



L1127/A/E

Preliminary

CMOS IC

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

DESCRIPTION

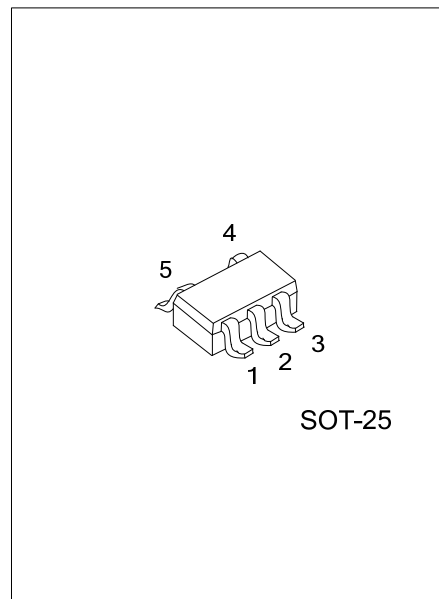
As a low dropout linear regulator, the UTC **L1127/A/E** only needs low input voltage (2.5~6V), and can deliver current to 300mA for setting the output voltage.

The UTC **L1127/A/E** is ideal for being used in such as battery-powered equipments notebook, personal computer and mother board. Its typical dropout voltage is 230mV at loading current 300mA.

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

$\overline{\text{ERROR}}$ Flag (L1127E): $\overline{\text{ERROR}}$ Flag goes low when the output voltage drops 10% below nominal value .

ADJ/SET (L1127A): Connect ADJ/SET to GND for Preset output; Connect an external resistive voltage-divider from OUT to GND to set the out voltage between 0.8V and 5.5V.



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
 - ADJ mode: Adjustable Output Voltage 0.8V~5.5V
- * $\overline{\text{ERROR}}$ Flag Indicates Output Status
- * Internal Current Limit Protection
- * Internal 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
L1127AL-xx-AF5-R	L1127AG-xx-AF5-R		
L1127EL-xx-AF5-R	L1127EG-xx-AF5-R		

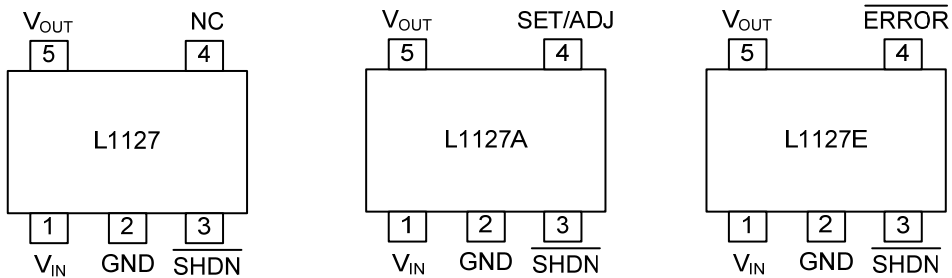
Note: xx: Output Voltage, refer to Marking Information.

<p>L1127AG-xx-AF5-R</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Output Voltage Code (4)Green Package (5)Pin Situation 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AF5: SOT-25 (3) xx: Refer to Marking Information (4) G: Halogen Free and Lead Free, L: Lead Free (4) refer to PIN CONFIGURATION
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MARKING INFORMATION

PACKAGE	MARKING	VOLTAGE CODE
SOT-25 (L1127)	10:1.0V 12:1.2V 15:1.5V 18:1.8V 25:2.5V 30:3.0V 33:3.3V 42:4.2V 4H: 4.75V AD:ADJ	
SOT-25 (L1127A)		
SOT-25 (L1127E)		

