



## LR1101

CMOS IC

### 100mA, 4μA QUIESCENT CURRENT CMOS LDO REGULATOR

#### DESCRIPTION

The UTC **LR1101** series are ultra-low quiescent current CMOS LDO (Low Dropout Voltage). Designed for battery-powered system, the low 4μA quiescent current makes it an ideal choice. The Range of the output voltage is from 1.5V ~ 5V with 0.1V per step. And the max output current is 100mA.

Wide range of available output fits most of applications. Built-in output current-limiting provide maximal protection against any fault conditions.

#### FEATURES

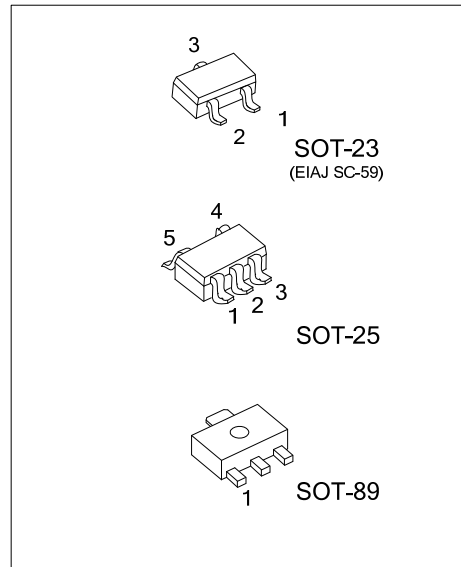
- \* 450mV typically dropout at 100mA
- \* Ultra-low quiescent current: 4μA
- \* Wide operating voltage ranges: 2V ~ 6V
- \* Thermal current limiting protection
- \* For stability only 1μF output capacitor is required
- \* High power supply rejection ratio

#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment					Packing
		1	2	3	4	5	
LR1101G-xx-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
LR1101G-xx-AE3-5-R	SOT-23	G	O	I	-	-	Tape Reel
LR1101G-xx-AF5-R	SOT-25	I	G	$\overline{EN}$	NC	O	Tape Reel

Note: Pin Assignment: I: V<sub>IN</sub> O: V<sub>OUT</sub> G: GND NC: No Connection  $\overline{EN}$  : Enable

<p>LR1101G-xx-AB3-C-R</p> <p>(1) Packing Type  (2) Pin Assignment  (3) Package Type  (4) Output Voltage Code  (5) Green Package</p>	<p>(1) R: Tape Reel  (2) refer to Pin Assignment  (3) AB3: SOT-89, AE3: SOT-23, AF5: SOT-25  (4) xx: refer to Marking Information  (5) G: Halogen Free and Lead Free</p>
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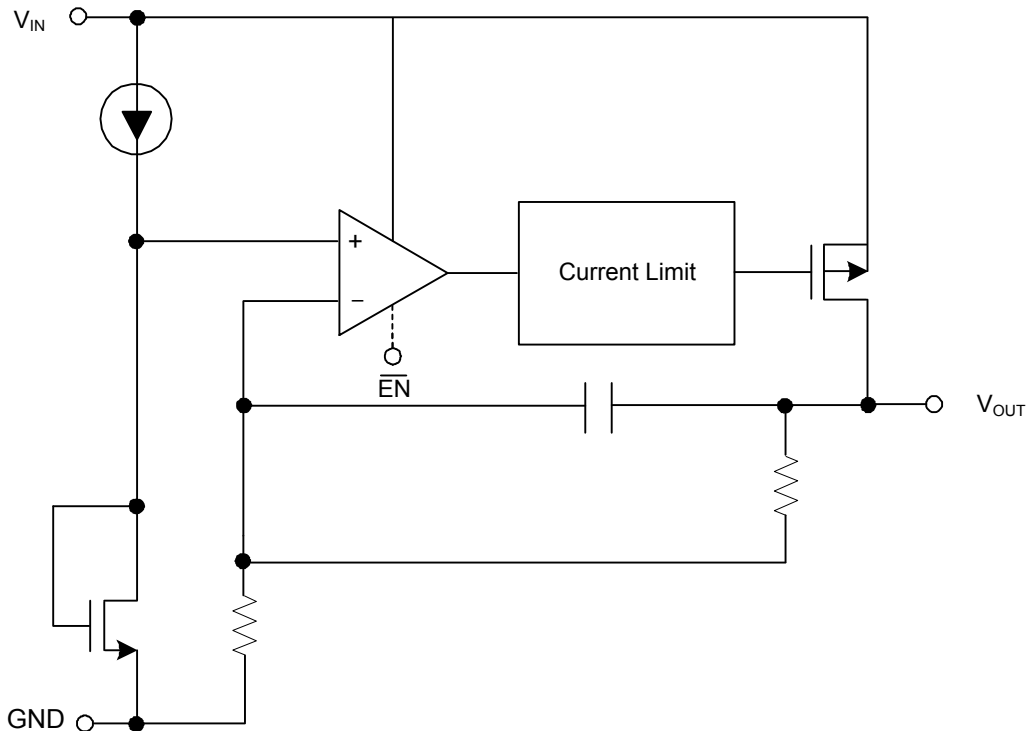
## MARKING INFORMATIONS

