System Reset
Monolithic IC PST93XX Series

Outline

These low reset type ICs function in a variety of CPU systems and other logic systems, to detect power supply voltage and reset the system accurately when power is turned on or interrupted.
They are ideal for use in battery check circuits for products using batteries, as they have ultra-low current consumption and a high precision voltage detection function.

Features

1. High precision voltage detection — V_S±2% max.
2. Ultra-low current consumption — I_{CCH}=2.0μA typ. I_{CCL}=2.0μA typ.
3. Low operating limit voltage — 0.65V typ.
4. Hysteresis voltage provided in detection voltage — 50mV typ.
5. Output current high for ON — 5mA min.
6. Detection voltage can be selected as desired within a range of 1.9V ~ 4.6V in 0.1V steps, as indicated below.

PST93XX
└┴──detection voltage value

(Example: for 4.2V ····· PST9342)

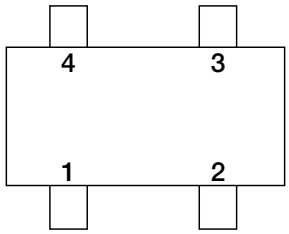
Package

SC-82ABA (PST93××U)

Applications

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

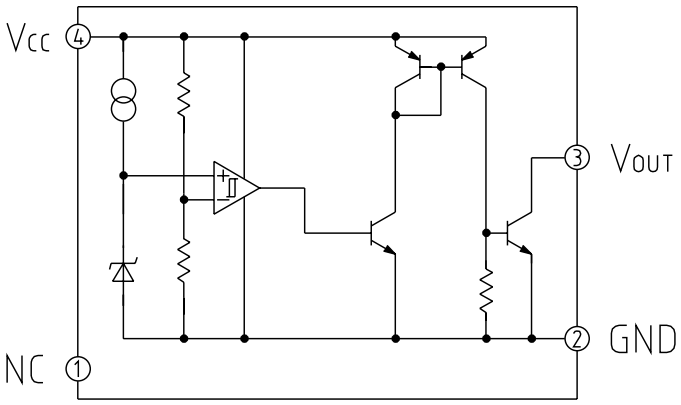
Pin Assignment



SC-82ABA
(TOP VIEW)

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

Block Diagram



Pin Description

Pin no.	Pin name	Function
1	NC	
2	GND	GND pin
3	VOUT	Reset signal output pin
4	Vcc	Power supply pin/voltage detection pin

Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Units
Storage temperature	TSTG	–40~+125	°C
Operating temperature	TOPR	–20~+75	°C
Power supply voltage	Vcc max.	–0.3~+10	V
Allowable loss	Pd	150	mW

Recommended Operating Conditions

Item	Symbol	Rating	Units
Operating temperature	TOPR	–20~+75	°C
Power supply voltage	Vcc	+0.85~+10	V

Electrical Characteristics (Ta=25℃)

Item	Symbol	Measurement circuit	Measurement conditions		Min.	Typ.	Max.	Units
Detection voltage	Vs	1	V_{CC}=H→L R_L=4.7k V_{OL} ≦ 0.4V	PST9346	4.508	4.600	4.692	V
				PST9345	4.410	4.500	4.590	
				PST9344	4.312	4.400	4.488	
				PST9343	4.214	4.300	4.386	
				PST9342	4.116	4.200	4.284	
				PST9341	4.018	4.100	4.182	
				PST9340	3.920	4.000	4.080	
				PST9339	3.822	3.900	3.978	
				PST9338	3.724	3.800	3.876	
				PST9337	3.626	3.700	3.774	
				PST9336	3.528	3.600	3.672	
				PST9335	3.430	3.500	3.570	
				PST9334	3.332	3.400	3.468	
				PST9333	3.234	3.300	3.366	
				PST9332	3.136	3.200	3.264	
				PST9331	3.038	3.100	3.162	
				PST9330	2.940	3.000	3.060	
				PST9329	2.842	2.900	2.958	
				PST9328	2.744	2.800	2.856	
				PST9327	2.646	2.700	2.754	
				PST9326	2.548	2.600	2.652	
				PST9325	2.450	2.500	2.550	
				PST9324	2.352	2.400	2.448	
				PST9323	2.254	2.300	2.346	
				PST9322	2.156	2.200	2.244	
				PST9321	2.058	2.100	2.142	
				PST9320	1.960	2.000	2.040	
				PST9319	1.862	1.900	1.938	
Hysteresis voltage	⊿Vs	1	V_{CC}=L→H→L, R_L=4.7k		30	50	100	mV
Detection voltage temperature coefficient	Vs/⊿T	1	R_L=4.7k, Ta=–20~+75℃			±0.01		%/℃
Low-level output voltage	V_{OL}	1	V_{CC}=Vs min.–0.05V, R_L=4.7k			0.1	0.4	V
Output leakage current	I_{OH}	1	V_{CC}=Vo=10V				±0.1	μA
Circuit current while on	I_{CCL}	1	V_{CC}=Vs min.–0.05V, R_L=∞			2.0	4.0	μA
Circuit current while off	I_{CCH}	1	V_{CC}=Vs typ./0.85, R_L=∞			2.0	4.0	μA
"H"transport delay time	T_{PLH}	2	R_L=4.7k, C_L=100pF ＊1			20	60	μs
"L"transport delay time	T_{PHL}	2	R_L=4.7k, C_L=100pF ＊2			20	60	μs
Operation limit voltage	V_{OPL}	1	R_L=4.7k, V_{OL} ≦ 0.4V			0.65	0.85	V
Output current while on 1	$I_{OL}1$	1	V_{CC}=Vs min.–0.05V, Vo=0.4V		5			mA
Output current while on 2	$I_{OL}2$	1	Vo=0.4V V_{CC}=Vs min.-0.05V, Ta=-20~+75℃		3			mA

