# CMOS System Reset IC with Separated Sence Line
# Monolithic IC PST85XX

## Outline

This is a reset IC with an independent voltage detection monitor terminal VS and $V_{DD}$ terminal.
The IC power supply is separate and so, even if the monitor voltage VS is low, the output does not become unstable at the operation limit like conventional reset ICs. Instead it maintains low-level operation.
This IC is particularly suitable for low-voltage (1V type) power monitoring. It has an accuracy of ±1.5% and an ultra-low current consumption of 0.35 µA typ. and otherwise offers characteristics resembling those of conventional IC reset ICs.

## Features

1. IC power supply terminal VDD and voltage-detecting monitor terminal VS are independent of each other.
2. High accuracy voltage detection 1.5% (Ta = 25°C)
3. Ultra low current consumption 0.35 µA typ.
4. Low operating supply voltage 0.7~10.0V
5. Operating temperature range -40~+105°C

## Packages

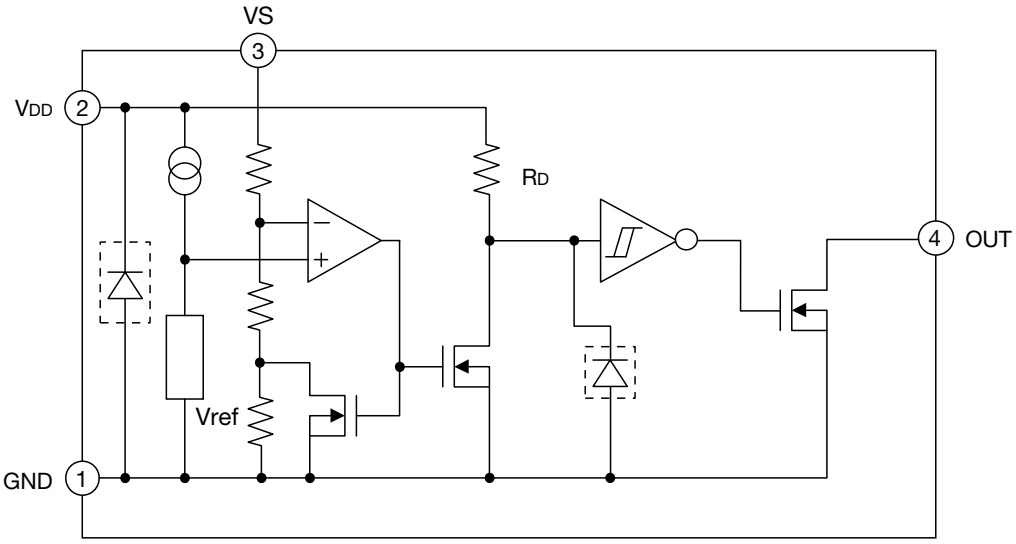
SSON-4
SOT-25A
SC-82AB

## Applications

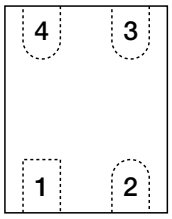
1. Reset circuits for CPUs and MPUs
2. Reset circuits for logic circuits
3. Battery voltage check circuits

## Block Diagram

■ ①-④ in the circuit diagram is pin number for the SC-82AB package.

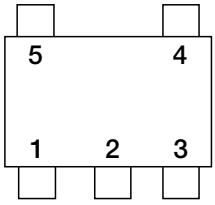



## Pin Assignment



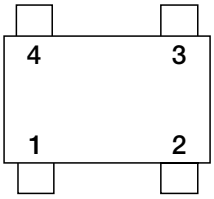

SSON-4
(TOP VIEW)

| | |
|---|---|
| 1 | GND |
| 2 | OUT |
| 3 | VS |
| 4 | VDD |




SOT-25A
(TOP VIEW)

| | |
|---|---|
| 1 | OUT |
| 2 | VDD |
| 3 | GND |
| 4 | NC |
| 5 | VS |




SC-82AB
(TOP VIEW)

| | |
|---|---|
| 1 | GND |
| 2 | VDD |
| 3 | VS |
| 4 | OUT |

## Pin Description

### SSON-4

| Pin No. | Pin name | Functions |
|---|---|---|
| 1 | GND | GND Pin |
| 2 | OUT | Reset Signal Output Pin |
| 3 | VS | Sence Pin |
| 4 | $V_{DD}$ | $V_{DD}$ Pin |

### SOT-25A

| Pin No. | Pin name | Functions |
|---|---|---|
| 1 | OUT | Reset Signal Output Pin |
| 2 | $V_{DD}$ | $V_{DD}$ Pin |
| 3 | GND | GND Pin |
| 4 | NC | No Connection |
| 5 | VS | Sence Pin |

### SC-82AB

| Pin No. | Pin name | Functions |
|---|---|---|
| 1 | GND | GND Pin |
| 2 | $V_{DD}$ | $V_{DD}$ Pin |
| 3 | VS | Sence Pin |
| 4 | OUT | Reset Signal Output Pin |

