



偉詮電子股份有限公司  
**Weltrend Semiconductor, Inc.**

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**WT7525**  
**PC POWER SUPPLY SUPERVISOR**  
**Data Sheet**

**REV. 0.40 Preliminary release**

**February 21, 2005**

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## GENERAL DESCRIPTION

The WT7525 provides protection circuits, power good output (PGO), fault protection latch (FPOB), and a protection detector function (PSONB) control. It can minimize external components of switching power supply systems in personal computer.

The Over / Under Voltage Detector (OVD / UVD) monitors V33, V5, V12A, V12B and V12C input voltage level. The Over Current Detector (OCD) monitor IS33, IS5, IS12A, IS12B and IS12C input current sense. When OVD or UVD or OCD detect the fault voltage level, the FPOB is latched HIGH and PGO go low. The latch can be reset by PSONB go HIGH. There is 3.5 ms delay time for PSONB turn off FPOB.

When OVD and UVD and OCD detect the right voltage level, the power good output (PGO) will be issue.

## FEATURES

- The Over/Under Voltage Detector (OVD / UVD) monitors V33, V5, V12A, V12B and V12C input voltage.
- The Over Current Detector (OCD) monitors IS33, IS5, IS12A, IS12B and IS12C input current sense.
- Both of the power good output (PGO) and fault protection latch (FPOB) are Open Drain Output.
- 75 / 300 ms time delay for UVD.
- 300 ms time delay for PGO.
- 38 ms for PSONB input signal De-bounce.
- 73 us for PGI/OVD/UVD internal signal De-glitches.
- 1.2 ms for OCD internal signal De-glitches.
- 3.5 ms time delay for PSONB turn-off FPOB.



## PIN ASSIGNMENT AND PACKAGE TYPE

WT7525-140				WT7525-160				WT7525-161			
PGI	1	14	PGO	PGI	1	16	PGO	PGI	1	16	PGO
GND	2	13	VCC	GND	2	15	VCC	GND	2	15	VCC
FPOB	3	12	V5	FPOB	3	14	V5	FPOB	3	14	V5
PSONB	4	11	V33	PSONB	4	13	V33	PSONB	4	13	V33
I12AB	5	10	V12A	I12A	5	12	V12A	I12A	5	12	NC
RI	6	9	I33	RI	6	11	I33	RI	6	11	V12A
V12B	7	8	I5	NC	7	10	I5	I5	7	10	I33
				V12B	8	9	I12B	V12B	8	9	I12B

WT7525-180				WT7525-181			
PGI	1	18	PGO	PGI	1	18	PGO
GND	2	17	VCC	GND	2	17	VCC
FPOB	3	16	V5	FPOB	3	16	V5
PSONB	4	15	V33	PSONB	4	15	V33
I12A	5	14	V12A	I12A	5	14	NC
RI	6	13	I33	RI	6	13	V12A
NC	7	12	I5	I5	7	12	I33
V12B	8	11	I12B	V12B	8	11	I12B
V12C	9	10	I12C	V12C	9	10	I12C

### ORDERING INFORMATION

PACKAGE	14-Pin Plastic DIP	14-Pin Plastic SOP
	WT7525-N140	WT7525-S140
Lead-Free (Pb)	WT7525-N140 Pb	WT7525-S140 Pb

PACKAGE	16-Pin Plastic DIP	16-Pin Plastic SOP
	WT7525-N160 WT7525-N161	WT7525-S160 WT7525-S161
Lead-Free (Pb)	WT7525-N160 Pb WT7525-N161 Pb	WT7525-S160 Pb WT7525-S161 Pb

PACKAGE	18-Pin Plastic DIP	18-Pin Plastic SOP
	WT7525-N180 WT7525-N181	WT7525-S180 WT7525-S181
Lead-Free (Pb)	WT7525-N180 Pb WT7525-N181 Pb	WT7525-S180 Pb WT7525-S181 Pb

