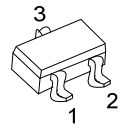
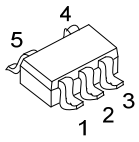
UR132

LINEAR INTEGRATED CIRCUIT

200mA LOW DROPOUT LINEAR VOLTAGE REGULATOR



SOT-23
(EIAJ SC-59)



SOT-25
(JEDEC MO-178AB)

■ 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		Package	Pin Assignment.					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UR132L-xx-AE3-3-R	UR132G-xx-AE3-3-R	SOT-23	G	O	I	-	-	Tape Reel
UR132L-xx-AE3-5-R	UR132G-xx-AE3-5-R	SOT-23	O	G	I	-	-	Tape Reel
UR132L-xx-AF5-C-R	UR132G-xx-AF5-C-R	SOT-25	I	G	N	N	O	Tape Reel

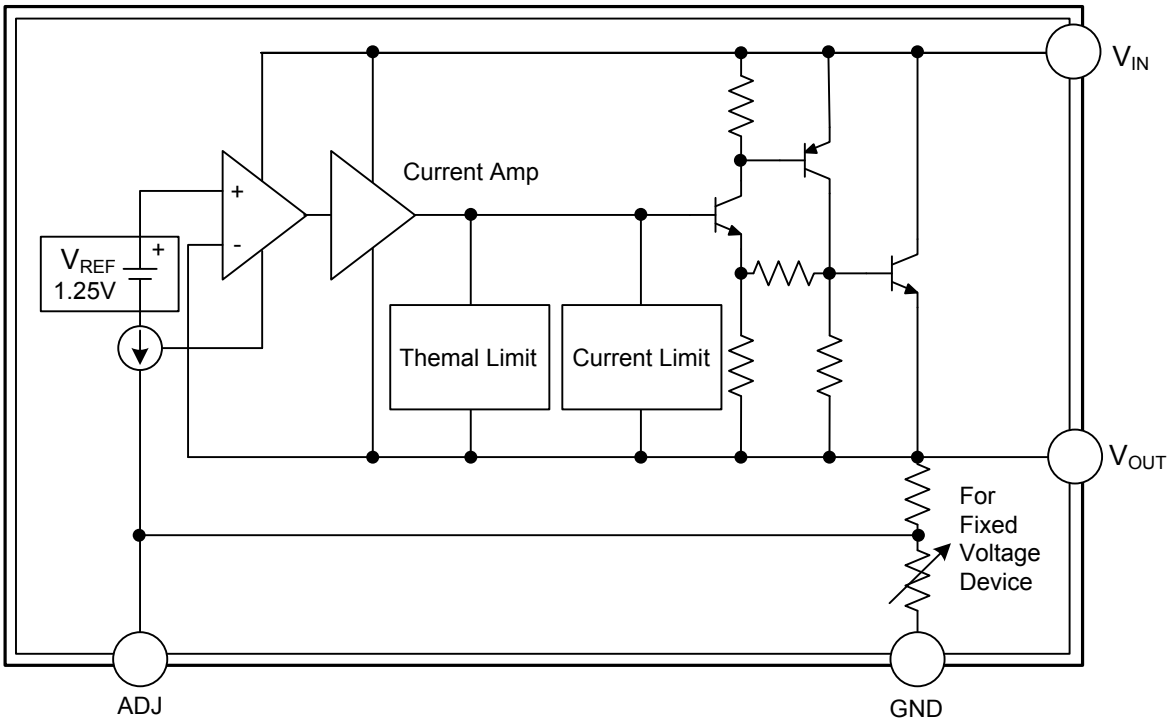
Note: Pin assignment: G:GND O:V_{OUT} I:V_{IN} N: No Connection
xx: output voltage, refer to Marking Information

UR132G-xx-AE3-3-R (1)Packing Type (2)Pin Assignment (3)Package Type (4)Output Voltage Code (5)Green Package	(1) R: Tape Reel (2) refer to Pin Assignment (3) AE3: SOT-23, AF5: SOT-25 (4) xx: refer to Marking Information (5) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	Pin Assignment	MARKING
SOT-23	12: 1.2V 15 : 1.5V 18: 1.8V 22: 2.2V 2E: 2.5V 26: 2.6V 27: 2.7V 28: 2.8V 30: 3.0V 33: 3.3V 50: 5.0V AD: ADJ	GOI	Voltage Code ← RXX□ → L: Lead Free G: Halogen Free
		OGI	Voltage Code ← RXX5□ → L: Lead Free G: Halogen Free
SOT-25		IGNNO	5 4 Voltage Code ← RXX□ → L: Lead Free G: Halogen Free 1 2 3

