



## UR132

## LINEAR INTEGRATED CIRCUIT

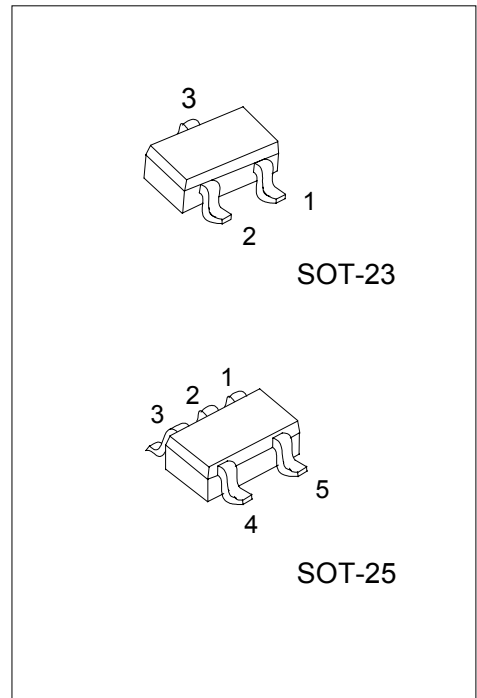
### 200mA LOW DROPOUT LINEAR VOLTAGE REGULATOR

#### DESCRIPTION

The UTC **UR132** is a 200mA fixed output voltage low dropout linear regulator. Wide range of available output voltage fits most of applications. Built-in output current-limiting most thermal-limiting provide maximal protection against any fault conditions.

#### FEATURES

- \* Guaranteed 200mA output current
- \* Input voltage range up to 12V
- \* Extremely tight load regulation
- \* Fast transient response
- \* Current-limiting and thermal-limiting
- \* Three-terminal adjustable or fixed voltage.



\*Pb-free plating product number: UR132L

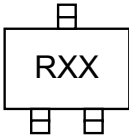
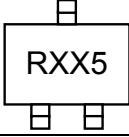
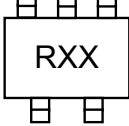
#### ORDERING INFORMATION

Order Number		Package	Pin Assignment.					Packing
Normal	Lead Free Plating		1	2	3	4	5	
UR132-xx-AE3-3-R	UR132L-xx-AE3-3-R	SOT-23	O	G	I	-	-	Tape Reel
UR132-xx-AE3-5-R	UR132L-xx-AE3-5-R	SOT-23	G	O	I	-	-	Tape Reel
UR132-xx-AF5-C-R	UR132L-xx-AF5-C-R	SOT-25	I	G	N	N	O	Tape Reel

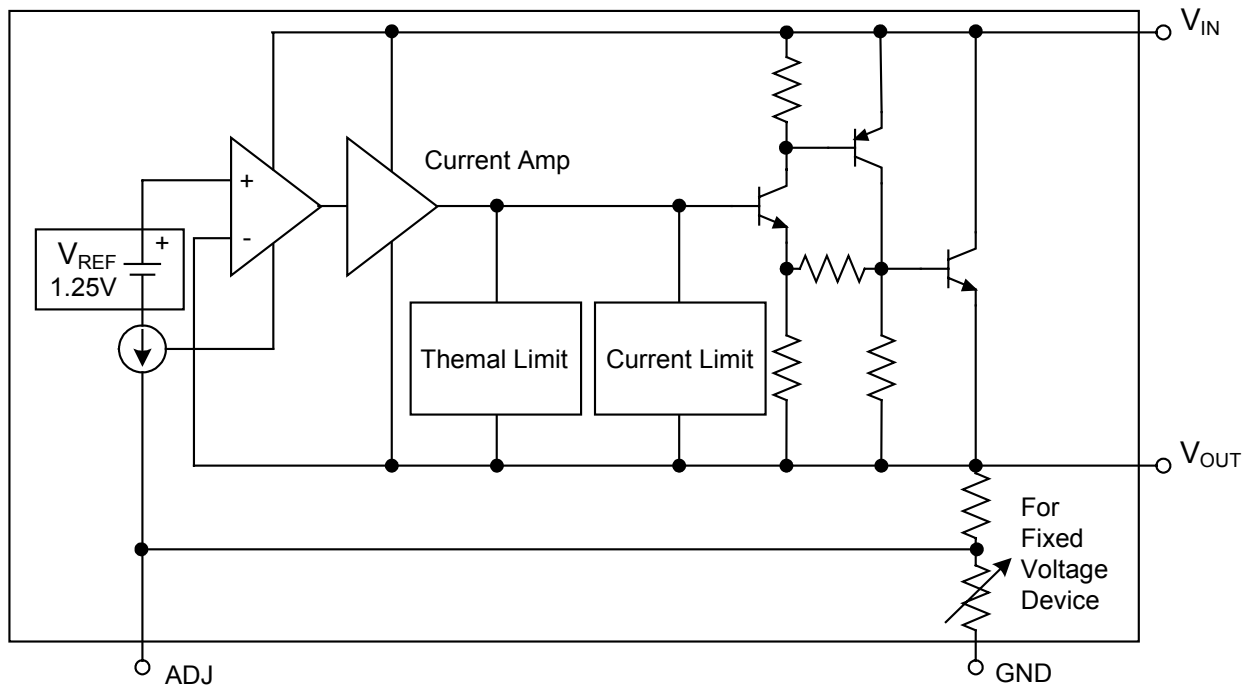
Note: Pin assignment: I:V<sub>IN</sub> O:V<sub>OUT</sub> G:GND N: No Connection  
xx: output voltage, refer to Marking Information