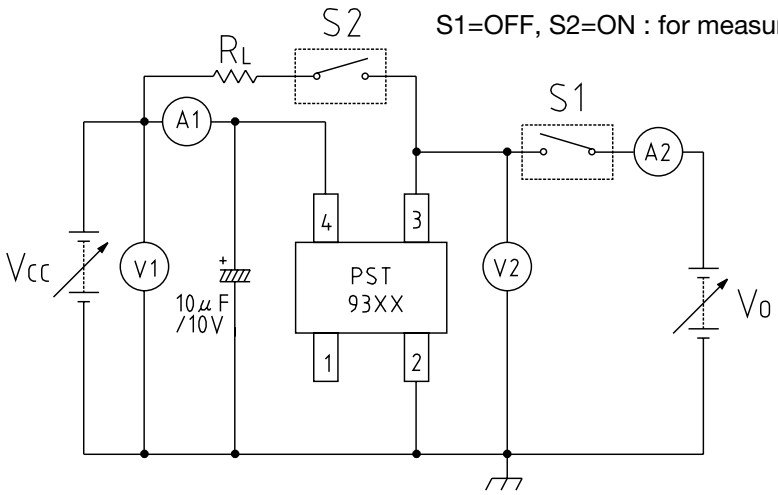
＊1 : t_{PLH} : V_{CC}= (Vs typ.−0.4v)→(Vs typ.+0.4v)

＊2 : t_{PHL} : V_{CC}= (Vs typ.+0.4v)→(Vs typ.−0.4v)

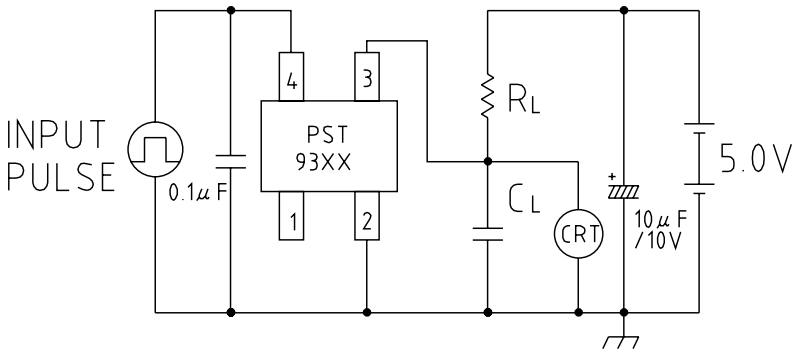
Measuring Circuit

(1)

S1=ON, S2=OFF : when measuring I_{OH}, $I_{OL}1$, $I_{OL}2$
S1=OFF, S2=ON : for measuring other than the above

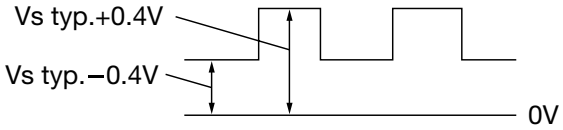


(2)

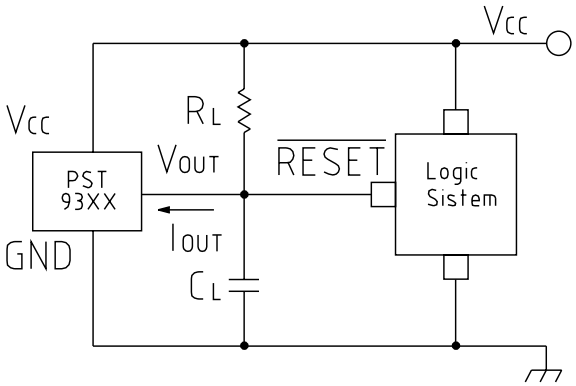


A : DC ammeter
V : DC voltmeter
CRT : Oscilloscope

INPUT PULSE



Application circuits



[CL setting]
Several tens of mV of oscillation may appear in V_{OUT} when V_{CC} is near operating limit (approx. 0.7V)~1.0V, if R_L is set at more than $R_L \fallingdotseq 500k\Omega$* in the above application circuit. If this presents a problem, set the CL value slightly higher (1000pF or more recommended).

*: Varies slightly depending on V_S rank.

Characteristics