

PS121

Version : A.012
Issue Date : 2003/07/08
File Name : SP-PS121-A.012.doc
Total Pages: 7

Voltage Detecting IC



SITI

新竹市科學園區展業一路9號7樓之1

SILICON TOUCH TECHNOLOGY INC.

9-7F-1, Prosperity Road I, Science Based Industrial Park,

Hsin-Chu, Taiwan 300, R.O.C.

Tel : 886-3-5645656

Fax : 886-3-5645626

PS121

Voltage Detecting IC

General Description

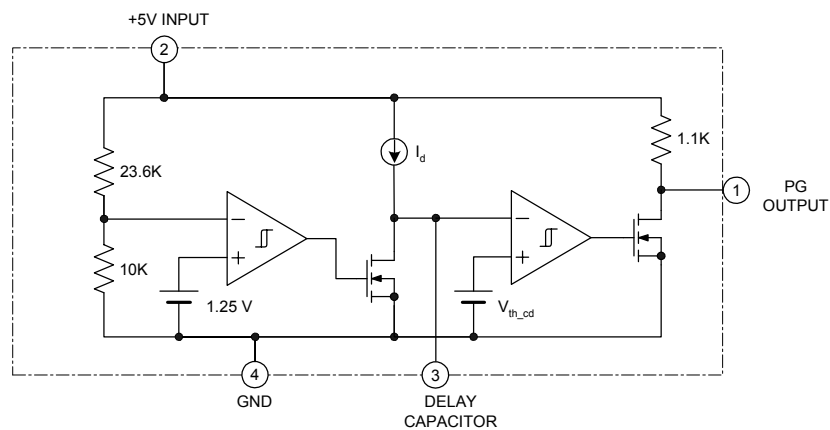
PS121 is specially designed for +5V power good signal generating. Power good signal notifies microprocessor whether the +5V supply voltage is ready, therefore it can provide a stable and reliable power supply and computing environment.

Delay circuit is also built-in to provide delay time by adding an external capacitor.

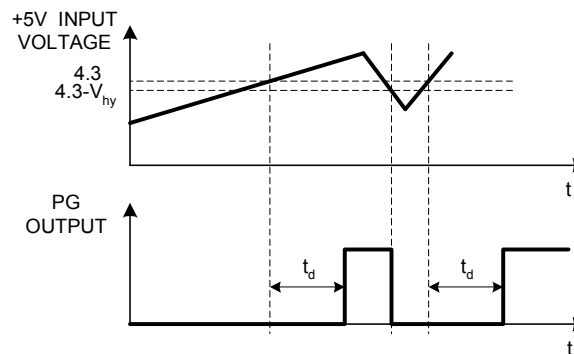
Features

1. Power Good Logic to Check +5V
2. Adjustable delay time
3. 4-pin SIP package

Block Diagram



Function Diagram



Pin Descriptions

Pin No	PIN NAME	Descriptions
1	PG	Power good output signal pin
2	+5V(VDD)	+5V(VDD) input pin
3	C _d	External capacitor for PG delay
4	VSS	Ground

Absolute Maximum Ratings

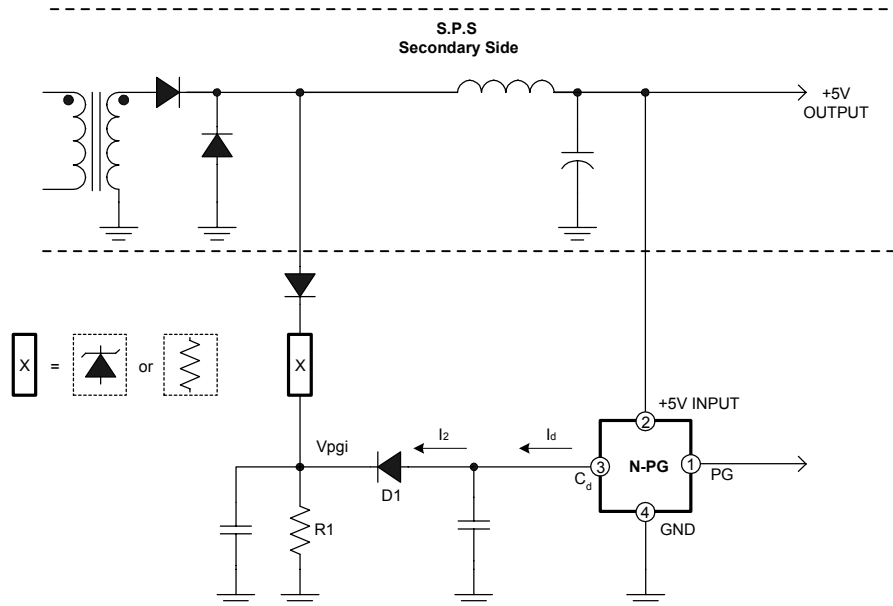
Parameter	Symbol	Rating	Unit
Supply Voltage	VDD	-0.5 ~ +7.5	V
Output Sink Current	I _{sink}	30	mA
Output Voltage	V _{PG}	-0.5 ~ +7.5	V
Power Dissipation	P _d	300	mW
Storage Temperature	T _{stg}	-40 ~ +125	°C
Operating Temperature	T _{opr}	-30 ~ +90	°C
Junction Temperature	T _j	150	°C
Package Thermal Resistance	θ_{JA}	160	°C/W

