



UR76XXH

CMOS IC

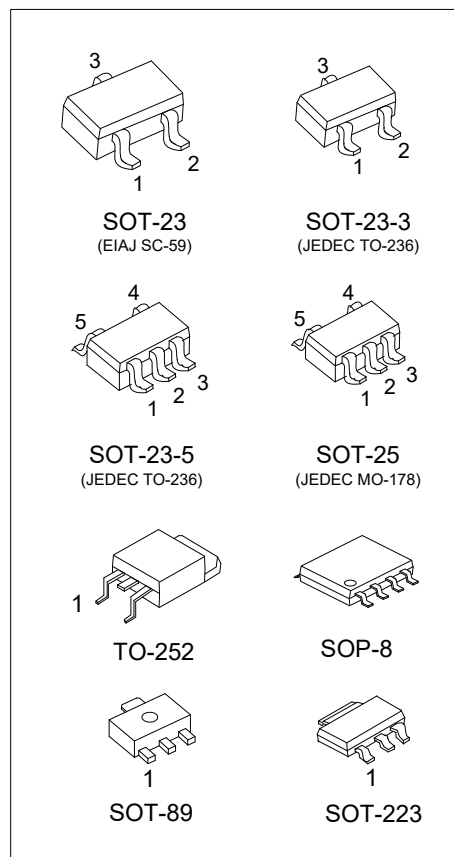
36-V INPUT VOLTAGE 500MA ULTRA LOW IQ VOLTAGE REGULATOR

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} : ± 100 ppm/ $^{\circ}\text{C}$ (Typ.)
- * Wide Input voltage range: 2.5~36V
- * OTP/OCP/SCP



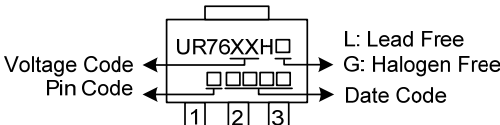
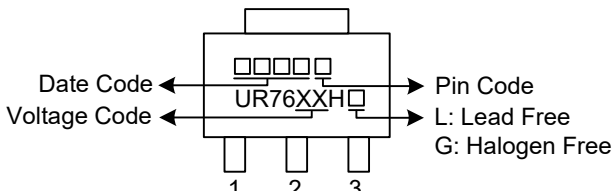
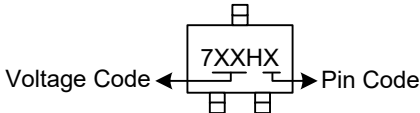
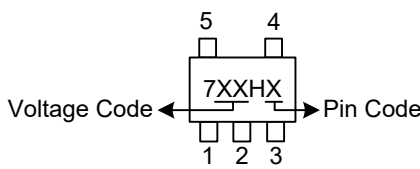
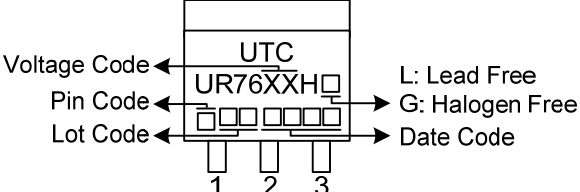
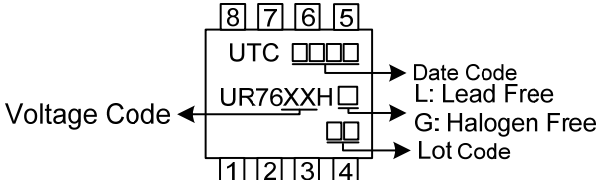
ORDERING INFORMATION

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
UR76XXHL-AB3-x-R	UR76XXHG-AB3-x-R	SOT-89	A	G	O	I					
UR76XXHL-TN3-x-R	UR76XXHG-TN3-x-R	TO-252	B	O	G	I					
			C	G	I	O					
			D	I	G	O					
UR76XXHL-AE2-x-R	UR76XXHG-AE2-x-R	SOT-23-3	Pin Code				1	2	3		Tape Reel
UR76XXHL-AE3-x-R	UR76XXHG-AE3-x-R	SOT-23	3	G	O	I					
			4	I	O	G					
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}

UR76XXHG-AA3-x-R	(1) Packing Type
	(2) Pin Code
	(3) Package Type
	(4) Green Package
	(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
	TN3: TO-252, S08: SOP-8
	(4) G: Halogen Free and Lead Free, L: Lead Free

