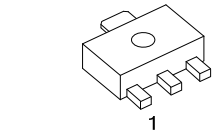
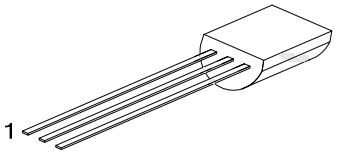
UT7500

CMOS IC

HIGH DRIVER REGULATOR



SOT-89



TO-92

■ DESCRIPTION

The UTC **UT7500** series is a low voltage regulator implemented by CMOS technology which is composed of a three-terminal high current. The input voltage for it is allowed as high as 24V and the output voltage are fixed at 3.0V、3.3V、3.6V、4.0V and 5.0V. Besides, it delivers 100mA output current. Other outstanding features of UTC **UT7500** include low voltage drop and low quiescent current.

When being used with external components, UTC **UT7500** can obtain variable voltages and currents.

UTC **UT7500** series is very suitable for applications, such as battery-powered equipment, communication equipment and audio/video equipment.

■ FEATURES

* Very Low Power Consumption
* Very Low Voltage Drop
* Very Low Temperature Coefficient
* Up to 24V Input Voltage
* 100mA @P_D≤250mW Output Current
* Tolerance ±3%

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT7500L-xx-AB3-C-R	UT7500G-xx-AB3-C-R	SOT-89	G	I	O	Tape Reel
UT7500L-xx-T92-B-B	UT7500G-xx-T92-B-B	TO-92	O	G	I	Tape Box
UT7500L-xx-T92-B-K	UT7500G-xx-T92-B-K	TO-92	O	G	I	Bulk
UT7500L-xx-T92-B-R	UT7500G-xx-T92-B-R	TO-92	O	G	I	Tape Reel
UT7500L-xx-T92-C-B	UT7500G-xx-T92-C-B	TO-92	G	I	O	Tape Box
UT7500L-xx-T92-C-K	UT7500G-xx-T92-C-K	TO-92	G	I	O	Bulk
UT7500L-xx-T92-C-R	UT7500G-xx-T92-C-R	TO-92	G	I	O	Tape Reel

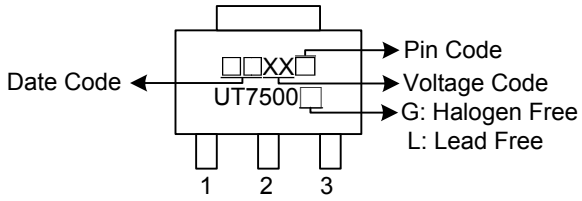
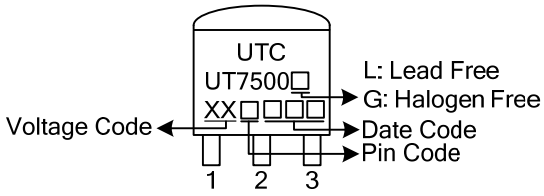
Note: Pin Assignment: I:V_{IN} O:V_{OUT} G:GND
xx: Output Voltage, refer to Marking Information.

UT7500L-xx-AB3-C-R

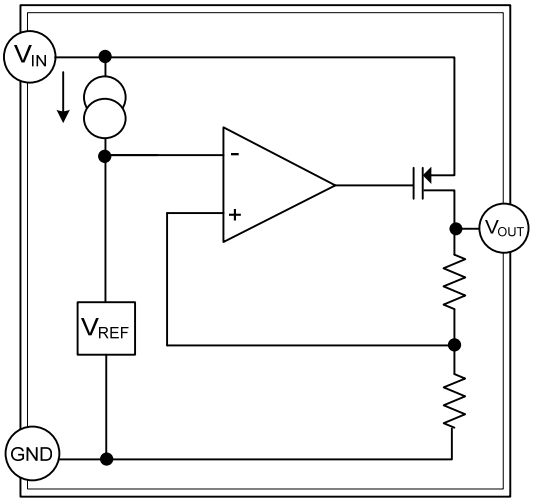
(1) Packing Type
(2) Pin Code
(3) Package Type
(4) Output Voltage Code
(5) Lead Free

