



ULTRA-LOW-NOISE, HIGH-SPEED, LOW-DROPOUT, 300mA LINEAR REGULATOR

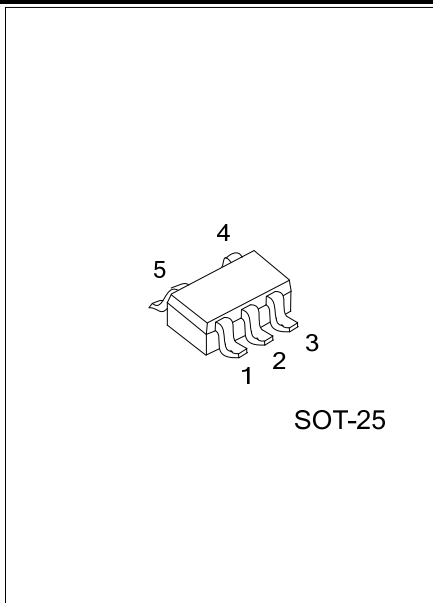
DESCRIPTION

As a low dropout linear regulator, the UTC **L1127** only needs low input voltage (2.5~6V), and can deliver current to 300mA for setting the output voltage.

The UTC **L1127** is ideal for being used in such battery-powered equipments notebook, personal computer and mother board. Its typical dropout voltage is 200mV at loading current 300mA.

L1127 has 1.0V, 1.2V, 1.5V, 1.8V, 2.5V, 3.0V, 3.3V, 4.2V, 4.75V, 5.2V fixed voltage versions and 0.8V to 5.5V adjustable voltage versions.

To protect itself against current over-loads and over temperature, the **L1127** has short current limit and thermal shutdown functions.



FEATURES

- * Operating Voltage: 2.5V~6V
- * Low Voltage Dropout
- * Output Current Guaranteed 300mA
- * For Setting Output Voltage Two Modes
 - Fixed mode : 1.0V, 1.2V, 1.5V, 1.8V, 2.5V, 3.0V, 3.3V, 4.2V, 4.75V, 5.2V
 - ADJ mode: Adjustable Output Voltage 0.8V~5.5V
- * Internal Current Limit Protection
- * With Soft-Start
- * Internal Thermal Protection
- * Work Stably with Low ESR Ceramics Capacitor

ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
L1127L-xx-AF5-R	L1127G-xx-AF5-R	SOT-25	Tape Reel

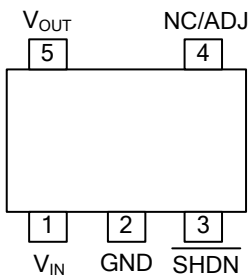
Note: xx: Output Voltage, refer to Marking Information.

<p>L1127L-xx-AF5-R</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Output Voltage Code</p> <p>(4) Lead Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AF5: SOT-25</p> <p>(3) xx: Refer to Marking Information</p> <p>(4) G: Halogen Free, L: Lead Free</p>
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MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-25	45: 4.5V	

