



## 3-CHANNEL SECONDARY SUPERVISOR

### DESCRIPTION

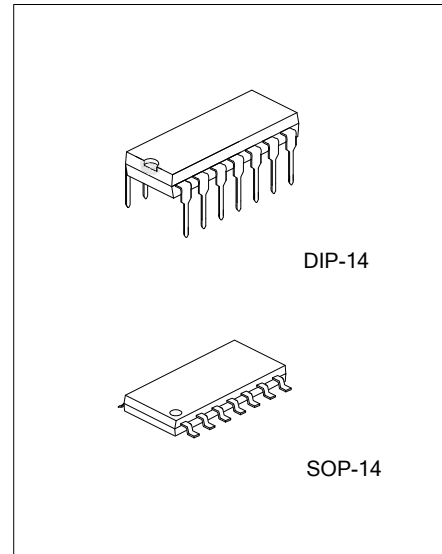
UTC **S3526** is used for switching power supply system. UTC **S3526** provides protection functions, over-voltage protection, over-current protection, under-voltage protection and power good signal generating.

OVP/UVLP (Over-Voltage/Under-Voltage Protection) monitors triple 12V to protect our power supply and PC, FPO goes to high when one of these supply voltages exceeds their normal operation voltage range.

UTC **S3526** OCP (Over Current Protection) monitors IS12A, IS12B and IS12C input current sense by using smart comparator circuit to make the point setting through sense resistor is more exact and easy.

An additional latch protection input pin provides the flexibility for design protection circuit.

UTC **S3526** provides the fault protection latch (FPOB), the power good output (PGO), the PSONB control and the power good input control pin (PGI).



### FEATURES

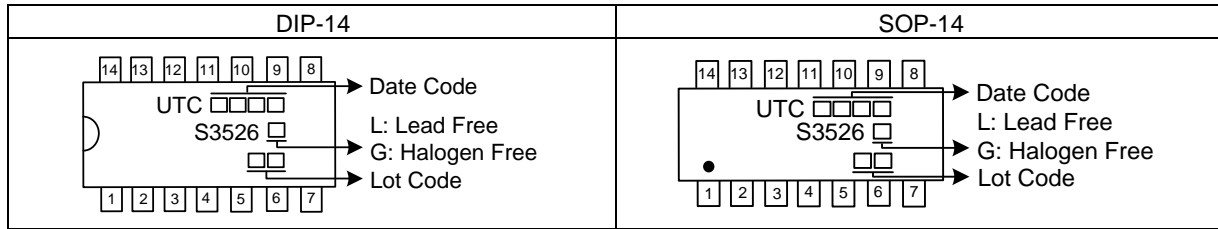
- \* Over/Under-voltage protection
- \* Over-current protection
- \* Additional protection input
- \* Fault protection output with open drain output stage
- \* Open drain power good output signal for power good input
- \* 300ms power good delay
- \* 75ms delay for UV/OC protection
- \* 38ms PSON control de-bounce
- \* Wide power supply range (3.8V~16V)
- \* Special care for AC power off

### ORDERING INFORMATION

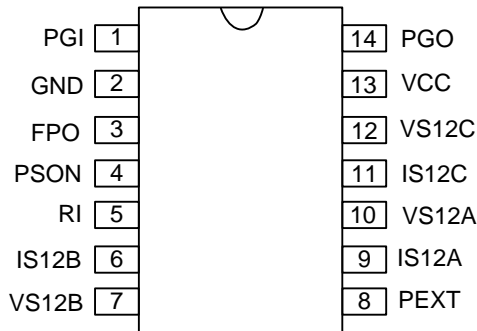
Ordering Number		Package	Packing
Lead Free	Halogen Free		
S3526L-D14-T	S3526G-D14-T	DIP-14	Tube
S3526L-S14-R	S3526G-S14-R	SOP-14	Tape Reel

<p>S3526G-D14-T</p> <ul style="list-style-type: none"> <li>(1)Packing Type</li> <li>(2)Package Type</li> <li>(3)Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) D14: DIP-14, S14: SOP-14</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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MARKING