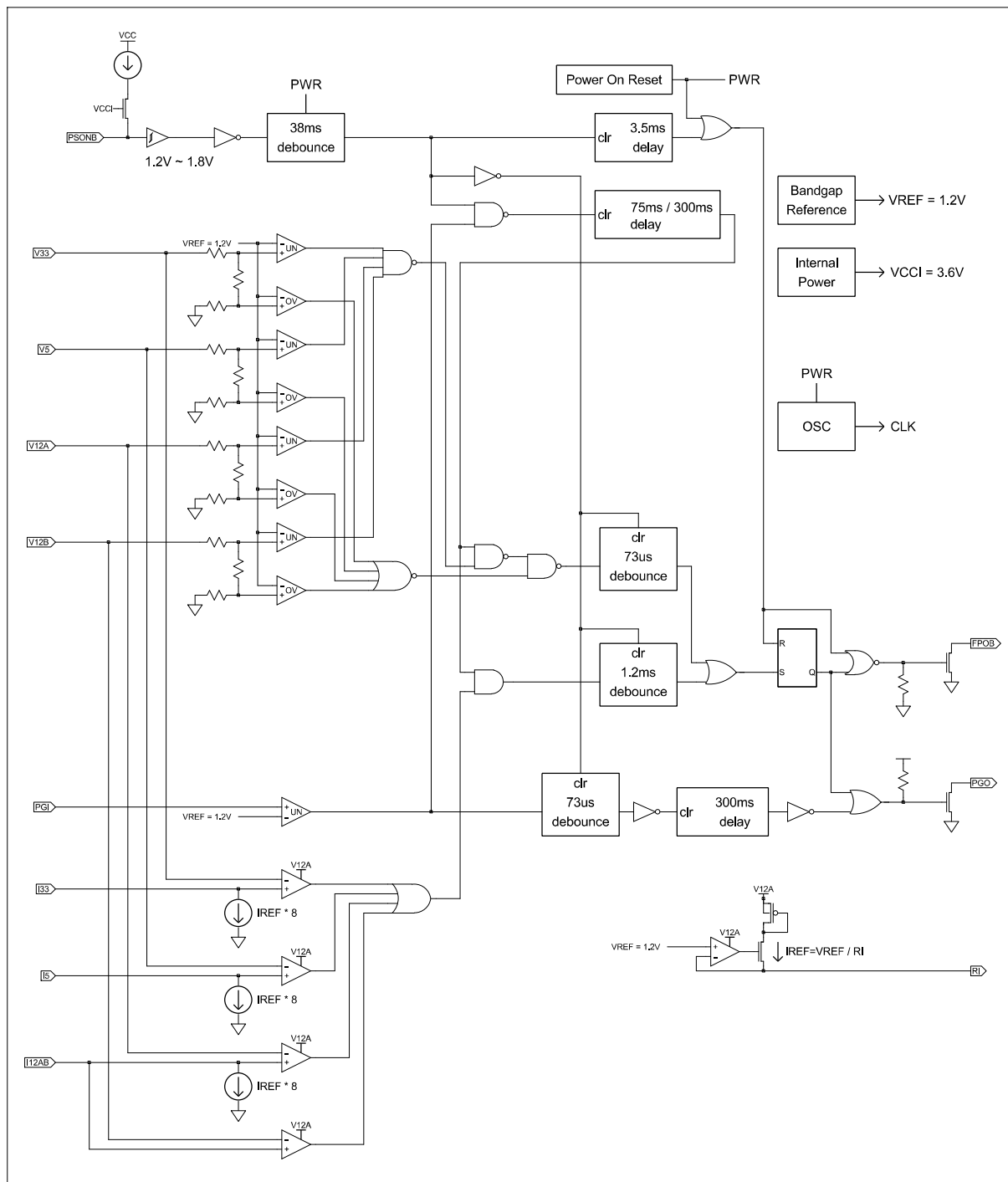
※ The Top-Side Marking would be added a dot (●) in the right side for lead-free package.

