

UNISONIC TECHNOLOGIES CO., LTD

## 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.



#### ORDERING INFORMATION

Order Number		Deekage	Pin Assignment.				Deaking	
Lead Free	Halogen Free	Package		2	3	4	5	Packing
UR132L-xx-AE3-3-R	UR132G-xx-AE3-3-R	SOT-23	G	0	-	-	-	Tape Reel
UR132L-xx-AE3-5-R	UR132G-xx-AE3-5-R	SOT-23	0	G	Ι	-	-	Tape Reel
UR132L-xx-AF5-C-R	UR132G-xx-AF5-C-R	SOT-25	Ι	G	Ν	Ν	0	Tape Reel

Note: Pin assignment: G:GND  $O:V_{OUT}$   $I:V_{IN}$  N: No Connection

xx: output voltage, refer to Marking Information

UR132 <u>G-xx-AE3-3-R</u>		(1) R: Tape Reel
	(1)Packing Type	(2) refer to Pin Assignment
	(2)Pin Assignment	(3) AE3: SOT-23, AF5: SOT-25
	(3)Package Type (4)Output Voltage Code	(4) xx: refer to Marking Information
	(5)Green Package	(5) G: Halogen Free and Lead Free, L: Lead Free

### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	Pin Assignment	MARKING
12: 1.2V 15 : 1.5V SOT-23 18: 1.8V		GOI	Voltage Code
22: 2.2V 2E: 2.5V 26: 2.6V	22: 2.2V 2E: 2.5V 26: 2.6V	OGI	Voltage Code
SOT-25	27: 2.7V 28: 2.8V 30: 3.0V 33: 3.3V 50: 5.0V AD: ADJ	IGNNO	Voltage Code $RXX_{\square}$ L: Lead Free G: Halogen Free 1 2 3

## BLOCK DIAGRAM





#### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Input Voltage	V <sub>IN</sub>	-0.3 ~ 12	V
Power Dissipation	PD	300	mW
Junction Temperature	TJ	+125	°C
Operation Temperature	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +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.

#### ■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, C<sub>IN</sub>=1µF, C<sub>OUT</sub>=10µF, unless otherwise specified)

#### FOR V<sub>OUT</sub><3.3V (V<sub>OUT</sub>±2%)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vout	I <sub>L</sub> =2mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V	V <sub>OUT</sub> ×0.98	Vout	V <sub>OUT</sub> ×1.02	V
Output Voltage Temperature Coefficient	$T_{\rm C}V_{\rm O}$			50	150	ppm/°C
Line Regulation	∆Vout	I <sub>L</sub> =2mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V~V <sub>IN</sub> =9V			0.5	%V <sub>OUT</sub>
Load Regulation (Note 2)		I <sub>L</sub> =2mA~200mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V		10	30	mV
Current Limit (Note 3)	١L	V <sub>IN</sub> -V <sub>OUT</sub> =2V, V <sub>OUT</sub> =0V	300			mA
Dropout Voltage (Note 4,5)	VD				1.5	V
Standby current	I <sub>STN-BY</sub>	I <sub>L</sub> =0, V <sub>IN</sub> =9V			3.0	mA

#### FOR ADJ and V<sub>OUT</sub>≥3.3V (V<sub>OUT</sub>±2%)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT		
Output Voltage	V <sub>OUT</sub>	I <sub>L</sub> =2mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V	V <sub>OUT</sub> ×0.98	V <sub>OUT</sub>	V <sub>OUT</sub> ×1.02	V		
<b>ADJUSTABLE</b> (R1=120Ω,R2=200Ω,V <sub>OUT</sub> =3.3V)								
Reference Voltage	$V_{REF}$	V <sub>IN</sub> -V <sub>OUT</sub> =2V, I <sub>L</sub> =2mA	1.238	1.250	1.262	V		
Output Voltage Temperature Coefficient	$T_{\rm C}V_{\rm O}$			50	150	ppm/°C		
Line Regulation	∆Vоит	I <sub>L</sub> =2mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V~V <sub>IN</sub> =12V			0.5	%V <sub>OUT</sub>		
Load Regulation (Note 2)	∆Vоит	I <sub>L</sub> =2mA∼200mA, V <sub>IN</sub> -V <sub>OUT</sub> =2V		10	30	mV		
Current Limit (Note 3)	١L	V <sub>IN</sub> -V <sub>OUT</sub> =2V, V <sub>OUT</sub> =0V	300			mA		
Dropout Voltage (Note 4,5)	VD				1.3	V		
Standby current	I <sub>STN-BY</sub>	I <sub>L</sub> =0, V <sub>IN</sub> =12V			5.0	mA		

Note: 1. Guaranteed by design.

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

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

 Dropout is measured at constant junction temperature, using pulsed on time, and the criterion is V<sub>OUT</sub> inside target value±2%.

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



## TYPICAL APPLICATION CIRCUIT



The part may oscillate without the capacitor, a  $10\mu F$  (or larger) capacitor is recommended between  $V_{OUT}$  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  $1\mu F$  capacitor (or larger) should be placed between  $V_{IN}$  to GND.

#### UR132 ADJUSTABLE



Vout=VREF(1+R2/R1)+IADJxR2

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