



## P3576B

Preliminary

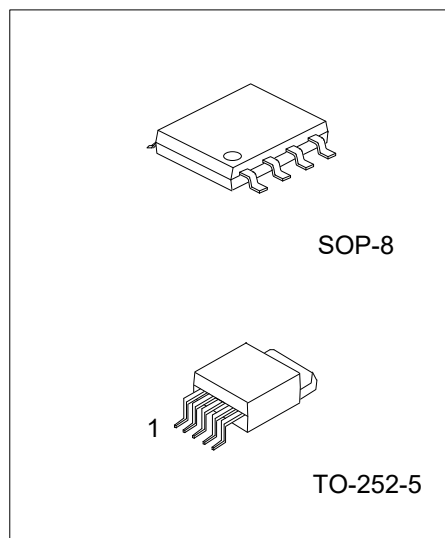
CMOS IC

### 150KHz, 2A PWM BUCK DC/DC CONVERTER

#### DESCRIPTION

The UTC **P3576B** series are monolithic IC designed for a step-down DC/DC converter. The external shutdown function can be controlled by logic level and then come into standby mode. Regarding protected function, thermal shutdown is to prevent over temperature operating from damage, and current limit is against over current operating of the output switch. If current limit function occurs and  $V_{FB}$  is down, the switching frequency will be reduced.

The UTC **P3576B** series operates at a switching frequency of 150KHz thus allow smaller sized filter components than what would be needed with lower frequency switching regulators. The output fixed 5V.



#### FEATURES

- \* Output load current: 2A
- \* Operating voltage can be up to 40V
- \* 150KHz fixed switching frequency.
- \* Low power standby mode
- \* High efficiency
- \* Internal current and thermal limit
- \* ON/OFF shutdown control input.
- \* Short Circuit Protect (SCP).

#### ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
P3576BL-xx-TN5-R	P3576BG-xx-TN5-R	TO-252-5	Tape Reel
P3576BL-xx-S08-x-R	P3576BG-xx-S08-x-R	SOP-8	Tape Reel

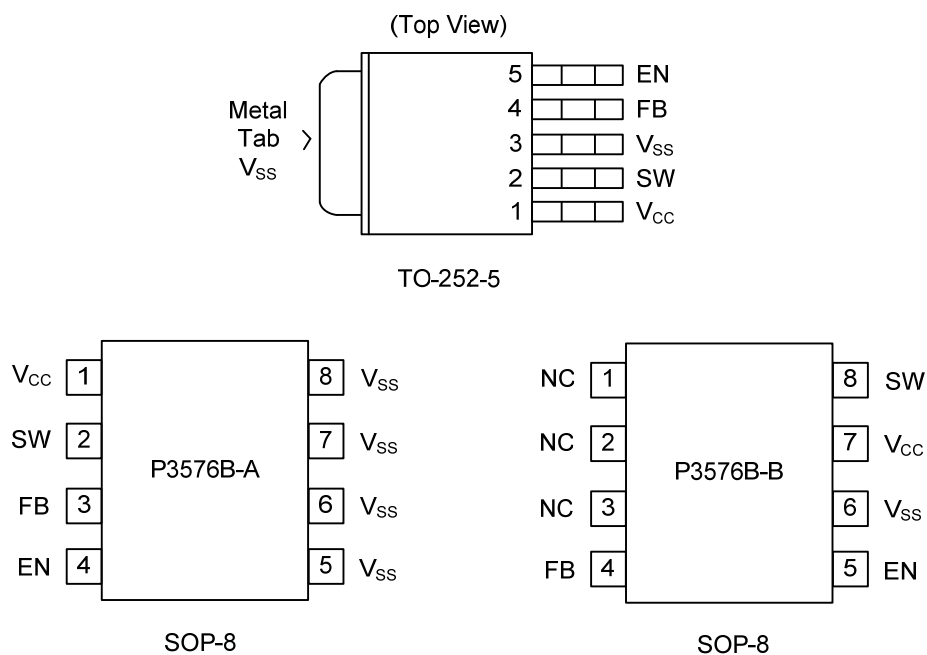
Note: xx: Output Voltage, Refer to Marking Information

<p>P3576BG-xx-S08-x-R</p> <p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Output Voltage Code (5) Green Package</p>		<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) TN5: TO-252-5, S08: SOP-8 (4) xx: 50: 5.0V (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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## MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-252-5	50 : 5.0V	<p>UTC P3576B XX Voltage Code 1 2 3 4 5</p> <p>L: Lead Free G: Halogen Free Date Code Lot Code</p>
SOP-8		<p>UTC P3576B XX Pin Code Voltage Code 1 2 3 4</p> <p>Date Code L: Lead Free G: Halogen Free Lot Code</p>