(1) R: Tape Reel, B: Tape Box, K: Bulk
(2) Refer to Pin Assignment
(3) AB3: SOT-89, T92: TO-92
(4) xx: Refer to Marking Information
(5) G: Halogen Free, L: Lead Free

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	30 :3.0V 33 :3.3V 36 :3.6V 40 :4.0V 50 :5.0V	
TO-92		

■ BLOCK DAIGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	-0.3 ~ +26	V
Power Dissipation	P_D	Internally limited	
Junction Temperature	T_J	+125	°C
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-50 ~ +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)

FOR UT7500-30

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Tolerance	V_{OUT}	V_{IN} =5.0V, I_{OUT}=10mA	2.91	3.0	3.09	V
Input Voltage	V_{IN}				24	V
Output Current	I_{OUT}	V_{IN} =5.0V	60	100		mA
Load Regulation	ΔV_{OUT}	V_{IN} =5.0V, 1mA≦I_{OUT}≦50mA		60	150	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	4V≦V_{IN}≦12V, I_{OUT}=1mA		0.2		%/V
Voltage Drop	V_D	I_{OUT}=1mA		100		mV
Current Consumption	I_{SS}	V_{IN} =5.0V , No load		10	20	μA
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A}$	V_{IN} =5.0V , I_{OUT}=10mA 0°C＜T_A＜70°C		±0.45		mV/°C

FOR UT7500-33

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Tolerance	V_{OUT}	V_{IN} =5.5V, I_{OUT}=10mA	3.20	3.3	3.40	V
Input Voltage	V_{IN}				24	V
Output Current	I_{OUT}	V_{IN} =5.5V	60	100		mA
Load Regulation	ΔV_{OUT}	V_{IN} =5.5V, 1mA≦I_{OUT}≦50mA		60	150	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	4.5V≦V_{IN}≦12V, I_{OUT}=1mA		0.2		%/V
Voltage Drop	V_D	I_{OUT}=1mA		100		mV
Current Consumption	I_{SS}	V_{IN} =5.5V , No load		10	20	μA
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A}$	V_{IN} =5.5V , I_{OUT}=10mA 0°C＜T_A＜70°C		±0.5		mV/°C

FOR UT7500-36

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Tolerance	V_{OUT}	V_{IN} =5.6V, I_{OUT}=10mA	3.49	3.6	3.71	V
Input Voltage	V_{IN}				24	V
Output Current	I_{OUT}	V_{IN} =5.6V	60	100		mA
Load Regulation	ΔV_{OUT}	V_{IN} =5.6V, 1mA≦I_{OUT}≦50mA		60	150	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	4.6V≦V_{IN}≦12V, I_{OUT}=1mA		0.2		%/V
Voltage Drop	V_D	I_{OUT}=1mA		100		mV
Current Consumption	I_{SS}	V_{IN} =5.6V , No load		10	20	μA
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A}$	V_{IN} =5.6V , I_{OUT}=10mA 0°C＜T_A＜70°C		±0.5		mV/°C

■ ELECTRICAL CHARACTERISTICS(Cont.)