PIN CONFIGURATION

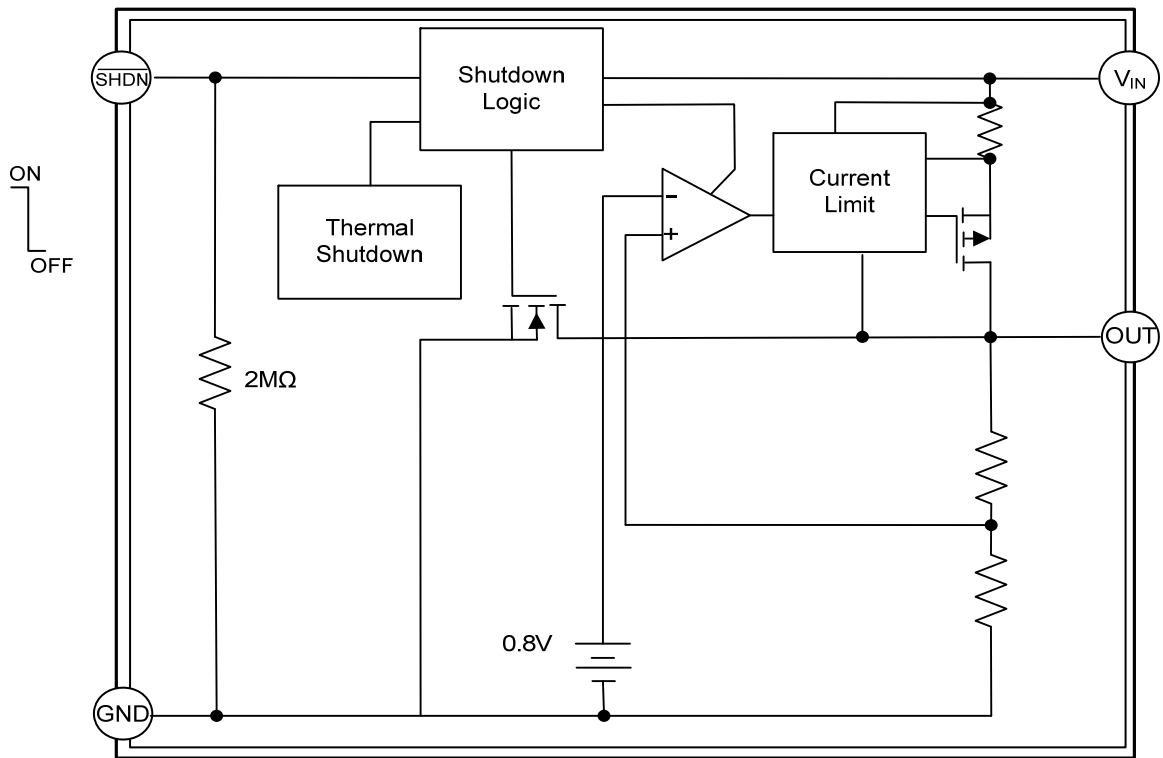


PIN DESCRIPTION

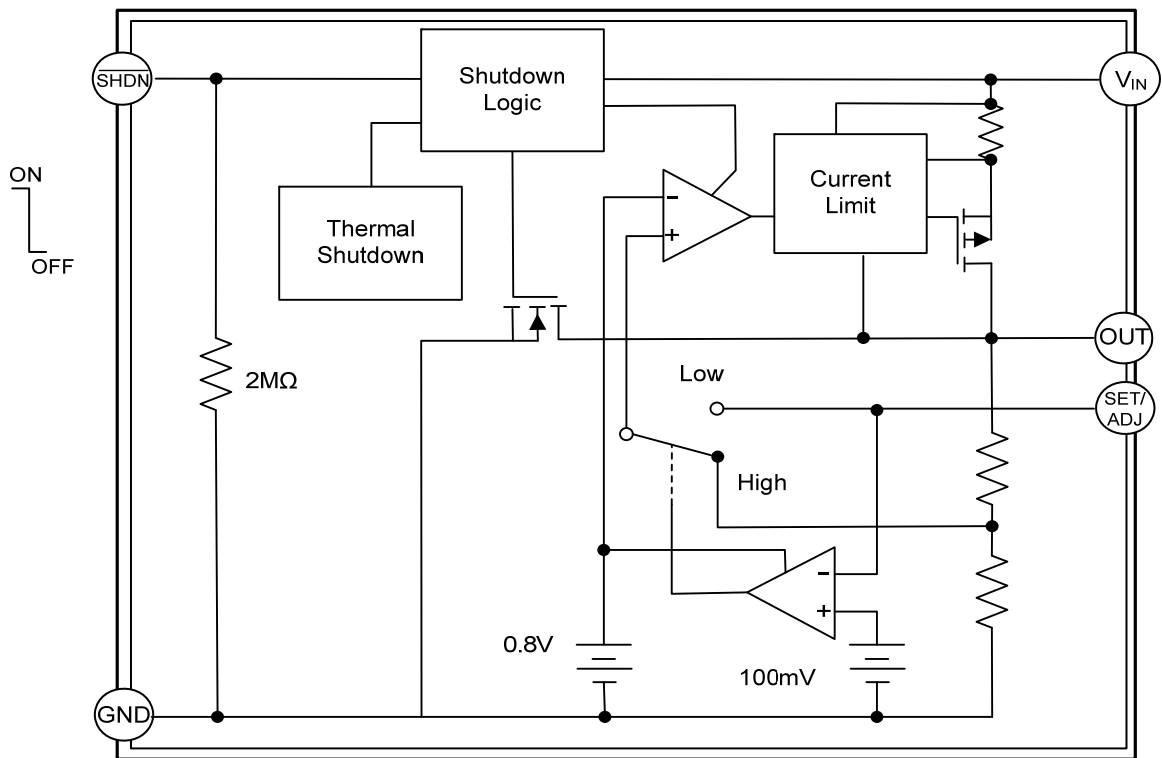
NO.	PIN NAME	I/O	DESCRIPTION
1	V _{IN}	I	Power supply
2	GND		Ground
3	SHDN	I	Active low shutdown input.
4	NC (L1127)	X	None connect
	SET/ADJ (L1127A)	I/O	Connect to an external resistor divider for Adj mode, Connect to GND for Preset V _{OUT} .
	ERROR (L1127E)	O	Opendrain output. Goes low when V _{OUT} drops 10% below nominal value.
5	OUT	O	Regulator output.

