



## UR73XXH

CMOS IC

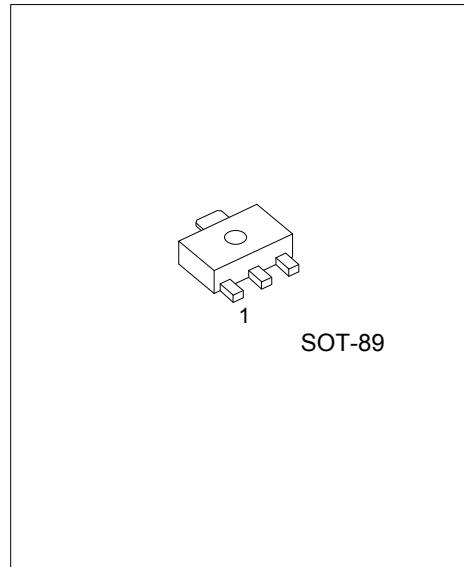
### 36V INPUT VOLTAGE 300MA, ULTRA LOW IQ VOLTAGE REGULATOR

#### DESCRIPTION

The UTC **UR73XXH** 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: 2uA (Typ.)
- \* Low temperature-drift coefficient of  $V_{OUT}$ :  $\pm 50\text{ppm}/^\circ\text{C}$  (Typ.)
- \* Wide Input voltage range: 2.5~ 36V



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UR73XXHL-AB3-R	UR73XXHG-AB3-R	SOT-89	G	I	O	Tape Reel

Note: Pin assignment: G: Ground I:  $V_{IN}$  O:  $V_{OUT}$

<p>UR73XXHG-AB3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(4) Green Package</p> <p>(5) Output Voltage Code</p>	<p>(1) R: Tape Reel</p> <p>(2) AB3: SOT-89</p> <p>(4) G: Halogen Free and Lead Free, L: Lead Free</p> <p>(5) XX: Refer to Marking Information</p>
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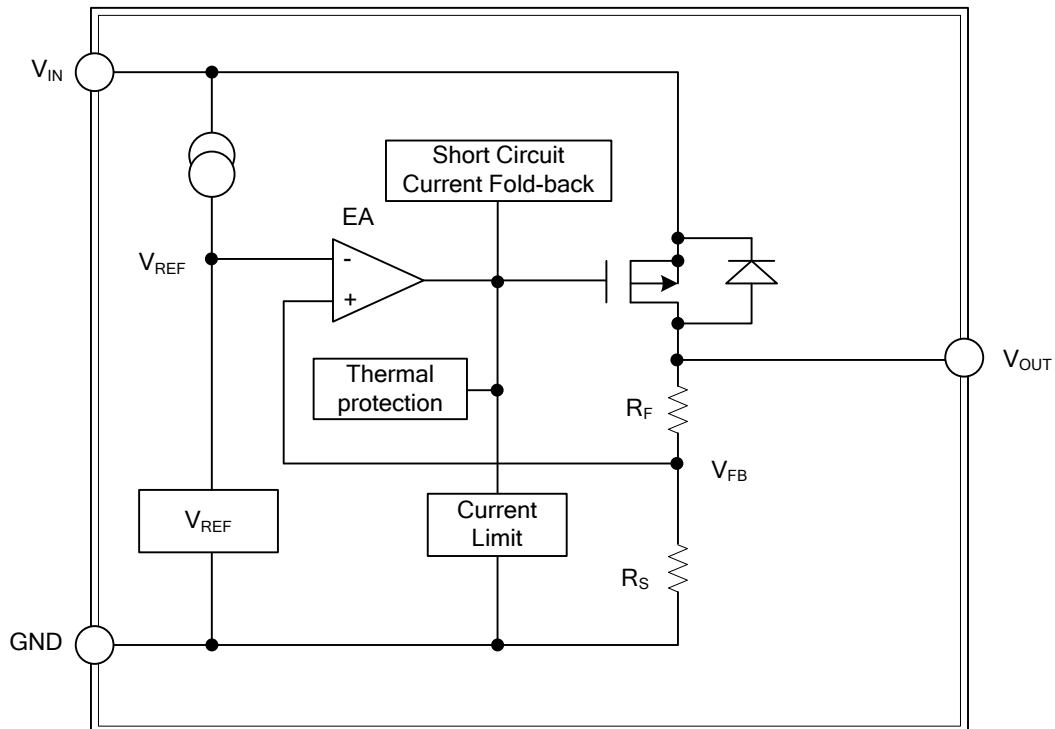
### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	25:2.5V 30:3.0V 33:3.3V 50:5.0V	<p>                         Date Code                          Voltage Code                          L: Lead Free                          G: Halogen Free                     </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

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

UTC UR7325H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, I_{OUT}=1mA$	2.45	2.5	2.55	V
Output Current (Note 1)	$I_{OUT}$	$V_{IN}=V_{OUT}+1V$	200	300		mA
Dropout Voltage (Note 2)	$V_{DROP}$	$I_{OUT}=100mA$		160		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+1V \leq V_{IN} \leq 36V, I_{OUT}=10mA$		0.01	0.3	%/V
Load Regulation	$\Delta V_{OUT2}$	$V_{IN}=V_{OUT}+1V, 1mA \leq I_{OUT} \leq 100mA$		10		mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+1V, I_{OUT}=10mA, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		±300		Ppm/°C
Supply Current	$I_{SS1}$	$V_{IN}=V_{OUT}+1V$		2	5	uA
Thermal Shutdown Temperature	$T_{SD}$			160		°C
Thermal Shutdown Hysteresis	$\Delta T_{SD}$			20		°C