FOR UT7500-40

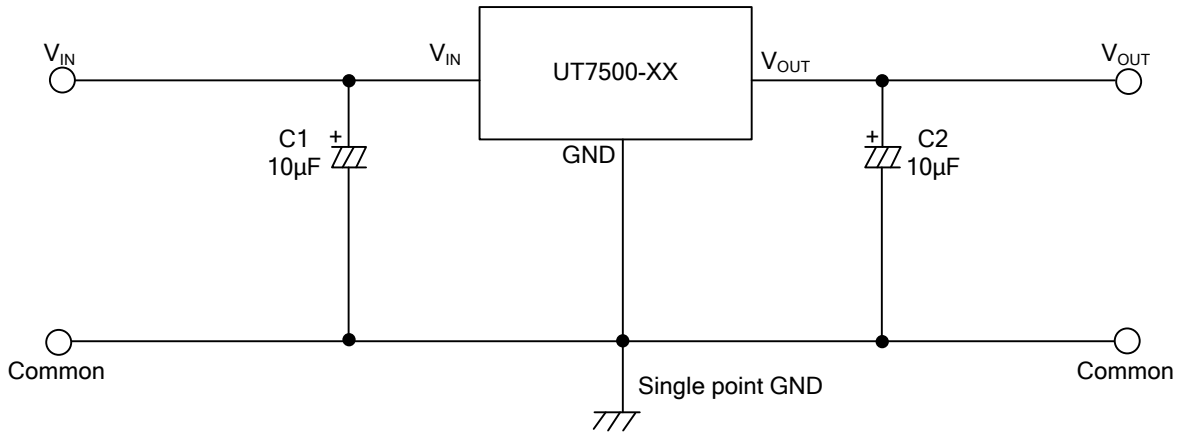
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Tolerance	V_{OUT}	V_{IN} =6.0V, I_{OUT}=10mA	3.88	4	4.12	V
Input Voltage	V_{IN}				24	V
Output Current	I_{OUT}	V_{IN} =6.0V	100	150		mA
Load Regulation	ΔV_{OUT}	V_{IN} =6.0V, 1mA≦I_{OUT}≦70mA		60	150	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	5V≦V_{IN}≦12V, I_{OUT}=1mA		0.2		%/V
Voltage Drop	V_D	I_{OUT}=1mA		100		mV
Current Consumption	I_{SS}	V_{IN} =6.0V , No load		10	20	μA
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A}$	V_{IN} =6.0V , I_{OUT}=10mA 0°C＜T_A＜70°C		±0.75		mV/°C

FOR UT7500-50

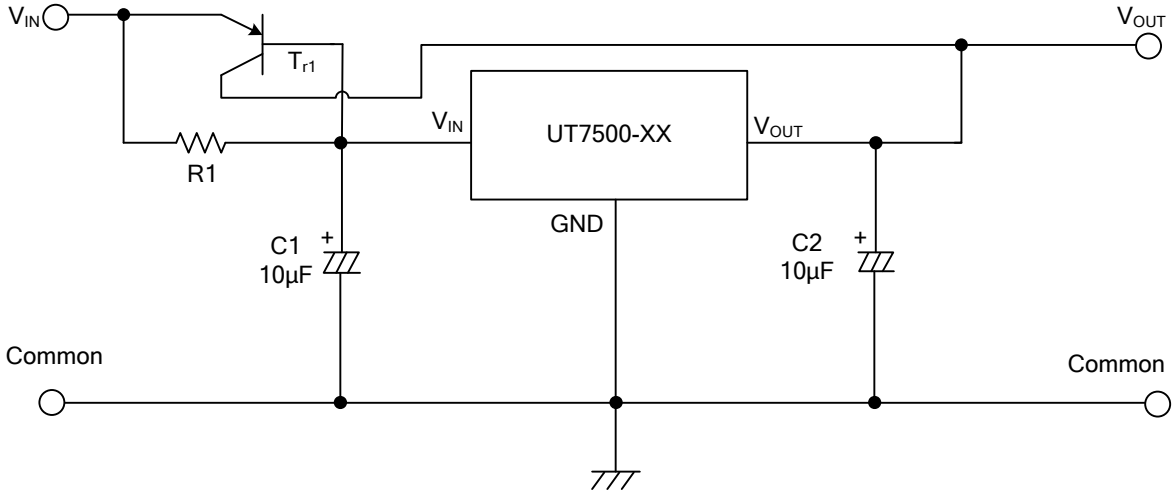
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Tolerance	V_{OUT}	V_{IN} =7.0V, I_{OUT}=10mA	4.85	5.0	5.15	V
Input Voltage	V_{IN}				24	V
Output Current	I_{OUT}	V_{IN} =7.0V	100	150		mA
Load Regulation	ΔV_{OUT}	V_{IN} =7.0V, 1mA≦I_{OUT}≦70mA		60	150	mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	6V≦V_{IN}≦15V, I_{OUT}=1mA		0.2		%/V
Voltage Drop	V_D	I_{OUT}=1mA		100		mV
Current Consumption	I_{SS}	V_{IN} =7.0V , No load		10	20	μA
Temperature Coefficient	$\frac{\Delta V_{OUT}}{\Delta T_A}$	V_{IN} =7.0V , I_{OUT}=10mA 0°C＜T_A＜70°C		±0.75		mV/°C

