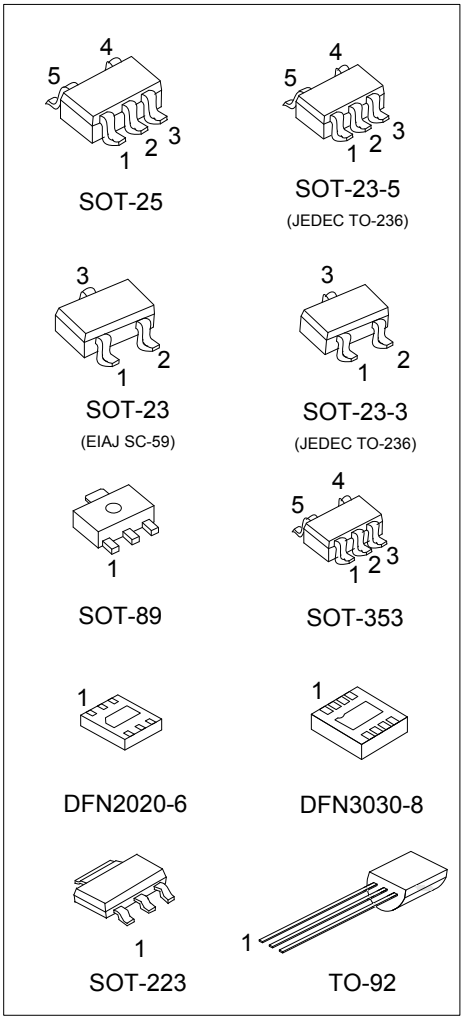
UR71XX

CMOS IC

HIGH VOLTAGE , ULTRA LOW IQ VOLTAGE REGULATOR



■ DESCRIPTION

The UTC **UR71XX** 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.

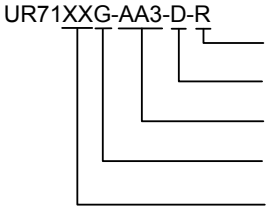
■ FEATURES

* High output voltage accuracy: ±2%
* Ultra low quiescent current: 1.2uA (Typ.)
* Low temperature-drift coefficient of V_{OUT}: ±50ppm/°C (Typ.)
* Wide Input voltage range: 0 ~ 36V

■ ORDERING INFORMATION

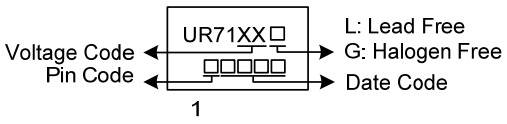
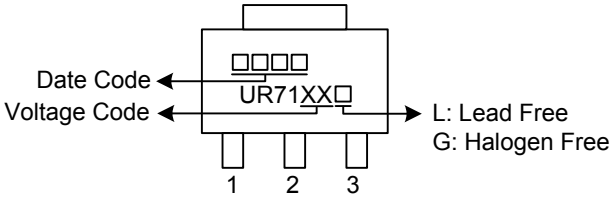
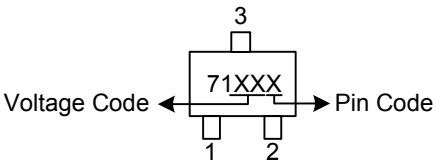
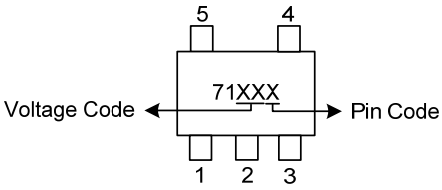
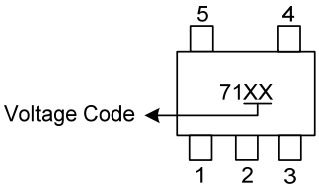
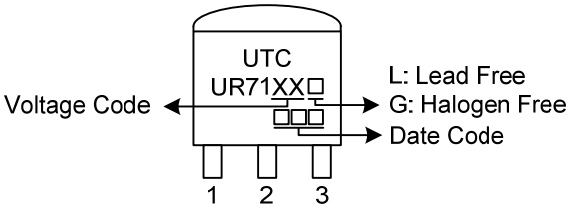
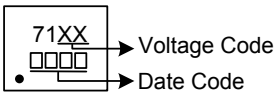
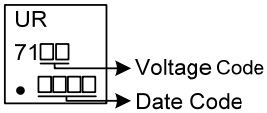
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UR71XXL-AA3-D-R	UR71XXG-AA3-D-R	SOT-223	I	G	O	-	-	-	-	-	Tape Reel
UR71XXL-AB3-R	UR71XXG-AB3-R	SOT-89	G	I	O	-	-	-	-	-	Tape Reel
UR71XXL-AE2-1-R	UR71XXG-AE2-1-R	SOT-23-3	1: GIO 3: GOI 4: IOG								Tape Reel
UR71XXL-AE2-3-R	UR71XXG-AE2-3-R	SOT-23-3									Tape Reel
UR71XXL-AE2-4-R	UR71XXG-AE2-4-R	SOT-23-3									Tape Reel
UR71XXL-AE3-1-R	UR71XXG-AE3-1-R	SOT-23									Tape Reel
UR71XXL-AE3-3-R	UR71XXG-AE3-3-R	SOT-23									Tape Reel
UR71XXL-AE3-4-R	UR71XXG-AE3-4-R	SOT-23									Tape Reel
UR71XXL-AE5-C-R	UR71XXG-AE5-C-R	SOT-23-5	I	G	C	N	O	-	-	-	Tape Reel
UR71XXL-AE5-V-R	UR71XXG-AE5-V-R	SOT-23-5	G	I	O	N	C	-	-	-	Tape Reel
UR71XXL-AF5-C-R	UR71XXG-AF5-C-R	SOT-25	I	G	C	N	O	-	-	-	Tape Reel
UR71XXL-AF5-F-R	UR71XXG-AF5-F-R	SOT-25	G	I	O	N	N	-	-	-	Tape Reel
UR71XXL-AL5-R	UR71XXG-AL5-R	SOT-353	N	G	N	I	O	-	-	-	Tape Reel
UR71XXL-T92-B	UR71XXG-T92-B	TO-92	G	I	O	-	-	-	-	-	Tape Box
UR71XXL-T92-K	UR71XXG-T92-K	TO-92	G	I	O	-	-	-	-	-	Bulk
UR71XXL-K06-2020-R	UR71XXG-K06-2020-R	DFN2020-6	O	N	G	C	N	I	-	-	Tape Reel
UR71XXL-K08-3030-R	UR71XXG-K08-3030-R	DFN3030-8	I	N	N	G	N	N	N	O	Tape Reel