■ BLOCK DIAGRAM

For L1127

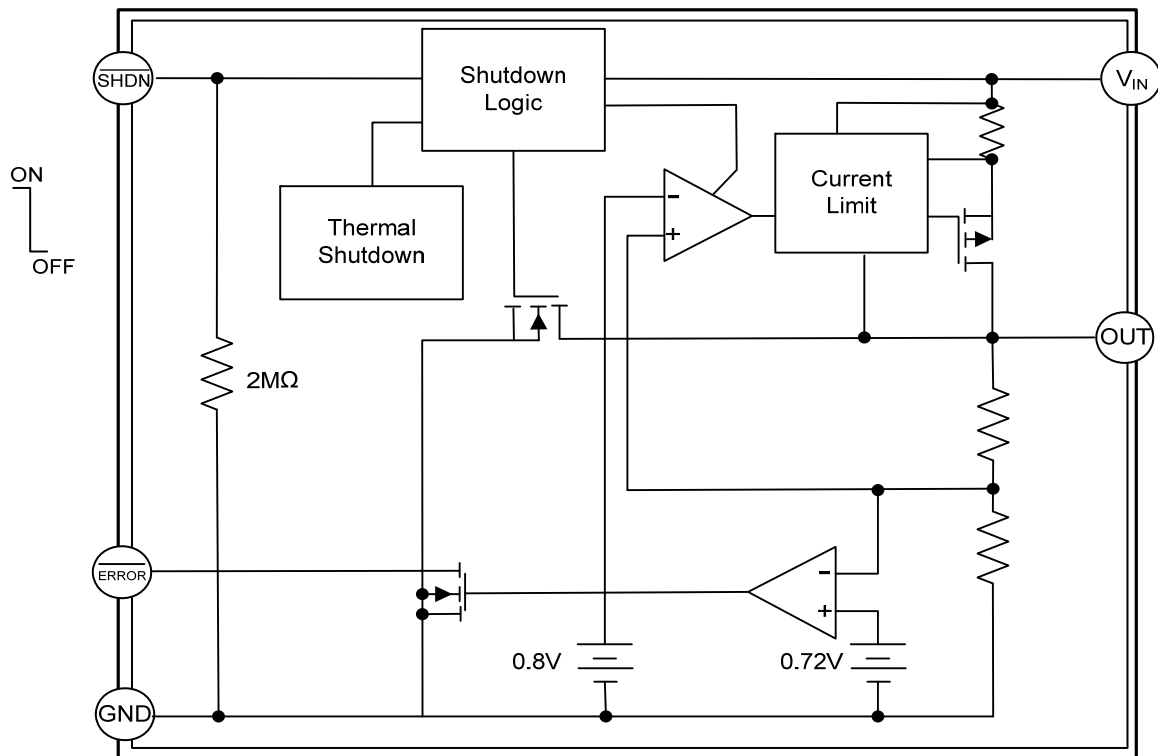


For L1127A



■ BLOCK DIAGRAM (Cont.)

For L1127E



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
V_{IN} , \overline{SHDN} , \overline{ERROR} to GND		-0.3 ~ +6.5	V
ADJ/SET, OUT to GND		-0.3 ~ ($V_{IN}+0.3$)	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

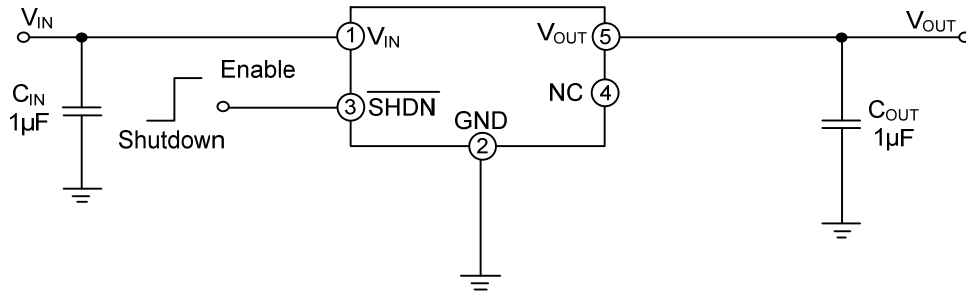
■ ELECTRICAL CHARACTERISTICS

($V_{IN} = V_{OUT}+1V$ (min $V_{IN}=2.5V$), $I_{OUT}=0\sim 300mA$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, $T_A = 25^\circ C$, unless otherwise specified)

