3-Pin Microprocessor Reset Monitor (Preliminary)

CYT809

Description

The CYT809 is a cost-effective system supervisor Integrated Circuit (IC) designed to monitor V_{CC} 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 V_{CC} falling through the reset voltage threshold. Reset is maintained active for a minimum of 140msec after V_{CC} rises above the reset threshold. The CYT809 has an active-low $\overline{\text{RESET}}$ output. The output of the CYT809 is guaranteed valid down to V_{CC}=1V. Both devices are available in a SOT-23 package.

The CYT809 is optimized to reject fast transient glitches on the V_{CC} line. Low supply current of 18μA (V_{CC}=3.3V) makes these devices suitable for battery powered applications.

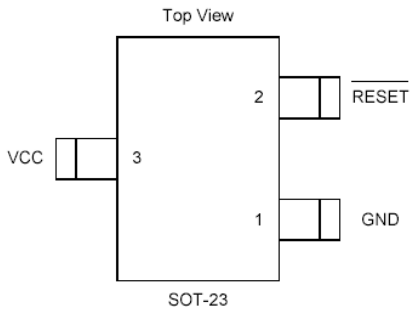
Features

- Precision V_{CC} Monitor for 2.8V, 3.0V, 3.3V, and 5.0V Supplies
- 140msec Guaranteed Minimum $\overline{\text{RESET}}$ Output Duration
- $\overline{\text{RESET}}$ Output Guaranteed to V_{CC}=1.0V
- Low 18μA Supply Current
- V_{CC} Transient Immunity
- Small SOT-23 Package
- No External Components
- Wide Operating Temperature: 0°C to 85°C

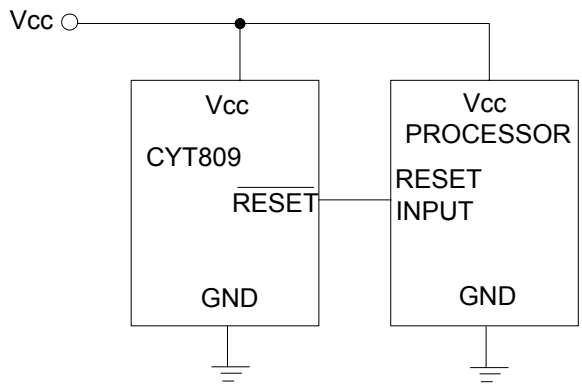
Application

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

Pin Configuration



Application Diagram



Ordering/Marking Information

Ordering Information	Marking Information
CYT809xS	C809xa•
Suffix	**Reset V_{CC} threshold(V)**
L	4.63
M	4.38
J	4.00
T	3.08
S	2.93
R	2.63

Starting with 8, a bar on top of 8 is for production year 2003, and underlined 1 is for year 2004. The next character is marked on top for 2005, and underlined for 2006. The naming pattern continues with consecutive characters for later years.
The "x" denotes a suffix for V_{CC} threshold .
The last character is the week code. (A-Z: 1-26, a-z: 27-52)
A dot on top right corner is for lead-free process.

Absolute Maximum Ratings(1)

Parameter	Symbol	Value	Units
Input Voltage	V_{CC}	5.5	V
Output Voltage	RESET	-0.3 to (V_{CC} + 0.3)	V
Input Current	--	20	mA
Output Current	I_{OUT}	20	mA
Power Dissipation	P_D	Internally Limited (3)	
Output Short Circuit Duration		Infinite	
Thermal Resistance, Junction-to-Ambient	Θ_{JA}	230	°C/W
Operating Temperature Range	T_A	0 ~ 85	℃
Lead Temperature (Soldering, 10 sec.)		260	°C
Junction Temperature	T_J	0 to +125	°C
Storage Temperature	T_S	-60 to +150	°C

Operating Rating(2)

Parameter	Symbol	Value	Units
Supply Input Voltage	V_{CC}	+2.0V to +5.5	V
Junction Temperature	T_J	0 to +125	°C

Electrical Characteristics

Vcc=5V for L/M/J ;3.3V for T/S ;3.0V for R ,T_A = 25°C, unless otherwise specified.

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_{CC}	Input Voltage		2.0		5.5	V
I_{CC}	Supply Current		--	18	25	µA
V_{TH}	Reset Threshold	CYT809Lxx : CYT809Mxx : CYT809Jxx : CYT809Txx : CYT809Sxx : CYT809Rxx :	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[4]		--	30	--	ppm/°C
	V_{CC} to Reset Delay V_{CC} = V_{TH} to (V_{TH} – 100mV)		--	20	--	µsec
	Reset Active Timeout Period		140	240	600	msec
V_{OL}	RESET Output Voltage Low	I_{SINK} = 3mA	--	--	0.4	V
V_{OH}	RESET Output Voltage High	I_{SOURCE} = 800µA	0.8VCC	--	--	V

PIN DESCRIPTION:

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.)

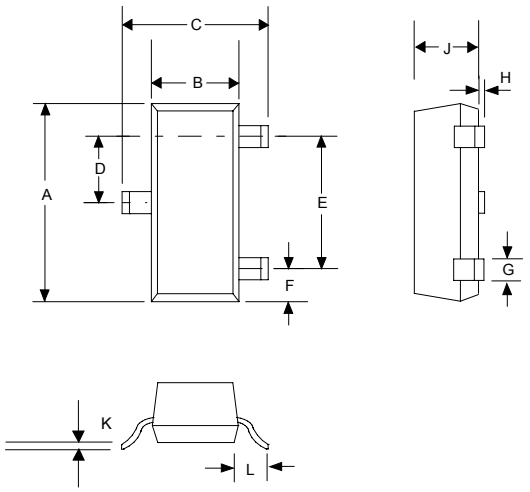
Note 1: Exceeding the absolute maximum rating may damage the device.

Note 2: The device is not guaranteed to function outside its operating rating.

Note 3: The maximum allowable power dissipation at any T_A (ambient temperature) is calculated using: $P_{D(MAX)}$ = ($T_{J(MAX)}$ – T_A)/Θ_{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

Note 4: RESET threshold temperature coefficient is the worst case voltage change divided by the total temperature range.

OUTLINE DRAWING SOT-23



DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.04
B	0.047	0.055	1.20	1.40
C	0.083	0.104	2.10	2.64
D	0.035	0.040	0.89	1.03
E	0.070	0.080	1.78	2.05
F	0.018	0.024	0.45	0.60
G	0.015	0.020	0.37	0.51
H	0.0005	0.004	0.013	0.10
J	0.034	0.040	0.887	1.02
K	0.003	0.007	0.085	0.18
L	-	0.027	-	0.69