Note: Pin assignment: G: Ground I: V_{IN} O: V_{OUT} C: CE N: NC

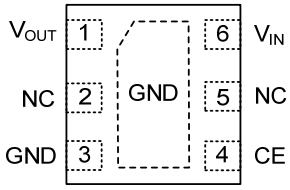


(1) R: Tape Reel, B: Tape Box, K: Bulk
(2) refer to Pin Assignment
(3) AA3: SOT-223, AB3: SOT-89, AE2: SOT-23-3
AE3: SOT-23, AE5: SOT-23-5, AF5: SOT-25
AL5: SOT-353, T92: TO-92, K06-2020: DFN2020-6
K08-3030: DFN3030-8
(4) G: Halogen Free and Lead Free, L: Lead Free
(5) XX: Refer to Marking Information

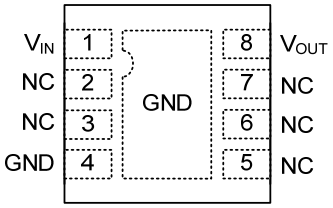
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	33:3.3V 40:4.0V 50:5.0V	
SOT-89		
SOT-23-3 SOT-23		
SOT-23-5 SOT-25		
SOT-353		
TO-92		
DFN2020-6		
DFN3030-8		

■ PIN CONFIGURATION



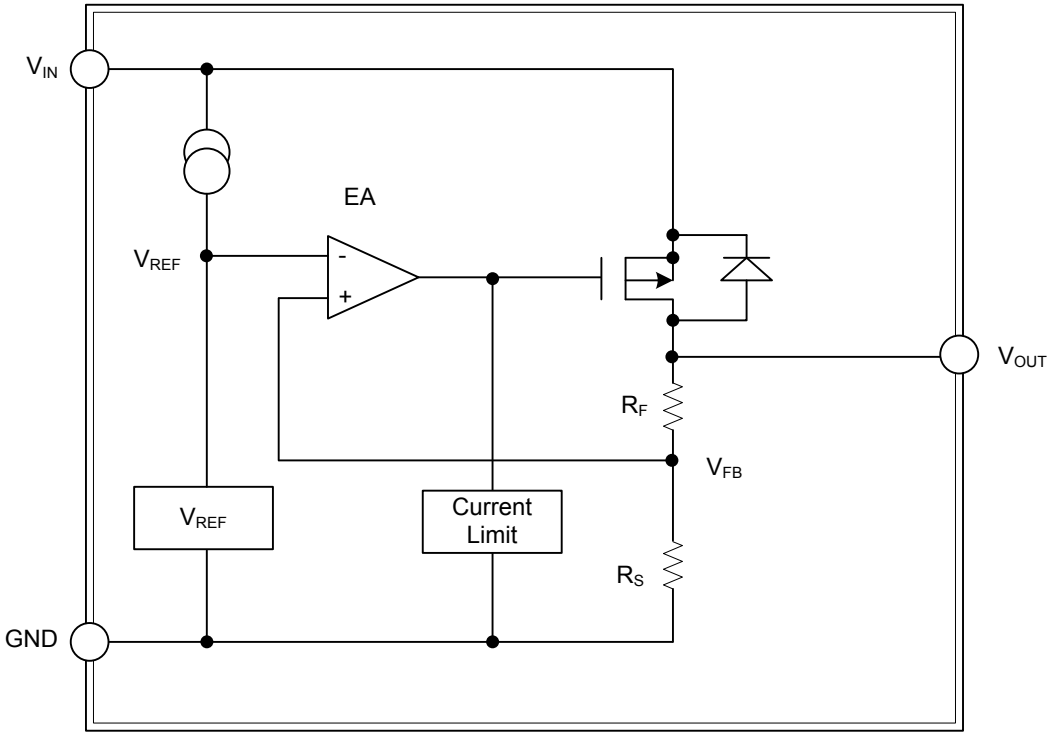