UTC UR7330H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, I_{OUT}=1mA$	2.94	3.0	3.06	V
Output Current (Note 1)	$I_{OUT}$	$V_{IN}=V_{OUT}+1V$	200	300		mA
Dropout Voltage (Note 2)	$V_{DROP}$	$I_{OUT}=100mA$		160		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+1V \leq V_{IN} \leq 36V, I_{OUT}=10mA$		0.01	0.3	%/V
Load Regulation	$\Delta V_{OUT2}$	$V_{IN}=V_{OUT}+1V, 1mA \leq I_{OUT} \leq 100mA$		10		mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+1V, I_{OUT}=10mA, -40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		±300		Ppm/°C
Supply Current	$I_{SS1}$	$V_{IN}=V_{OUT}+1V$		2	5	uA
Thermal Shutdown Temperature	$T_{SD}$			160		°C
Thermal Shutdown Hysteresis	$\Delta T_{SD}$			20		°C

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)

UTC UR7333H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V, I <sub>OUT</sub> =1mA	3.234	3.3	3.366	V
Output Current (Note 1)	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V	200	300		mA
Dropout Voltage (Note 2)	V <sub>DROP</sub>	I <sub>OUT</sub> =100mA		160		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V <sub>OUT</sub> +1V ≤ V <sub>IN</sub> ≤ 36V, I <sub>OUT</sub> =10mA		0.01	0.3	%/V
Load Regulation	ΔV <sub>OUT2</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V, 1mA ≤ I <sub>OUT</sub> ≤ 100mA		10		mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	V <sub>IN</sub> =V <sub>OUT</sub> +1V, I <sub>OUT</sub> =10mA, -40°C ≤ T <sub>A</sub> ≤ 85°C		±300		Ppm/°C
Supply Current	I <sub>SS1</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V		2	5	uA
Thermal Shutdown Temperature	T <sub>SD</sub>			160		°C
Thermal Shutdown Hysteresis	ΔT <sub>SD</sub>			20		°C

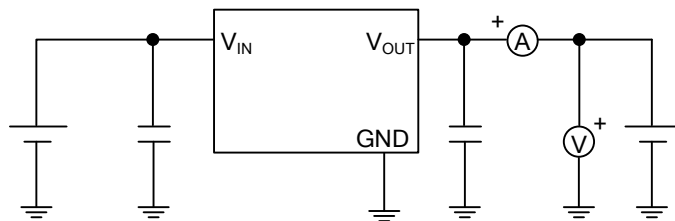
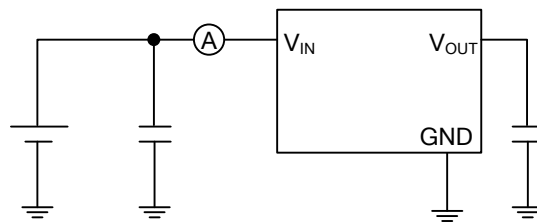
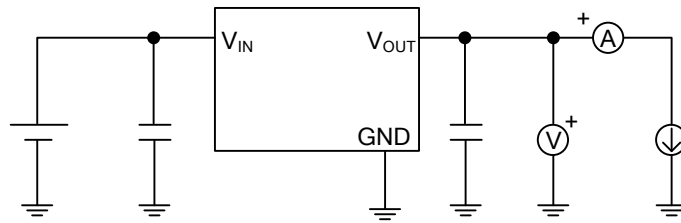
UTC UR7350H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V, I <sub>OUT</sub> =1mA	4.9	5.0	5.1	V
Output Current (Note 1)	I <sub>OUT</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V	200	300		mA
Dropout Voltage (Note 2)	V <sub>DROP</sub>	I <sub>OUT</sub> =100mA		160		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V <sub>OUT</sub> +1V ≤ V <sub>IN</sub> ≤ 36V, I <sub>OUT</sub> =10mA		0.01	0.3	%/V
Load Regulation	ΔV <sub>OUT2</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V, 1mA ≤ I <sub>OUT</sub> ≤ 100mA		10		mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	V <sub>IN</sub> =V <sub>OUT</sub> +1V, I <sub>OUT</sub> =10mA, -40°C ≤ T <sub>A</sub> ≤ 85°C		±300		Ppm/°C
Supply Current	I <sub>SS1</sub>	V <sub>IN</sub> =V <sub>OUT</sub> +1V		2	5	uA
Thermal Shutdown Temperature	T <sub>SD</sub>			160		°C
Thermal Shutdown Hysteresis	ΔT <sub>SD</sub>			20		°C

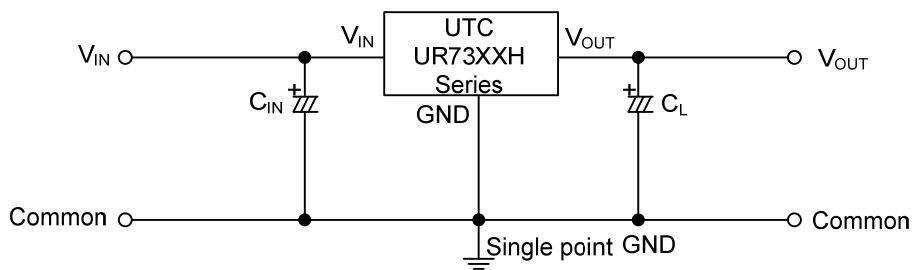
Notes: 1. Increase the output current slowly, record the current when V<sub>OUT</sub> decrease 98% of V<sub>OUT</sub>.

2. V<sub>drop</sub>=V<sub>IN1</sub>-(V<sub>OUT</sub>×0.98), V<sub>OUT</sub>: V<sub>IN</sub>=V<sub>OUT</sub>+1V, I<sub>OUT</sub>=100mA

## ■ TEST CIRCUIT



## ■ TYPICAL APPLICATION CIRCUIT



$$C_{IN}=1\mu F, C_L=1\mu F$$

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