



P3576B

Preliminary

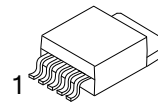
CMOS IC

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.



TO-252-5

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).

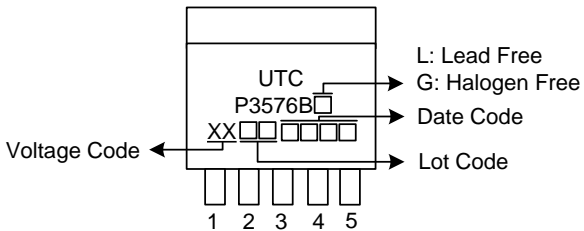
ORDERING INFORMATION

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

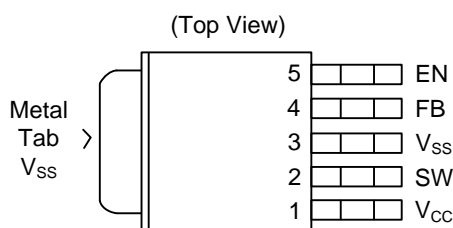
Note: xx: Output Voltage, Refer to Marking Information

P3576BG-xx-TN5-R	
(1) Packing Type	(1) R: Tape Reel
(2) Package Type	(2) TN5: TO-252-5
(3) Output Voltage Code	(3) xx: refer to Marking information
(4) Green Package	(4) G: Halogen Free and Lead Free, L: Lead Free