Electrical characteristics, $V_{CC}=5V$, $T_a = 25^\circ C$. (unless otherwise specified)

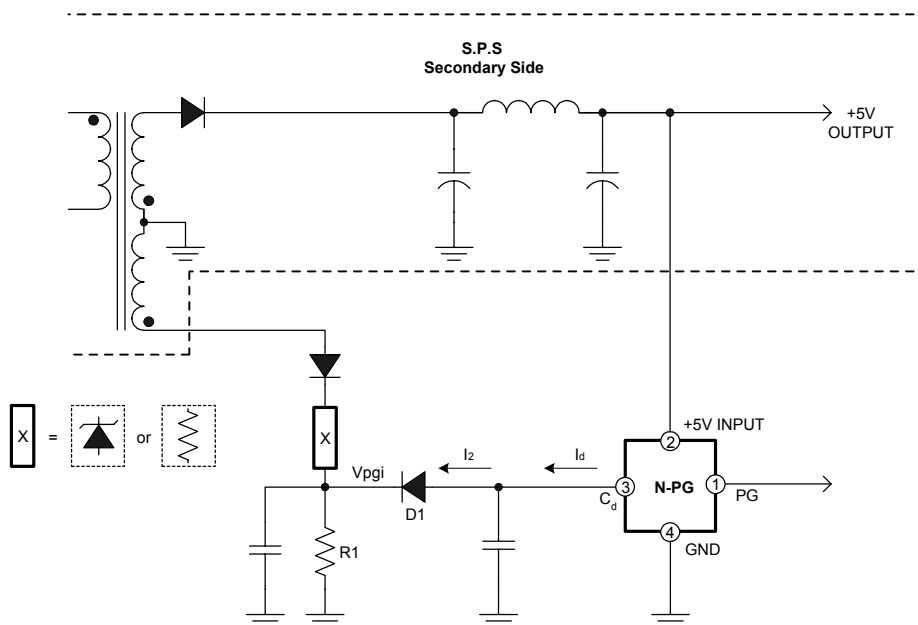
Parameter		Test Condition	MIN	TYP	MAX	Unit
V_{th}	Detecting Threshold Voltage		4.05	4.30	4.55	V
V_{hy}	V_{th} Hysteresis Voltage		0.1	0.2	0.3	V
I_{DD}	Circuit Current	$V_{CC}=5V$		0.97	2.5	mA
T_d	Delay Time	$C_d=0.1\mu F$		21.4		ms
I_d	Constant Current at C_d Pin		-8.0	-8.7	-9.4	μA
V_{sat}	PG Output Saturation Voltage	$V_{+5}=4.0V$, $I_{sink}=10mA$		0.128	0.192	V
V_{thcd}	Threshold Voltage in Pin C_d		1.75	1.85	1.95	V
ΔT	Temperature coefficient			+1	+2	mV/ $^\circ C$

Typical Application

(1) For Forward Type



(2) For Flyback Type



Note1: Once AC power is turned on, Vpgi will be pulled high before +5V input. At this time, diode D1 will be turn off. The PG delay time is dependent on C_d as follows,

$$T_{d-ON} = 0.216 \times C_d (pF) \mu \text{ sec}, \left(T = \frac{C_d \times V_{th}}{I_d} = \frac{C_d \times 1.85}{8.7\mu} \right)$$

