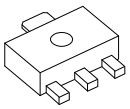
HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR



SOT-89

■ 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: ±2%
* Ultra low quiescent current: 2.0μA (Typ.)
* Low temperature-drift coefficient of V_{OUT}: ±50ppm/°C (Typ.)
* Wide Input voltage range: 0 ~ 36V

■ ORDERING INFORMATION

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

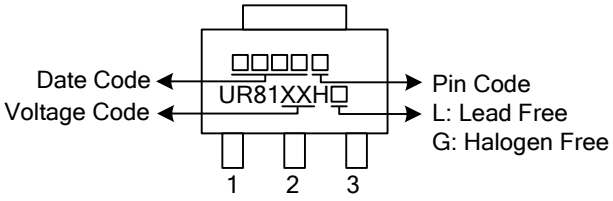
Notes: 1. XXH: output voltage.
2. Pin assignment: G: Ground O: V_{OUT} I: V_{IN}

UR81XXHG-AB3-x-R

(1)Packing Type
(2)Pin Assignment
(3)Green Package
(4)Green Package
(5)Output Voltage Code

(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

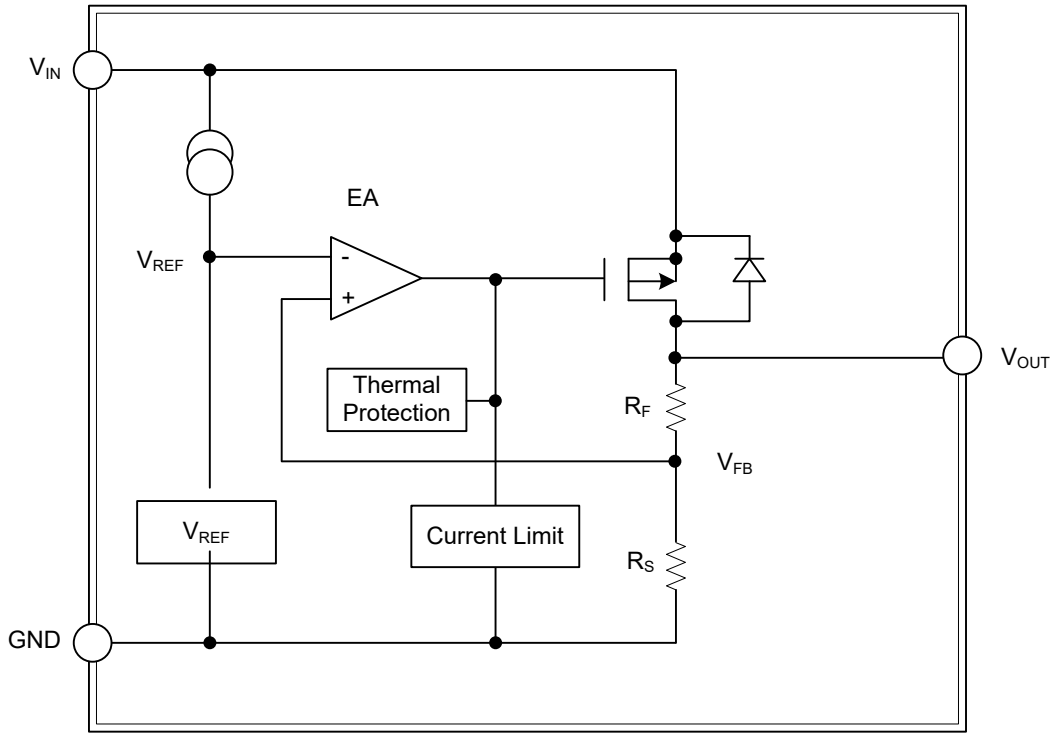
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 36:3.6V 50:5.0V 60:6.0V	

■ 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 inch^2 FR-4 board with 2OZ copper.

■ ELECTRICAL CHARACTERISTICS (T_A=25°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}=10mA	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}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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
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}=10mA	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}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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
Thermal Shutdown	TSD			150		°C

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC **UR8150H**

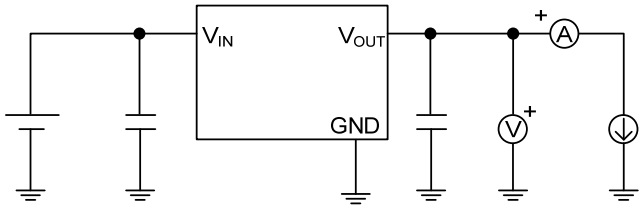
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	V_{IN}=V_{OUT}+2V	80			mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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
Thermal Shutdown	TSD			150		°C

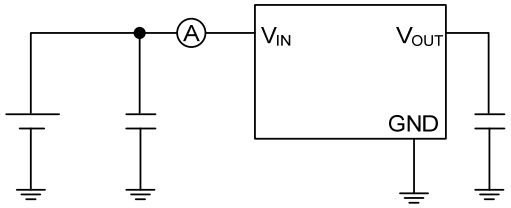
UTC **UR8160H**

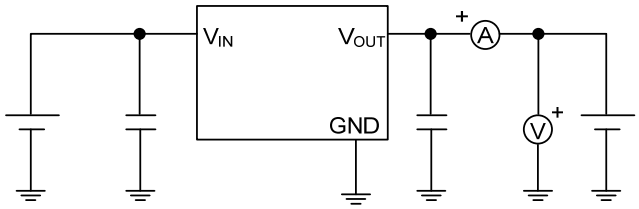
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA	5.88	6.0	6.12	V
Output Current (Note 1)	I_{OUT}	V_{IN}=V_{OUT}+2V	80			mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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
Thermal Shutdown	TSD			150		°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}×0.98), V_{OUT}: V_{IN}=V_{OUT}+2V, I_{OUT}=1mA.

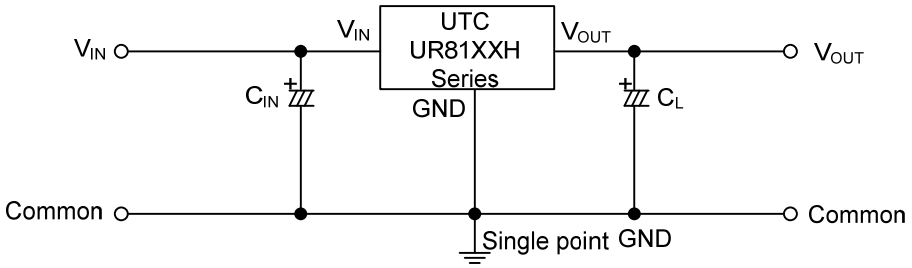
■ TEST CIRCUIT







■ TYPICAL APPLICATION CIRCUIT



C_{IN} > 1.0μF
C_L > 2.2μF