## Absolute Maximum Ratings

| Item | Symbol | Ratings | Units |
|---|---|---|---|
| Supply voltage | $V_{DD}$ max. | −0.3~+12.0 | V |
| Output voltage | OUT | −0.3~+12.0 | V |
| Output voltage | VS | −0.3~+12.0 | V |
| Input current ($V_{DD}$) | $I_{DD}$ | 20 | mA |
| Output current (RESET, $\overline{\text{RESET}}$) | $I_{OUT}$ | 20 | mA |
| Power dissipation | $P_D$ | 150(SOT-25A, SC-82AB) | mW |
| | | 330(SSON-4) | |
| Operating temperature | $T_{OPR}$ | −40~+105 | °C |
| Storage temperature | $T_{STG}$ | −65~+150 | °C |

## Recommended Operating Conditions

| Item | Symbol | Ratings | Units |
|---|---|---|---|
| Operating temperature | $T_{OPR}$ | −40~+105 | °C |
| Supply voltage | $V_{DD}$ | 0.70~10.0 | V |

## Electrical Characteristics (Except where noted otherwise Ta=25°C)

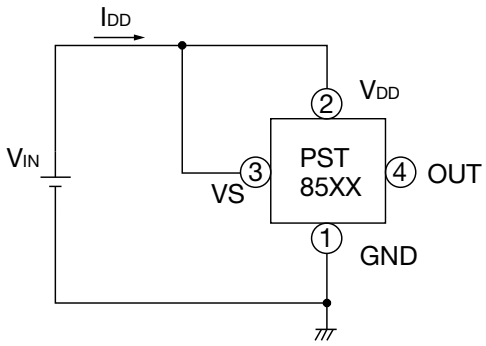
| Item | Symbol | Measurement conditions | Min. | Typ. | Max. | Units | Circuit |
|---|---|---|---|---|---|---|---|
| Reset threshold | $V_{TH}$ | $V_{DD}=V_{TH}+1V$ Ta=+25°C | 0.8373 | 0.8500 | 0.8628 | V | 2 |
| | | Ta=−40~+85°C | 0.8288 | | 0.8713 | | |
| Reset threshold hysteresis | $\Delta V_{TH}$ | $V_{DD}=V_{TH}+1V$ VS=0V→$V_{TH}$+1V→0V | 0.025 | 0.043 | 0.068 | V | 2 |
| Supply current | $I_{DD}$ | $V_{DD}=V_{TH}+1V$ | | 0.35 | 1.0 | μA | 1 |
| Reset threshold temp. coefficient | $\Delta V_{TH}$/°C | Ta=−40~+85°C | | ±100 | | ppm/°C | 2 |
| "L" output current | $I_{OL1}$ | $V_{DD}$=VS=0.7V, $V_{DS}$=0.05V | 0.01 | 0.10 | | mA | 3 |
| VS Input Current | $I_S$ | $V_{DD}=VS=V_{TH}+1V$ | | 100 | | nA | 4 |
| Output leakage current | Ileak | $V_{DD}$=VS=10V, OUT=10V | | | 0.1 | μA | 3 |

note1 : This device is tested at Ta=25°C, over temperature limits guaranteed by design only.

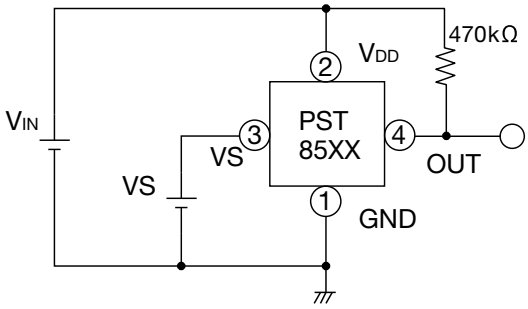
## Measuring Circuit

*①-④ in the circuit diagram is pin number for the SC-82AB package.

(1)




(2)

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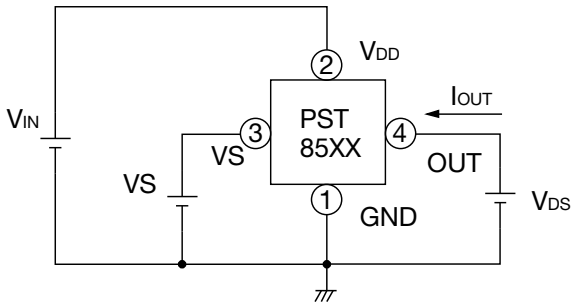


