



# UR76XXH

**CMOS IC**

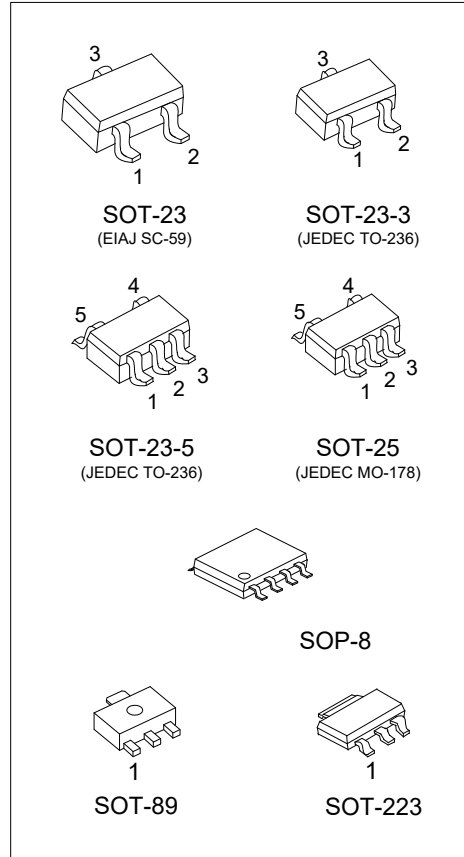
## 36-V INPUT VOLTAGE 500MA ULTRA LOW IQ VOLTAGE REGULATOR

■ **DESCRIPTION**

The UTC **UR76XXH** 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: 6uA /15uA (Typ.)
- \* Low temperature-drift coefficient of  $V_{OUT}$ :  $\pm 100$  ppm/ $^{\circ}C$  (Typ.)
- \* Wide Input voltage range: 2.5~36V



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment								Packing	
Lead Free	Halogen Free		1	2	3	4	5	6	7	8		
UR76XXHL-AA3-x-R	UR76XXHG-AA3-x-R	SOT-223	Pin Code				1	2	3	Tape Reel		
				A	G	O	I					
				B	O	G	I					
				C	G	I	O					
UR76XXHL-AB3-x-R	UR76XXHG-AB3-x-R	SOT-89					D	I	G	O		
UR76XXHL-AE2-3-R	UR76XXHG-AE2-3-R	SOT-23-3	G	O	I	-	-	-	-	-	-	Tape Reel
UR76XXHL-AE3-3-R	UR76XXHG-AE3-3-R	SOT-23	G	O	I	-	-	-	-	-	-	Tape Reel
UR76XXHL-AE5-C-R	UR76XXHG-AE5-C-R	SOT-23-5	I	G	N	N	O	-	-	-	-	Tape Reel
UR76XXHL-AF5-F-R	UR76XXHG-AF5-F-R	SOT-25	G	I	O	N	N	-	-	-	-	Tape Reel
UR76XXHL-S08-R	UR76XXHG-S08-R	SOP-8	I	N	N	G	N	N	N	O	-	Tape Reel

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

<p>UR76XXHG-AA3-x-R</p> <p>(1)Packing Type (2)Pin Code (3)Package Type (4)Green Package</p>	<p>(1) R: Tape Reel (2) x: refer to PIN CONFIGURATIONS (3) AA3: SOT-223, AB3: SOT-89, AE2: SOT-23-3, AE3: SOT-23, AE5: SOT-23-5, AF5: SOT-25 S08: SOP-8 (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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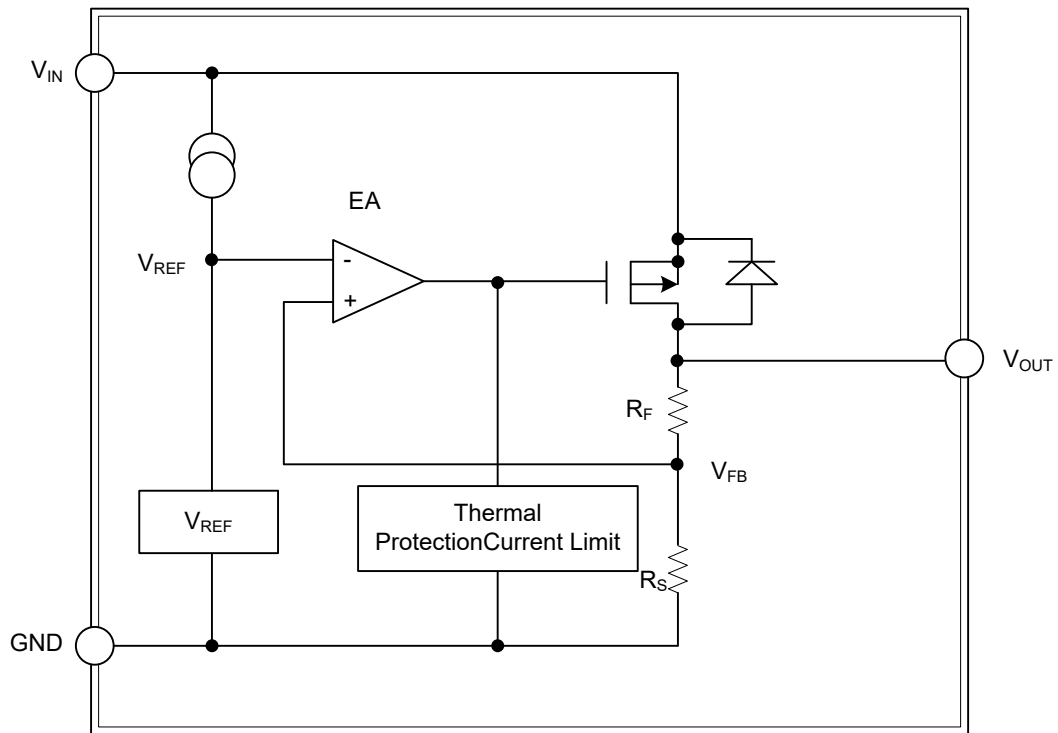
### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	33: 3.3V 36: 3.6V 40: 4.0V 50: 5.0V	<p>UR76XXH□                      Voltage Code ← Pin Code → Date Code                      1 2 3</p> <p>L: Lead Free                      G: Halogen Free</p>
SOT-89		<p>□□□□□                      Date Code ← Voltage Code → Pin Code                      UR76XXH□                      L: Lead Free                      G: Halogen Free                      1 2 3</p>
SOT-23-3 SOT-23		<p>7XXHX                      Voltage Code ← Pin Code</p>
SOT-25 SOT-23-5		<p>5 4                      7XXHX                      Voltage Code ← Pin Code                      1 2 3</p>
SOP-8		<p>8 7 6 5                      UTC □□□□                      Voltage Code ← Date Code → Lot Code                      UR76XXH□                      L: Lead Free                      G: Halogen Free                      1 2 3 4</p>