<p>UR132L-xx-AE3-3-R</p>	<p>(1)Packing Type (2)Pin Assgiont (3)Package Type (4)Output Voltage Code (5)Lead Plating</p>	<p>(1) R: Tape Reel (2) refer to Pin Assgiont (3) AE3: SOT-23, AF5: SOT-25 (4) xx: refer to Marking Information (5) L: Lead Free Plating, Blank: Pb/Sn</p>
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### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	Pin Assignment	MARKING
SOT-23	12:1.2V	OGI	
	15:1.5V		
	18:1.8V		
	22:2.2V	GOI	
	2E:2.5V		
	26:2.6V		
SOT-25	27:2.7V	IGNNO	
	28:2.8V		
	30:3.0V		
	33:3.3V		
	50:5.0V		
	AD:ADJ		

### BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Input Voltage	$V_{IN}$	-0.3~12	V
Power Dissipation	$P_D$	300	mW
Junction Temperature	$T_J$	+125	°C
Operation Temperature	$T_{OPR}$	-20~+125	°C
Storage Temperature	$T_{STG}$	-40~+150	°C

Note: 1. 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.  
 2. The device is guaranteed to meet performance specification within 0 ~ +70 operating temperature range and assured by design from -20 ~ +125 .

### ■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ , $C_{IN}=1\mu\text{F}$ , $C_{OUT}=10\mu\text{F}$ , unless otherwise specified)

#### FOR $V_{OUT}<3.3\text{V}$ ( $V_{OUT} \pm 2\%$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
Output Voltage	$V_{OUT}$	$I_L=2\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V}$	$V_{OUT} \times 0.98$	$V_{OUT}$	$V_{OUT} \times 1.02$	V
Output Voltage Temperature Coefficient	$T_C V_O$			50	150	PPM/°C
Line Regulation	$V_{OUT}$	$I_L=2\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V} \sim V_{IN}=9\text{V}$			0.5	% $V_{OUT}$
Load Regulation (note 2)	$V_{OUT}$	$I_L=2\text{mA} \sim 200\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V}$		10	30	mV
Current Limit (note 3)	$I_L$	$V_{IN}-V_{OUT}=2\text{V}$ , $V_{OUT}=0\text{V}$	300			mA
Dropout Voltage (note 4,5)	$V_D$				1.5	V
Standby current	$I_{STN-BY}$	$I_L=0$ , $V_{IN}=9\text{V}$			3.0	mA