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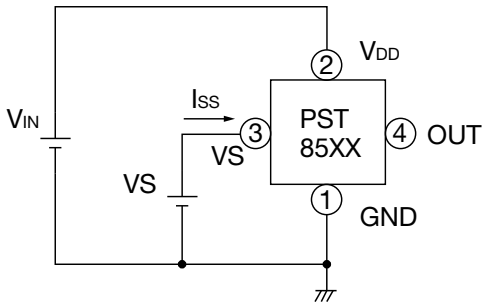
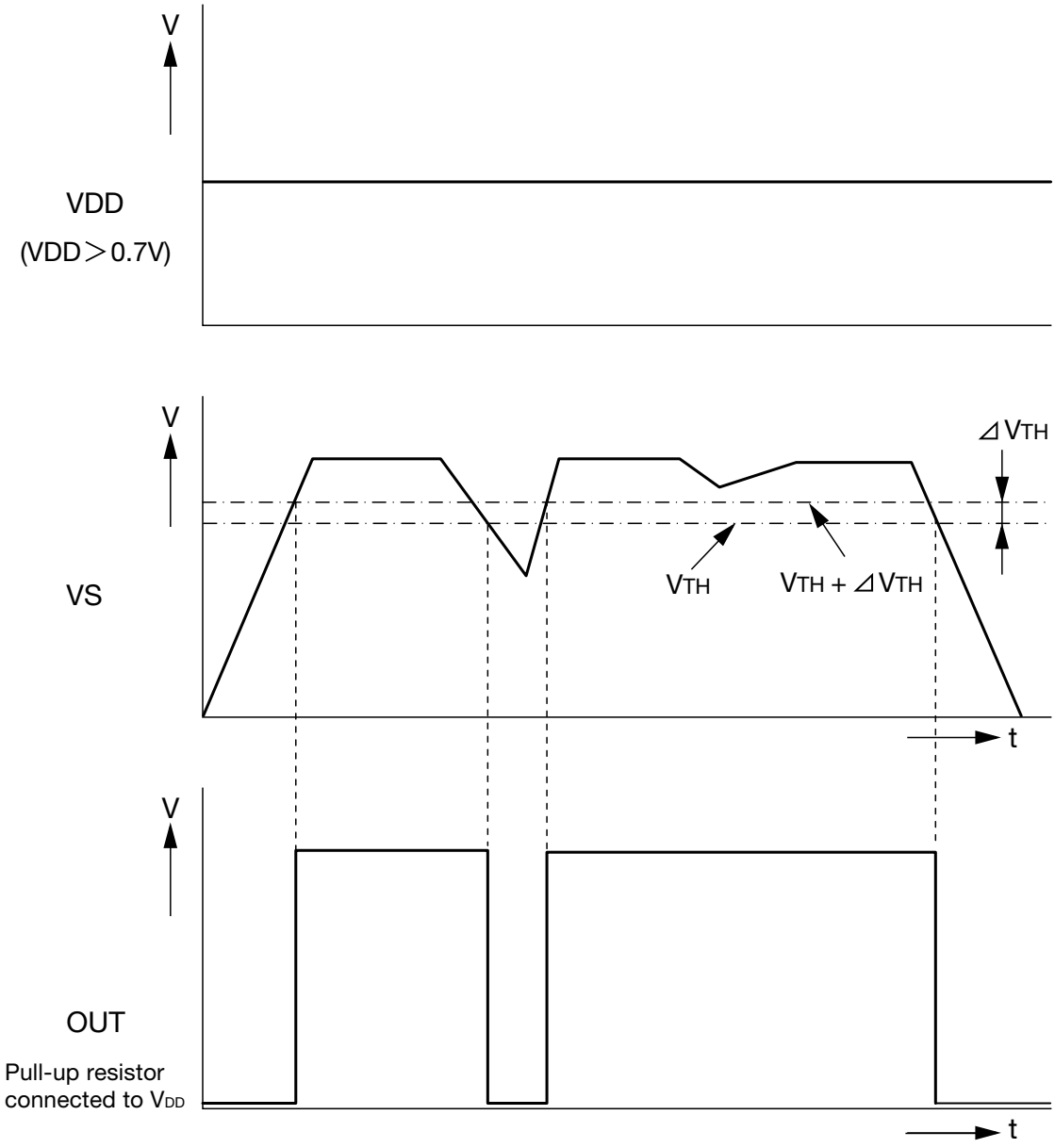
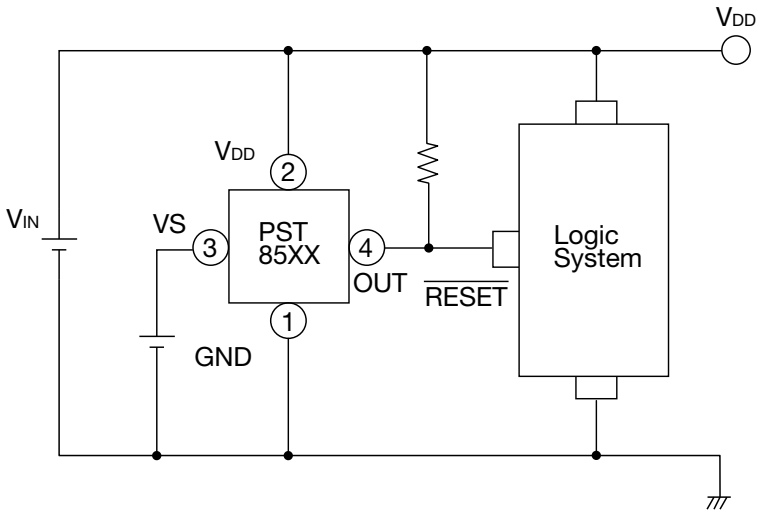


## Timing Chart



## Application Circuits

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