MARKING INFORMATION

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

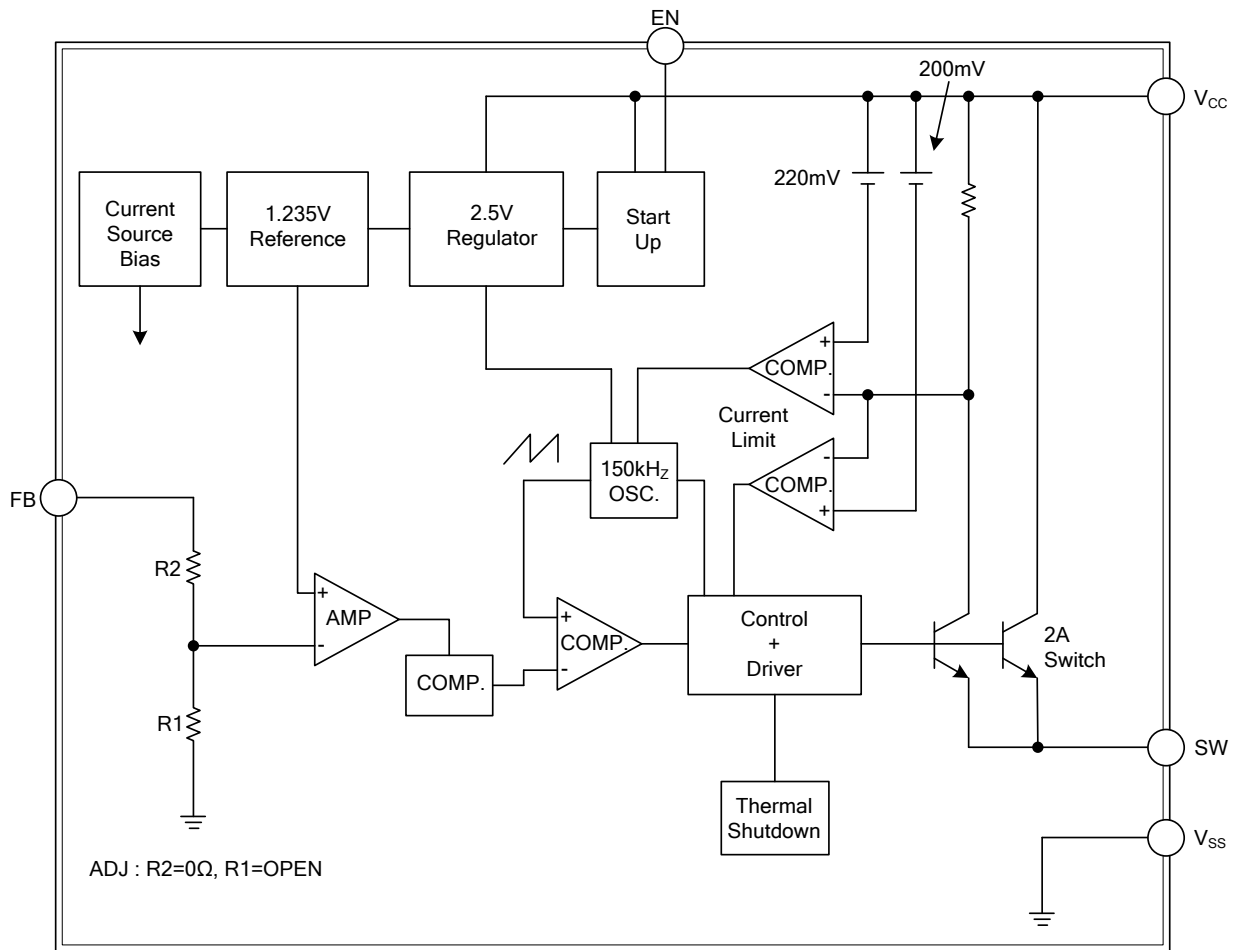
PIN CONFIGURATION



PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{CC}	Operating voltage input
2	SW	Switching output
3	V _{SS}	GND pin
4	FB	Output voltage feedback control
5	EN	ON/OFF Shutdown

■ BLOCK DIAGRAM



■ **ABSOLUTE MAXIMUM RATING** ($T_A=25^{\circ}\text{C}$, 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	P_D	Internally Limited	W
Junction Temperature	T_J	+125	$^{\circ}\text{C}$
Operating Temperature	T_{OPR}	-40 ~ +125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-65 ~ +150	$^{\circ}\text{C}$

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.

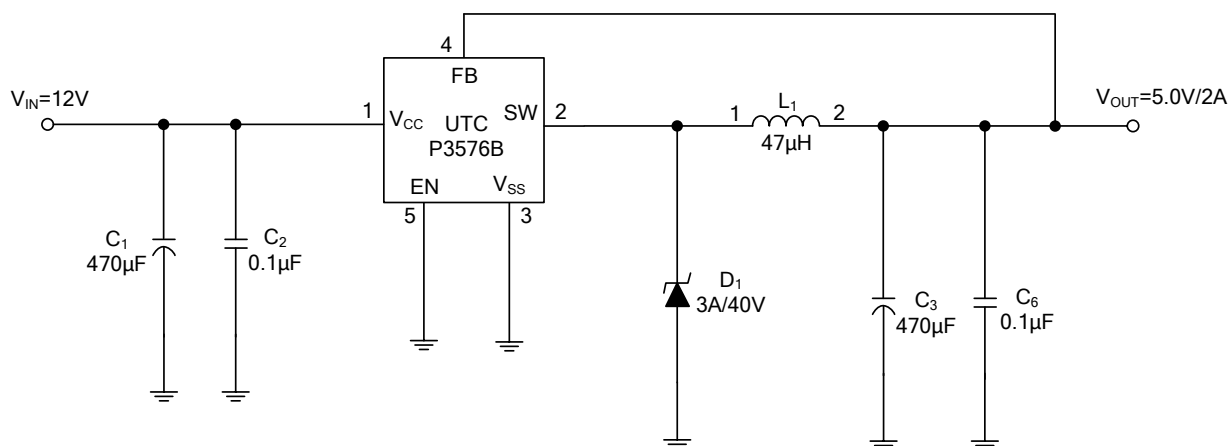
■ **THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	112	$^{\circ}\text{C/W}$

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

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

■ TYPICAL APPLICATION CIRCUIT



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