PIN CONFIGURATION

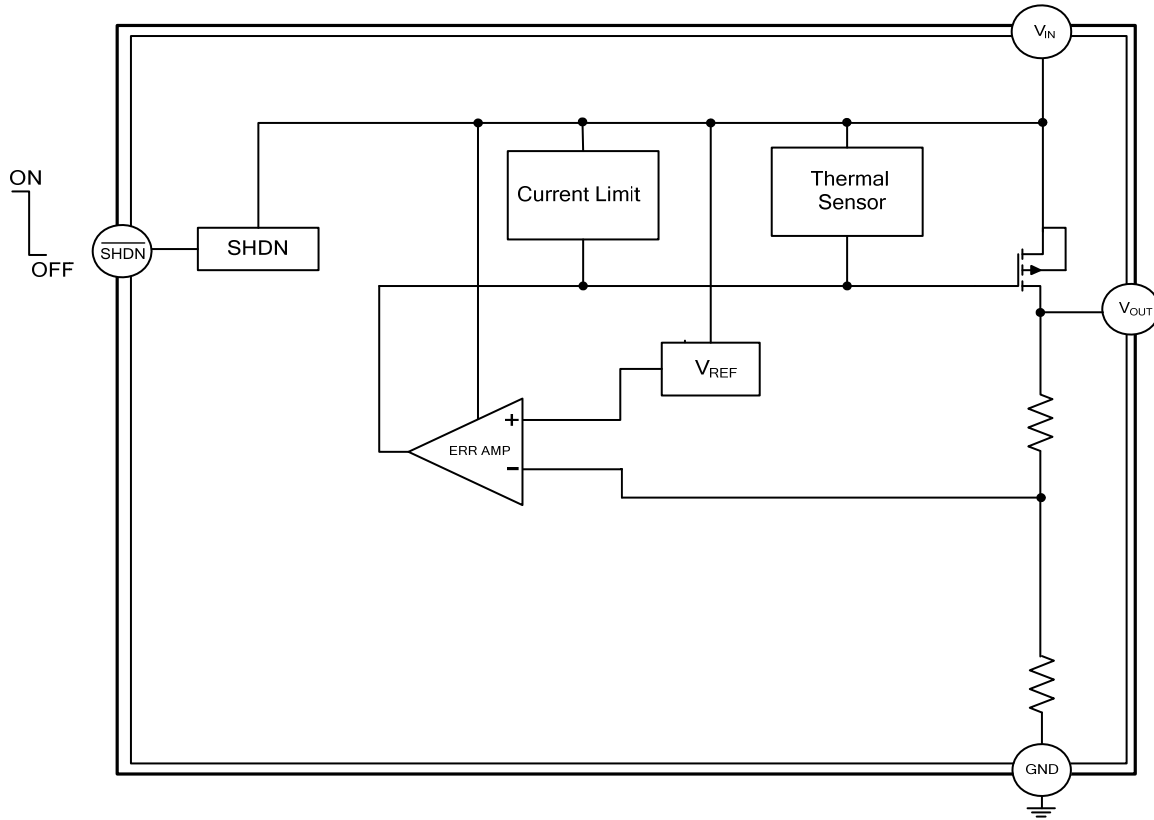


PIN DESCRIPTION

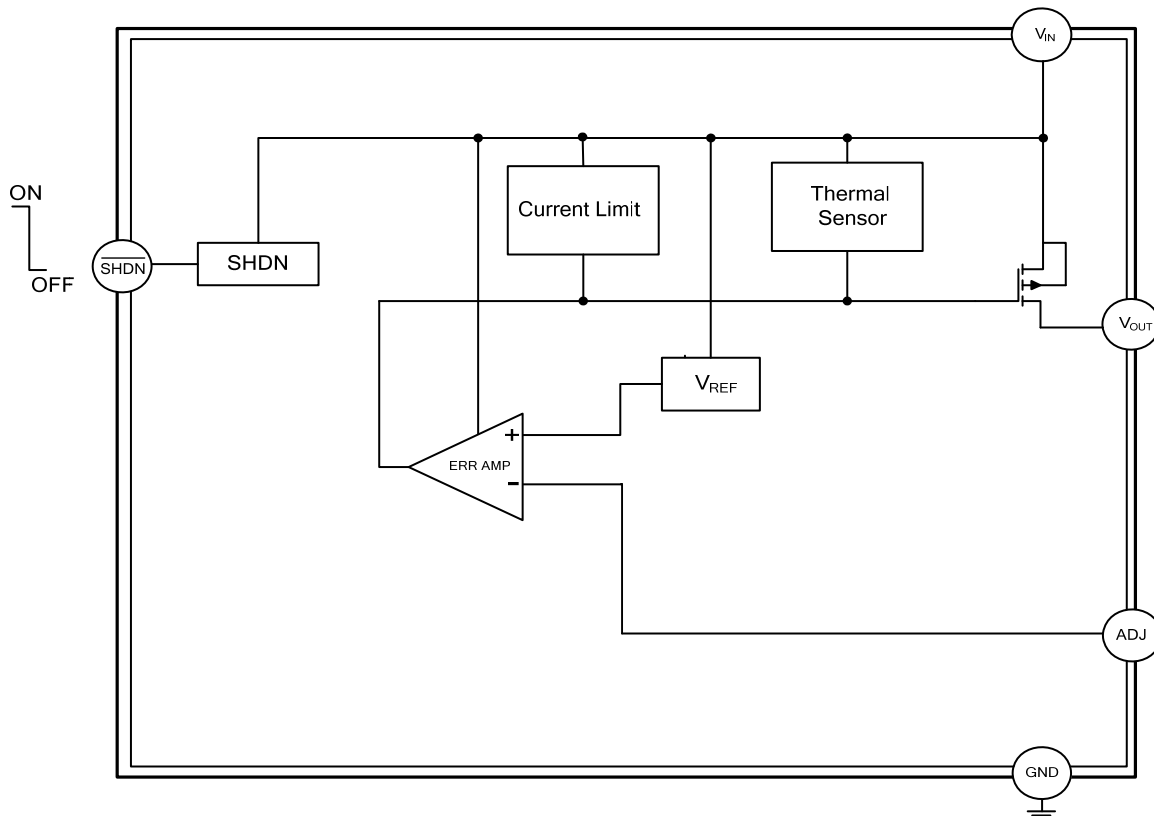
NO.	PIN NAME	I/O	DESCRIPTION
1	V _{IN}	I	Voltage supply
2	GND		Ground
3	SHDN	I	Control pin for shutdown; logic high: enable ;logic low: shutdown
4	NC.		
	ADJ		This pin is connected to an external resistor divider, turns to adjustable output voltage mode operation.
5	V _{OUT}	O	Output pin

■ BLOCK DIAGRAM

For Fixed Output Voltage Mode:



For Adjustable Output Voltage Mode:



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
V _{IN} Supply Voltage (V _{IN} to GND)	V _{IN}	+6.5	V
SHDN Input Voltage (SHDN to GND)	V _{SHDN}	-0.3 ~ +6.5	V
Power Dissipation	P _D	400	mW
Junction Temperature	T _J	+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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
V _{IN} Supply Voltage	V _{IN}	2.5 ~ 6	V
Output Voltage	V _{OUT}	0.8 ~ 5.5	V
V _{OUT} Output Current	I _{OUT}	0 ~ 300	mA
Operating Temperature	T _{OPR}	-40 ~ +85	°C

