

IC for System Reset

Monolithic IC PST90XX Series

November 9, 2001

Outline

The function of this low voltage detection type IC is to accurately reset systems after detecting the supply voltage at the time of switching power on and instantaneous power off in various CPU and other logic systems. This IC, with its super low consumption current and high precision voltage detection capacity, is most suited as a voltage check circuit for a number of products which use batteries.

Features

1. High precision voltage detection $V_S \pm 2.5\%$ max.
2. Super low current consumption $I_{CCH} = 1.5\mu A$ typ. $I_{CCL} = 1\mu A$ typ.
3. Low operating threshold voltage 0.7V max.
4. Hysteresis voltage is provided as a detect voltage $V_S \times 5\%$ typ.
5. The detect voltage can be selected at your discretion at 0.1 V step within the range of 0.8 to 1.8V by the following stipulation method.

PST90XX

Detected voltage value

(Example : for 0.8V PST9008)

Packages

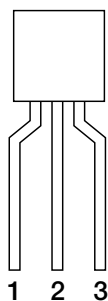
TO-92A (PST90XX)

SOT-25A (PST90XXN)

Applications

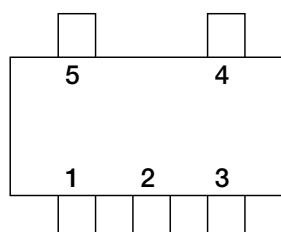
1. Reset circuits for microcomputers, CPUs and MPUs
2. Reset circuits for logic circuits
3. Battery voltage check circuits
4. Back-up power supply switching circuits
5. Level detection circuits

Pin Assignment



TO-92A

1	V_{OUT}
2	V_{CC}
3	GND

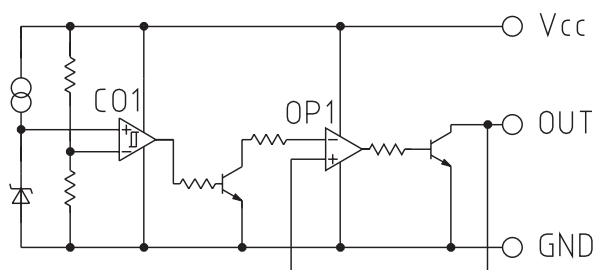


SOT-25A
(TOP VIEW)

1	NC
2	SUB
3	GND
4	V_{OUT}
5	V_{CC}

Note : The pin 2 of SOT-25 package is a SUB terminal. Connect it to GND.

Equivalent Circuit Diagram



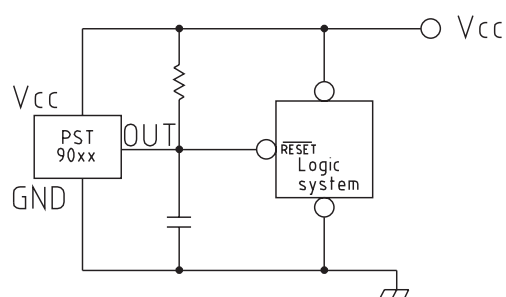
Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Ratings	Units
Storage temperature	T _{STG}	-40~+125	°C
Operating temperature	T _{OPR}	-20~+75	°C
Supply Voltage	V _{CC} max.	-0.3~10	V
Allowable loss	P _d	150 (SOT-25A) 300 (TO-92A)	mW

Electrical Characteristics (Ta=25°C) (The unit of resistance is Ω unless otherwise indicated.)

