms Min Power-On Reset Pulse Width: RESET Output
- 10μA Supply Current
- Power Supply Transient Immunity
- No External Components
- 3-Pin SOT23 Package

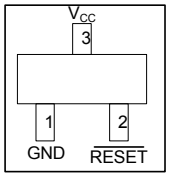
Applications

- Computers
- Controllers
- Intelligent Instruments
- Critical μP and μC Power Monitoring
- ADSL
- Automotive

BLOCK Diagram



Pin Configuration



Pin Description

PIN	NAME	FUNCTION
1	GND	Ground
2	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$ Output remains low while V_{CC} is below the reset threshold, and for 140ms after V_{CC} rises above the reset threshold.
3	V_{CC}	Supply Voltage (+5V, +3.3V, or +3.0V)

Ordering Information

PART NUMBER	TEMP RANGE	PIN-PACKAGE	RESET THRESHOLD(V)
HT809T	-40°C to +85°C	SOT23	3.08
HT809S			2.93
HT809R			2.63

Absolute Maximum Ratings

Terminal Voltage (with respect to GND)

VCC ..... -0.3V to 6.0V

$\overline{\text{RESET}}$..... -0.3V to (VCC+0.3V)

Input Current, VCC..... 20mA

Output Current, $\overline{\text{RESET}}$..... 20mA

Rate of Rise, VCC.....100V/μs

Continuous Power Dissipation (TA = +70°C)

SOT23 (derate above +70°C by 4mW/°C) 320mW

Operating Temperature Range..... −40°C to +85°C

Storage Temperature Range.....−65°C to +160°C

Lead Temperature (Soldering, 10 Seconds) ..... +300°C

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.

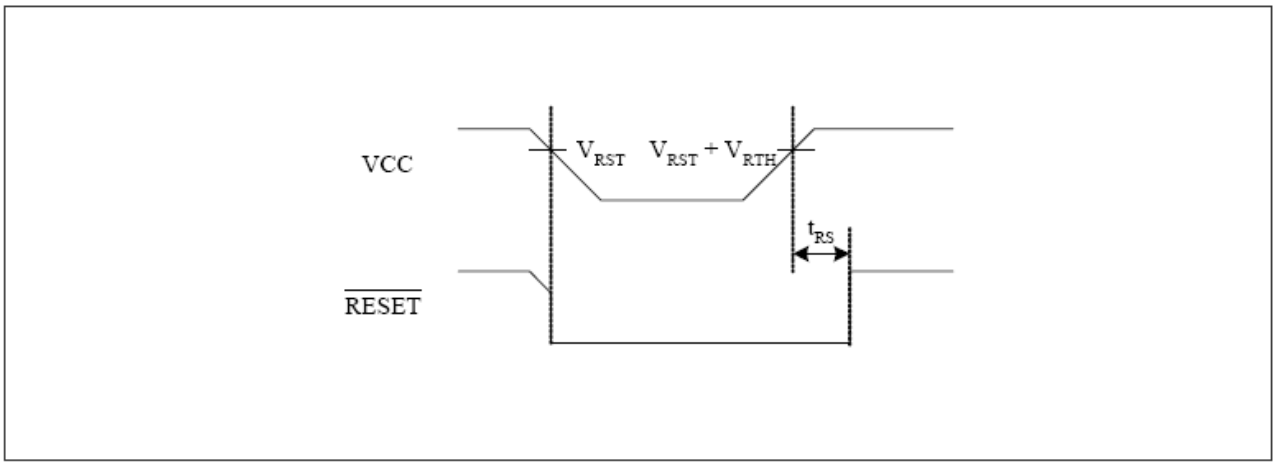
Electrical Characteristics

(V_{CC} = full range, T_A = -40°C to +85°C, unless otherwise noted. Typical values are at T_A = +25°C, V_{CC} = 3.3V for T/S versions, and V_{CC} = 3V for R version.) (Note 1)