■ TYPICAL APPLICATION CIRCUITS

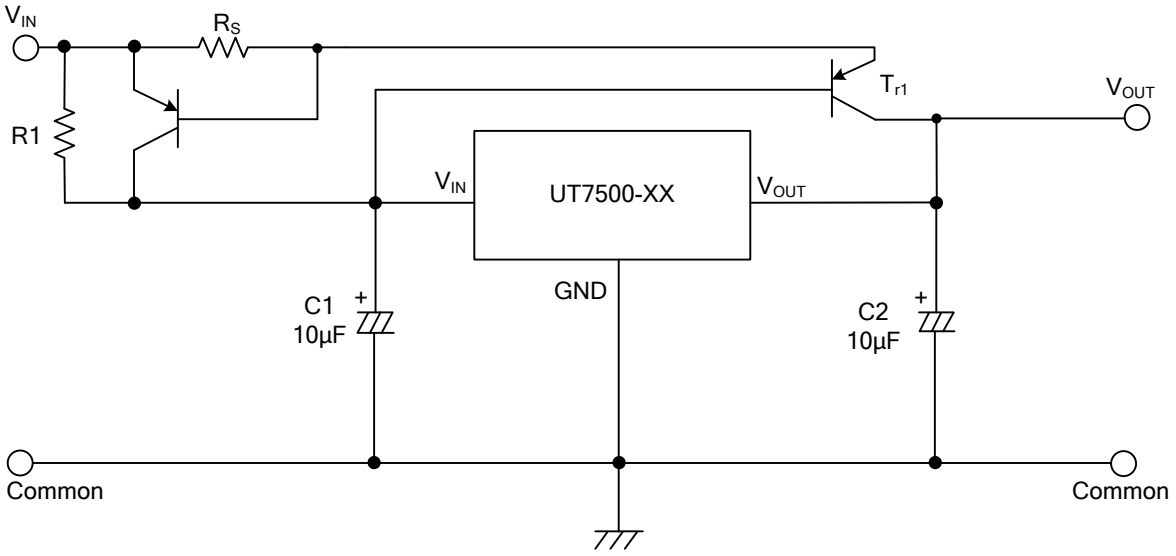
Basic Circuit



High Output Current Positive Voltage Regulator

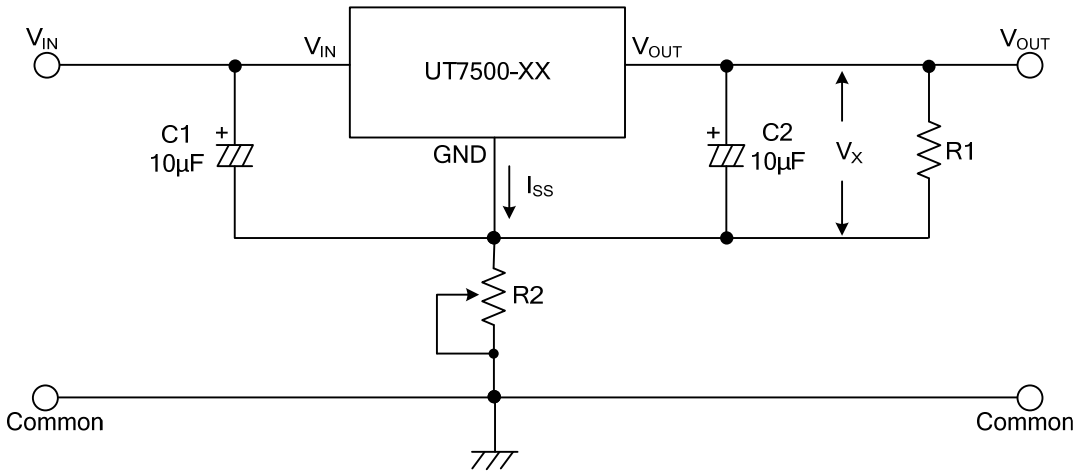


Short-Circuit Protection for T_{r1}



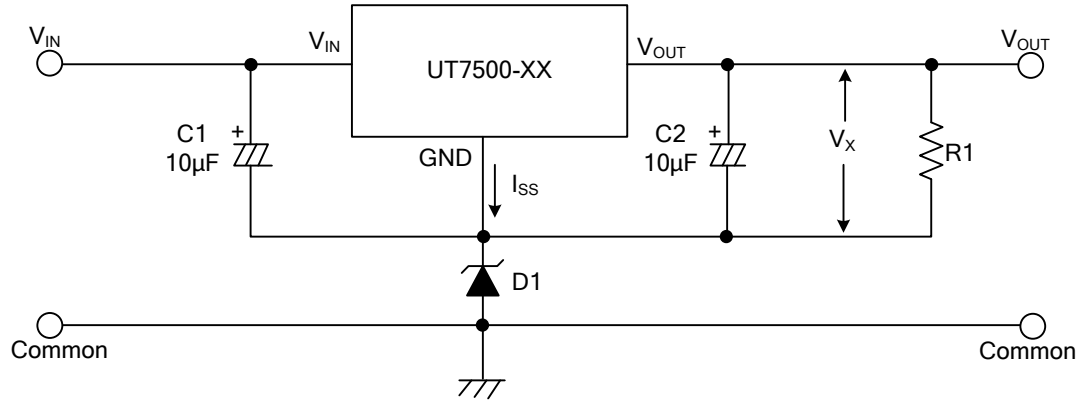
■ TYPICAL APPLICATION CIRCUITS(Cont.)