**PIN DESCRIPTION**

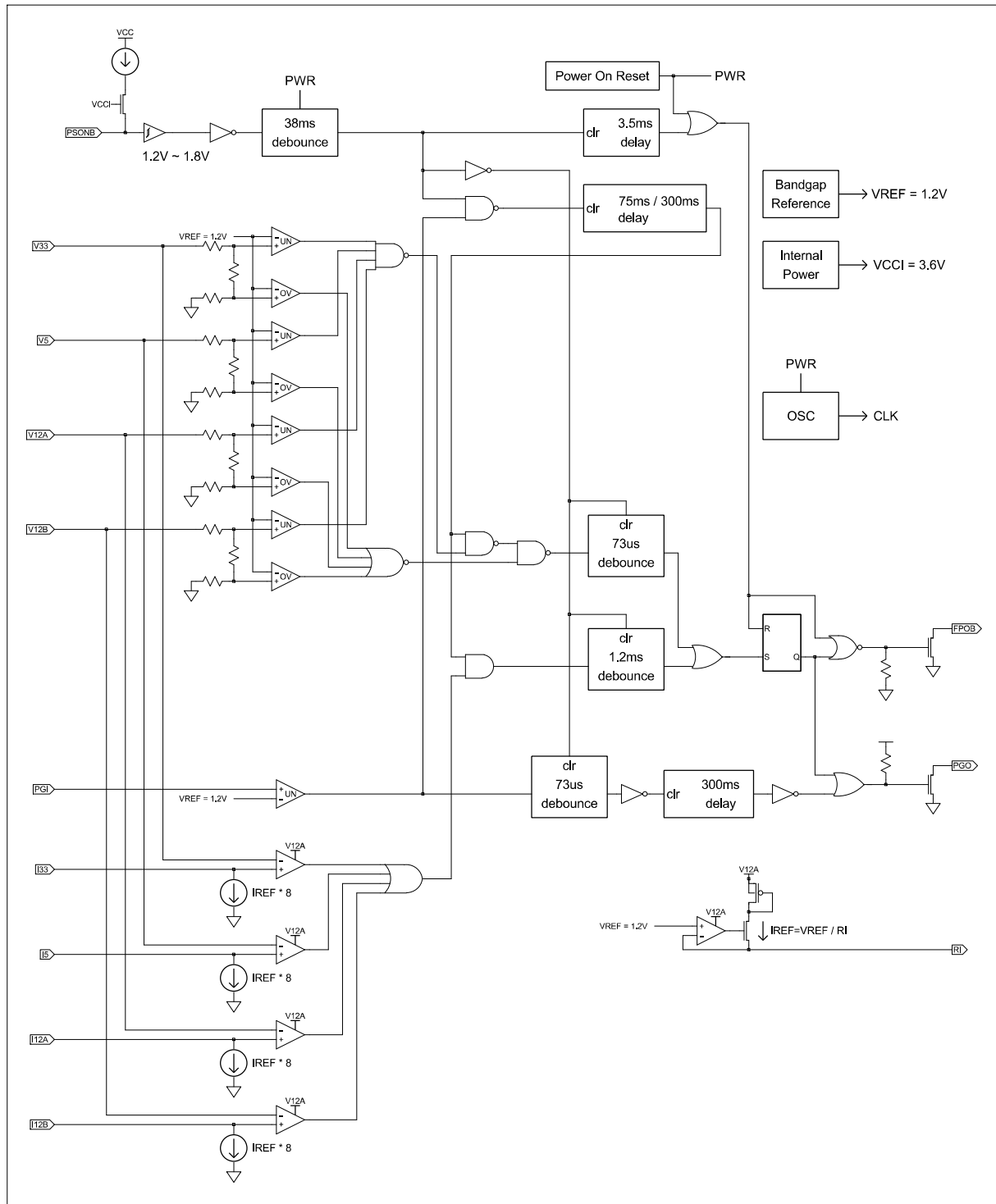
Pin Name	TYPE	Description
<b>PGI</b>	<b>I</b>	Power good input signal pin
<b>GND</b>	<b>P</b>	Ground
<b>FPOB</b>	<b>O</b>	Fault protection output pin, open drain output
<b>PSONB</b>	<b>I</b>	On/Off switch input
<b>I12A</b>	<b>I</b>	12VA over current protection sense input
<b>I12AB</b>	<b>I</b>	12VA / 12VB over current protection sense input (only for 140)
<b>RI</b>	<b>I</b>	Current sense adjust input
<b>V12B</b>	<b>I</b>	12VB over/under voltage input pin
<b>V12C</b>	<b>I</b>	12VC over/under voltage input pin
<b>I12C</b>	<b>I</b>	12VC over current protection sense input
<b>I12B</b>	<b>I</b>	12VB over current protection sense input
<b>I5</b>	<b>I</b>	5V over current protection sense input
<b>I33</b>	<b>I</b>	3.3V over current protection sense input
<b>V12A</b>	<b>I</b>	12VA over/under voltage input pin
<b>V33</b>	<b>I</b>	3.3V over/under voltage input pin
<b>V5</b>	<b>I</b>	5V over/under voltage input pin
<b>VCC</b>	<b>I</b>	Power supply
<b>PGO</b>	<b>O</b>	Power good output signal pin, open drain output

