



3511

CMOS IC

PC POWER SUPPLY SUPERVISORS

DESCRIPTION

The UTC **3511** is designed to provide the voltage, and current supervisor function, power good output (PGO), fault protection latch (FPL_N), and protection detector function (PDON_N) control for switching power systems.

For supervisor function, it provides the over voltage detector (OVD) monitoring for 3.3V, 5V, 12V; the under voltage detector (UVD) monitoring for 3.3V, 5V. When 3.3V or 5V voltage is decreasing to 2.69V, 4.3V respectively, the under voltage detector (UVD) function will be enabled to reset the PGO signal from high to low, and the FPL_N is latched HIGH. When 3.3V, 5V or 12V voltage is increasing to 3.9V, 6.1V or 13.4V respectively, the over voltage detector (OVD) function will be enabled to reset the PGO signal from high to low, and the FPL_N is latched HIGH.

To achieve better immunity for lighting surge glitch and to prevent accidental power shut down during dynamic loading condition, the de-bounce time for UVD and OVD is 73us. The power supply is turned on after 38mS de-bounce time when FPL_N signal is set from high to low.

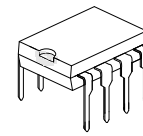
FEATURES

- * Over Voltage Detector (OVD) for 3.3V, 5V, 12V.
- * Under Voltage Detector (UVD) for 3.3V, 5V.
- * Open Drain Output for PGO and FPL_N.
- * 300 ms power good delay.
- * 75 ms delay for 3.3V and 5V turn on.
- * 38 ms PDON_N control De-bounce.
- * 2.4 ms PDON_N control to FPL_N turn-off delay.
- * De-bounce time 73 μ s for UVD/OVD.
- * Wide supply voltage range from 4V ~ 15V.

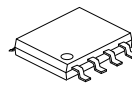
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
3511L-D08-T	3511G-D08-T	DIP-8	Tube
-	3511G-S08-R	SOP-8	Tape Reel

3511L-D08-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) D08: DIP-8, S08: SOP-8 (3) L: Lead Free, G: Halogen Free and Lead Free
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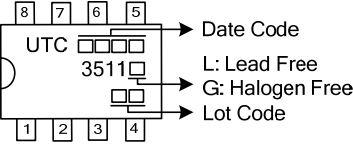
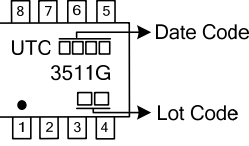


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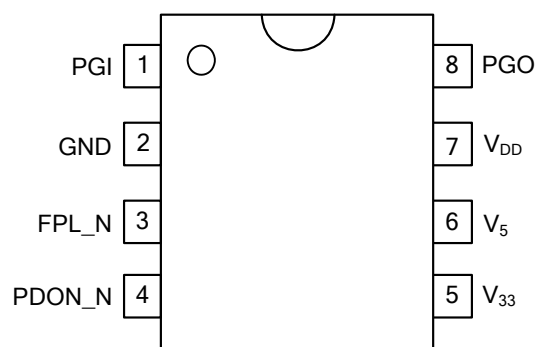