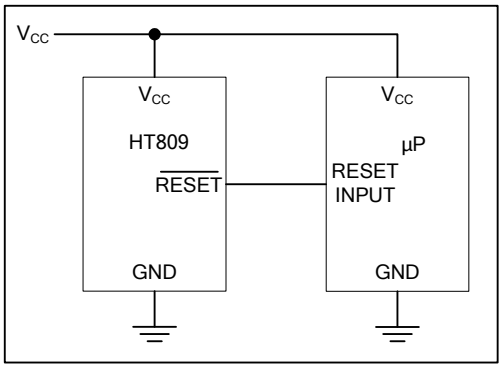
PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
V_{CC} Range		T_A = 0°C to +85°C		1.0		5.5	V
Supply Current	I_{CC}	T_A = -40°C to +85°C	V_{CC} < 3.6V,		10	30	µA
$\overline{\text{RESET}}$ Threshold	V_{TH}	HT809T	T_A = +25°C	3.04	3.08	3.11	V
			T_A = -40°C to +85°C	3.00		3.15	
		HT809S	T_A = +25°C	2.89	2.93	2.96	
			T_A = -40°C to +85°C	2.85		3.00	
		HT809R	T_A = +25°C	2.59	2.63	2.66	
			T_A = -40°C to +85°C	2.55		2.70	
Reset Threshold Tempco					30		ppm/°C
V_{CC} to $\overline{\text{RESET}}$ Delay		V_{CC} = V_{TH} to (V_{TH} - 100mV)			20		µs
Reset Active Timeout Period		T_A = -40°C to +85°C		140	240	280	ms
$\overline{\text{RESET}}$ Output Voltage Low		VCC ≥4.5V, ISINK = 1.2mA,			0.4		V
		VCC ≥2.7V, ISINK = 1.2mA,			0.4		
		VCC ≥1.0V, ISINK = 100uA,			0.3		
RESET Output Voltage High	V_{OH}	V_{CC} ≥4.5V, I_{SINK} = 3.2mA,		V_{CC} - 1.5			V
		V_{CC} ≥2.7V, I_{SINK} = 500uA,		0.8V_{CC}			
		V_{CC} ≥1.8V, I_{SINK} = 150uA,		0.8V_{CC}			

Note 1: Production testing done at T_A = +25°C, over temperature limits guaranteed by design only.

Reset Timing Diagram

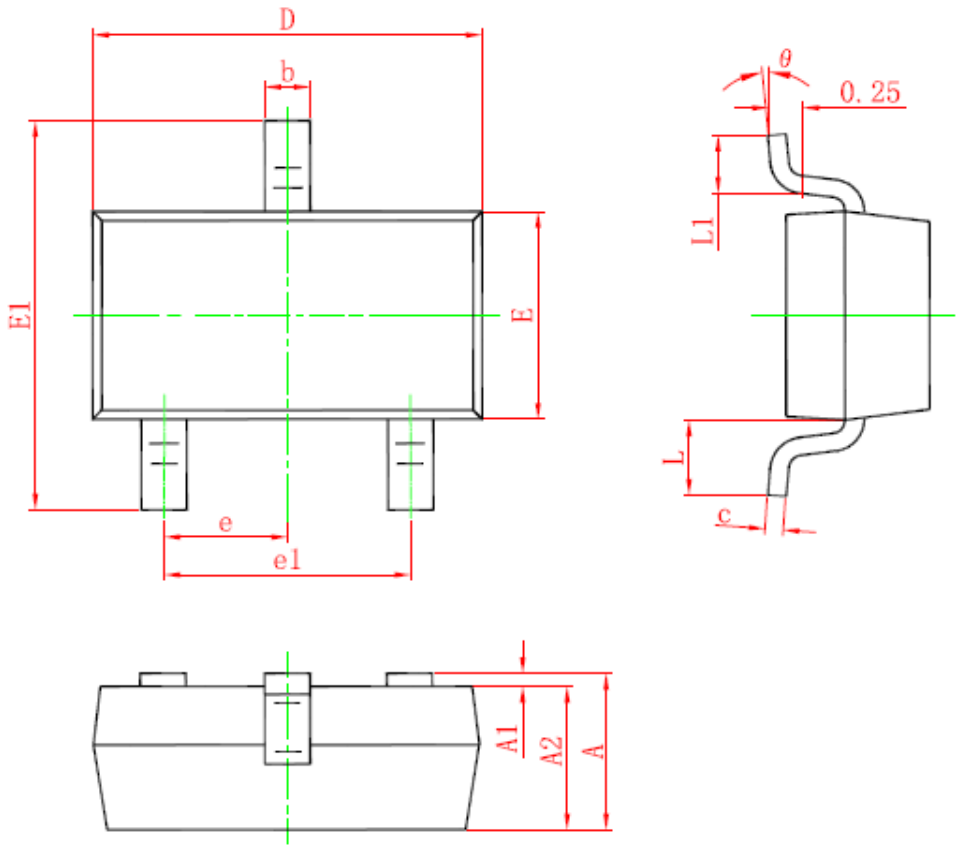


Typical Operating Circuit



Package description

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°