## BLOCK DIAGRAM

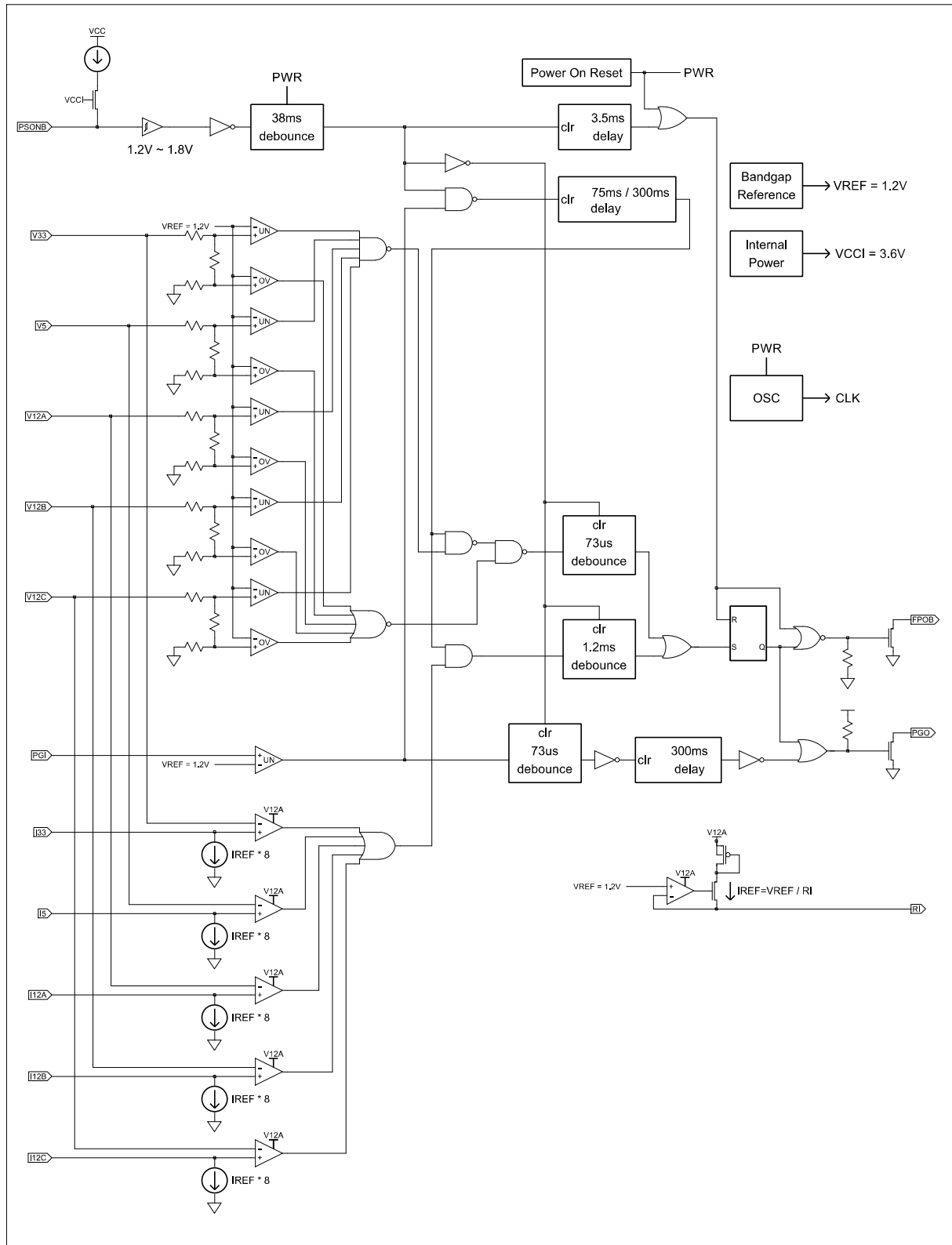
### WT7525-140



## WT7525-160 / 161



## WT7525-180 / 181





## ABSOLUTE MAXIMUM RATINGS

Parameter		Min.	Max.	Unit
Supply voltage, VCC, V12A		-0.3	16	V
Input voltage	PGI, PSONB	-0.3	VCC + 0.3 (Max. 7V)	V
	V5, V33, I5, I33	-0.3	V12A + 0.3 (Max. 7V)	V
	V12B, I12A, I12B, I12AB	-0.3	V12A + 0.3 (Max. 16V)	V
	V12C, I12C	-0.3	V12A + 0.3 (Max. 16V)	V
Output voltage	PGO	-0.3	7	V
	FPOB	-0.3	16	V
Operating temperature		-40	125	°C
Storage temperature		-55	150	°C

\*Note: Stresses above those listed may cause permanent damage to the devices

## RECOMMENDED OPERATING CONDITIONS

Parameter		Conditions	Min.	Typ.	Max.	Unit
Supply voltage, VCC			4	12	15	V
Input voltage	PGI, PSONB, V5, V33				7	V
	V12A, V12B, V12C				15	V
Output voltage	PGO				7	V
	FPOB				15	V
Output sink current	FPOB	0.3V			10	mA
	PGO	0.3V			10	mA
Supply voltage rising time			1			ms