SOP-8

MARKING

DIP-8	SOP-8
	

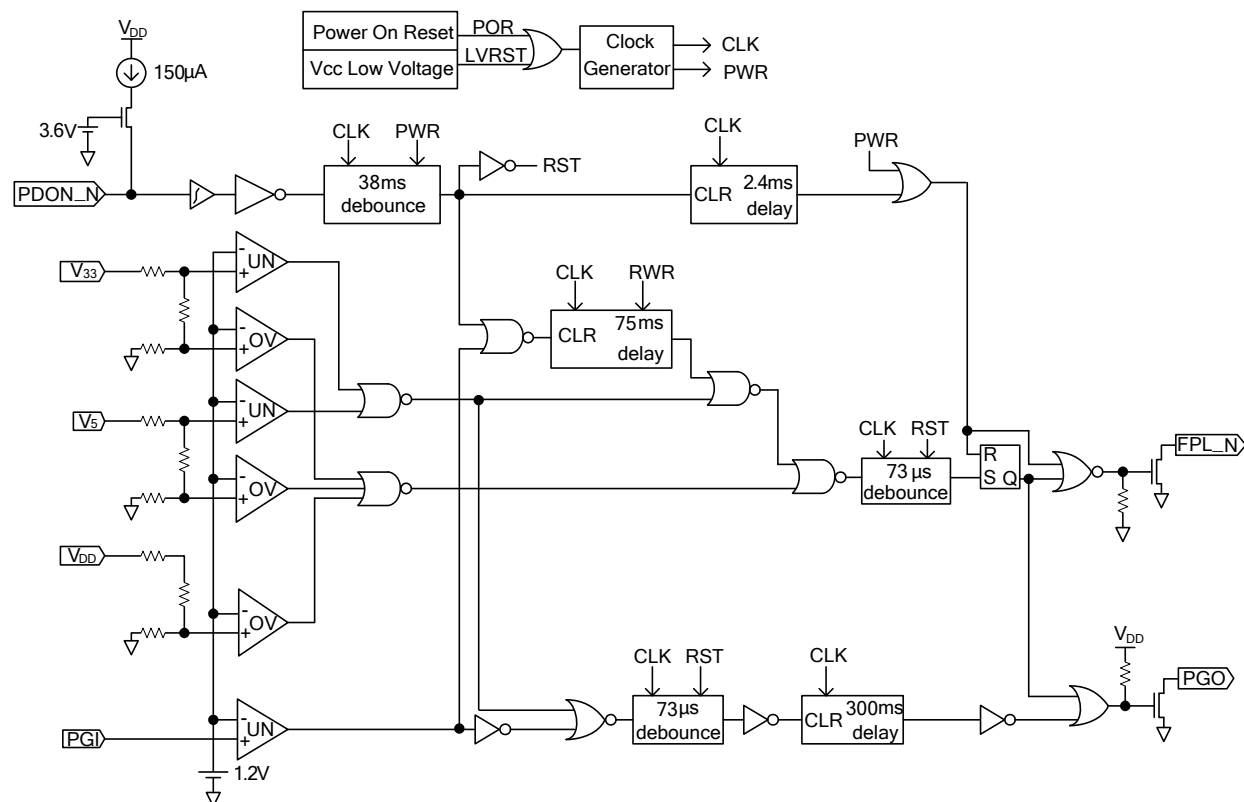
PIN CONFIGURATION



PIN DESCRIPTION

PIN No.	PIN NAME	TYPE	DESCRIPTION
1	PGI	I	Power good input pin
2	GND	P	Ground
3	FPL-N	O	Fault protection latch output pin (open drain output)
4	PDON-N	I	Protection detector function ON/OFF control input pin
5	V ₃₃	I	3.3V input pin
6	V ₅	I	5V input pin
7	V _{DD}	I	Supply voltage/12V input pin
8	PGO	O	Power good output pin(open drain output)

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{DD}	-0.3 ~ 16	V
Input Voltage	PDON_N, V_5 , V_{33} , PGI	V_{IN}	-0.3 ~ 7	V
Output Voltage	FPL_N	V_{OUT}	-0.3 ~ 16	V
	PGO		-0.3 ~ 7	
Operating Temperature		T_{OPR}	-40 ~ 125	°C
Storage Temperature		T_{STG}	-55 ~ 150	°C

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Stresses above those listed may cause permanent damage to the devices

