



UR66XX

Preliminary

CMOS IC

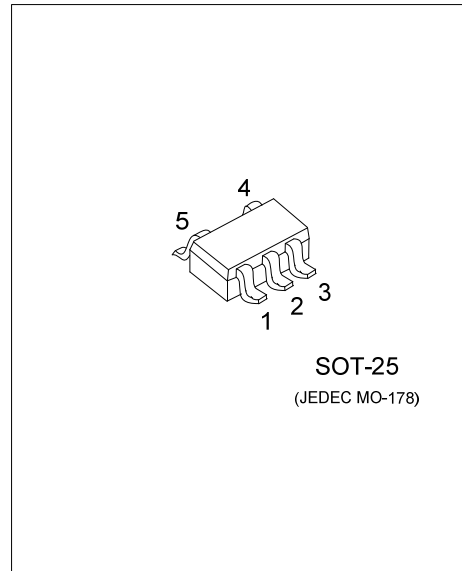
18-V INPUT VOLTAGE 0.5A LOW IQ VOLTAGE REGULATOR

DESCRIPTION

The UTC **UR66XX** Series are a low dropout regulator with wide input voltage range, high output voltage accuracy, 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: $\pm 2\%$
- * Low quiescent current: 15 μ A (Typ.)
- * Low temperature-drift coefficient of V_{OUT} : ± 100 ppm/ $^{\circ}$ C (Typ.)
- * Wide Input voltage range: 2.5~18V



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UR66XXL-AF5-K-R	UR66XXG-AF5-K-R	SOT-25	I	G	C	N	O	Tape Reel

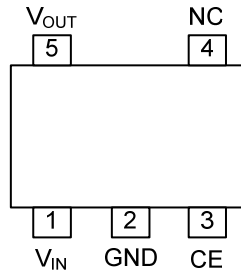
Note: Pin Assignment: I: V_{IN} G: GND C: CE N: NC O: V_{OUT}

<p>UR66XXG-AF5-K-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) 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-25	33: 3.3V 36: 3.6V 50: 5.0V	

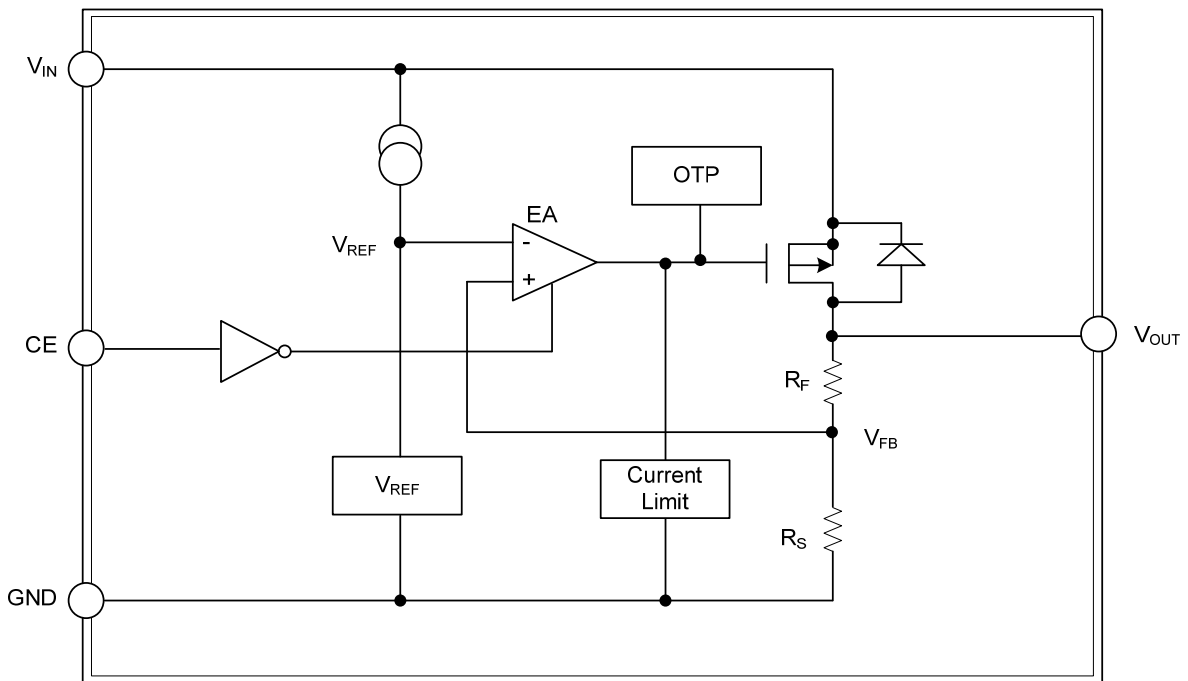
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{IN}	Input voltage.
2	GND	Ground.
3	CE	Enable.
4	NC	No connect.
5	V _{OUT}	Regulated output voltage.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	18	V
Input Voltage (CE Pin)	V_{CE}	18	V
Output Voltage	V_{OUT}	12	V
Power Dissipation	P_D	300	mW
Operating Temperature Range	T_{OPR}	-40 ~ +85	°C
Storage Temperature Range	T_{STG}	-40 ~ +125	°C