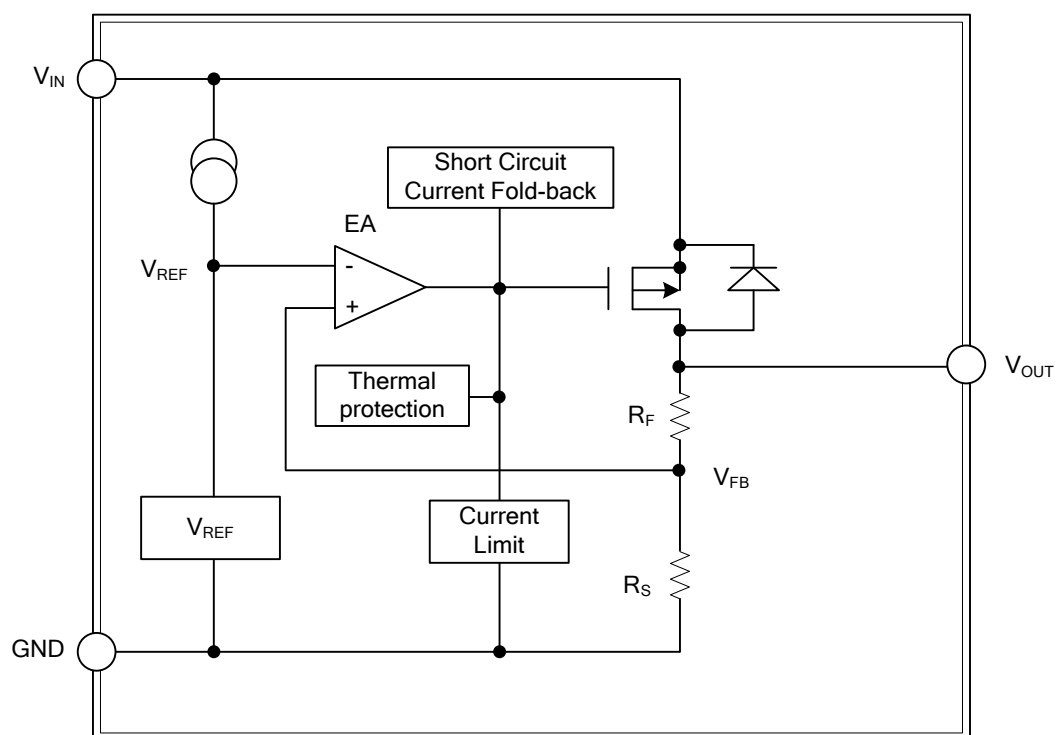
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	33: 3.3V 36: 3.6V 40: 4.0V 50: 5.0V	 UR76XXH□ Voltage Code ← Pin Code → Date Code 1 2 3 L: Lead Free G: Halogen Free
SOT-89		 UR76XXH□ Date Code ← Voltage Code → Pin Code 1 2 3 L: Lead Free G: Halogen Free
SOT-23-3 SOT-23		 7XXHX□ Voltage Code ← Pin Code
SOT-25 SOT-23-5		 7XXHX□ Voltage Code ← Pin Code
TO-252		 UTC UR76XXH□ Voltage Code ← Pin Code → Lot Code → Date Code 1 2 3 L: Lead Free G: Halogen Free
SOP-8		 UTC UR76XXH□ Voltage Code ← Date Code → L: Lead Free → G: Halogen Free → Lot Code 1 2 3 4

PIN DESCRIPTION

PIN NAME	DESCRIPTION
GND	Ground
V _{IN}	Input voltage
V _{OUT}	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		550	mW
	SOT-23/SOT-25		360	mW
	SOT-23-3		330	mW
	SOT-23-5			
	TO-252		890	mW
	SOP-8		670	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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ_{JA}	165	°C/W
	SOT-89		180	°C/W
	SOT-23/SOT-25		280	°C/W
	SOT-23-3		300	°C/W
	SOT-23-5			
	TO-252		112	°C/W
	SOP-8		150	°C/W
Junction to Case	SOT-223	θ_{JC}	15	°C/W
	SOT-89		50	°C/W
	SOT-23/SOT-25		90	°C/W
	SOT-23-3		120	°C/W
	SOT-23-5			
	TO-252		12	°C/W
	SOP-8		20	°C/W

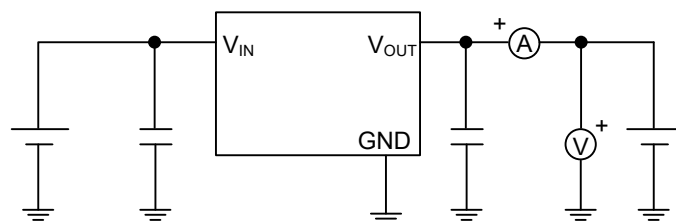
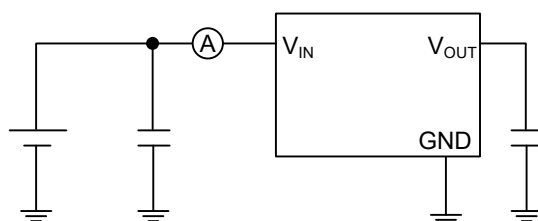
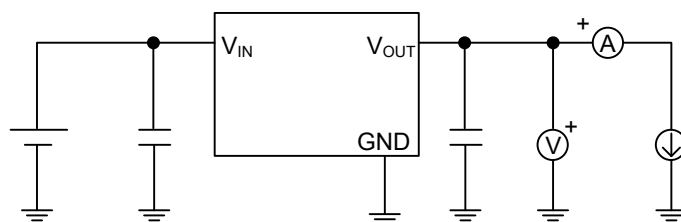
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

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	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}	$V_{IN}=V_{OUT}+2V$	UR76XXH-A	6	10	μA
			UR76XXH-B	15	20	μA
Thermal Shutdown	TSD			160		°C

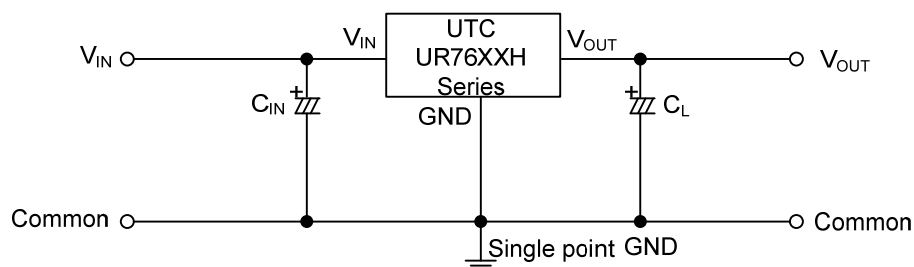
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

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



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

$$C_L > 2.2\mu F$$

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