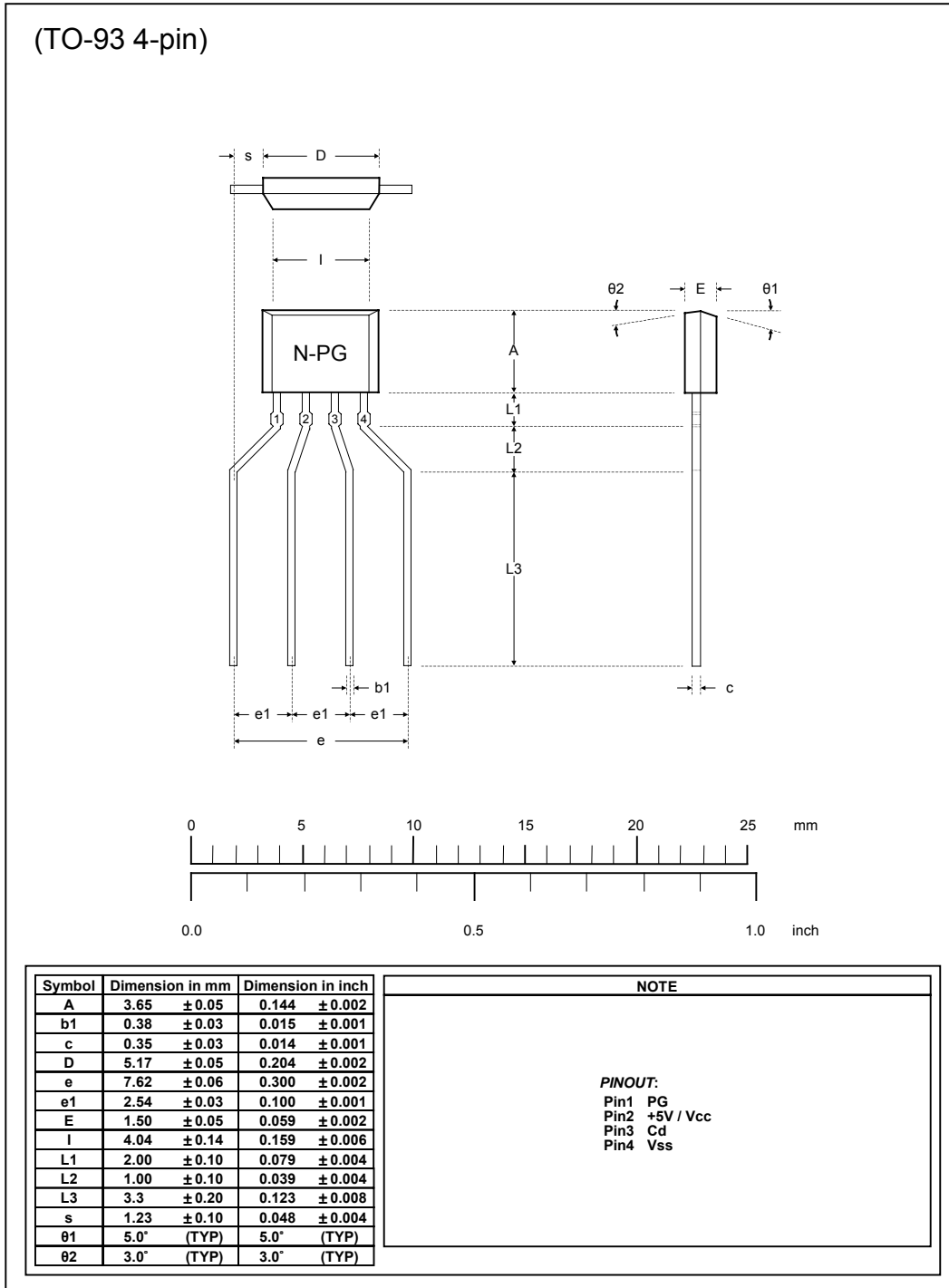
Note2: Diode D1 is connected to Vpgi to control the PG delay time when AC is off. The AC off delay time can be controlled as follows,

$$T_{d-OFF} = \frac{V_{+5V} - V_{th}}{I_2 - I_d} \times C_d$$

Note3: Since the maximum threshold voltage at Pin 3(C_d) is 1.95V, the voltage across R1 has to be higher than 2V at normal operation.

Note4: In PCB layout condition, when the input-pin(VDD) smaller than detecting threshold voltage(V_{th}), the power good signal of PS121 will connect to LOW, so the ground-pin(VSS) must connect to the most clean ground of the power supply system to avoid noise appear.

Package Specification I (TO-93)





The products listed herein are designed for ordinary electronic applications, such as electrical appliances, audio-visual equipment, communications devices and so on. Hence, it is advisable that the devices should not be used in medical instruments, surgical implants, aerospace machinery, nuclear power control systems, disaster/crime-prevention equipment and the like. Misusing those products may directly or indirectly endanger human life, or cause injury and property loss.

Silicon Touch Technology, Inc. will not take any responsibilities regarding the misuse of the products mentioned above. Anyone who purchases any products described herein with the above-mentioned intention or with such misused applications should accept full responsibility and indemnify. Silicon Touch Technology, Inc. and its distributors and all their officers and employees shall defend jointly and severally against any and all claims and litigation and all damages, cost and expenses associated with such intention and manipulation.