



UR72XXH

CMOS IC

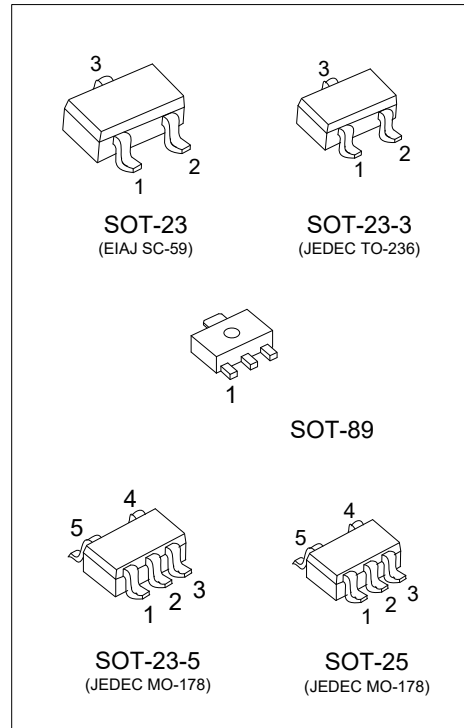
HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC **UR72XXH** 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: $2\mu A$ (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : $\pm 50ppm/^{\circ}C$ (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	
UR72XXHL-AB3-B-R	UR72XXHG-AB3-B-R	SOT-89	O	G	I	-	-	Tape Reel
UR72XXHL-AB3-C-R	UR72XXHG-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
UR72XXHL-AE2-3-R	UR72XXHG-AE2-3-R	SOT-23-3	G	O	I	-	-	Tape Reel
UR72XXHL-AE3-3-R	UR72XXHG-AE3-3-R	SOT-23	G	O	I	-	-	Tape Reel
UR72XXHL-AE5-C-R	UR72XXHG-AE5-C-R	SOT-23-5	I	G	N	N	O	Tape Reel
UR72XXHL-AF5-C-R	UR72XXHG-AF5-C-R	SOT-25	I	G	N	N	O	Tape Reel
UR72XXHL-AF5-F-R	UR72XXHG-AF5-F-R	SOT-25	G	I	O	N	N	Tape Reel

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

<p>UR72XXHG-AB3-B-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AB3: SOT-89, AE2: SOT-23-3, AE3: SOT-23 AE5: SOT-23-5, AF5: SOT-25 (4) G: Halogen Free and Lead Free, L: Lead Free (5) XX: Refer to Marking Information</p>
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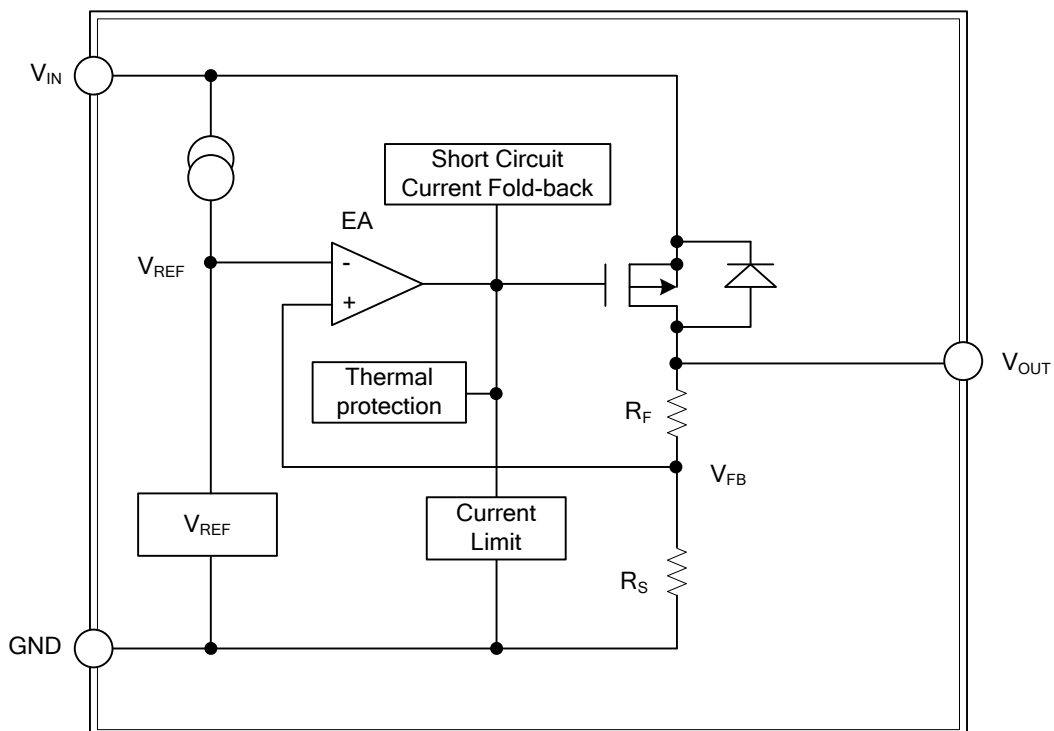
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 4B:4.15V 50:5.0V	<p>Date Code ← UR72XXH → Pin Code Voltage Code ← L: Lead Free G: Halogen Free</p>
SOT-23-3 SOT-23		<p>Voltage Code ← 2XXHX → Pin Code</p>
SOT-23-5 SOT-25		<p>Voltage Code ← 2XXHX → Pin Code</p>

PIN DESCRIPTION

PIN NO.						PIN NAME	DESCRIPTION
SOT-89		SOT-23 SOT-23-3	SOT-23-5	SOT-25			
B	C			C	F		
1	3	2	5	5	3	V_{OUT}	Regulated output voltage
2	1	1	2	2	1	GND	Ground
3	2	3	1	1	2	V_{IN}	Input voltage.
-	-	-	3, 4	3, 4	4, 5	NC	No Connection