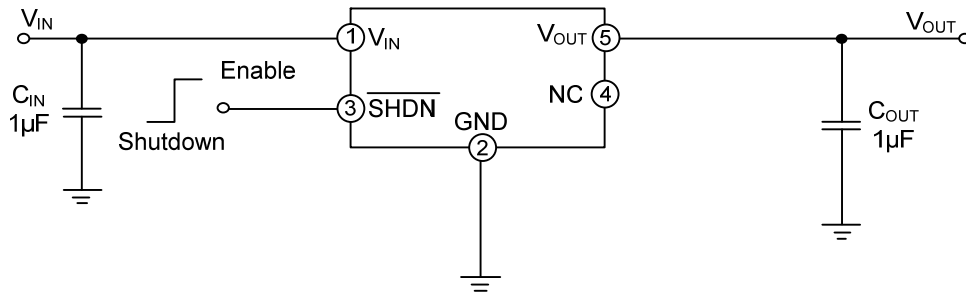
■ ELECTRICAL CHARACTERISTICS

(V_{IN} = V_{OUT}+0.5V (min V_{IN}=2.5V), I_{OUT}=0~300mA, C_{IN} = 1μF, C_{OUT} =1μF, T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage		V _{IN} = V _{OUT} +0.5V, 1mA<I _{OUT} ≤300mA	98% V _{OUT}		102% V _{OUT}	V
Input Voltage	V _{IN}		2.5		6	V
Line Regulation	REG _{LINE}	V _{OUT} +0.5V≤V _{IN} ≤6V, I _{OUT} = 10mA			0.06	%/V
Load Regulation	REG _{LOAD}	V _{IN} = V _{OUT} +0.5V, 1mA<I _{OUT} ≤300mA			0.6	%/A
Reference Voltage	V _{REF}	V _{IN} = V _{OUT} +0.5V, 1mA<I _{OUT} ≤300mA	0.784	0.8	0.816	V
Maximum Output Current	I _{OUT(MAX)}	V _{IN} =V _{OUT} +0.5V, V _{OUT} = 0.98xV _{OUT}	300	400		mA
Quiescent Current	I _Q	I _{OUT} =10mA ~300mA		60	90	μA
Dropout Voltage	V _D	V _{OUT} = 1.0V, I _{OUT} = 300mA		1400	1500	mV
		V _{OUT} = 1.2V, I _{OUT} = 300mA		1200	1300	
		V _{OUT} = 1.5V, I _{OUT} = 300mA		900	1000	
		V _{OUT} = 1.8V, I _{OUT} = 300mA		600	700	
		V _{OUT} =2.5V,2.8V,3.3V,4.2V, I _{OUT} = 300mA		170	300	
		V _{OUT} =4.75V and 5.2V, I _{OUT} =300mA		140	300	
Power Supply Ripple Rejection Ratio	PSRR	f = 10kHz, I _{OUT} = 300mA		45		dB
Short Current Limit	I _{SHORT}	V _{OUT} = 0V		50		mA
Shutdown Threshold	V _{IH}		1.5		6	V
	V _{IL}		0		0.4	V
Shutdown Supply Current	I _{OFF}	SHDN = Low, V _{IN} = V _{OUT} +0.5V		0.1	1	μA
Soft Start Time	T _{SS}			50		μs
RMS Output Noise	V _{NOISE}	T _A =25°C, 10Hz ≤ f ≤100kHz, V _{OUT} = 0.8V		60		μV _{RMS}
V _{OUT} Discharge MOSFET R _{DS(ON)}		SHDN = low		60		Ω
SHDN Pull Down Resistance				3		MΩ
Output Voltage Temperature Coefficient		T _J = -40°C~85°C		±100		ppm/°C
Thermal Shutdown Temperature	T _{SHDN}			165		°C
Thermal Shutdown Hysteresis	DT _{SHDN}			30		°C

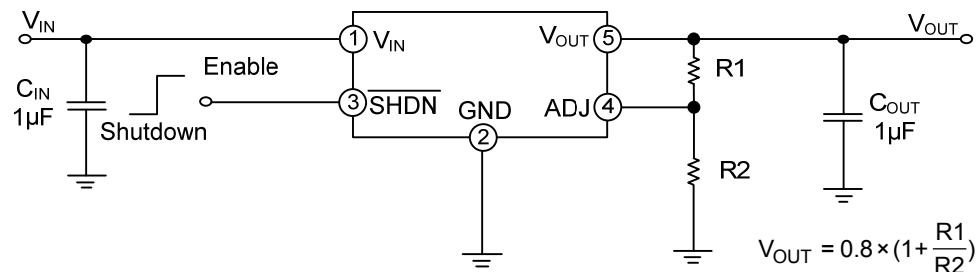
■ TYPICAL APPLICATION CIRCUITS

For Fixed Output Voltage Mode:



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For Adjustable Output Voltage Mode:



$$V_{OUT} = 0.8 \times \left(1 + \frac{R1}{R2}\right)$$

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