(Top View)
DFN2020-6



(Top View)
DFN3030-8

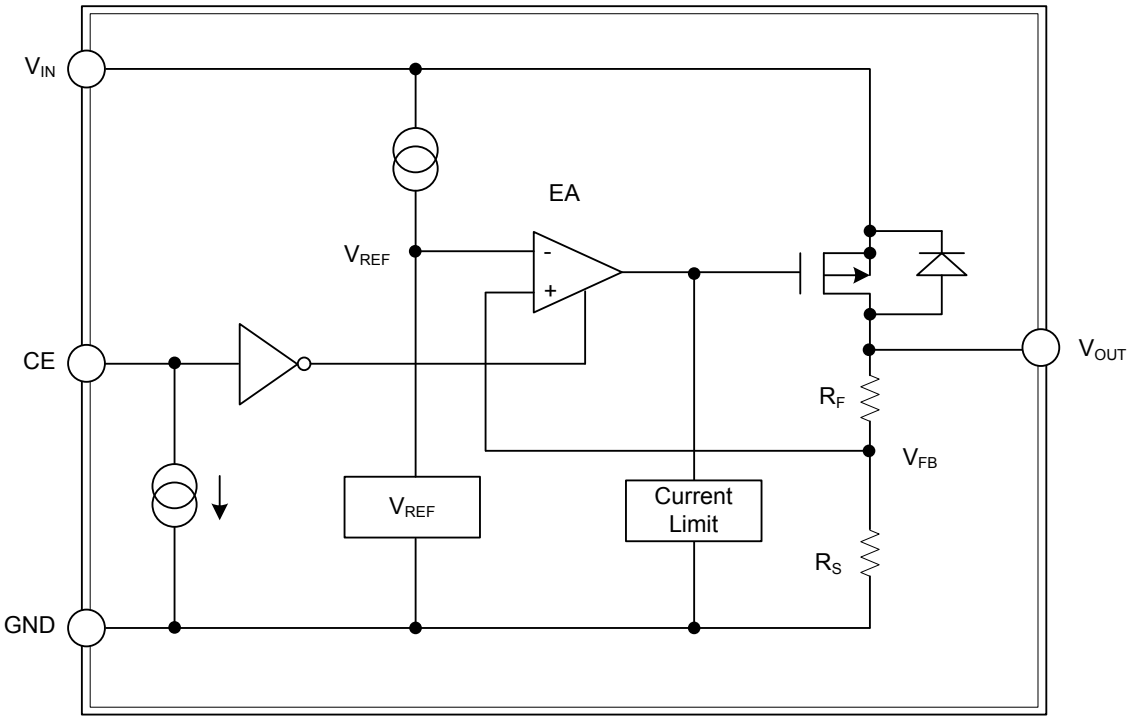
■ BLOCK DIAGRAM

For 3 Pin & 8 Pin



■ BLOCK DIAGRAM (Cont.)

For 5 Pin & 6 Pin



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	36	V
Power Dissipation	SOT-223	P_D	600	mW
	SOT-23-3/SOT-23		250	mW
	SOT-23-5/SOT-25 SOT-353		300	mW
	SOT-89/TO-92		500	mW
	DFN2020-6		1000 (Note 2)	mW
	DFN3030-8		1535 (Note 2)	mW
Operating Temperature Range		T_{OPR}	-40 ~ +125	°C
Storage Temperature Range		T_{STG}	-40 ~ +125	°C

Notes: 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.
2. The data tested by surface mounted on a 2 inch^2 FR-4 board with 2OZ copper.

