



UR81XX

Preliminary

CMOS IC

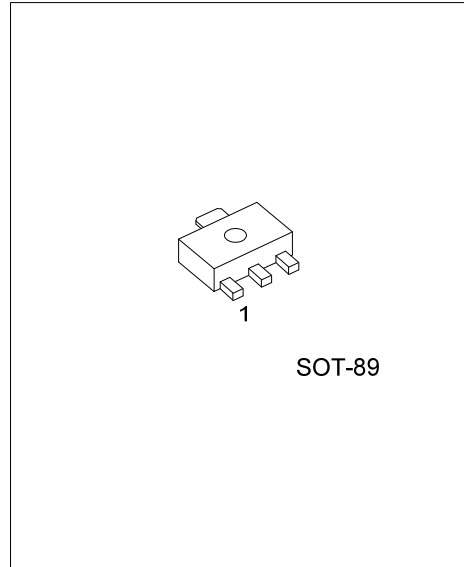
HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC **UR81XX** Series are a low dropout regulator with wide input voltage range, high output voltage accuracy, ultra low quiescent current and low dropout. This regulator is based on a CMOS process, and it's input voltage could high enough more than 36V, thus they are very suitable for high voltage application.

FEATURES

- * High output voltage accuracy: $\pm 2\%$
- * Ultra low quiescent current: 2.0uA (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : $\pm 50\text{ppm}/^\circ\text{C}$ (Typ.)
- * Wide Input voltage range: 0 ~ 36V



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		Pin Code	1	2	3	
UR81XXL-AB3-x-R	UR81XXG-AB3-x-R	SOT-89	A	G	O	I	Tape Reel
UR81XXL-AB3-x-R	UR81XXG-AB3-x-R		C	G	I	O	

Notes: 1. xx: output voltage.
 2. Pin assignment: G: Ground O: V_{OUT} I: V_{IN}

<p>UR81XXG-AB3-x-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AB3: SOT-89 (4) G: Halogen Free and Lead Free, L: Lead Free (5) XX: 33: 3.3V ... 50: 5.0V</p>
------------------------	---

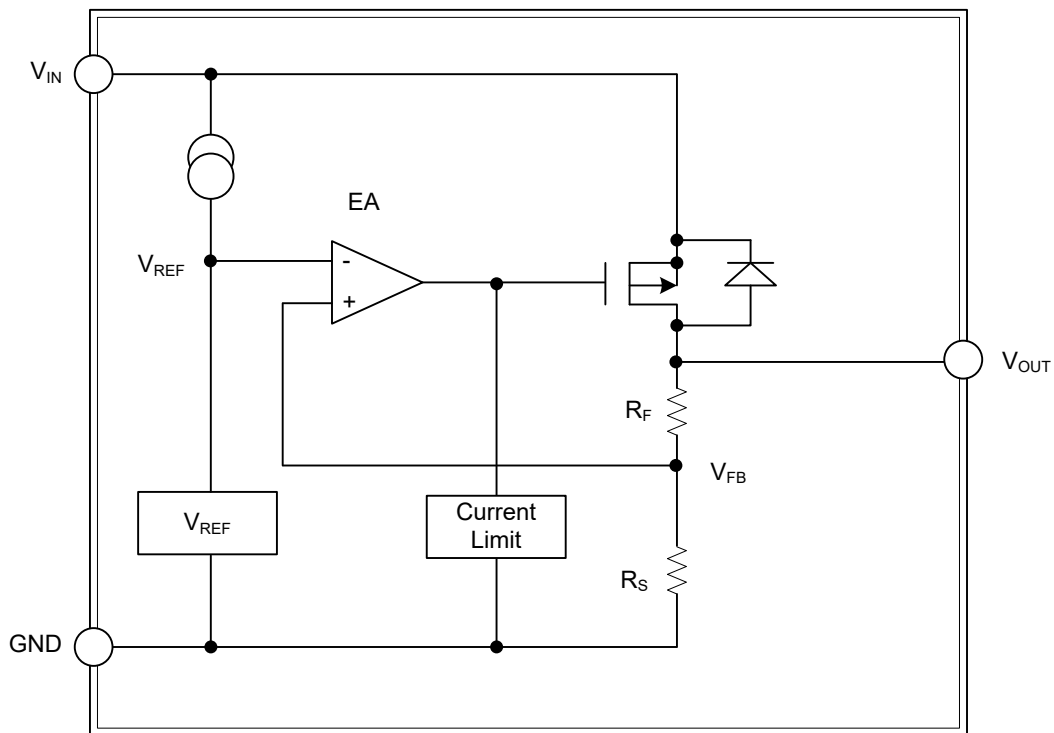
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 50:5.0V 60:6.0V	<p>Date Code ← Voltage Code ←</p> <p>UR81XX</p> <p>Pin Code → L: Lead Free G: Halogen Free</p> <p>1 2 3</p>

PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	GND	Ground
2	V _{IN}	Input voltage
3	V _{OUT}	Regulated output voltage

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	36	V
Power Dissipation	P_D	500	mW
Operating Temperature Range	T_{OPR}	-40 ~ +125	°C
Storage Temperature Range	T_{STG}	-40 ~ +125	°C

Notes: 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 data tested by surface mounted on a 2 inch² FR-4 board with 2OZ copper.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

UTC UR8133

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	3.234	3.3	3.366	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	80			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=1\text{mA}$		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		±100		Ppm/°C
Supply Current	I_{SS}	$V_{IN}=V_{OUT}+2V$		2.0	10	uA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V_{CEH}	Only with CE pin	$V_{IN}-1$		V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin	0		1	V

UTC UR8150

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	80			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=1\text{mA}$		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		±100		Ppm/°C
Supply Current	I_{SS}	$V_{IN}=V_{OUT}+2V$		2.0	10	uA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V_{CEH}	Only with CE pin	$V_{IN}-1$		V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin	0		1	V

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

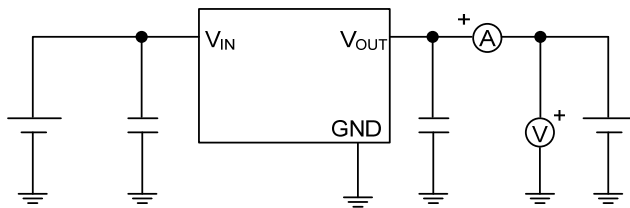
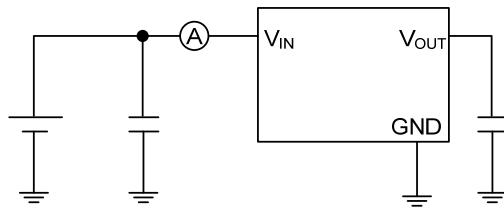
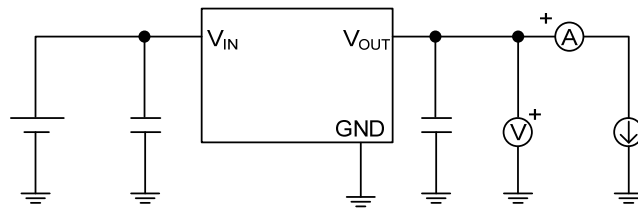
UTC UR8160

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _{OUT}	V _{IN} =V _{OUT} +2V, I _{OUT} =10mA	5.88	6.0	6.12	V
Output Current (Note 1)	I _{OUT}	V _{IN} =V _{OUT} +2V	80			mA
Dropout Voltage (Note 2)	V _{DROP}	I _{OUT} =1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V _{OUT} +2V≤V _{IN} ≤36V, I _{OUT} =1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V _{IN} =V _{OUT} +2V, 1.0mA≤I _{OUT} ≤50mA		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	V _{IN} =V _{OUT} +2V, I _{OUT} =10mA, -40°C≤T _A ≤85°C		±100		Ppm/°C
Supply Current	I _{SS}	V _{IN} =V _{OUT} +2V		2.0	10	uA
CE Pull-down Current	I _{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V _{CEH}	Only with CE pin	V _{IN} -1		V _{IN}	V
CE Input Voltage "L"	V _{CEL}	Only with CE pin	0		1	V

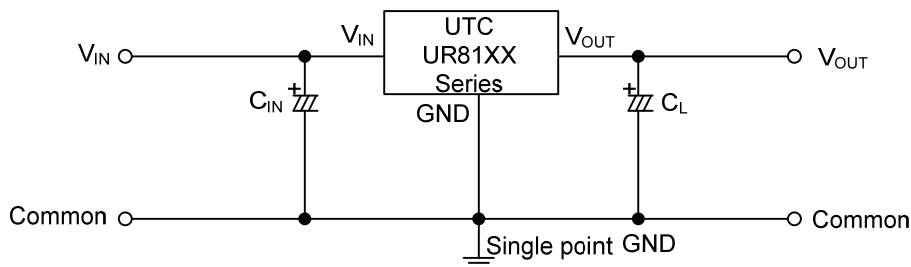
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT}.

2. V_{drop}=V_{IN}-(V_{OUT}×0.98), V_{OUT}: V_{IN}=V_{OUT}+2V, I_{OUT}=1mA

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



$C_{IN} > 1.0\mu F$
 $C_L > 2.2\mu F$ (tantalum capacitor)

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.