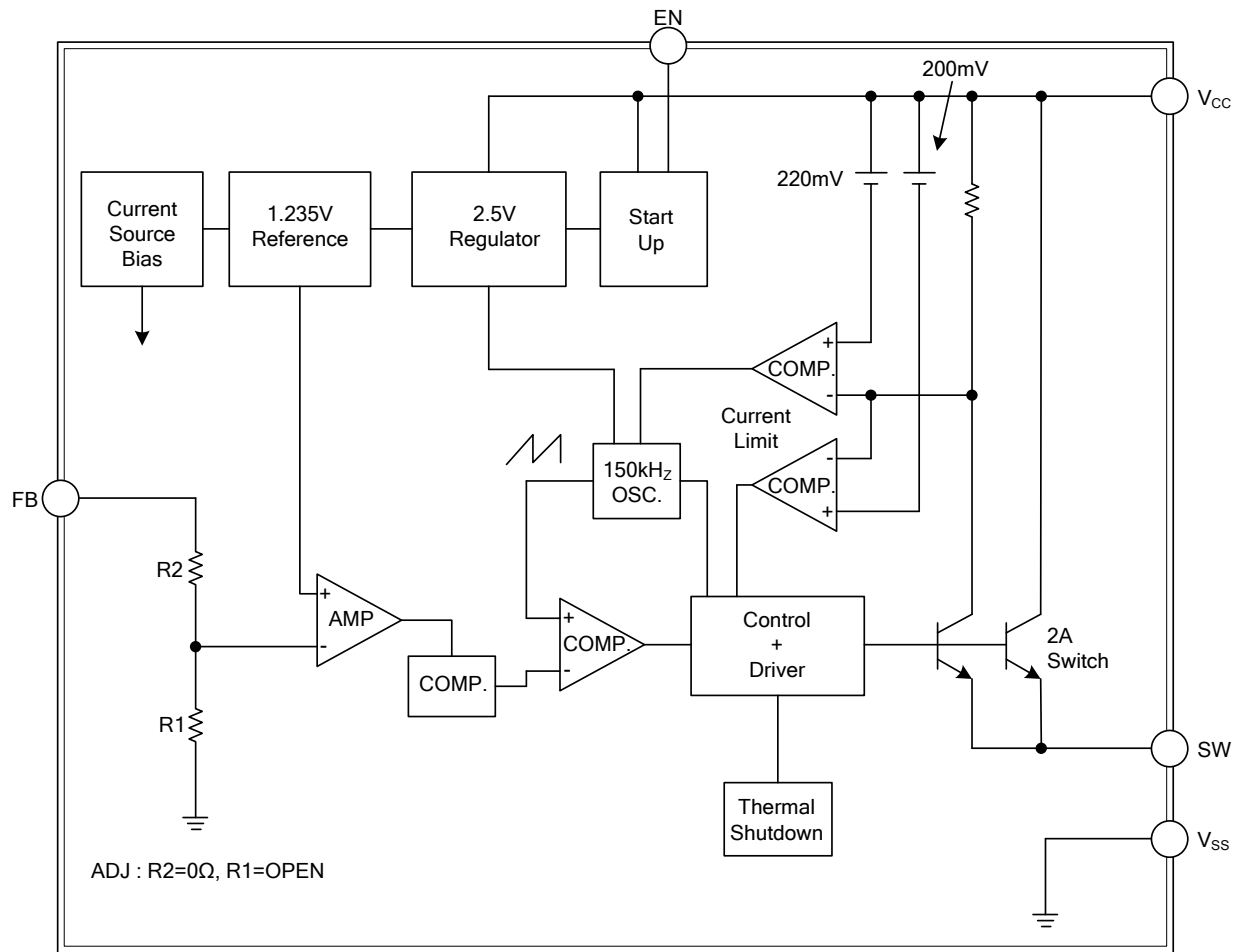
## PIN CONFIGURATION



## PIN DESCRIPTION

TO-252-5	PIN NO.		PIN NAME	DESCRIPTION
	SOP-8 P3576B-A	SOP-8 P3576B-B		
1	1	7	V <sub>CC</sub>	Operating voltage input
2	2	8	SW	Switching output
3	5, 6, 7, 8	7	V <sub>SS</sub>	GND pin
4	3	4	FB	Output voltage feedback control
5	4	5	EN	ON/OFF Shutdown
	-	1, 2, 3	NC	No Connection