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

UTC **UR7133**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA	3.234	3.3	3.366	V
Output Current (Note 1)	I_{OUT}	V_{IN}=V_{OUT}+2V	80			mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	V_{OUT}+2V≤V_{IN}≤36V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=V_{OUT}+2V, 1.0mA≤I_{OUT}≤50mA		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA , -40°C≤T_A≤85°C		±100		Ppm/°C
Supply Current	I_{SS1}	V_{IN}=V_{OUT}+2V		1.2	4.0	uA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V_{CEH}	Only with CE pin	V_{IN}-1		V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin	0		1	V

UTC **UR7140**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA	3.92	4.0	4.08	V
Output Current (Note 1)	I_{OUT}	V_{IN}=V_{OUT}+2V	80			mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	V_{OUT}+2V≤V_{IN}≤36V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=V_{OUT}+2V, 1.0mA≤I_{OUT}≤50mA		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	V_{IN}=V_{OUT}+2V, I_{OUT}=10mA , -40°C≤T_A≤85°C		±100		Ppm/°C
Supply Current	I_{SS1}	V_{IN}=V_{OUT}+2V		1.2	4.0	uA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V_{CEH}	Only with CE pin	V_{IN}-1		V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin	0		1	V

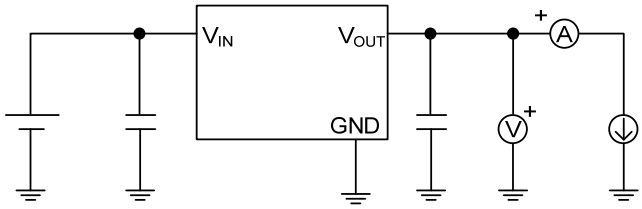
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

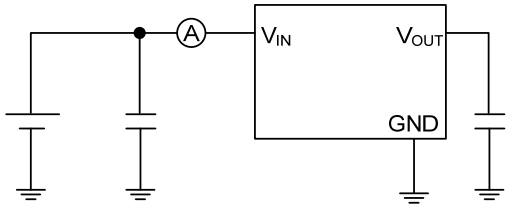
UTC **UR7150**

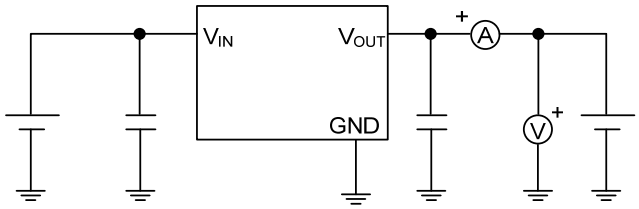
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V$, I_{OUT}=10mA	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	80			mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		50	100	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	$V_{OUT}+2V \le V_{IN} \le 36V$, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V$, 1.0mA≤I_{OUT}≤50mA		50	100	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \bullet V_{OUT}}$	$V_{IN}=V_{OUT}+2V$, I_{OUT}=10mA , -40°C≤T_A≤85°C		±100		Ppm/°C
Supply Current	I_{SS1}	$V_{IN}=V_{OUT}+2V$		1.2	4.0	uA
CE Pull-down Current	I_{PD}	Only with CE pin		0.3		uA
CE Input Voltage "H"	V_{CEH}	Only with CE pin	V_{IN}-1		V_{IN}	V
CE Input Voltage "L"	V_{CEL}	Only with CE pin	0		1	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

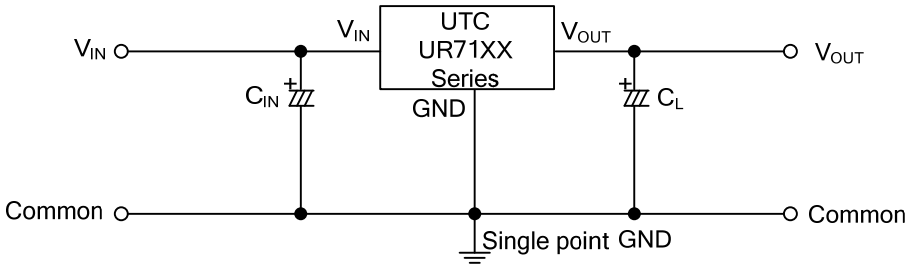
■ TEST CIRCUIT







■ TYPICAL APPLICATION CIRCUIT



C_{IN}>1.0μF
C_L>2.2μF (tantalum capacitor)