



## P34563

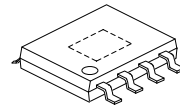
## LINEAR INTEGRATED CIRCUIT

### PWM CONTROL 3A STEP-DOWN CONVERTER

#### DESCRIPTION

The UTC **P34563** consists of step-down switching regulator with PWM control.

The UTC **P34563** provides low-ripple power, high efficiency, and excellent transient characteristics. The PWM control circuit is able to the duty ratio linearly forms 0 up to 100%. With the addition of an internal P-channel Power MOS, and a diode connected externally, these ICs can function as step-down switching regulators. They serve as ideal power supply units for portable devices when coupled with the HSOP-8 package, providing such outstanding features as low current consumption. Since this converter can accommodate an input voltage up to 40V.



HSOP-8

#### FEATURES

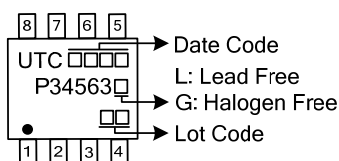
- \* Input voltage: 8V~40V
- \* Oscillation frequency: 100KHz
- \* Duty ratio: 0%~100% PWM control
- \* Adjustable version output voltage range from  $V_{FB}$  to 38V
- \* Enable and auto restart function.
- \* Short Circuit Protect (SCP).
- \* Thermal Shutdown function / Internal OVP.
- \* Built-in internal SW P-channel MOS.

#### ORDERING INFORMATION

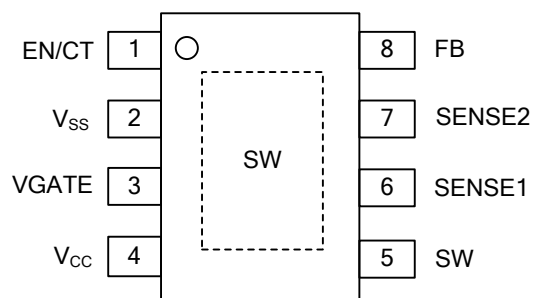
Ordering Number		Package	Packing
Lead Free	Halogen Free		
P34563L-SH2-R	P34563G-SH2-R	HSOP-8	Tape Reel

<p>P34563G-SH2-R</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) R: Tape Reel</li><li>(2) SH2: HSOP-8</li><li>(3) G: Halogen Free and Lead Free</li></ul>
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#### MARKING



