



UR81XXH

Preliminary

CMOS IC

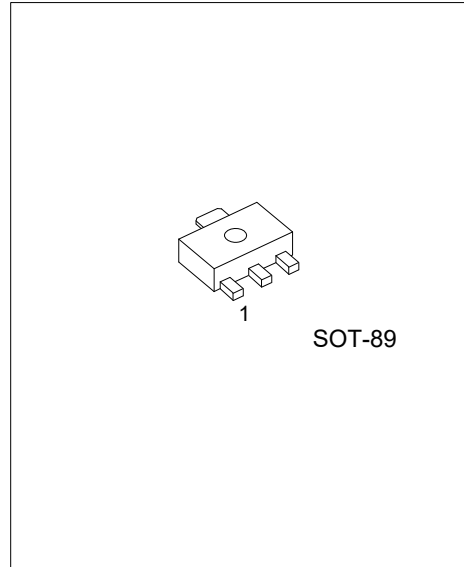
HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC **UR81XXH** 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: $2.0\mu A$ (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : $\pm 50ppm/^{\circ}C$ (Typ.)
- * Wide Input voltage range: $0 \sim 36V$



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		Pin Code	1	2	3	
UR81XXHL-AB3-x-R	UR81XXHG-AB3-x-R	SOT-89	A	G	O	I	Tape Reel
UR81XXHL-AB3-x-R	UR81XXHG-AB3-x-R		C	G	I	O	

Notes: 1. XXH: output voltage.

2. Pin assignment: G: Ground O: V_{OUT} I: V_{IN}

<p>UR81XXHG-AB3-x-R</p> <ul style="list-style-type: none"> (1)Packing Type (2)Pin Assignment (3)Green Package (4)Green Package (5)Output Voltage Code 	<ul style="list-style-type: none"> (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
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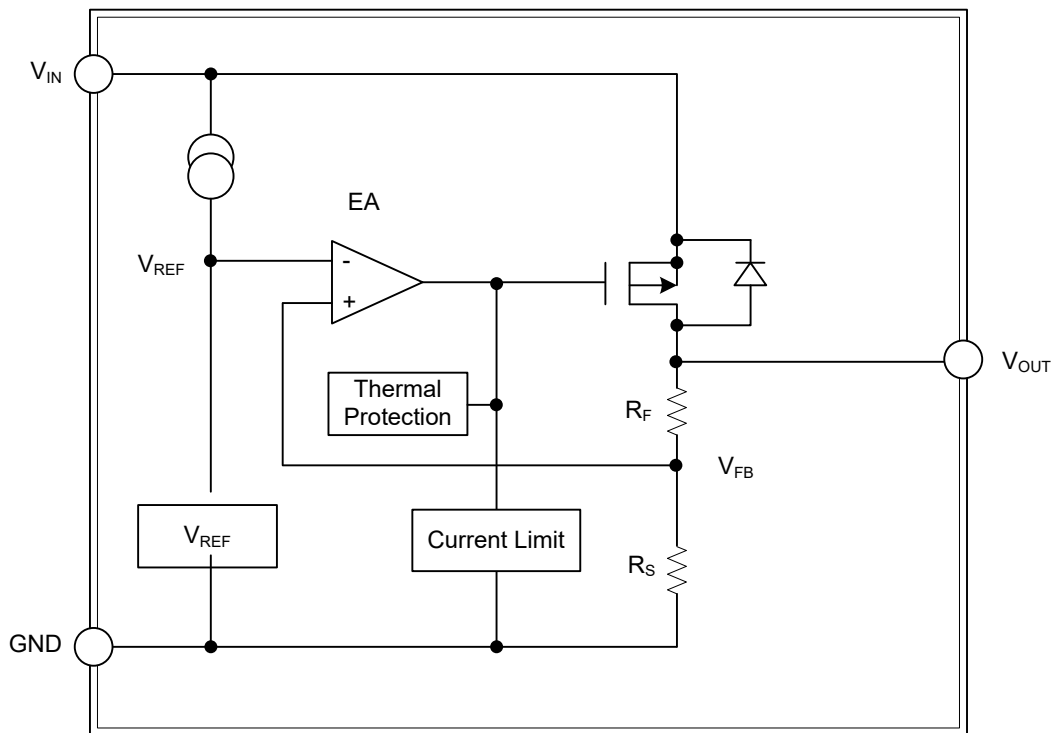
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 36:3.6V 50:5.0V 60:6.0V	<p>Date Code Voltage Code</p> <p>Pin Code L: Lead Free G: Halogen Free</p> <p>1 2 3</p>

