IC for System Reset
Monolithic IC PST70XX Series

May 21, 2002

Outline

This IC is a low-reset type system reset IC and in a variety of CPU systems and other logic systems, to detect supply voltage and reset the system accurately when the power is turned on or interrupted.
It includes a high-precision voltage detection function with ultra-low current consumption and is ideal for voltage check circuits for products using a battery.

Features

1. High-precision voltage detection — Vs±2% max.
2. Ultra-low current consumption — I_{CCH}=2μA typ. I_{CCL}=3μA typ.
3. Low operating limit voltage — 0.65V typ.
4. Hysteresis voltage provided for detection voltage — 50mV typ.
5. Large output current during power-on — 30mA typ.
6. Detection voltage can be selected as desired within a range of 1.9 to 4.6V by 0.1V step, as indicated below.

PST70XX
└┘———— Detection voltage value

(Example: for 4.6V ..... PST7046)

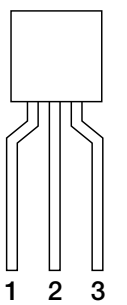
Packages

MMP-3A (PST70□□M)
TO-92A (PST70□□)
*The box represents a rank of detection voltage.

Applications

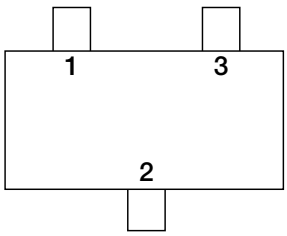
1. Reset circuits for microcomputers, CPUs and MPUs
2. Reset circuits for logic circuits
3. Battery voltage check circuits
4. Back-up power supply switching circuits
5. Level detection circuits

Pin Assignment



TO-92A

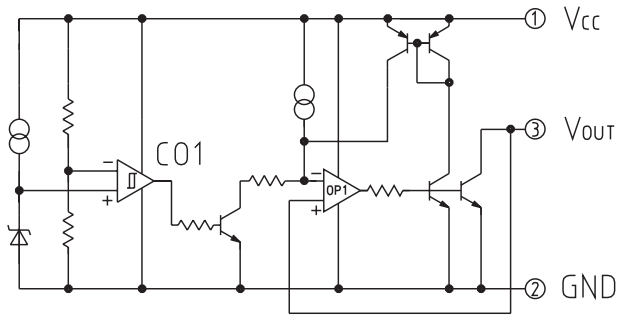
1	V_{CC}
2	GND
3	V_{OUT}



MMP-3A
(TOP VIEW)

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

Equivalent Circuit Diagram



Absolute Maximum Ratings (Ta=25°C)

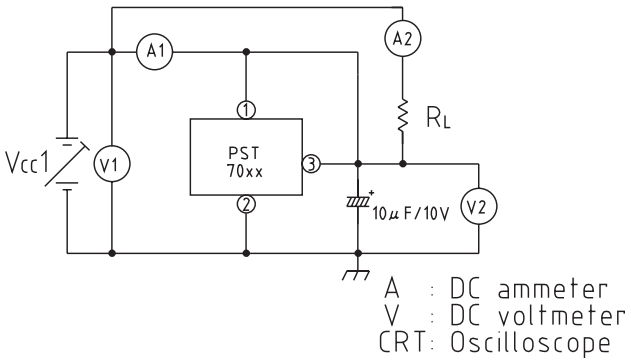
Item	Symbol	Rating	Units
Storage temperature	Tstg	–40~+125	°C
Operating temperature	Topr	–20~+75	°C
Power supply voltage	Vcc max.	–0.3~+10	V
Allowable loss	Pd	200 (MMP-3A) 300 (TO-92A)	mW

Electrical Characteristics (Ta=25°C) (Except where noted otherwise, resistance unit is Ω)

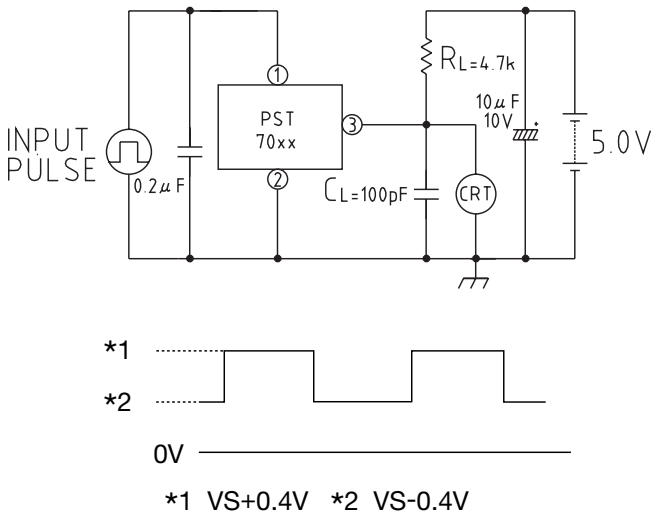
Item	Symbol	Measurement conditions		Measurement circuit	Min.	Typ.	Max.	Units
Detection voltage	Vs	RL=470 Vcc=H→L		1	Vs typ. –2%	4.6~1.9 (0.1V Step)	Vs typ. +2%	V
Hysteresis voltage	⊿Vs	RL=470 Vcc=L→H→L		1	30	50	100	mV
Detection voltage temperature coefficient	Vs/⊿T	RL=470 Ta=–20~+75°C		1		±0.01		%/°C
Low-level output voltage	Vol	Vcc=Vs min. –0.05V RL=470		1		0.2	0.4	V
Output leakage current	Ioh	Vcc=10.0V		1			0.1	µA
Circuit current while on	Iccl	Vcc=Vs min. –0.05V RL=∞		1		3.0	6.0	µA
Circuit current while off	Icch	Vcc=Vs typ. /0.85V RL=∞		1		2.0	4.0	µA
"H"transport delay time	tplh	RL=4.7k CL=100pF	7046~24	2		5	30	µs
			7023~19	2		10	30	
"L"transport delay time	tphl	RL=4.7k CL=100pF	7046~24	2		30	70	µs
			7023~19	2		70	150	
Operation limit voltage	Vopl	RL=4.7k Vol ≦ 0.4V		1		0.65	0.85	V
Output current while on 1	Iol1	Vcc=Vs min. –0.05V RL=0		1	8	30		mA
Output current while on 2	Iol2	Vcc=Vs min. –0.05V RL=0 Ta=–20°C~+75°C		1	5			mA

Measuring Circuit

[1]



[2]



*1 VS+0.4V *2 VS-0.4V