Output current for RI		RI	10		65	uA

## ELECTRICAL CHARACTERISTICS, at Ta=25°C and VCC=5V.

### Over Voltage Detection

Parameter		Condition	Min.	Typ.	Max.	Unit
Over voltage threshold	V33		3.7	3.9	4.1	V
	V5		5.7	6.1	6.2	V
	V12ABC		13.3	13.8	14.3	V
I <sub>LEAKAGE</sub> Leakage current (FPOB)		V(FPOB) = 5V		5		uA
V <sub>OL</sub> Low level output voltage (FPOB)		I <sub>sink</sub> = 10mA			0.3	V

### PGI and PGO

Parameter		Condition	Min.	Typ.	Max.	Unit
Under voltage threshold	V33		2.55	2.69	2.83	V
	V5		4.1	4.3	4.47	V
	V12ABC		9.5	10	10.5	V
Input threshold voltage(PGI)			1.16	1.20	1.24	V
I <sub>LEAKAGE</sub> Leakage current(PGO)		PGO = 5V		5		uA
V <sub>OL</sub> Low level output voltage(PGO)		I <sub>sink</sub> = 10mA			0.3	V
Offset Voltage of OCP comparators			-6		6	mV

### PSONB

Parameter		Condition	Min.	Typ.	Max.	Unit
Input pull-up current		PSONB= 0V		150		uA
High-level input voltage			1.8			V
Low-level input voltage					1.2	V