## ■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C, unless otherwise specified )

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V <sub>CC</sub>	+45	V
ON/OFF Pin Input Voltage		V <sub>EN</sub>	40	V
Feedback Pin Voltage		V <sub>FB</sub>	12	V
Output Voltage to Ground		V <sub>OUT</sub>	-0.8	V
Operating Supply Voltage		V <sub>OP</sub>	+4.5 ~ +40	V
Power Dissipation	TO-252-5	P <sub>D</sub>	Internally limited	W
	SOP-8		800	mW
Junction Temperature		T <sub>J</sub>	+125	°C
Operating Temperature		T <sub>OPR</sub>	-40 ~ +125	°C
Storage Temperature		T <sub>STG</sub>	-65 ~ +150	°C

Note: 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.

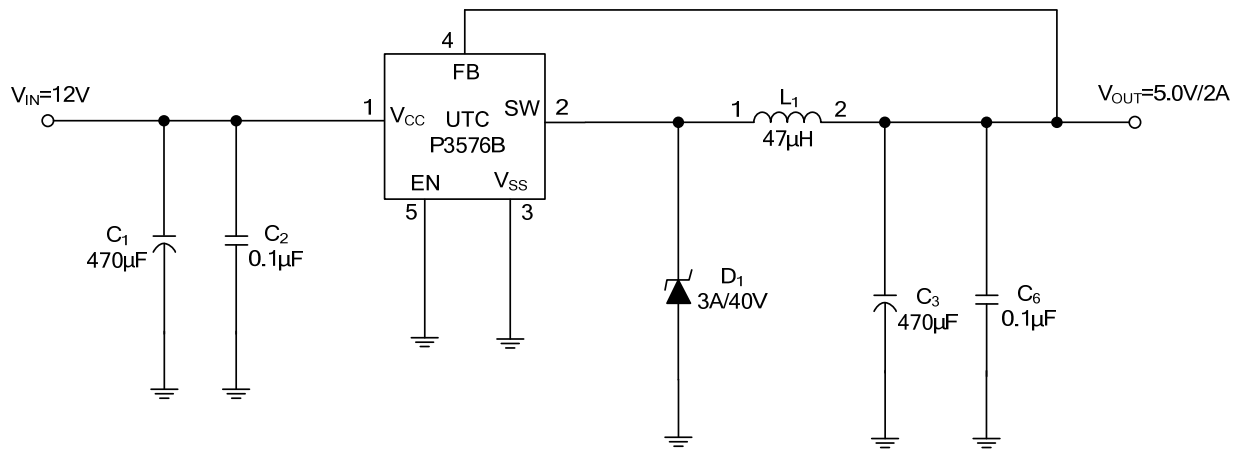
■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-252-5	θ <sub>JA</sub>	112	°C/W
	SOP-8		160	°C/W

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current		I <sub>Q</sub>	V <sub>FB</sub> =12V force driver off		4	8	mA
Shutdown Supply Current		I <sub>SD</sub>	EN pin=5V, V <sub>CC</sub> =40V		70	200	μA
Oscillator Frequency		f <sub>OSC</sub>		125	150	175	KHz
Oscillator Frequency of Short Circuit Protect		f <sub>SCP</sub>	V <sub>OUT</sub> < V <sub>OUT</sub> ×40%		30		KHz
Duty Cycle	MAX	DC	V <sub>FB</sub> =0V force driver ON		100		%
	MIN		V <sub>FB</sub> =12V force driver OFF		0		%
Current Limit		I <sub>CL</sub>	Pear current, No outside circuit V <sub>FB</sub> =0V force driver on	2.5			A
SW pin Leakage Current	SW Pin=0V	I <sub>SWL</sub>	No outside circuit V <sub>FB</sub> =12V force driver off			-200	μA
EN pin Logic Input	Low	V <sub>IL</sub>	regulator ON		1.3	0.6	V
Threshold Voltage	High	V <sub>IH</sub>	regulator OFF	2.0	1.3		V
EN pin Logic Input Current		I <sub>H</sub>	V <sub>EN</sub> =2.5V (OFF)		-0.1	-10	μA
EN pin Input Current		I <sub>L</sub>	V <sub>EN</sub> =0.5V (ON)		-0.01	-1.5	μA
Thermal shutdown Temp		TSD			135		°C

■ TYPICAL APPLICATION CIRCUIT



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