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V _{IN}	36	V
Power Dissipation	SOT-89	P _D	500	mW
	SOT-23-3		280	mW
	SOT-23			
	SOT-23-5 SOT-25		280	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°C, unless otherwise specified)

UTC UR7233H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _{OUT}	V _{IN} =V _{OUT} +1V, I _{OUT} =10mA	3.234	3.3	3.366	V
Output Current (Note 1)	I _{OUT}	V _{IN} =V _{OUT} +1V	150	200		mA
Dropout Voltage (Note 2)	V _{DROP}	I _{OUT} =100mA		400		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V _{OUT} +1V ≤ V _{IN} ≤ 36V, I _{OUT} =10mA		0.01	0.3	%/V
Load Regulation	ΔV_{OUT2}	V _{IN} =V _{OUT} +1V, 1mA ≤ I _{OUT} ≤ 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°C ≤ T _A ≤ 85°C		±50	±100	Ppm/°C
Supply Current	I _{SS1}	V _{IN} =V _{OUT} +1V		4	7	μA
Thermal Shutdown Temperature	T _{SD}			150		°C
Thermal Shutdown Hysteresis	ΔT _{SD}			20		°C

UTC UR724BH

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _{OUT}	V _{IN} =V _{OUT} +1V, I _{OUT} =10mA	4.067	4.15	4.233	V
Output Current (Note 1)	I _{OUT}	V _{IN} =V _{OUT} +1V	150	200		mA
Dropout Voltage (Note 2)	V _{DROP}	I _{OUT} =100mA		400		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V _{OUT} +1V ≤ V _{IN} ≤ 36V, I _{OUT} =10mA		0.01	0.3	%/V
Load Regulation	ΔV_{OUT2}	V _{IN} =V _{OUT} +1V, 1mA ≤ I _{OUT} ≤ 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°C ≤ T _A ≤ 85°C		±50	±100	Ppm/°C
Supply Current	I _{SS1}	V _{IN} =V _{OUT} +1V		4	7	μA
Thermal Shutdown Temperature	T _{SD}			150		°C
Thermal Shutdown Hysteresis	ΔT _{SD}			20		°C

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

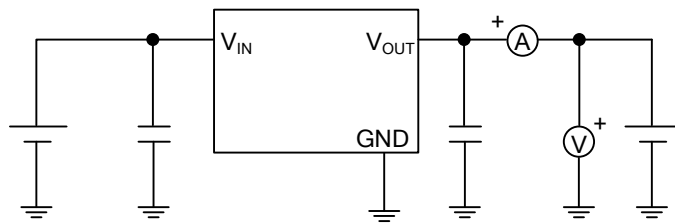
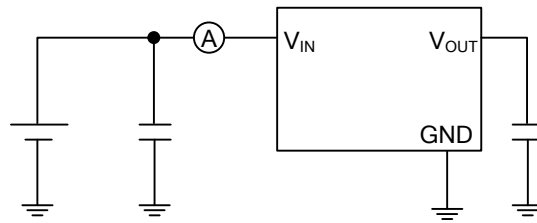
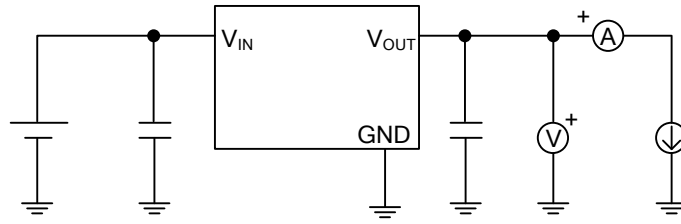
UTC UR7250H

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _{OUT}	V _{IN} =V _{OUT} +1V, I _{OUT} =10mA	4.9	5.0	5.1	V
Output Current (Note 1)	I _{OUT}	V _{IN} =V _{OUT} +1V	150	200		mA
Dropout Voltage (Note 2)	V _{DROP}	I _{OUT} =100mA		320		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	V _{OUT} +1V ≤ V _{IN} ≤ 36V, I _{OUT} =10mA		0.01	0.3	%/V
Load Regulation	ΔV_{OUT2}	V _{IN} =V _{OUT} +1V, 1mA ≤ I _{OUT} ≤ 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°C ≤ T _A ≤ 85°C		±50	±100	Ppm/°C
Supply Current	I _{SS1}	V _{IN} =V _{OUT} +1V		4	7	μA
Thermal Shutdown Temperature	T _{SD}			150		°C
Thermal Shutdown Hysteresis	ΔT _{SD}			20		°C

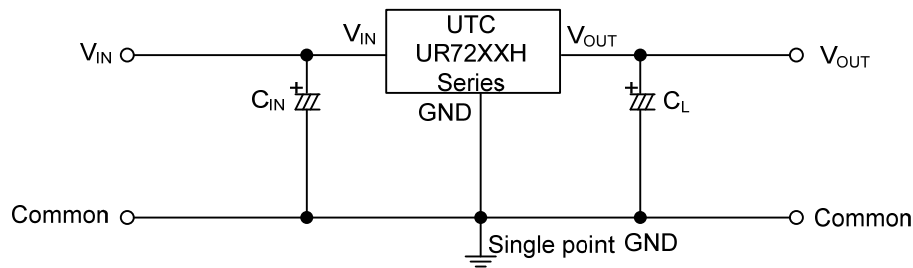
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT}.

2. V_{drop}=V_{IN1}-(V_{OUT}×0.98), V_{OUT}: V_{IN}=V_{OUT}+1V, I_{OUT}=100mA

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



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

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