



UR56XXH

Preliminary

CMOS IC

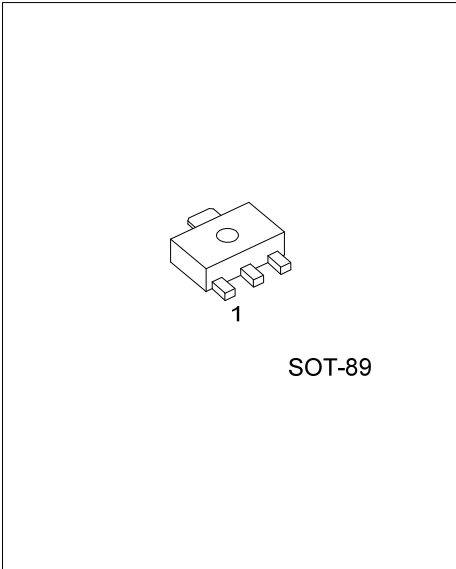
18-V INPUT VOLTAGE 500MA ULTRA LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC **UR56XXH** 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 18V, thus they are very suitable for high voltage application.

FEATURES

- * High output voltage accuracy: $\pm 2\%$
- * Ultra low quiescent current: 1.0uA (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : $\pm 100\text{ppm}/^\circ\text{C}$ (Typ.)
- * Wide Input voltage range: 2.5~18V



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UR56XXHL-AB3-C-R	UR56XXHG-AB3-C-R	SOT-89	G	I	O	Tape Reel

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

<p>UR56XXHG-AB3-C-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Pin Code (2) Package Type (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: Refer to Marking Information
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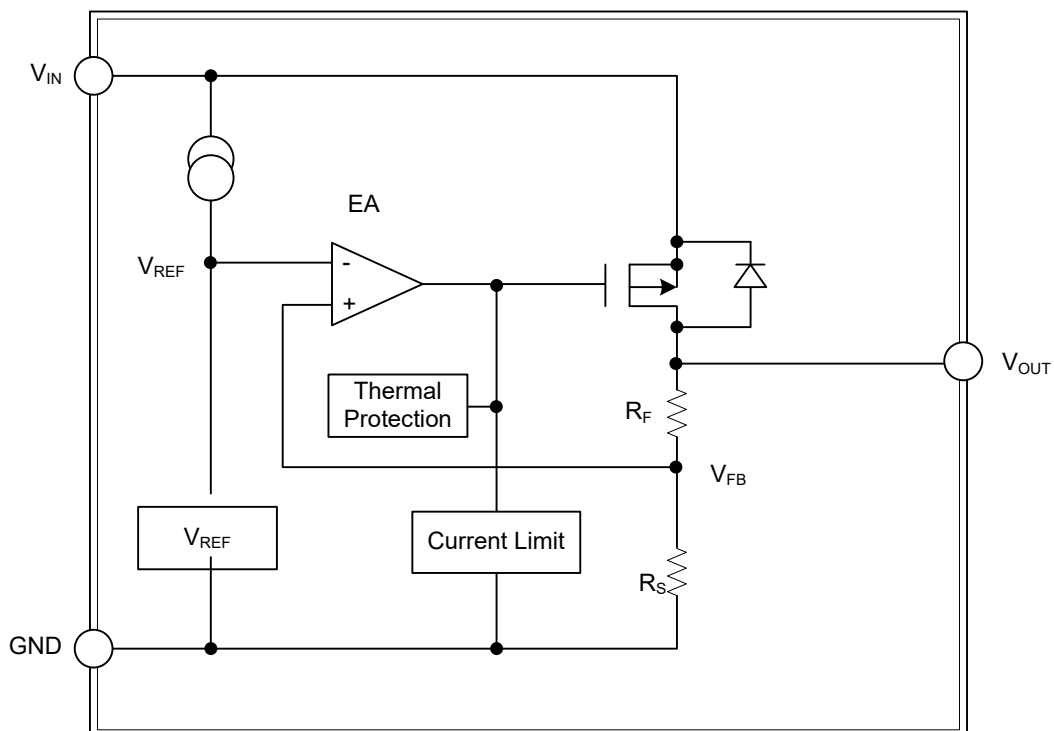
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 50:5.0V	

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}	18	V
Power Dissipation	P_D	500	mW
Operating Temperature Range	T_{OPR}	-40 ~ +125	°C
Storage Temperature Range	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 ($T_A=25^\circ\text{C}$, unless otherwise specified)

UTC UR5633H

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}	$V_{IN}=V_{OUT}+2V$	500			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 18V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 100\text{mA}$		30	80	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_{SS1}	$V_{IN}=V_{OUT}+2V$		1.0	3.0	μA
Thermal Shutdown	TSD			160		°C

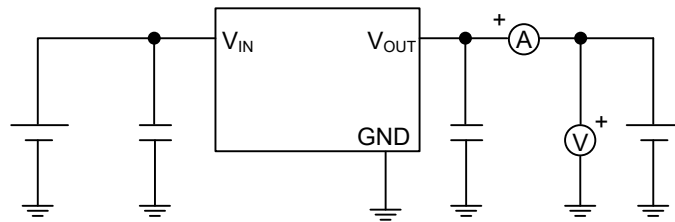
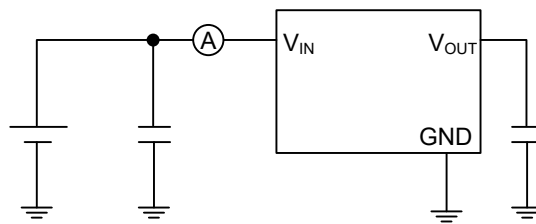
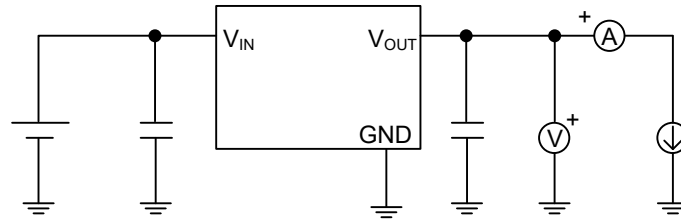
UTC UR5650H

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}	$V_{IN}=V_{OUT}+2V$	500			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 18V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 100\text{mA}$		30	80	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_{SS1}	$V_{IN}=V_{OUT}+2V$		1.0	3.0	μA
Thermal Shutdown	TSD			160		°C

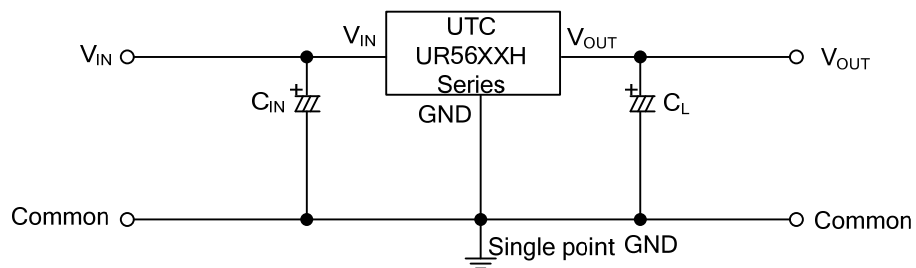
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

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

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



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

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