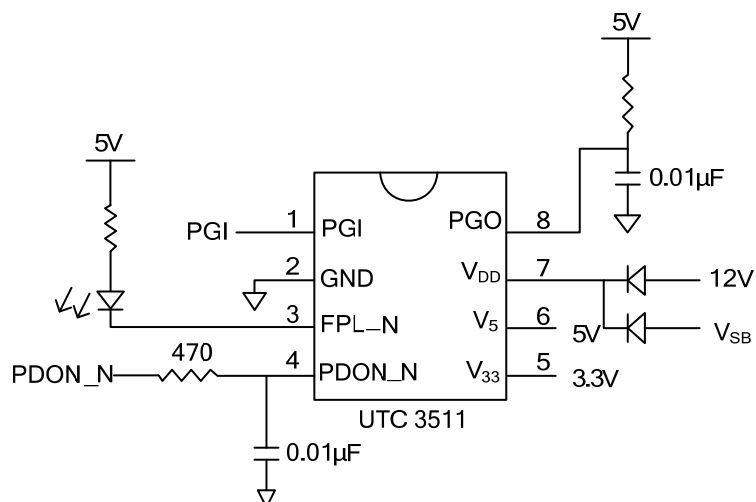
■ RECOMMENDED OPERATING CONDITIONS

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage		V_{DD}	3.8	12	15	V
Input Voltage	PDON_N, V_5 , V_{33} , PGI	V_{IN}			7	V
Output Voltage	FPL_N	V_{OUT}			15	V
	PGO				7	V
Output Sink Current	FPL_N	I_{OSINK}			30	mA
	PGO				10	mA
Supply Voltage Rising Time		T_{RS}	1			ms

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, $V_{DD}=5\text{V}$)

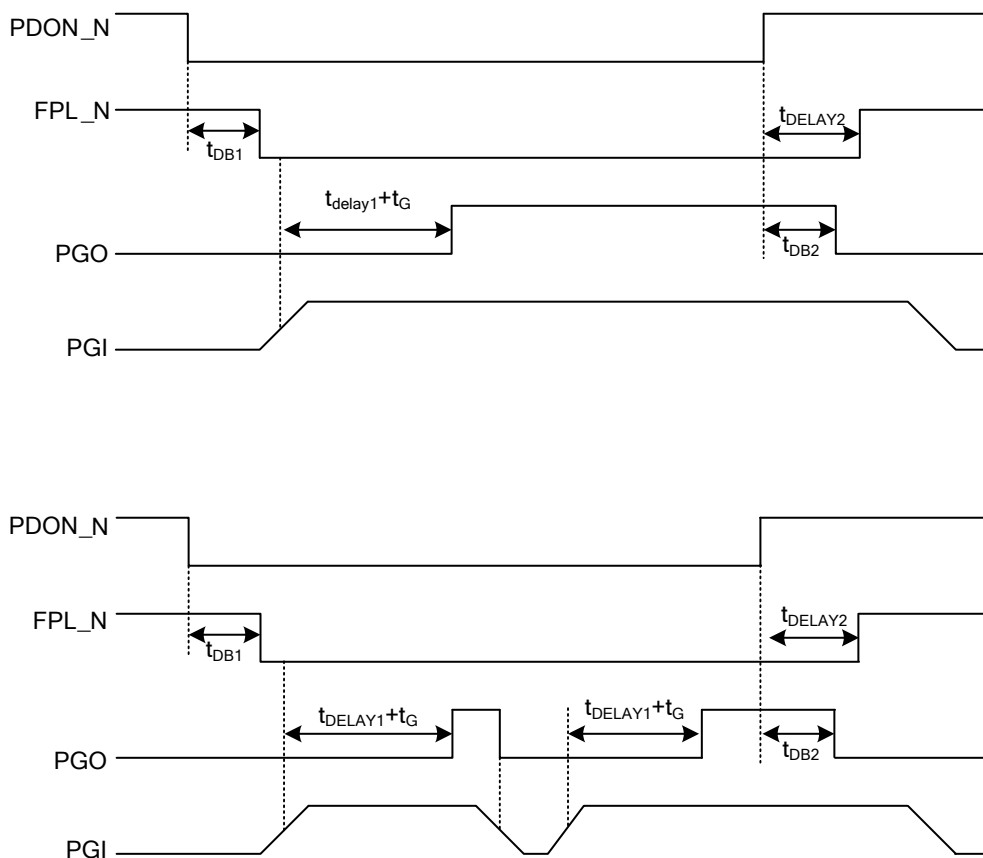
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
OVER VOLTAGE DETECTION						
Over Voltage Threshold	V_{33}		3.7	3.9	4.1	V
	V_5		5.7	6.1	6.5	
	V_{DD}/V_{12}		12.8	13.4	13.9	
Low Level Output Voltage (FPL_N)	V_{OL}	$I_{SINK}=10\text{mA}$		0.3		V
		$I_{SINK}=30\text{mA}$		0.7		
Leakage Current (FPL_N)	$I_{LEAKAGE}$	FPL_N=5V		5		μA
PGI AND PGO						