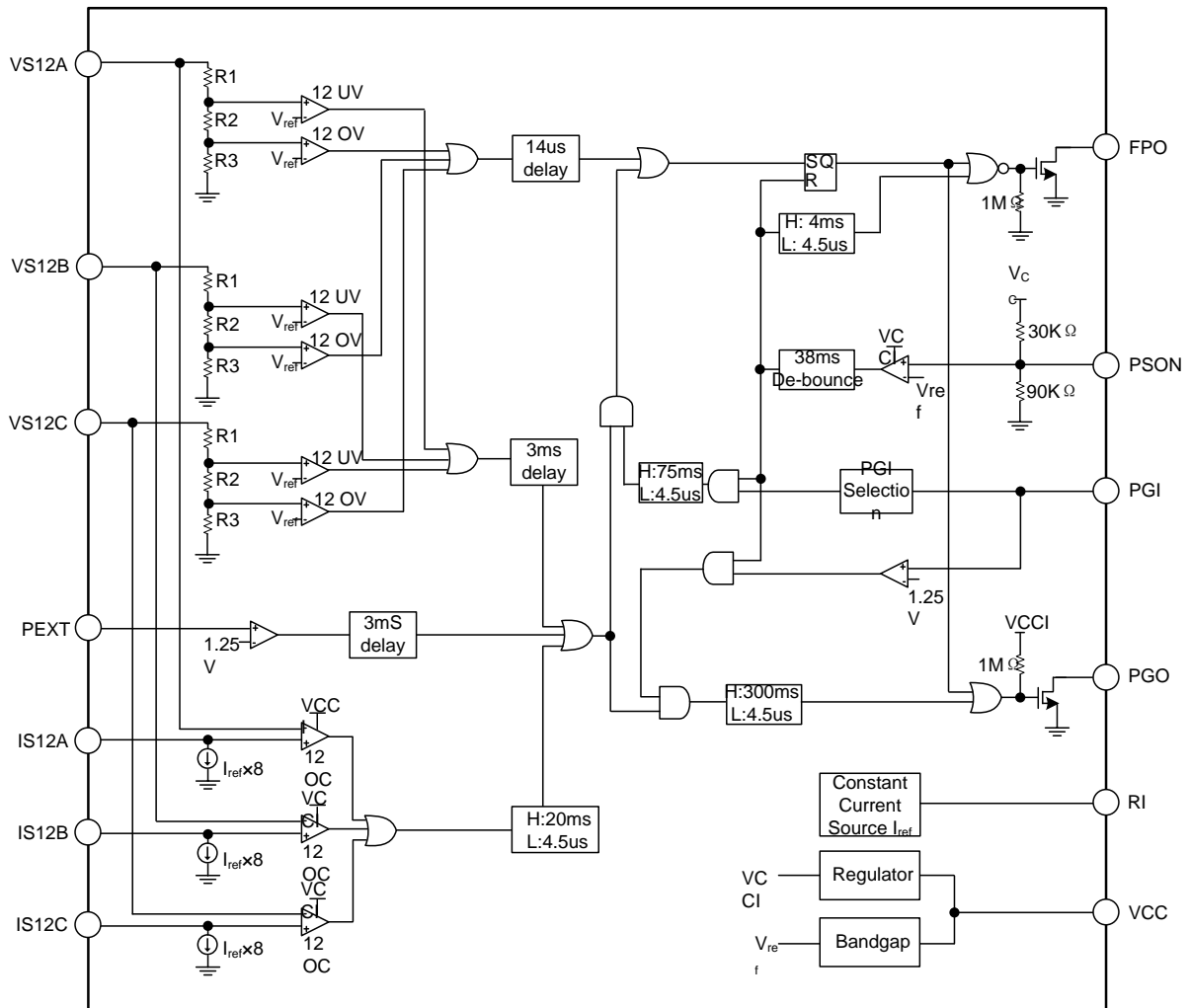
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	PGI	Power good input signal pin
2	GND	Ground
3	FPO	Inverted fault protection output ,open drain output stage
4	PSON	Remote ON/OFF control input pin
5	RI	Current sense setting
6	IS12B	12V(2) over current protection input pin
7	VS12B	12V(2) over/under voltage protection input pin
8	PEXT	External protection detect input pin
9	IS12A	12V(1) over current protection input pin
10	VS12A	12V(1) over/under voltage protection input pin
11	IS12C	12V(3) over current protection input pin
12	VS12C	12V(3) over/under voltage protection input pin
13	V <sub>CC</sub>	Power supply
14	PGO	Power good output signal pin , open drain output stage