PACKAGE	VOLTAGE CODE	PIN CODE	1	2	3	4	5	MARKING
SOT-89	15:1.5V 18:1.8V 25:2.5V 28:2.8V 30:3.0V 33:3.3V 35:3.5V 36:3.6V 47:4.7V 50:5.0V	C	G	I	O	-	-	
SOT-25		-	I	G	$\overline{\text{EN}}$	NC	O	
SOT-23		5	G	O	I	-	-	

## PIN DESCRIPTION

PIN NO.			PIN NAME	DESCRIPTION
SOT-89	SOT-25	SOT-23		
2	1	3	$V_{\text{IN}}$	Input voltage
3	5	2	$V_{\text{OUT}}$	Output voltage
1	2	1	GND	Ground
-	3	-	$\overline{\text{EN}}$	Chip enable input
-	4	-	NC	No connection

## BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	7	V
Power Dissipation ( $T_A = 25^\circ\text{C}$ )	SOT-89	500	mW
	SOT-23	250	mW
	SOT-25	250	mW
Junction Temperature	$T_J$	125	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-40 ~ +85	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

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.

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance	SOT-89	180	$^\circ\text{C}/\text{W}$
	SOT-23	250	$^\circ\text{C}/\text{W}$
	SOT-25	250	$^\circ\text{C}/\text{W}$

### ■ ELECTRICAL CHARACTERISTICS ( $V_{IN}=5.5\text{V}$ , $C_1=1\mu\text{F}$ , $C_o=1\mu\text{F}$ , $T_A=25^\circ\text{C}$ , unless otherwise specified)

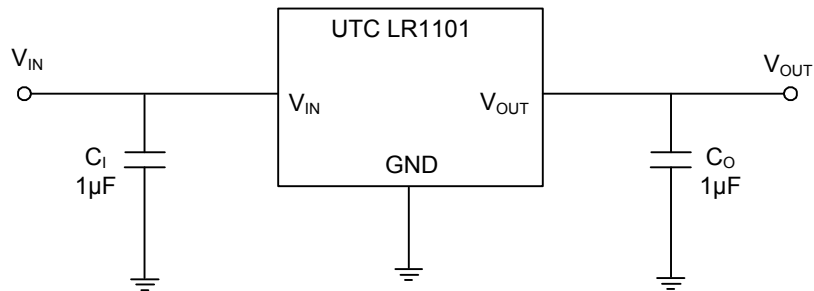
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage Range	$V_{IN}$		2		6	V
Output Voltage Accuracy	$\Delta V_{OUT}$	$I_L = 1\text{mA}$	-2		+2	%
Line Regulation	$\Delta V_{LINE}$	$V_{IN} = (V_{OUT} + 0.3\text{V})$ to 6V, $V_{IN} \geq 3.6\text{V}$ , $I_{OUT} = 1\text{mA}$	-0.2		0.2	%/V
Load Regulation	$\Delta V_{LOAD}$	$I_{OUT} = 0\text{mA}$ to 100mA		0.01	0.04	%/mA
Maximum Output Current	$I_{MAX}$	$V_{IN} = V_{OUT} + 0.6\text{V}$ , $V_{IN} \geq 3.6\text{V}$	100			mA
Current Limit	$I_{LIMIT}$	$I_L = 100\text{mA}$	150	250		mA
GND Pin Current	$I_G$	No Load		4	7	$\mu\text{A}$
		$I_{OUT} = 100\text{mA}$		4	10	
Dropout Voltage	$V_D$	$I_{OUT} = 1\text{mA}$ , $V_{IN} \geq 3.6\text{V}$		4	10	mV
		$I_{OUT} = 50\text{mA}$ , $V_{IN} \geq 3.6\text{V}$		200	300	
		$I_{OUT} = 100\text{mA}$ , $V_{IN} \geq 3.6\text{V}$		450	600	
Stand By Current	$I_{STN-BY}$	$\overline{EN} = V_{IN}$		0.1	1	$\mu\text{A}$
$\overline{EN}$ Threshold	$\overline{EN}$	$V_{OUT} = \text{High}$	0		0.6	V
		$V_{OUT} = \text{Low}$	2		$V_{IN}$	
Short Current	$I_{SC}$	$V_{OUT} = 0$			650	mA
Thermal Shutdown		Exterior Calefaction	125			$^\circ\text{C}$