Under Voltage Threshold	V_{33}		2.55	2.69	2.83	V
	V_5		4.1	4.3	4.47	
Input Threshold Voltage (PGI)	V_{PGI}		1.16	1.20	1.24	
Low Level Output Voltage (PGO)	V_{OL}	$I_{SINK}=10\text{mA}$		0.4		V
Leakage Current (PGO)	$I_{LEAKAGE}$	PGO=5V		5		μA
PDON_N						
High-Level Input Voltage	V_{IH}		2.4			V
Low-Level Input Voltage	V_{IL}				1.2	V
Input Pull-Up Current	I_I	PDON_N=0V		150		μA
TOTAL DEVICE						
Low Voltage	V_{DD}			3		V
Supply Current	I_{CC}	PDON_N=5V			1	mA
De-Bounce Time (PDON_N)	t_{DB1}		32	38	61	ms
Delay Time (PGI to PGO)	t_{DELAY}	$T_A = -40^{\circ}\text{C} \sim 125^{\circ}\text{C}$	200	300	490	ms
De-Bounce Time (PDON_N)	t_{DB2}		32	38	61	ms
PDON_N to FPL_N delay Time	t_{DELAY2}		$T_{DB2}+2.0$	$T_{DB2}+2.4$	$T_{DB2}+3.8$	ms
Internal UVD Delay Time	t_{DELAY3}	FPL_N go low & every Time PGI>1.2V	65	75	122	ms
De-Glitch Time	t_G		63	73	120	μs

