



## P34563

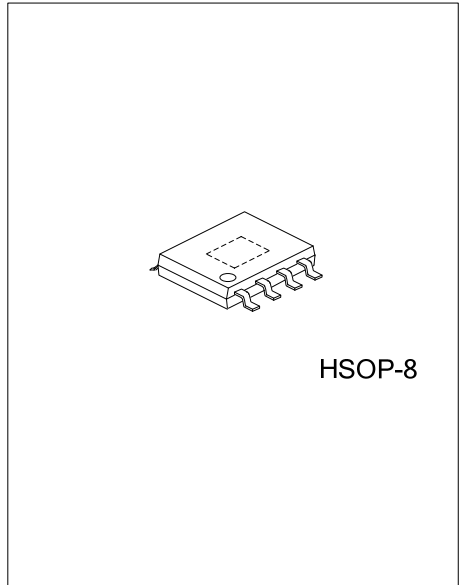
## LINEAR INTEGRATED CIRCUIT

### 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.



#### FEATURES

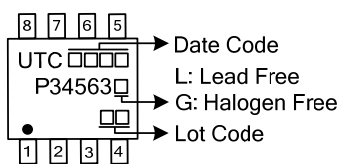
- \* Input voltage: 8V~40V
- \* Oscillation frequency: 100KHz
- \* Duty ratio: 0%~100% PWM control
- \* Adjustable version output voltage range from  $V_{FB}$  to 38V
- \* Enable and auto restart function.
- \* Short Circuit Protect (SCP).
- \* Thermal Shutdown function / Internal OVP.
- \* Built-in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

#### ORDERING INFORMATION

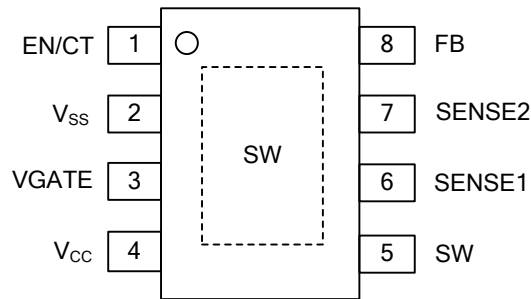
Ordering Number		Package	Packing
Lead Free	Halogen Free		
P34563L-SH2-R	P34563G-SH2-R	HSOP-8	Tape Reel