Circuit for Increasing Output Voltage



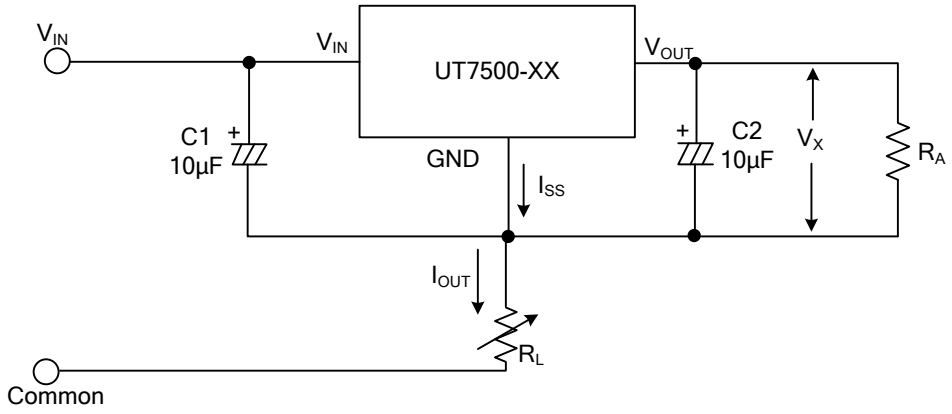
$V_{OUT} = V_X (1+R2/R1)+I_{SS}R2$

Circuit for Increasing Output Voltage



$V_{OUT} = V_X + V_{D1}$

Constant Current Regulator



$$I_{OUT} = \frac{V_X}{R_A} + I_{SS}$$

■ TYPICAL APPLICATION CIRCUITS(Cont.)

Dual Supply