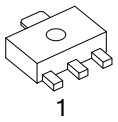
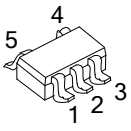
32V, 7μA IQ CMOS VOLTAGE REGULATOR



SOT-89



SOT-25

■ DESCRIPTION

The UTC **UT72XX** Series are a low dropout regulator with 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 30V, thus they are very suitable for high voltage application.

■ FEATURES

* High output voltage accuracy: ±3%
* Low dropout: TYP. 40mV
* Ultra low quiescent current: TYP. 7uA
* Low temperature-drift coefficient of V_{OUT}: TYP. ±50ppm/°C
* Wide Input voltage range: 0~32V

■ ORDERING INFORMATION

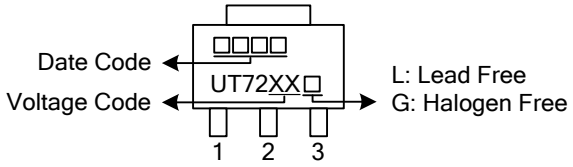
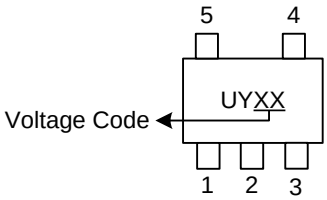
Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UT72XXL-AB3-C-R	UT72XXG-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
UT72XXL-AF5-C-R	UT72XXG-AF5-C-R	SOT-25	I	G	N	N	O	Tape Reel

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

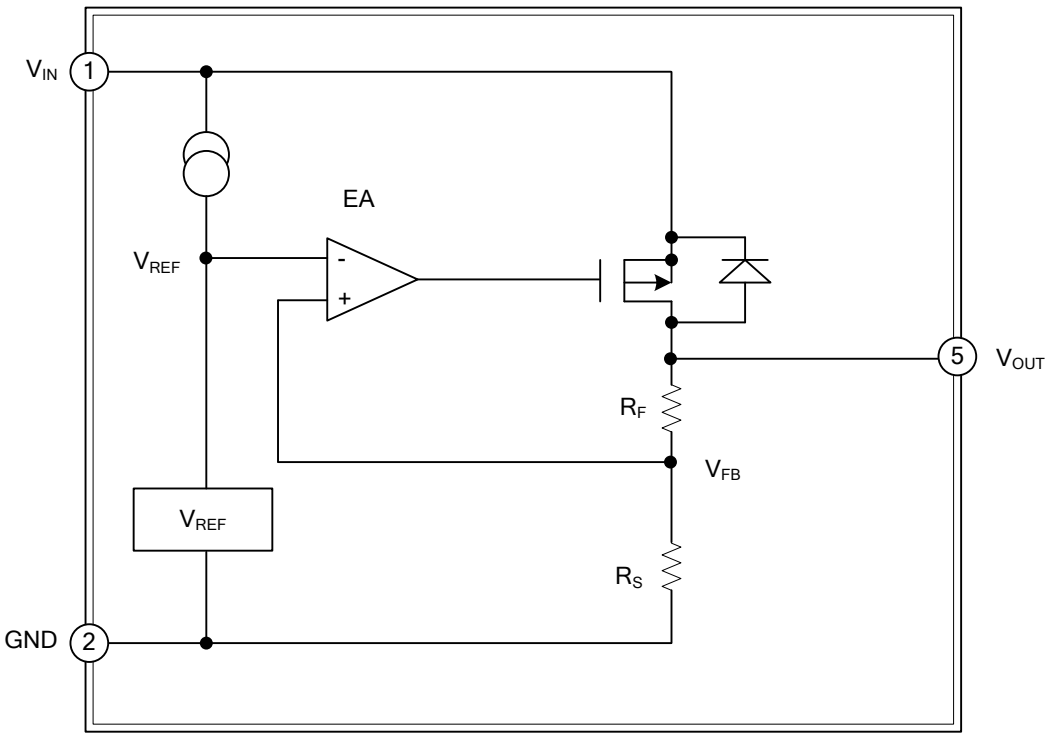
UT72XXG-AB3-C-R

(1)Packing Type	(1) R: Tape Reel
(2)Pin Assignment	(2) refer to Pin Assignment
(3)Package Type	(3) AB3: SOT-89, AF5: SOT-25
(4)Green Package	(4) G: Halogen Free and Lead Free, L: Lead Free
(5)Output Voltage Code	(5) xx: refer to Marking Information

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	30:3.0V 33:3.3V 36:3.6V 44:4.4V 50:5.0V	
SOT-25		

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	32	V
Output Voltage		V_{OUT}	V_{SS}-0.3 ~ V_{IN}+0.3	V
Power Dissipation	SOT-89	P_D	350	mW
	SOT-25		240	mW
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°C, unless otherwise specified)