## ■ APPLICATION INFORMATION

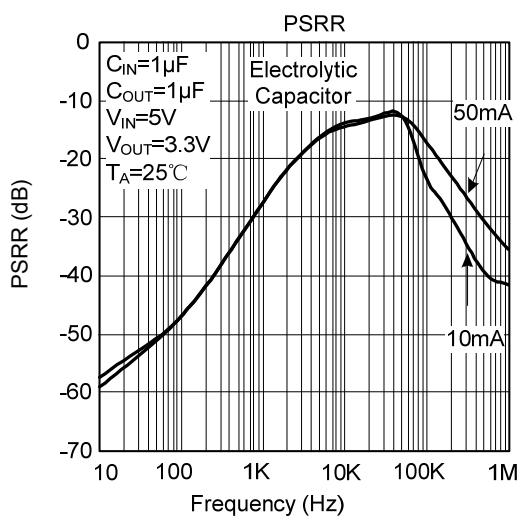
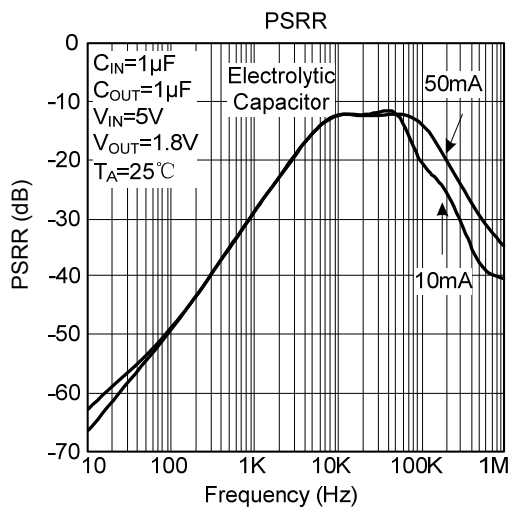
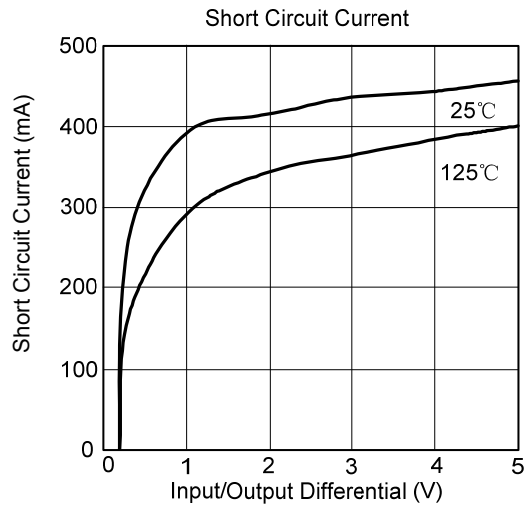
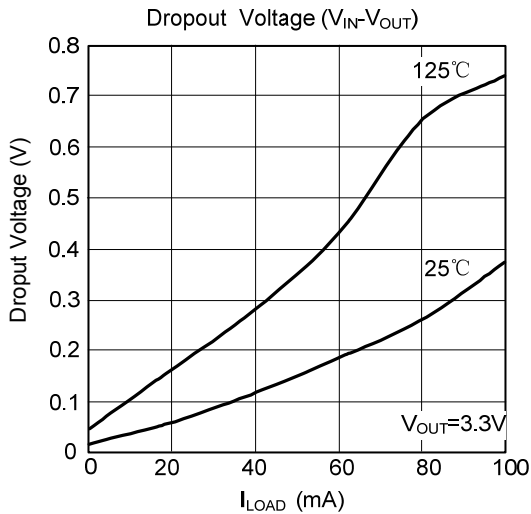
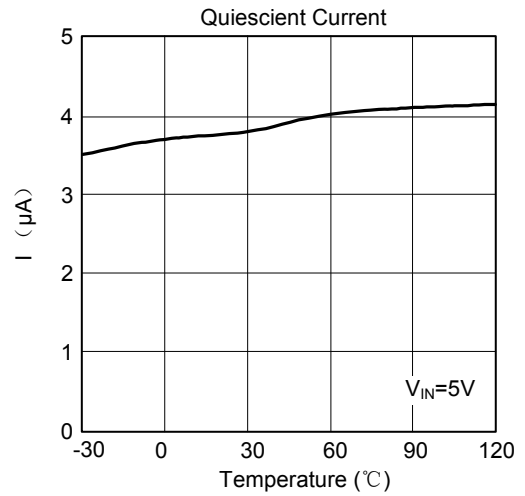
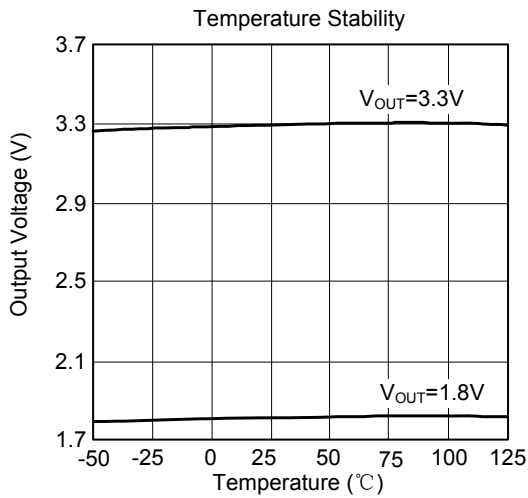
Between  $V_{OUT}$  and GND a  $1\mu\text{F}$  (or larger) capacitor is recommended for stability. Without the capacitor the part may oscillate. When operating below  $-25^{\circ}\text{C}$  any type of capacitor can be used, but not Aluminum electrolytes. If there's no limit the capacitance may be increased.

Between  $V_{IN}$  to GND a  $1\mu\text{F}$  capacitor (or larger) should be placed.

