



UR57XX

Preliminary

CMOS IC

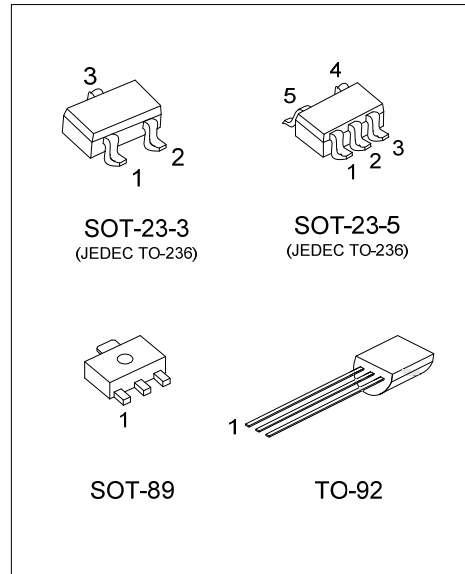
**18V INPUT VOLTAGE 1A
ULTRA LOW IQ VOLTAGE
REGULATOR**

■ DESCRIPTION

The UTC **UR57XX** 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 its 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: 0~18V



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UR57XXL-AB3-R	UR57XXG-AB3-R	SOT-89	G	I	O	-	-	Tape Reel
UR57XXL-AE2-R	UR57XXG-AE2-R	SOT-23-3	G	O	I	-	-	Tape Reel
UR57XXL-AE5-R	UR57XXG-AE5-R	SOT-23-5	I	G	N	N	O	Tape Reel
UR57XXL-T92-B	UR57XXG-T92-B	TO-92	G	I	O	-	-	Tape Box
UR57XXL-T92-K	UR57XXG-T92-K	TO-92	G	I	O	-	-	Bulk

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

<p>UR57XXG-AB3-R</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AB3: SOT-89, AE2: SOT-23-3, AE5: SOT-23-5 T92: TO-92 (4) G: Halogen Free and Lead Free, L: Lead Free (5) XX: Refer to Marking Information</p>
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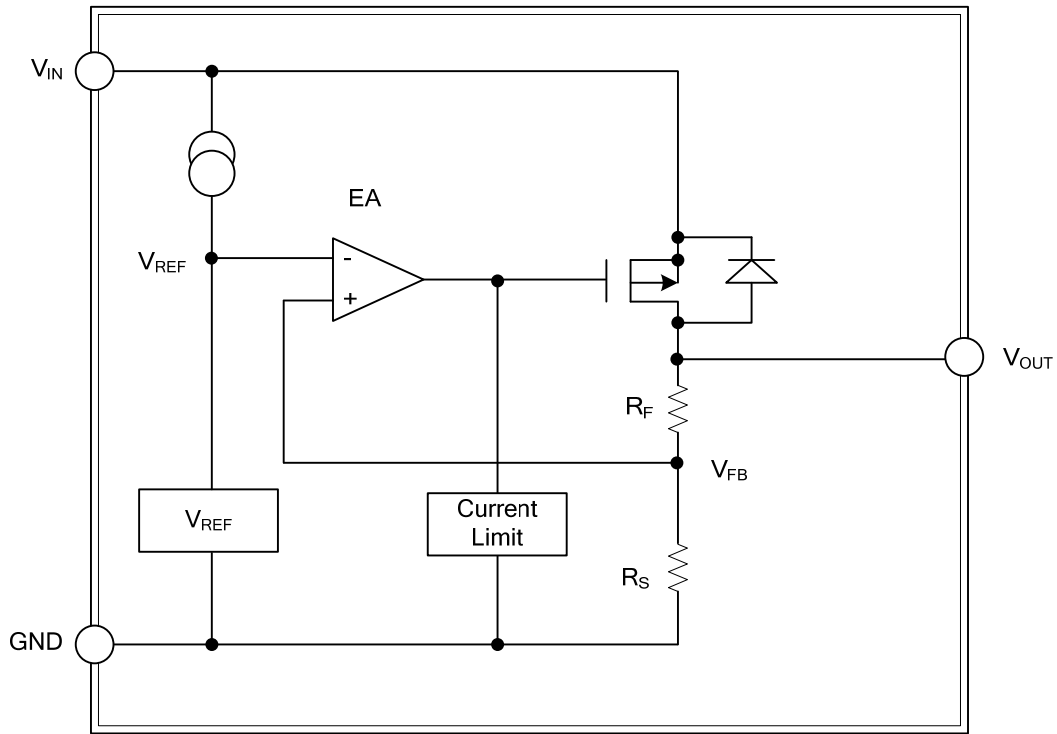
MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	33:3.3V 36:3.6V 40:4.0V 44:4.4V 50:5.0V	
SOT-23-3		
TO-92		
SOT-23-5		

