System Reset
Monolithic IC PST91XX Series

Outline

The function of this low reset 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. Further, 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 — Vs±3% max.
2. Super low current consumption — I_{CCH}=1.5μA typ. I_{CCL}=1.0μA typ.
3. Low operating threshold voltage — 0.65V typ.
4. Hysteresis voltage is provided as a detect voltage — 50mV typ.
5. Large output current at the time ON — 15mA typ.
6. The detect voltage can be selected at your discretion at 0.1V step within the range of 1.9 to 4.6V by the following stipulation method.

PST91XX
└┴──── Detected voltage value

(Example : for 4.2V ····· PST9142)

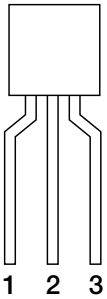
Package

TO-92A (PST91××)
SOT-25A (PST91××N)

Applications

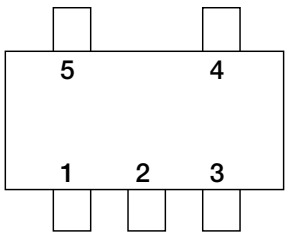
1. Reset circuits for microcomputers, CPU and MPU.
2. Reset circuit for logic circuitry.
3. Battery voltage check circuit.
4. Circuit for changing over to backup battery.
5. Level detecting circuit.

Pin Assignment



TO-92A

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

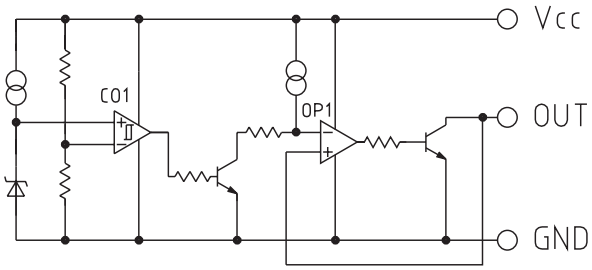


SOT-25A

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



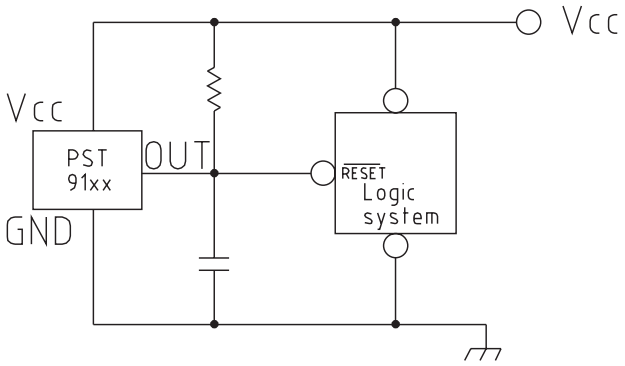
Absolute Maximum Ratings (Ta=25℃)

Item	Symbol	Ratings	Units
Storage temperature	T_{STG}	–40~+125	℃
Operating temperature	T_{OPR}	–20~+75	℃
Power supply voltage	V_{CC}	–0.3~10	V
Allowable loss	Pd	150 (SOT-25A) 300 (TO-92A)	mV

