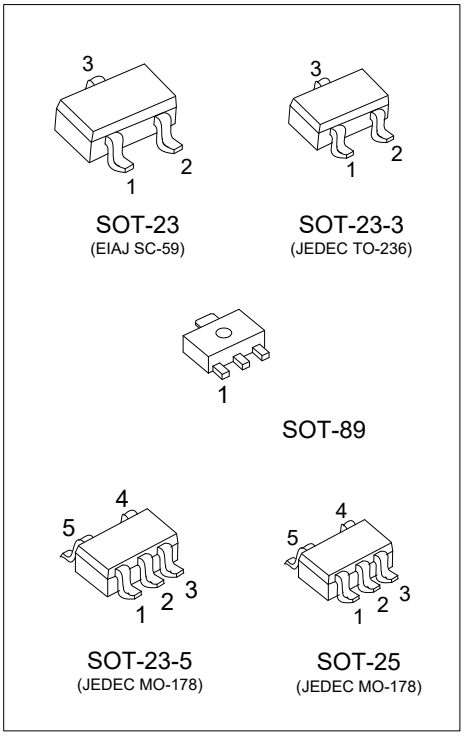
UR72XXH

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.

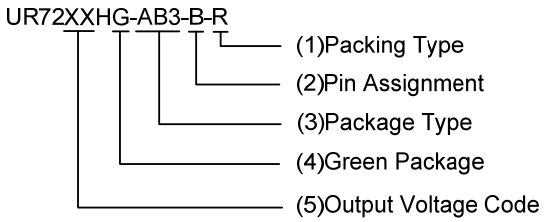
■ FEATURES

* High output voltage accuracy: ±2%
* Ultra low quiescent current: 2μA (Typ.)
* Low temperature-drift coefficient of V_{OUT}: ±50ppm/°C (Typ.)
* Wide Input voltage range: 2.5 ~ 36V

■ ORDERING INFORMATION

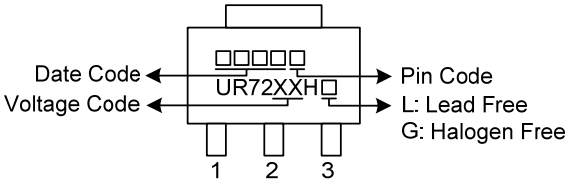
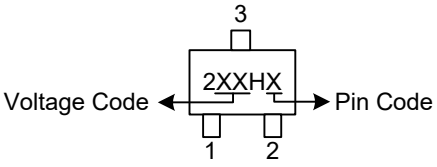
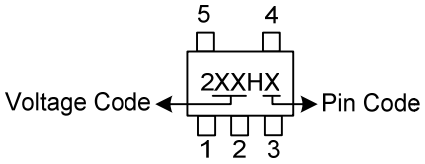
Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UR72XXHL-AB3-B-R	UR72XXHG-AB3-B-R	SOT-89	O	G	I	-	-	Tape Reel
UR72XXHL-AB3-C-R	UR72XXHG-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
UR72XXHL-AE2-3-R	UR72XXHG-AE2-3-R	SOT-23-3	G	O	I	-	-	Tape Reel
UR72XXHL-AE3-3-R	UR72XXHG-AE3-3-R	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}