■ 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}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-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_A=25°C, C_{IN}=1μF, C_{OUT}=10μF, unless otherwise specified)

FOR V_{OUT}<3.3V (V_{OUT}±2%)

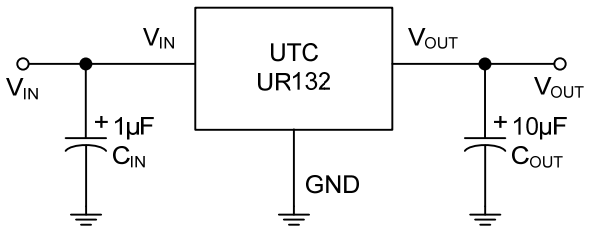
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	I_L=2mA, V_{IN}-V_{OUT}=2V	V_{OUT}×0.98	V_{OUT}	V_{OUT}×1.02	V
Output Voltage Temperature Coefficient	T_CV_O			50	150	ppm/°C
Line Regulation	△V_{OUT}	I_L=2mA, V_{IN}-V_{OUT}=2V~V_{IN}=9V			0.5	%V_{OUT}
Load Regulation (Note 2)	△V_{OUT}	I_L=2mA~200mA, V_{IN}-V_{OUT} =2V		10	30	mV
Current Limit (Note 3)	I_L	V_{IN}-V_{OUT}=2V, V_{OUT}=0V	300			mA
Dropout Voltage (Note 4,5)	V_D				1.5	V
Standby current	I_{STN-BY}	I_L=0, V_{IN}=9V			3.0	mA

FOR ADJ and V_{OUT}≥3.3V (V_{OUT}±2%)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	I_L=2mA, V_{IN}-V_{OUT}=2V	V_{OUT}×0.98	V_{OUT}	V_{OUT}×1.02	V
ADJUSTABLE (R1=120Ω,R2=200Ω,V_{OUT}=3.3V)						
Reference Voltage	V_{REF}	V_{IN}-V_{OUT}=2V, I_L=2mA	1.238	1.250	1.262	V
Output Voltage Temperature Coefficient	T_CV_O			50	150	ppm/°C
Line Regulation	△V_{OUT}	I_L=2mA, V_{IN}-V_{OUT}=2V~V_{IN}=12V			0.5	%V_{OUT}
Load Regulation (Note 2)	△V_{OUT}	I_L=2mA~200mA, V_{IN}-V_{OUT}=2V		10	30	mV
Current Limit (Note 3)	I_L	V_{IN}-V_{OUT}=2V, V_{OUT}=0V	300			mA
Dropout Voltage (Note 4,5)	V_D				1.3	V
Standby current	I_{STN-BY}	I_L=0, V_{IN}=12V			5.0	mA

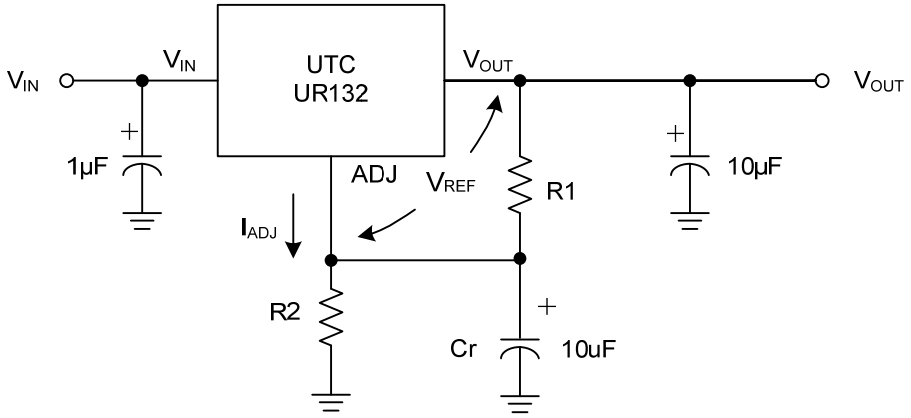
Note: 1. Guaranteed by design.
2. Regulation is measured at constant junction temperature, using pulsed on time.
3. Current limit is measured at constant junction temperature, using pulsed on time.
4. Dropout is measured at constant junction temperature, using pulsed on time, and the criterion is V_{OUT} inside target value±2%.
5. Dropout test is skipped at the condition of V_{IN}<3V.

■ TYPICAL APPLICATION CIRCUIT



The part may oscillate without the capacitor, a 10μF (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 1μF capacitor (or larger) should be placed between V_{IN} to GND.

■ UR132 ADJUSTABLE



Cr:10μF to improve ripple rejection

$V_{OUT}=V_{REF}(1+R2/R1)+I_{ADJ}xR2$