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

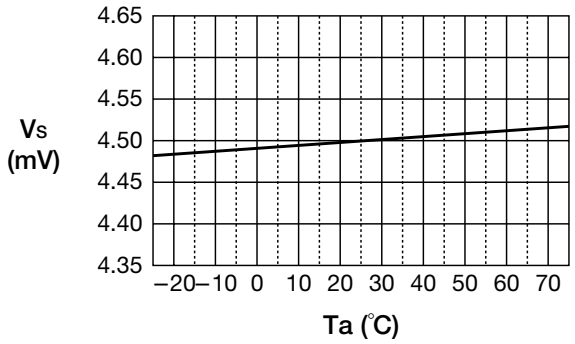
Item	Symbol	Measurement Circuit	Measurement conditions	Min.	Typ.	Max.	Units
Detection Voltage	V_S	1	R_L=4.7k, V_{OL} ≦ 0.4V V_{CC}=H→L	–3% typ.	4.6~1.9 (0.1V step)	+3% typ.	V
Hysteresis Voltage	⊿V_S	1	R_L=470, V_{CC}=L→H→L	30	50	100	mV
Detection Voltage Temperature Coefficient	V_S/⊿T	1	R_L=470, Ta=–20~+75℃		±0.01		%/℃
Low Level Output Voltage	V_{OL}	1	V_{CC}=V_S min.–0.05V, R_L=470		0.2	0.4	V
Output Leakage Current	I_{OH}	1	V_{CC}=10V			0.1	μA
Circuit Current at ON Time	I_{CCL}	1	V_{CC}=V_S min.–0.05V, R_L=∞		1.0	2.0	μA
Circuit Current at OFF Time	I_{CCH}	1	V_{CC}=V_S typ./0.85V, R_L=∞		1.5	2.5	μA
"H" Transmission Delay Time	tpLH	2	C_L=100pF, R_L=4.7k		20	60	μS
"L" Transmission Delay Time	tpHL	2	C_L=100pF, R_L=4.7k		20	60	μS
Operating Threshold Voltage	V_{OPL}	1	R_L=4.7k, V_{OL} ≦ 0.4V		0.65	0.85	V
Output Current at ON Time 1	I_{OL1}	1	R_L=0, V_{CC}=V_S min.–0.05V	5			mA
Output Current at ON Time 2	I_{OL2}	1	Ta=–20~+75℃ R_L=0, V_{CC}=V_S min.–0.05V	3			mA

Application Circuits

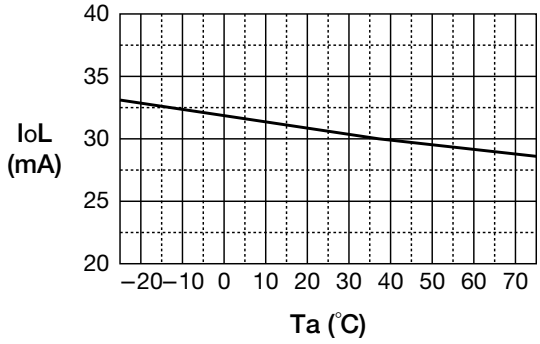


Characteristics (Example: PST9145)

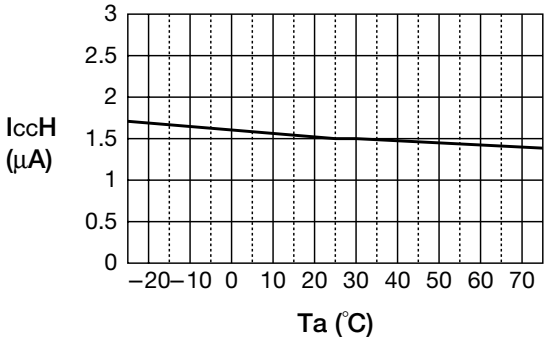
Vs vs. Ta



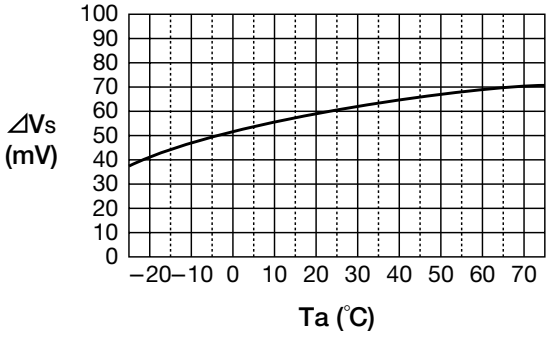
IoL vs. Ta



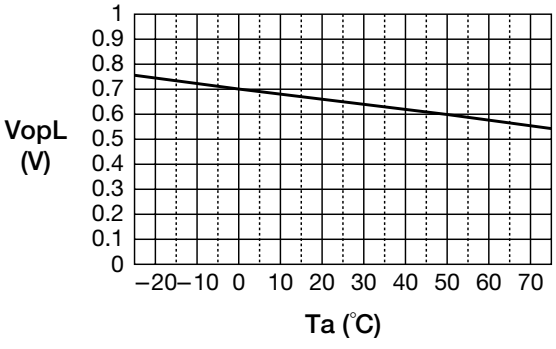
IccH vs. Ta



⊿Vs vs. Ta



VopL vs. Ta



VoL vs. Ta