### PIN DESCRIPTION

PIN NAME	DESCRIPTION
GND	Ground
V <sub>IN</sub>	Input voltage
V <sub>OUT</sub>	Regulated output voltage

## ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		$V_{IN}$	36	V
Power Dissipation	SOT-223	$P_D$	600	mW
	SOT-89		500	mW
	SOT-23-3		350	mW
	SOT-23			
	SOT-23-5			
	SOT-25		700	mW
SOP-8				
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.

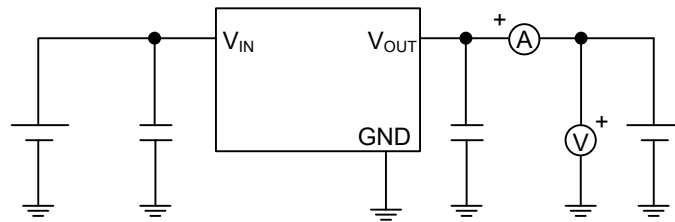
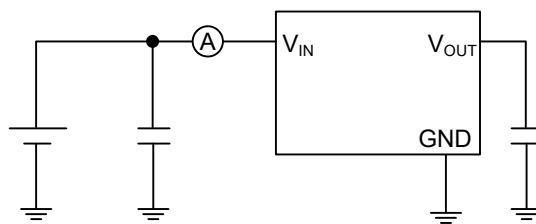
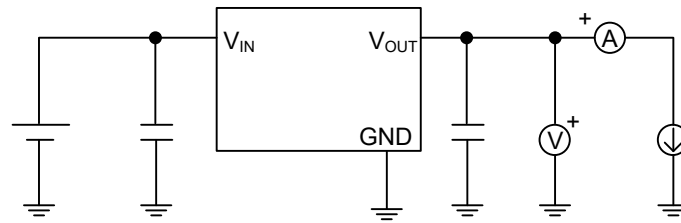
### ■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	$\times 0.98$	$V_{OUT}$	$\times 1.02$	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	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	$\Delta V_{OUT2}$	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 100\text{mA}$		30	80	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$		$\pm 100$		ppm/°C
Supply Current	$I_{SS1}$	$V_{IN}=V_{OUT}+2V$	UR76XXH-A	6	10	$\mu\text{A}$
			UR76XXH-B	15	20	$\mu\text{A}$
Thermal Shutdown	TSD			160		°C

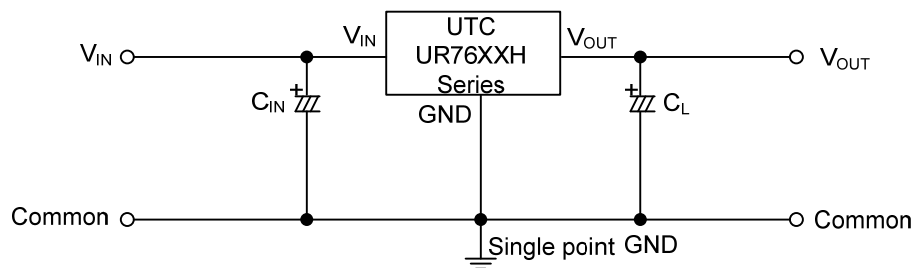
Notes: 1. Increase the output current slowly, record the current when  $V_{OUT}$  decrease 98% of  $V_{OUT}$ .

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



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

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