PIN DESCRIPTION

PIN NAME	DESCRIPTION
GND	Ground
V_{IN}	Input voltage
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 UR8133H

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
Thermal Shutdown	TSD			150		°C

UTC UR8136H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	3.528	3.6	3.672	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
Thermal Shutdown	TSD			150		°C

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC UR8150H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$	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_{DROD}	$I_{OUT}=1mA$		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$		± 100		Ppm/ $^\circ C$
Supply Current	I_{SS}	$V_{IN}=V_{OUT}+2V$		2.0	10	μA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		μA
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
Thermal Shutdown	TSD			150		$^\circ C$

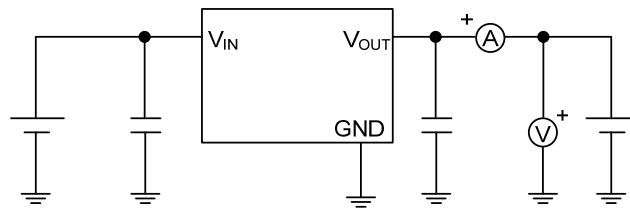
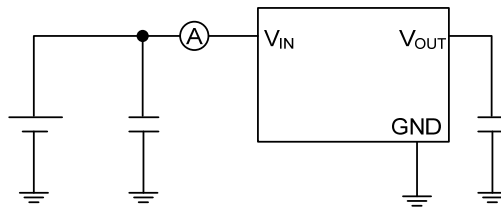
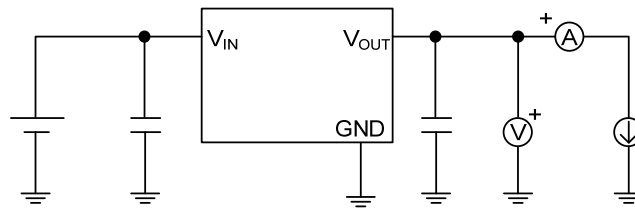
UTC UR8160H

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_{DROD}	$I_{OUT}=1mA$		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1mA$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 50mA$		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$		± 100		Ppm/ $^\circ C$
Supply Current	I_{SS}	$V_{IN}=V_{OUT}+2V$		2.0	10	μA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		μA
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
Thermal Shutdown	TSD			150		$^\circ C$

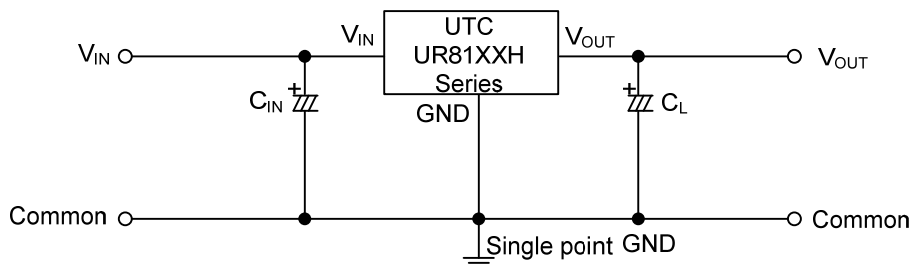
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

2. $V_{drop}=V_{IN1}-(V_{OUT} \times 0.98)$, $V_{OUT}: V_{IN}=V_{OUT}+2V, I_{OUT}=1mA$.

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



$C_{IN} > 1.0\mu F$
 $C_L > 2.2\mu F$

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