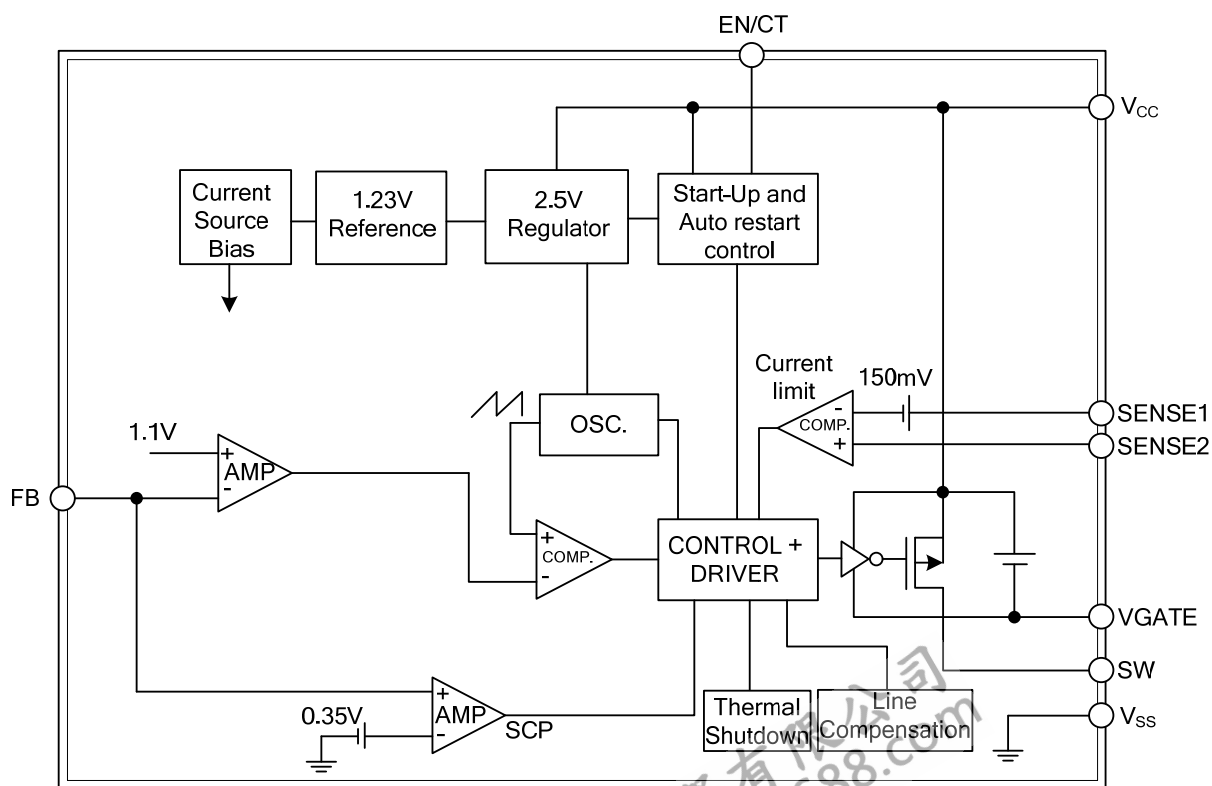
## PIN CONFIGURATION



## PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	EN/CT	ON/OFF and auto restart control
2	V <sub>SS</sub>	GND pin
3	VGATE	Driver gate clamping pin.
4	V <sub>CC</sub>	Operating voltage input
5	SW	Switch pin.
6	SENSE1	Current sense input1
7	SENSE2	Current sense input2
8	FB	Feedback pin

## BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	RATINGS	UNIT
VCC Pin Voltage	$V_{CC}$	40	V
EN/CT Voltage		6	V
SENSE1, SENSE2 Pin Voltage		38	V
Switch Pin Voltage	$V_{SW}$	$V_{CC}$	V
Power Dissipation	$P_D$	$(T_J - T_A) / \theta_{JA}$	W
Operating Supply Voltage	$V_{OP}$	+8 ~ +40	V
Output Current	$I_{OUT}$	0 ~ 3	A
Operating Temperature	$T_{OPR}$	-20 ~ +125	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +165	$^{\circ}\text{C}$

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 CHARACTERISTICS

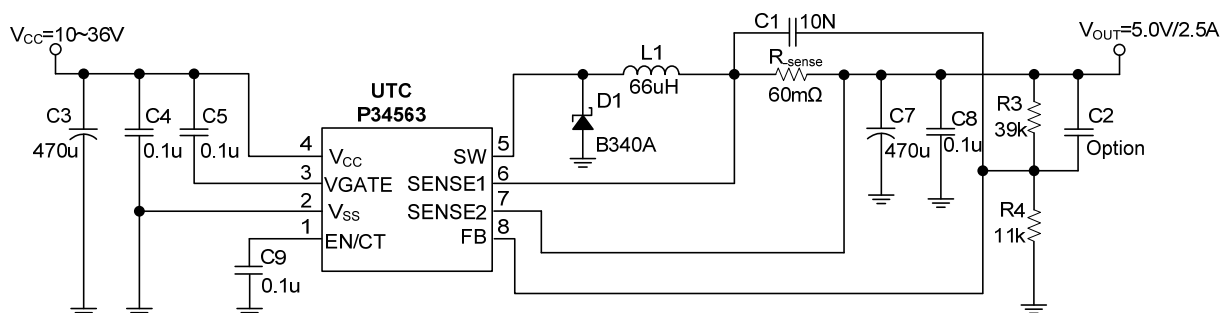
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	143	$^{\circ}\text{C/W}$
Junction to Case	$\theta_{JC}$	15	$^{\circ}\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
FB	$V_{FB}$	$I_{OUT}=10\text{mA}$	1.08	1.10	1.12	V
Under Voltage Lockout	$U_{VLO}$	Falling		6		V
UVLO Hysteresis				0.8		V
Line Regulation	$\Delta V_{OUT}$	$V_{CC}=10\sim 40\text{V}$		0.5	1	%
Load Regulation	$\Delta V_{OUT}$	$I_{OUT}=0\sim 1\text{A}$ , $R_{SENSE}=140\text{m}\Omega$		10		mV
Quiescent Current	$I_{CCQ}$	$V_{FB}>1.2\text{V}$		3	7	mA
Oscillator Frequency	$F_{OSC}$		80	100	120	KHz
Max. Duty Cycle (ON)	DC	Force Driver On $V_{FB}=0.7\text{V}$		100		%
Min. Duty Cycle (OFF)		Force Driver Off $V_{FB}=1.2\text{V}$		0		%
Internal MOSFET $R_{DS(ON)}$	$R_{DS(ON)}$	$V_{CC}=12\text{V}$ , $V_{FB}=0.7\text{V}$		110	170	$\text{m}\Omega$
Sense Voltage	$V_{SENSE}$	$V_{SENSE1}-V_{SENSE2}$	135	150	165	mV
EN/CT Pin Logic Input Threshold Voltage	$V_{EN}$	Shutdown Mode			0.3	V
	$V_{CT}$	Auto Restart, $V_{FB}<0.4\text{V}$	0.5		1.5	V
EN/CT Pin Current	$I_{EN/CT-C}$	Charge Current		-32		$\mu\text{A}$
EN/CT Pin Current	$I_{EN/CT-D}$	Discharge Current		1.5		$\mu\text{A}$
Thermal Shutdown Temp	$T_{SD}$			160		$^{\circ}\text{C}$
Thermal Shutdown Hysteresis	$T_{SH}$			40		$^{\circ}\text{C}$

# ■ TYPICAL APPLICATION CIRCUIT

## AL CAPACITOR



$$\text{Current Limit (A)} = \frac{150\text{mV}}{R_{\text{sense}}}$$

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