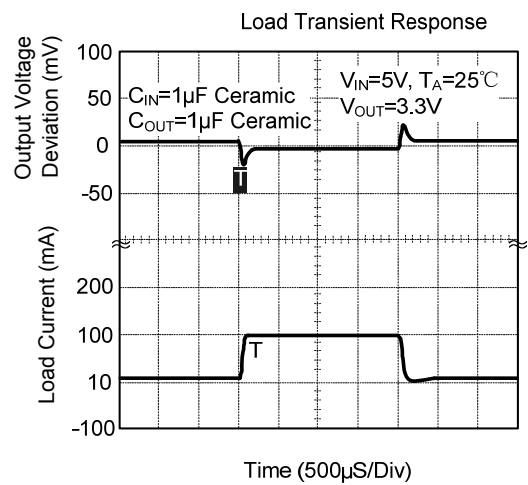
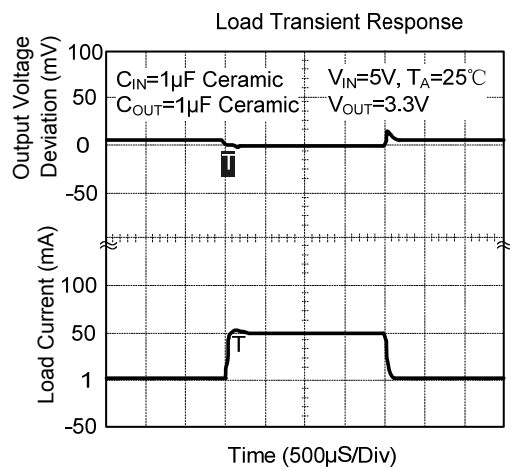
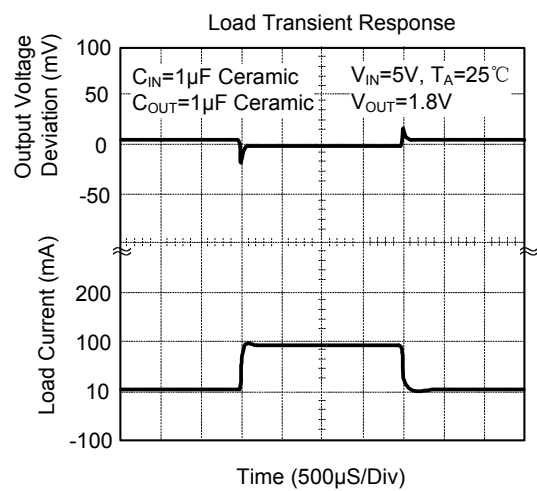
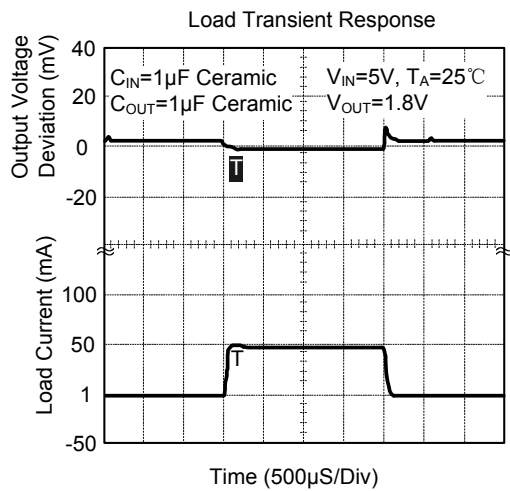
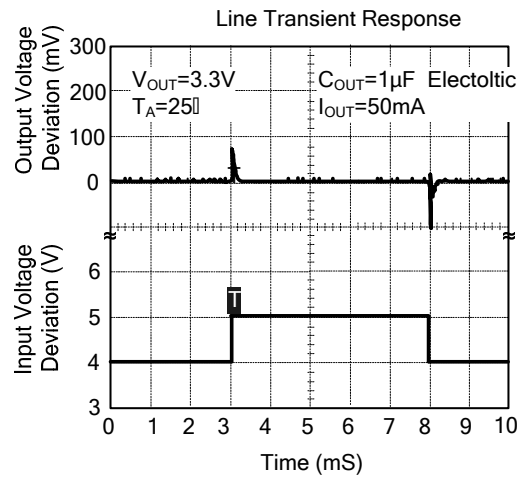
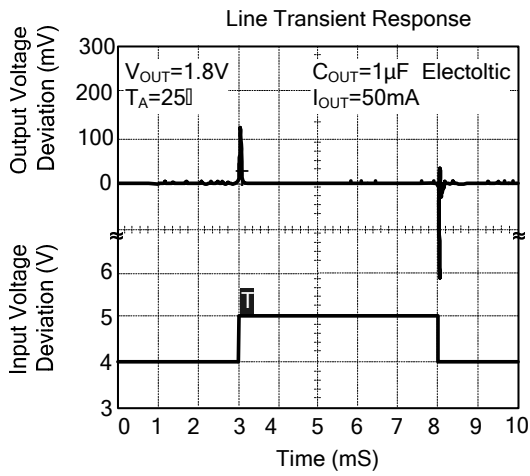
## ■ APPLICATION CIRCUIT



## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS(Cont.)



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