#### FOR ADJ and $V_{OUT} = 3.3\text{V}$ ( $V_{OUT} \pm 2\%$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
Output Voltage	$V_{OUT}$	$I_L=2\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V}$	$V_{OUT} \times 0.98$	$V_{OUT}$	$V_{OUT} \times 1.02$	V
Adjustable ( $R_1=120\Omega$ , $R_2=200\Omega$ , $V_{OUT}=3.3\text{V}$ )						
Reference Voltage	$V_{REF}$	$V_{IN}-V_{OUT}=2\text{V}$ , $I_L=2\text{mA}$	1.238	1.250	1.262	V
Output Voltage Temperature Coefficient	$T_C V_O$			50	150	PPM/°C
Line Regulation	$V_{OUT}$	$I_L=2\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V} \sim V_{IN}=12\text{V}$			0.5	% $V_{OUT}$
Load Regulation (note 2)	$V_{OUT}$	$I_L=2\text{mA} \sim 200\text{mA}$ , $V_{IN}-V_{OUT}=2\text{V}$		10	30	mV
Current Limit (note 3)	$I_L$	$V_{IN}-V_{OUT}=2\text{V}$ , $V_{OUT}=0\text{V}$	300			mA
Dropout Voltage (note 4,5)	$V_D$				1.3	V
Standby current	$I_{STN-BY}$	$I_L=0$ , $V_{IN}=12\text{V}$			5.0	mA

Note 1: Guaranteed by design.

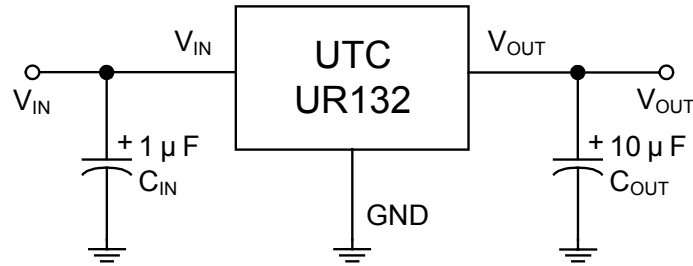
Note 2: Regulation is measured at constant junction temperature, using pulsed on time.

Note 3: Current limit is measured at constant junction temperature, using pulsed on time.

Note 4: Dropout is measured at constant junction temperature, using pulsed on time, and the criterion is  $V_{OUT}$  inside target value  $\pm 2\%$ .

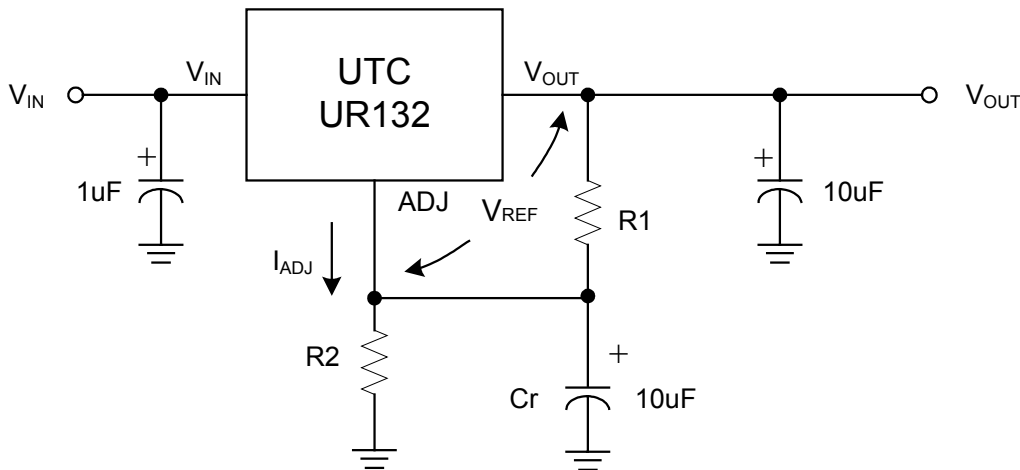
Note 5: Dropout test is skipped at the condition of  $V_{IN}<3\text{V}$ .

### ■ TYPICAL APPLICATION CIRCUIT



The part may oscillate without the capacitor, a 10μF (or larger) capacitor is recommended between V<sub>OUT</sub> and GND for stability. Any type of capacitor can be used, but not Aluminum electrolytic when operating below -20°C. The capacitance may be increased without limit. Besides, another 1μF capacitor (or larger) should be placed between V<sub>IN</sub> to GND.

### ■ UR132 ADJUSTABLE



Cr:10uF to improve ripple rejection

$$V_{OUT} = V_{REF} \left( 1 + \frac{R2}{R1} \right) + I_{ADJ} * R2$$

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