<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



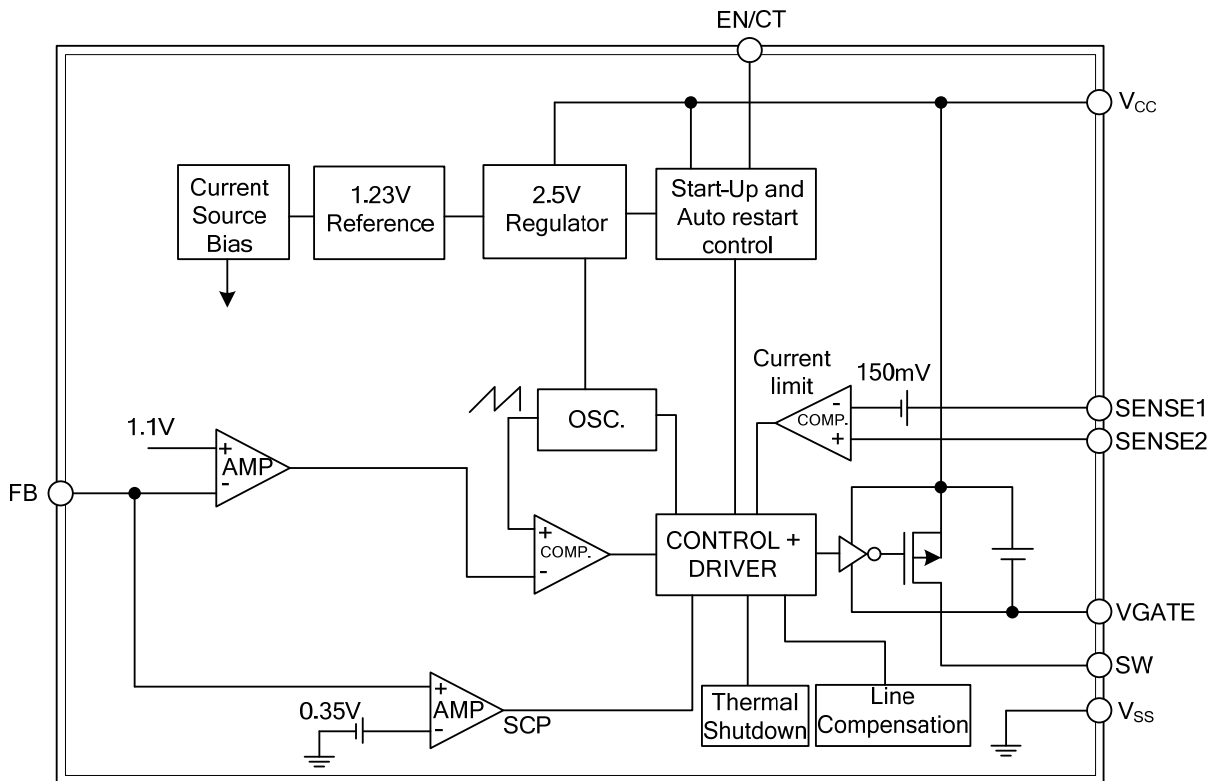
## PIN CONFIGURATION



## 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<sub>A</sub>=25°C, unless otherwise specified.)

PARAMETER	SYMBOL	RATINGS	UNIT
VCC Pin Voltage	V <sub>CC</sub>	40	V
EN/CT Voltage		6	V
SENSE1, SENSE2 Pin Voltage		38	V
Switch Pin Voltage	V <sub>SW</sub>	V <sub>CC</sub>	V
Power Dissipation	P <sub>D</sub>	(T <sub>J</sub> -T <sub>A</sub> )/θ <sub>JA</sub>	W
Operating Supply Voltage	V <sub>OP</sub>	+8 ~ +40	V
Output Current	I <sub>OUT</sub>	0 ~ 3	A
Operating Temperature	T <sub>OPR</sub>	-20 ~ +125	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +165	°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

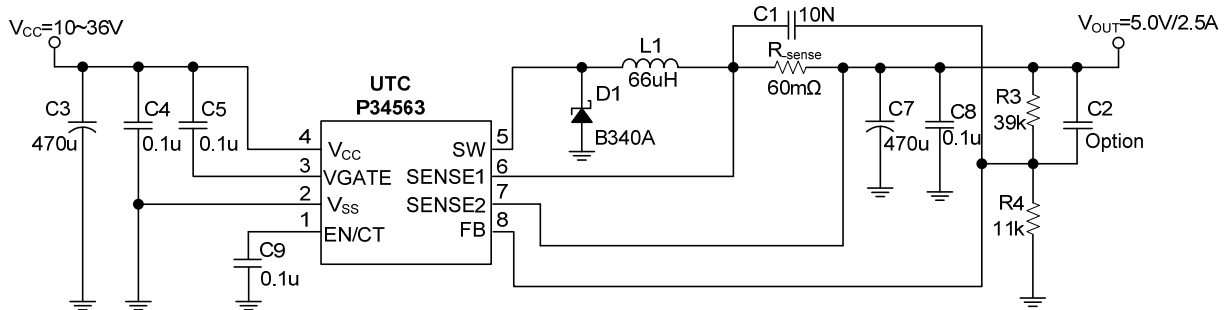
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	143	°C/W
Junction to Case	θ <sub>JC</sub>	15	°C/W

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
FB	V <sub>FB</sub>	I <sub>OUT</sub> =10mA	1.08	1.10	1.12	V
Under Voltage Lockout	U <sub>VLO</sub>	Falling		6		V
UVLO Hysteresis				0.8		V
Line Regulation	ΔV <sub>OUT</sub>	V <sub>CC</sub> =10~40V		0.5	1	%
Load Regulation	ΔV <sub>OUT</sub>	I <sub>OUT</sub> =0~1A, R <sub>SENSE</sub> =140mΩ		10		mV
Quiescent Current	I <sub>CCQ</sub>	V <sub>FB</sub> >1.2V		3	7	mA
Oscillator Frequency	F <sub>OSC</sub>		80	100	120	KHz
Max. Duty Cycle (ON)	DC	Force Driver On V <sub>FB</sub> =0.7V		100		%
Min. Duty Cycle (OFF)		Force Driver Off V <sub>FB</sub> =1.2V		0		%
Internal MOSFET R <sub>DS(ON)</sub>	R <sub>DS(ON)</sub>	V <sub>CC</sub> =12V, V <sub>FB</sub> = 0.7V		110	170	mΩ
Sense Voltage	V <sub>SENSE</sub>	V <sub>SENSE1</sub> -V <sub>SENSE2</sub>	135	150	165	mV
EN/CT Pin Logic Input Threshold Voltage	V <sub>EN</sub>	Shutdown Mode			0.3	V
	V <sub>CT</sub>	Auto Restart, V <sub>FB</sub> <0.4V	0.5		1.5	V
EN/CT Pin Current	I <sub>EN/CT-C</sub>	Charge Current		-32		μA
EN/CT Pin Current	I <sub>EN/CT-D</sub>	Discharge Current		1.5		μA
Thermal Shutdown Temp	T <sub>SD</sub>			160		°C
Thermal Shutdown Hysteresis	T <sub>SH</sub>			40		°C

## ■ TYPICAL APPLICATION CIRCUIT

### AL CAPACITOR



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

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