Note: 1. 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 UR6633

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}	$V_{IN}=V_{OUT}+2V$	500			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 18V$, $I_{OUT}=1\text{mA}$		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_{SS}	$V_{IN}=V_{OUT}+2V$		15	20	μA
Thermal Shutdown	TSD			160		°C
CE Input Voltage "H"	V_{CEH}	Only with CE pin; ON for "H"		$V_{IN}-0.5$	V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin; OFF for "L"	0	0.5		V

UTC UR6636

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}	$V_{IN}=V_{OUT}+2V$	500			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100\text{mA}$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 18V$, $I_{OUT}=1\text{mA}$		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_{SS}	$V_{IN}=V_{OUT}+2V$		15	20	μA
Thermal Shutdown	TSD			160		°C
CE Input Voltage "H"	V_{CEH}	Only with CE pin; ON for "H"		$V_{IN}-0.5$	V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin; OFF for "L"	0	0.5		V

■ ELECTRICAL CHARACTERISTICS (Cont.)

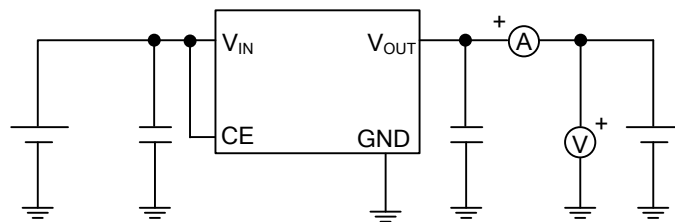
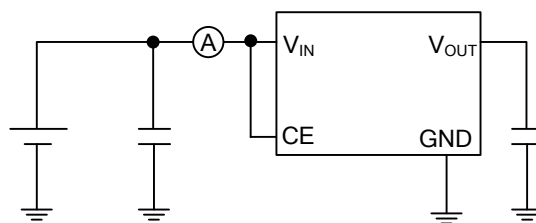
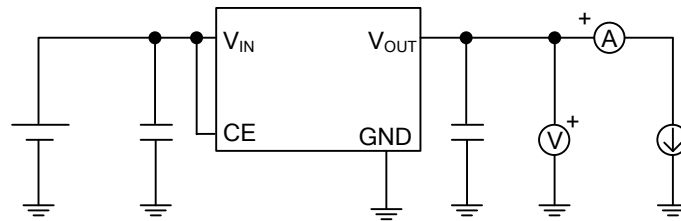
UTC UR6650

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}	$V_{IN}=V_{OUT}+2V$	500			mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=100mA$		160	200	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 18V, I_{OUT}=1mA$		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_{SS}	$V_{IN}=V_{OUT}+2V$		15	20	μA
Thermal Shutdown	TSD			160		$^\circ C$
CE Input Voltage "H"	V_{CEH}	Only with CE pin; ON for "H"		$V_{IN}-0.5$	V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin; OFF for "L"	0	0.5		V

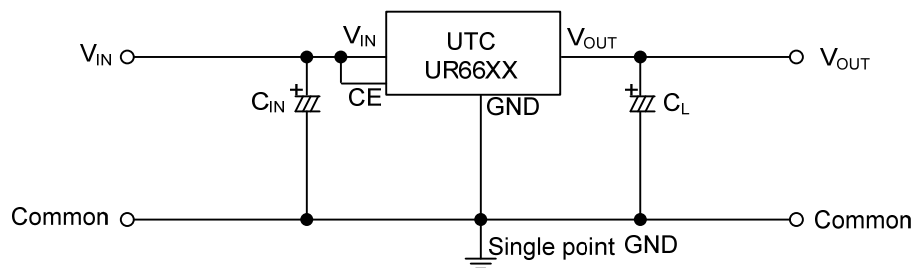
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

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



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

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