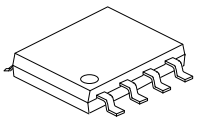
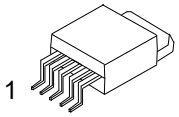
150KHz, 2A PWM BUCK DC/DC CONVERTER



SOP-8



TO-252-5

■ 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

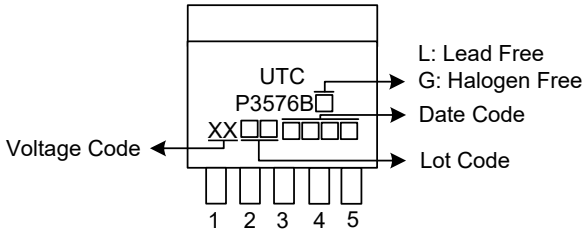
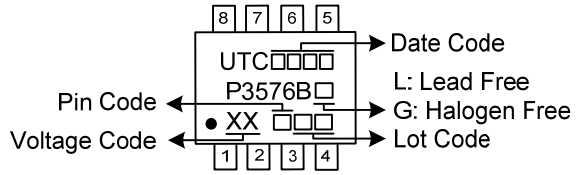
Ordering Number		Package	Packing
Lead Free	Halogen Free		
P3576BL-xx-TN5-R	P3576BG-xx-TN5-R	TO-252-5	Tape Reel
P3576BL-xx-S08-x-R	P3576BG-xx-S08-x-R	SOP-8	Tape Reel

Note: xx: Output Voltage, Refer to Marking Information

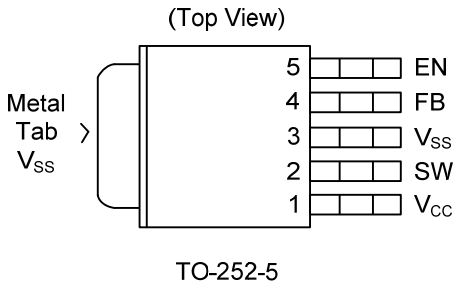
P3576BG-xx-S08-x-R

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

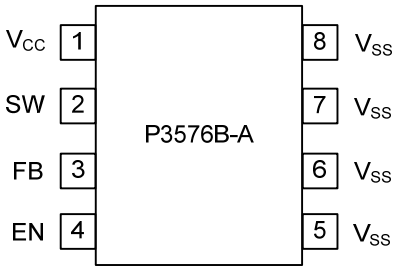
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-252-5	50 : 5.0V	
SOP-8		