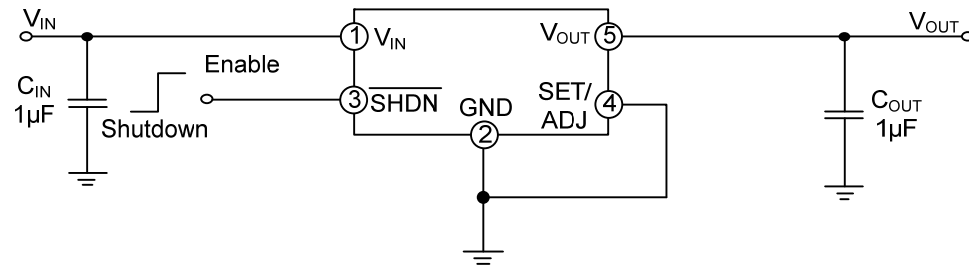
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		2.5		6	V
Output Voltage Accuracy(Preset)	V_{OUT}	$I_{OUT}=1mA\sim 300mA$	-2		+2	%
Maximum Output Current	$I_{OUT\ MAX}$		300			mA
Quiescent Current	I_{GND}	Normal operate, $I_{OUT} = 10mA$		120	200	μA
		Shutdown mode.		0.1	5	
Line Regulation	REG_{LINE}	$V_{OUT}+0.5V \leq V_{IN} \leq 6V$, $I_{OUT} = 10mA$			0.1	%/V
Load Regulation	REG_{LOAD}	$V_{IN} = V_{OUT}+0.5V$, $1mA \leq I_{OUT} \leq 300mA$			0.6	%/A
Dropout Voltage	V_D	$V_{OUT} = 2.5V$, $I_{OUT} = 300mA$		230	360	mV
Soft-Start Time	T_{SS}			50		μs
Thermal Shutdown Temperature	T_{SHDN}			165		°C
Thermal Shutdown Hysteresis	DT_{SHDN}			30		°C
SHUTDOWN INPUT						
Shutdown Threshold	V_{IH}		1.8			V
	V_{IL}				0.4	V
\overline{SHDN} Pull Down Resistance	R_{SHDN}			2		M Ω
ADJ/SET Mode(L1127A)						
ADJ Voltage	V_{ADJ}	$I_{OUT}=1mA\sim 300mA$	0.784	0.8	0.816	V
SET Input Threshold for ADJ/Preset				100		mV
ERROR FLAG COMPARATOR (L1127E)						
Threshold ($V_{OUT}/nominal V_{OUT}$)	V_{THE}			90		%
Output Voltage	V_{OLE}	Sinking 100 μA		0.04	0.1	V
Output High Leakage		$V_{ERROR} = 6V$			1	μA

■ TYPICAL APPLICATION CIRCUITS

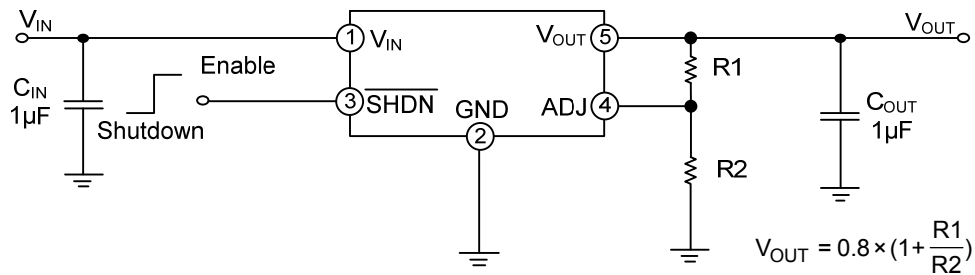
L1127



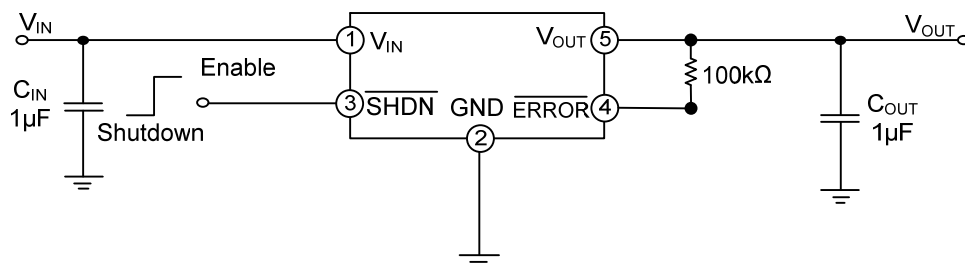
L1127A (For Preset Mode)



L1127A (For ADJ Mode)



L1127E



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