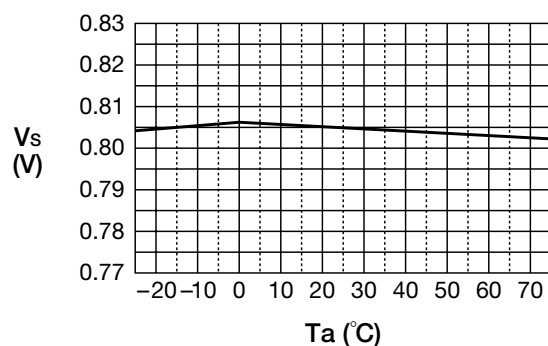
Item	Symbol	Measurement Circuit	Measurement conditions	Min.	Typ.	Max.	Unit
Detection Voltage	V _s	1	R _L =4.7k V _{CC} =H→L V _{OL} ≤ 0.4V PST9008 PST9009 PST9010 PST9011 PST9012 PST9013 PST9014 PST9015 PST9016 PST9017 PST9018	-2.5% typ.	0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8	+2.5% typ.	V
Hysteresis Voltage	ΔV _s	1	R _L =4.7k V _{CC} =L→H→L	ΔV _s × 0.5	V _s typ. × 0.05	ΔV _s × 2	mV
Detection Voltage Temperature Coefficient	V _s /ΔT	1	R _L =4.7k Ta=-20°C~+75°C		±0.01		%/°C
Low Level Output Voltage	V _{oL}	1	V _{CC} =V _s min. -0.02V R _L =4.7k		0.2	0.4	V
Output Leakage Current	I _{oH}	1	V _{CC} =10V			0.1	μA
Circuit Current at On Time	I _{CC} L	1	V _{CC} =V _s min. -0.02V I _{oL} =0mA		1.0	2.0	μA
Circuit Current at OFF Time	I _{CC} H	1	V _s =0.8~1.2 V _{CC} =1.5V, R _L =∞ V _s =1.3~1.8 V _{CC} =3.0V, R _L =∞		1.0 1.5	2.0 2.5	μA
"H" Transmission Delay Time	t _p LH	2	C _L =100pF, R _L =4.7k	10	20	50	μs
"L" Transmission Delay Time	t _p HL	2	C _L =100pF, R _L =4.7k	20	50	80	μs
Operating Threshold Voltage	V _{op} L	1	R _L =4.7k, V _{OL} ≤ 0.4V		0.65	0.70	V
Output Current at On Time 1	I _o L1	1	R _L =0 V _{CC} =V _s min. -0.02V	0.3			mA
Output Current at On Time 2	I _o L2	1	V _{CC} =V _s min. -0.02V R _L =0, Ta=-20°C~+75°C	0.2			mA

Equivalent Circuit

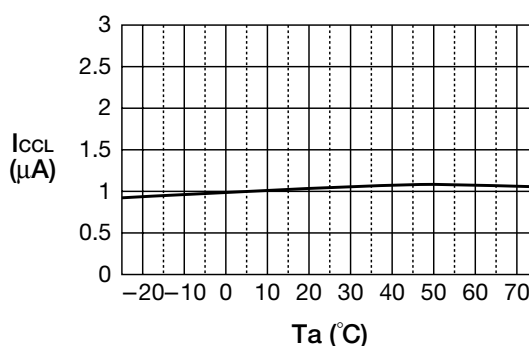


Characteristics (Example: PST9008)

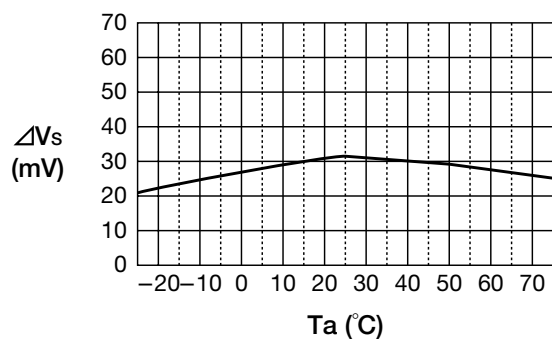
V_s vs. T_a



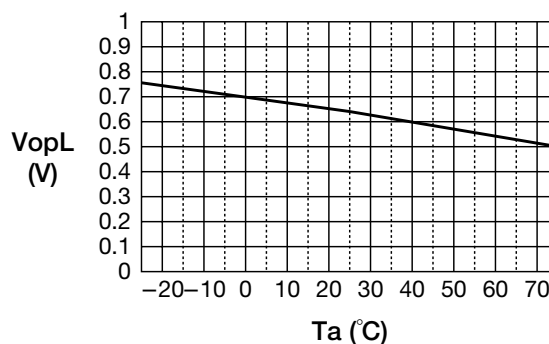
I_{CCL} vs. T_a



ΔV_s vs. T_a



V_{opL} vs. T_a



I_{CCH} vs. T_a