(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

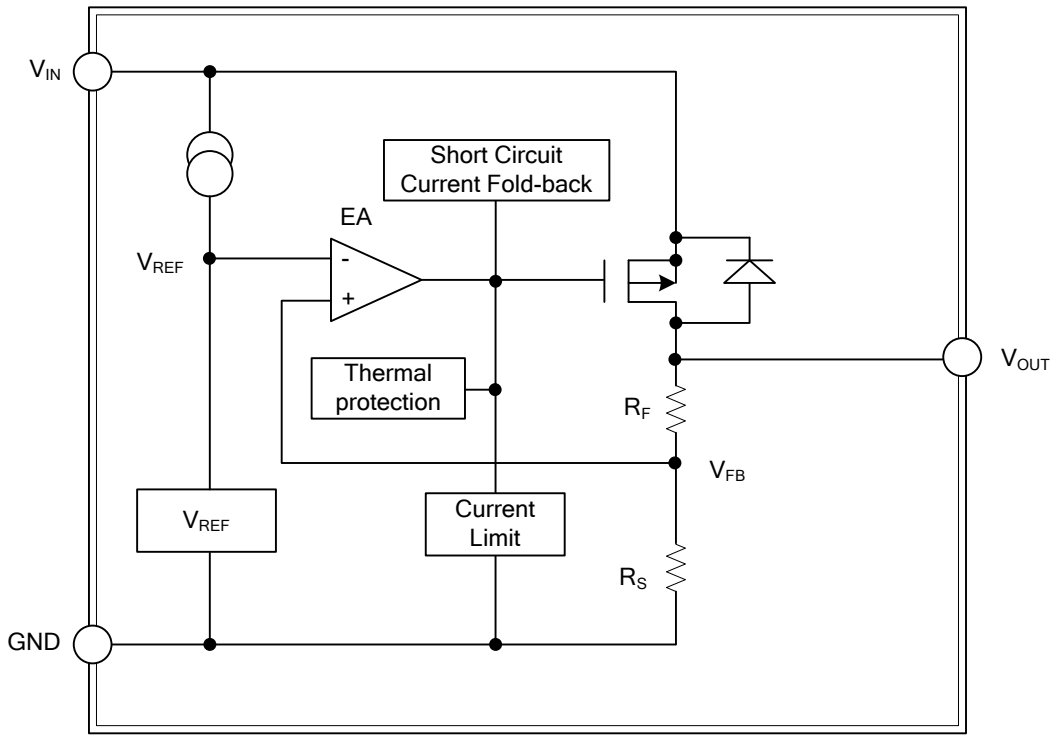
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 4B:4.15V 50:5.0V	
SOT-23-3 SOT-23		
SOT-23-5 SOT-25		

■ 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 SOT-23		280	mW
	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	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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)

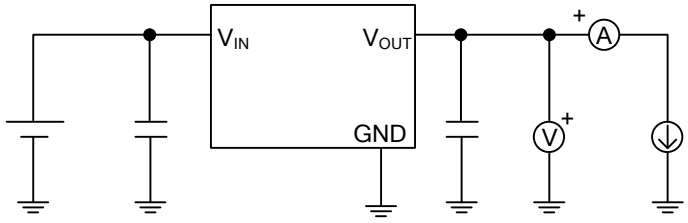
UTC **UR7250H**

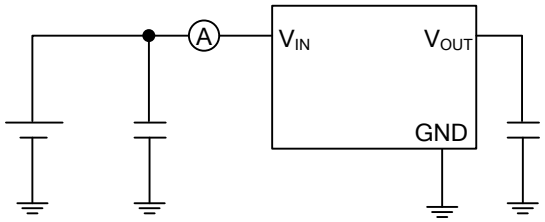
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+1V, I_{OUT}=10mA	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	V_{IN}=V_{OUT}+1V	150	200		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=100mA		320		mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	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	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	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

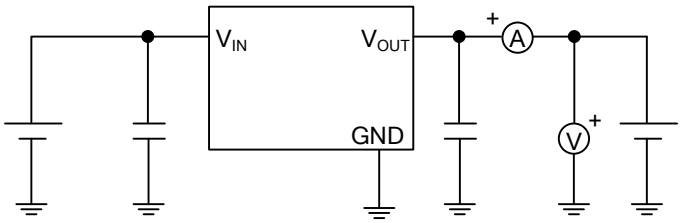
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT}.

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

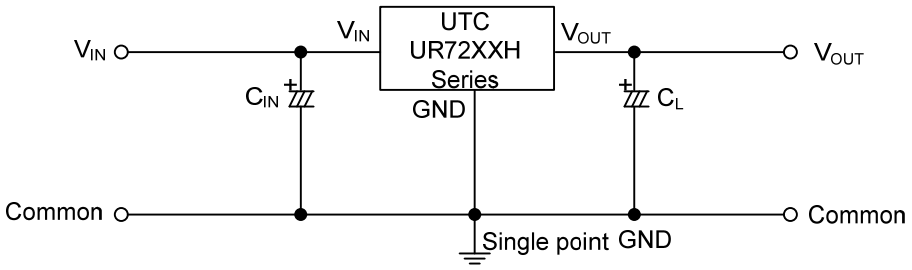
■ TEST CIRCUIT







■ TYPICAL APPLICATION CIRCUIT



C_{IN}=1uF, C_L=1uF