UTC **UT7230**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5V, I_{OUT}=10mA	2.94	3.0	3.06	V
Output Current (Note 1)	I_{OUT}	V_{IN}= 5V	40	50		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		40	60	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	4V≤V_{IN}≤32V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=5V, 1.0mA≤I_{OUT}≤30mA		60	100	mV
Supply Current	I_{SS1}	V_{IN}=5V		7	15	uA
Input Voltage	V_{IN}				32	V

UTC **UT7233**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.3V, I_{OUT}=10mA	3.234	3.3	3.366	V
Output Current (Note 1)	I_{OUT}	V_{IN}= 5.3V	40	50		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		40	60	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	4.3V≤V_{IN}≤32V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=5.3V, 1.0mA≤I_{OUT}≤30mA		60	100	mV
Supply Current	I_{SS1}	V_{IN}=5.3V		7	15	uA
Input Voltage	V_{IN}				32	V

UTC **UT7236**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.6V, I_{OUT}=10mA	3.528	3.6	3.672	V
Output Current (Note 1)	I_{OUT}	V_{IN}= 5.6V	40	50		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		40	60	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	4.6V≤V_{IN}≤32V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=5.6V, 1.0mA≤I_{OUT}≤30mA		60	100	mV
Supply Current	I_{SS1}	V_{IN}=5.6V		7	15	uA
Input Voltage	V_{IN}				32	V

■ ELECTRICAL CHARACTERISTICS (Cont.)

UTC **UT7244**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=6.4V, I_{OUT}=10mA	4.312	4.4	4.488	V
Output Current (Note 1)	I_{OUT}	V_{IN}= 6.4V	40	50		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		40	60	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	5.4V≤V_{IN}≤32V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=6.4V, 1.0mA≤I_{OUT}≤30mA		60	100	mV
Supply Current	I_{SS1}	V_{IN}=6.4V		7	15	uA
Input Voltage	V_{IN}				32	V

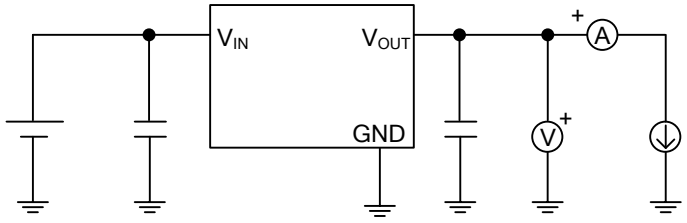
UTC **UT7250**

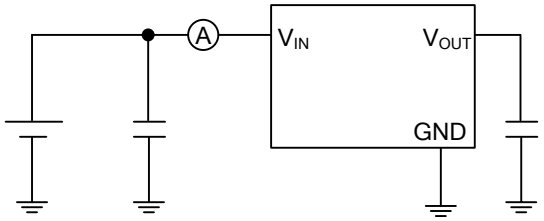
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=7V, I_{OUT}=10mA	4.90	5.0	5.10	V
Output Current (Note 1)	I_{OUT}	V_{IN}= 7V	40	50		mA
Dropout Voltage (Note 2)	V_{DROP}	I_{OUT}=1mA		40	60	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \bullet V_{OUT}}$	6V≤V_{IN}≤32V, I_{OUT}=1mA		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	V_{IN}=7V, 1.0mA≤I_{OUT}≤30mA		60	100	mV
Supply Current	I_{SS1}	V_{IN}=7V		7	15	uA
Input Voltage	V_{IN}				32	V

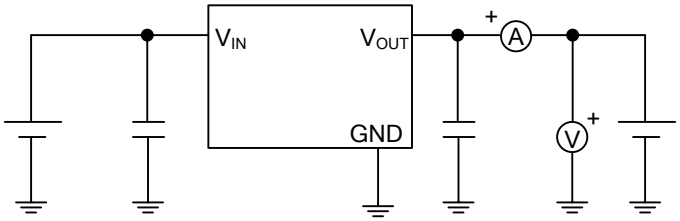
Notes: 1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT}.

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

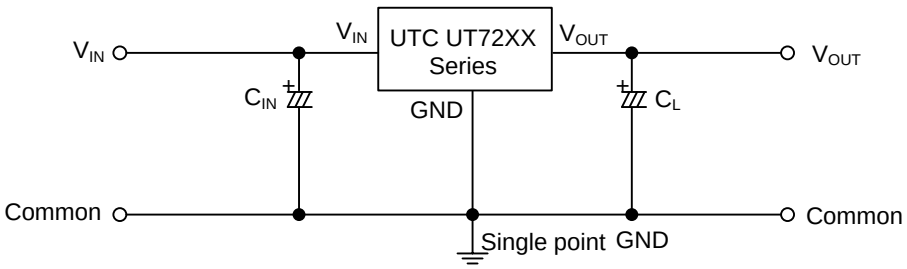
■ TEST CIRCUIT







■ TYPICAL APPLICATION CIRCUIT



C_{IN}>1.0μF

C_L>2.2μF (tantalum capacitor)