PIN DESCRIPTION

PIN NO.				PIN NAME	DESCRIPTION
TO-92	SOT-89	SOT-23-3	SOT-23-5		
1	1	1	2	GND	Ground
2	2	3	1	V _{IN}	Input voltage.
3	3	2	5	V _{OUT}	Regulated output voltage
-	-	-	3/4	NC	No connect

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT	
Input Voltage	V_{IN}	18	V	
Output Voltage	V_{OUT}	6	V	
Power Dissipation	P_D	SOT-23-3	200	mW
		SOT-23-5	250	mW
		SOT-89	500	mW
		TO-92		
Operating Temperature Range	T_{OPR}	-40 ~ +85	°C	
Storage Temperature Range	T_{STG}	-40 ~ +125	°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 UR5733

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}	$V_{IN}=V_{OUT}+2V$	1000			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 16V, I_{OUT}=1\text{mA}$		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	5.0	uA

UTC UR5736

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	3.528	3.6	3.672	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	1000			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 16V, I_{OUT}=1\text{mA}$		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	5.0	uA

UTC UR5740

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	3.92	4.0	4.08	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	1000			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 16V, I_{OUT}=1\text{mA}$		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	5.0	uA

■ ELECTRICAL CHARACTERISTICS (Cont.)

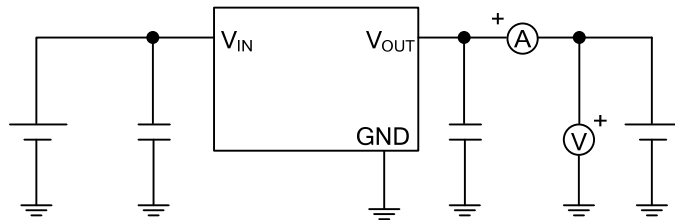
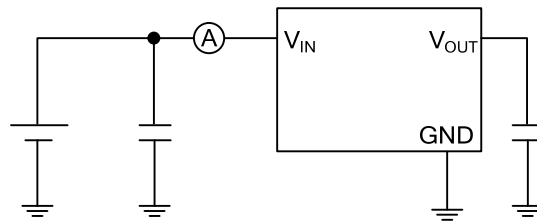
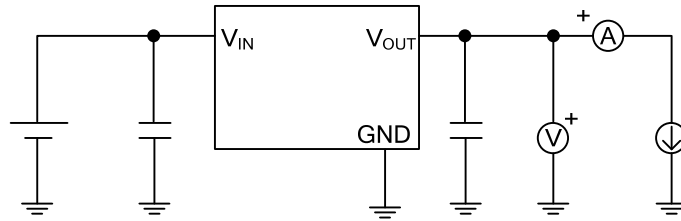
UTC UR5750

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10mA$	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	1000			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100mA$		170	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 16V, I_{OUT}=1mA$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0mA \leq I_{OUT} \leq 100mA$		30	80	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10mA, -40^\circ C \leq T_A \leq 85^\circ C$		± 100		ppm/ $^\circ C$
Supply Current	I_{SS1}	$V_{IN}=V_{OUT}+2V$		1.0	5.0	μA

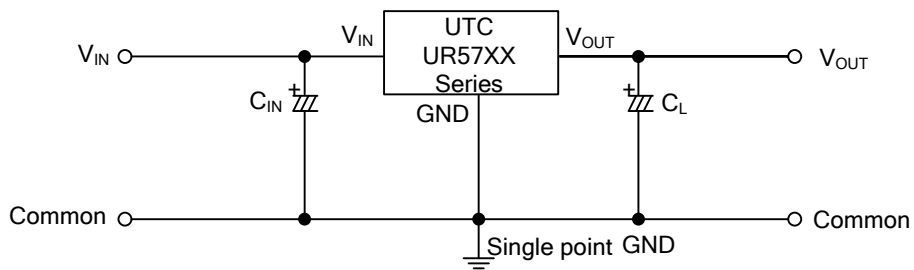
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

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

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



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

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