■ APPLICATION CIRCUIT



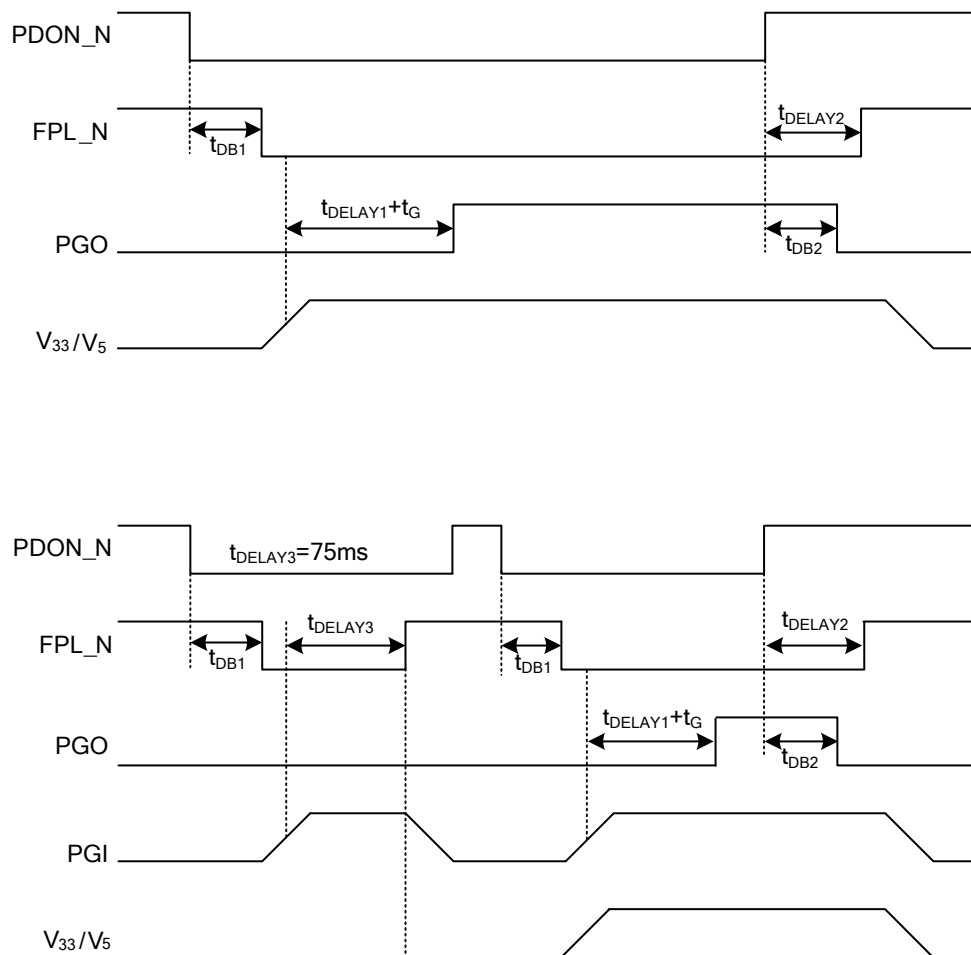
■ APPLICATION TIMMING

1. PGI (UNDER_VOLTAGE):



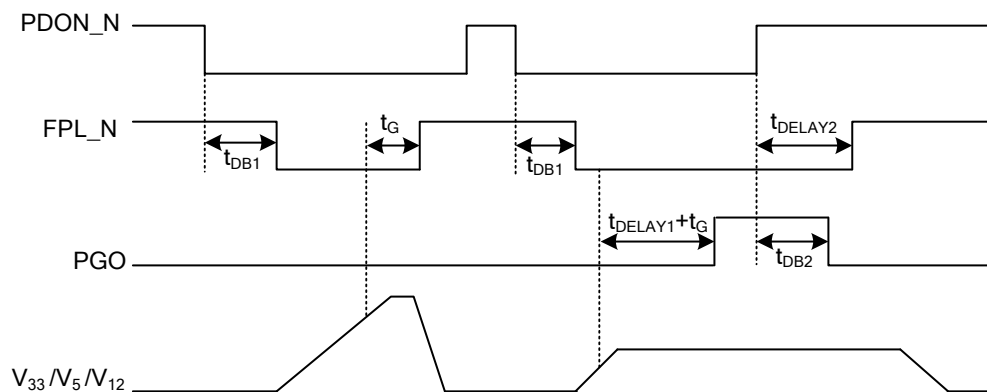
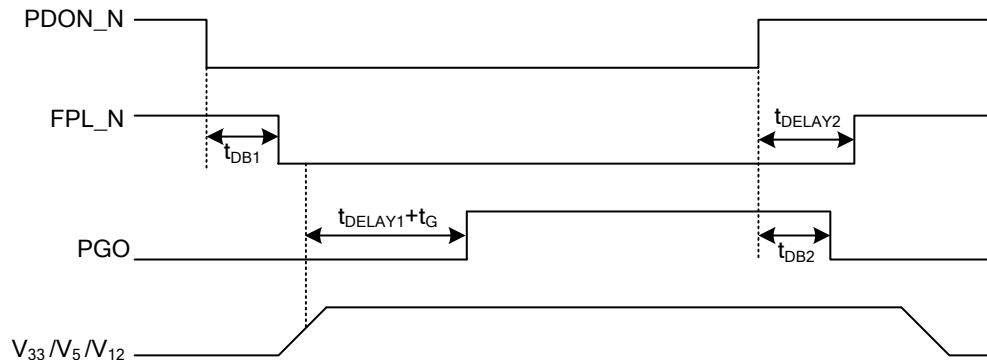
■ APPLICATION TIMMING(Cont.)

2. V_{33} , V_5 (UNDER_VOLTAGE):



■ APPLICATION TIMMING(Cont.)

3. V_{33} , V_5 , V_{12} (OVER_VOLTAGE):



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