

_1127

UTC UNISONIC TECHNOLOGIES CO., LTD

Preliminary

CMOS IC

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, 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
- 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		Daakaga	Decking		
Lead Free	Halogen Free	Раскауе	Packing		
L1127L-xx-AF5-R	L1127G-xx-AF5-R	SOT-25	Tape Reel		
Note: xx: Output Voltage, refer to Marking Information.					

L1127 <u>L-xx-AF5-R</u>	(1) R: Tape Reel
(2)Package Type	(2) AF5: SOT-25
(3)Output Voltage Code	(3) xx: Refer to Marking Information
(4)Lead Free	(4) G: Halogen Free, L: Lead Free



MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-25	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	5 4 SJXX G: Halogen Free L: Lead Free Voltage Code 1 2 3

■ PIN CONFIGURATION



PIN DESCRIPTION

NO.	PIN NAME	I/O	DESCRIPTION
1	V _{IN}	Ι	Voltage supply
2	GND		Ground
3	SHDN	I	Control pin for shutdown; logic high: enable ;logic low: shutdown
	NC.		
4	ADJ		This pin is connected to an external resistor divider, turns to adjustable output voltage mode operation.
5	V _{OUT}	0	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)		-0.3 ~ +6.5	V
Power Dissipation	P _D	400	mW
Junction Temperature	TJ	+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} = 1 μ F, C_{OUT} =1 μ F, T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Quitaut Voltage		$V_{IN} = V_{OUT} + 0.5V,$	98%x 102%x		V		
Output voltage		1mA <u><</u> I _{OUT} <u><</u> 300mA	V _{OUT}		V _{OUT}	v	
Input Voltage	VIN		2.5		6	V	
Line Regulation	REGLINE	V _{OUT} +0.5V <u><</u> V _{IN} <u><</u> 6V,I _{OUT} = 10mA			0.06	%/V	
Lood Dogulation		$V_{IN} = V_{OUT} + 0.5V,$			0.0	0/ / 4	
	REGLOAD	1mA <u><</u> I _{OUT} <u><</u> 300mA		0.6		%/A	
Deference Voltage	V	$V_{IN} = V_{OUT} + 0.5V,$	0 704	0.8	0.816	V	
Reference Voltage	VREF	1mA <u><</u> I _{OUT} <u><</u> 300mA	0.764				
Maximum Output Current	I _{OUT(MAX)}	V _{IN} =V _{OUT} +0.5V, V _{OUT} = 0.98xV _{OUT}	300	400		mA	
Quiescent Current	lq	I _{OUT} =10mA ~300mA		120	200	μA	
		V _{OUT} = 1.0V, I _{OUT} = 300mA		1400	1500		
		V _{OUT} = 1.2V, I _{OUT} = 300mA		1200	1300		
		V _{OUT} = 1.5V, I _{OUT} = 300mA		900	1000	mV	
Dropout Voltage	VD	V _{OUT} = 1.8V, I _{OUT} = 300mA		600	700		
		V _{OUT} =2.5V,2.8V,3.3V,4.2V,		170	200		
		I _{OUT} = 300mA		170	300		
		V _{OUT} =4.75V, 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	
Chutdour Threehold	VIH		1.5		6	V	
Shuldown Threshold	VIL		0		0.4	V	
Shutdown Supply Current	I _{OFF}	$\overline{\text{SHDN}}$ = Low, V_{IN} = V_{OUT} +0.5V		0.1	1	μA	
Soft Start Time	T _{SS}			50		μs	
PMS Output Noise	V	T _A =25°C, 10Hz ≤ f ≤100kHz,		60			
RMS Output Noise	VNOISE	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		<u>+</u> 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:



For Adjustable Output Voltage Mode:



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