■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING (Note 1)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>CC</sub>	V <sub>CC</sub>	-0.5 ~ +16.0	V
Input Voltage Range	VS12A, VS12B, VS12C, IS12A, IS12B, IS12C	V <sub>IN</sub>	-0.5 ~ +16.0	V
	PEXT		-0.5 ~ +7.0	V
	PGI		-0.5 ~ +16.0	V
	PSON		-0.5 ~ +V <sub>CC</sub> +0.5	V
Output Voltage Range	FPO	V <sub>OUT</sub>	-0.5 ~ +V <sub>CC</sub> +0.5	V
	PGO		-0.5 ~ V <sub>CC</sub> +0.5	V
Output Current for RI	R <sub>I</sub>	I <sub>RI</sub>	12.5 ~ 62.5	μA
ESD Susceptibility (Note 2)	PSON, PGO	V <sub>ESD</sub>	>2K	V
	FPOB, PGI, VS12A, VS12B		>2K	V
	VS12C, IS12A, IS12B, IS12C		>2K	V
	Others		>2K	V
Storage Temperature		T <sub>STG</sub>	-40~+125	°C
Operating Temperature		T <sub>OPR</sub>	-30~+90	°C

Notes: 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. Human Body Model (HBM).

### ■ ELECTRICAL CHARACTERISTICS V<sub>CC</sub>=12V, T<sub>A</sub> = 25°C (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>Power Supply Section</b>						
Supply Voltage	V <sub>CC</sub>		3.8	5.0	16.0	V
Supply Current	I <sub>CC</sub>	V <sub>PSON</sub> = 5V		4.5	6.0	mA
Power On Reset Threshold Voltage	V <sub>POR</sub>		3.0	3.4	3.8	V
Power On Reset Hysteresis	V <sub>HYST</sub>		-0.15	-0.30	-0.45	V
<b>Over-Voltage Section</b>						
VS12A/B/C Over-Voltage Threshold	V <sub>OV</sub>		13.4	14.0	14.6	V
<b>Under-Voltage Section</b>						
VS12A/B/C Under-Voltage Threshold	V <sub>UV</sub>		10.3	10.8	11.3	V
<b>PSON, Analog Input</b>						
Threshold Voltage (High)	V <sub>H</sub>		1.40	1.50	1.60	V
Threshold Voltage (Low)	V <sub>L</sub>		0.85		1.20	V
Leakage Current	I <sub>PSON</sub>	R <sub>PSON</sub> =100Ω			550	μA
<b>PGI, Analog Input</b>						
Threshold Voltage for start T <sub>d1</sub>	V <sub>TH1</sub>		1.15	1.25	1.35	V
Threshold Voltage for start T <sub>d2</sub>	V <sub>TH2</sub>		0.60	0.63	0.75	V
Threshold Voltage for mask UV	V <sub>TH3</sub>		1.15	1.25	1.35	V
Threshold Voltage for mask OC	V <sub>TH4</sub>		0.15	0.25	0.35	V
Hysteresis	V <sub>HYST</sub> (Note 1)		+/-20	+/-50	+/-80	mV
<b>PGO, Open Drain Digital Output</b>						
Leakage Current	I <sub>LKG</sub>	V <sub>PGO</sub> =5V			5	μA
Low Level Output Voltage	V <sub>OL</sub>	I <sub>SINK</sub> =10mA			0.3	V
<b>Over-Current Section</b>						
VS12A/B/C Offset Voltage	V <sub>OS</sub>		-5	0	+5	mV
Constant Isink Current	I <sub>SINK</sub>		140	160	180	μA

■ **ELECTRICAL CHARACTERISTICS**  $V_{CC}=12V$ ,  $T_A = 25^\circ C$  (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>FPO, Open Drain Digital Output</b>						
Leakage Current	$I_{LKG}$	$V_{PGO}=5V$			5	$\mu A$
Low Level Output Voltage	$V_{OL}$	$I_{SINK}=20mA$			0.3	V
<b>External Protection Detect Section</b>						
Threshold	$V_{TH}$		1.20	1.25	1.30	V
Hysteresis	$V_{HYST}$		+/-20	+/-50	+/-80	mV
<b>Switching Characteristics, <math>V_{CC}=12V</math>, <math>T_A = 25^\circ C</math></b>						
PGI to PGO Delay Time	$T_{d1}$		200	300	400	ms
Short Circuit Delay Time	$T_{d2}$		49	75	100	ms
PGO to FPO Delay Time	$T_{d3}$		2	4	6	ms
Under Voltage Delay Time	$T_{d4}$		2.4	3	3.6	ms
Over Current Delay Time	$T_{d5}$		13	20	27	ms
Over Voltage Delay Time	$T_{d6}$		9	14	19	$\mu s$
PEXT Delay Time	$T_{d7}$		2.4	3	3.6	ms
PSON De-bounce Time	$T_{b1}$		24	38	52	ms
PGO Noise De-glitch Time	$T_{b2}$		47	73	100	$\mu s$

Note: All of the comparator for PGI input in block diagram..

■ TIMING CHART