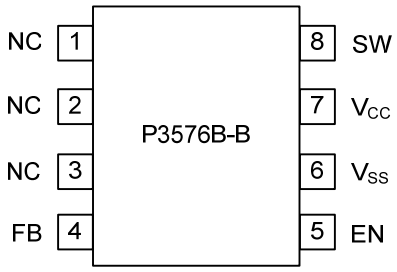
■ PIN CONFIGURATION



TO-252-5



SOP-8

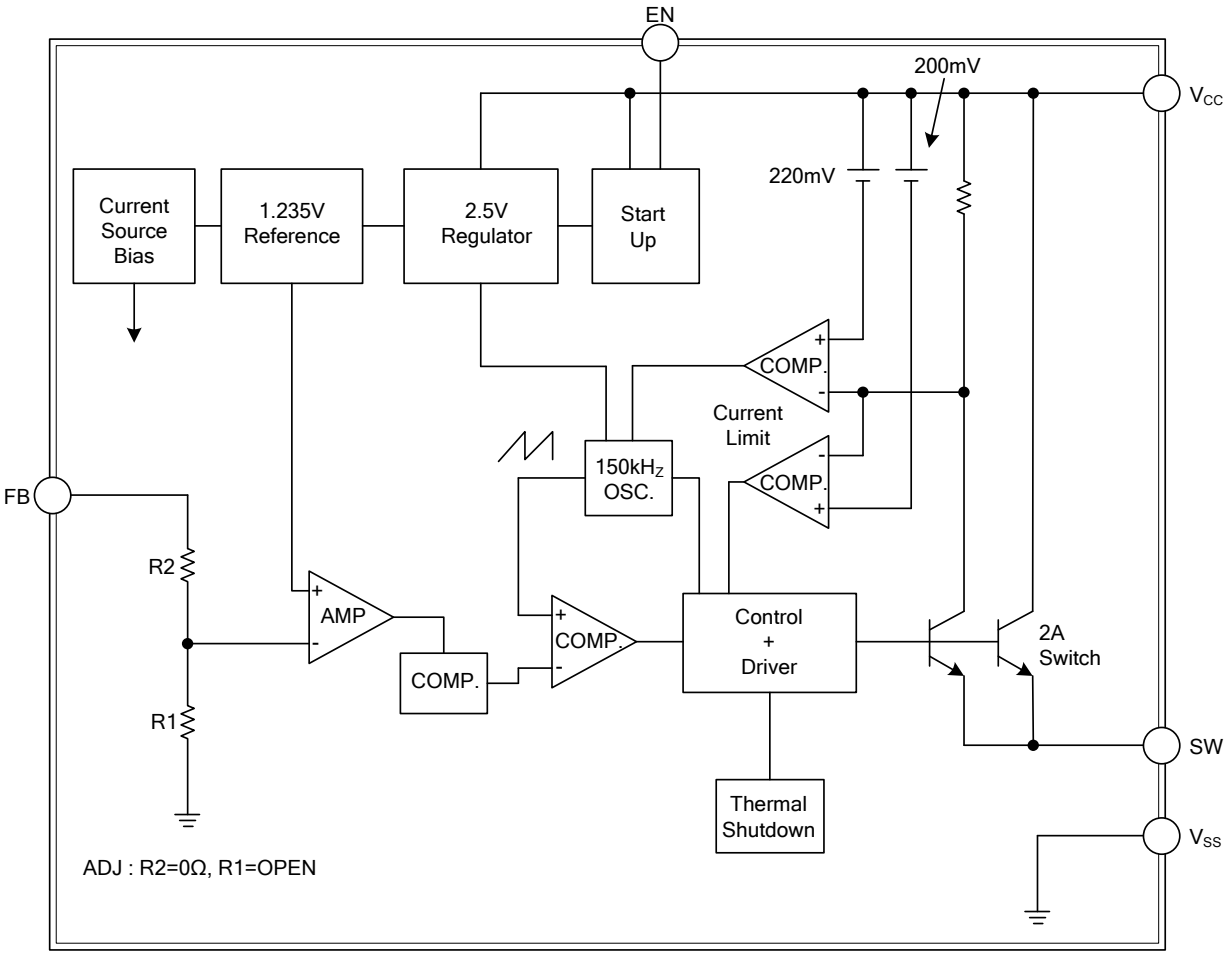


SOP-8

■ PIN DESCRIPTION

PIN NO.			PIN NAME	DESCRIPTION
TO-252-5	SOP-8 P3576B-A	SOP-8 P3576B-B		
1	1	7	V_{CC}	Operating voltage input
2	2	8	SW	Switching output
3	5, 6, 7, 8	7	V_{SS}	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_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	+45	V
ON/OFF Pin Input Voltage		V_{EN}	40	V
Feedback Pin Voltage		V_{FB}	12	V
Output Voltage to Ground		V_{OUT}	-0.8	V
Operating Supply Voltage		V_{OP}	+4.5 ~ +40	V
Power Dissipation	TO-252-5	P_D	Internally limited	W
	SOP-8		800	mW
Junction Temperature		T_J	+125	°C
Operating Temperature		T_{OPR}	-40 ~ +125	°C
Storage Temperature		T_{STG}	-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_{JA}	112	°C/W
	SOP-8		160	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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

■ TYPICAL APPLICATION CIRCUIT