



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

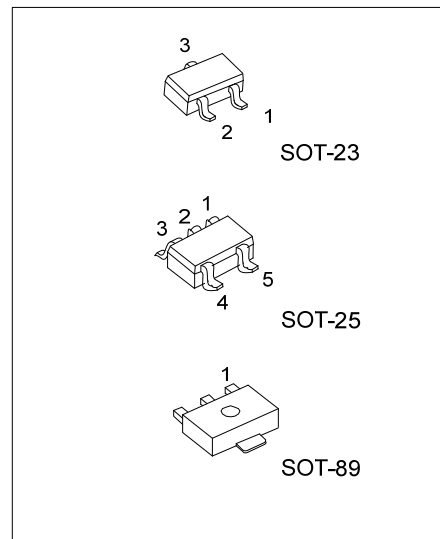
- * 450mV typically dropout at 100mA
- * Ultra-low quiescent current: 4μA
- * Wide operating voltage ranges: 2V ~ 6V
- * Thermal current limiting protection
- * For stability only 1μF output capacitor is required
- * High power supply rejection ratio

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
LR1101L-xx-AB3-C-R	LR1101G-xx-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
LR1101L-xx-AE3-5-R	LR1101G-xx-AE3-5-R	SOT-23	G	O	I	-	-	Tape Reel
LR1101L-xx-AF5-R	LR1101G-xx-AF5-R	SOT-25	I	G	EN	NC	O	Tape Reel

Note: Pin Assignment: I: V_{IN} O: V_{OUT} G: GND NC: No Connection EN: Enable

<p>LR1101L-xx-AB3-C-R</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, L:Lead Free</p>
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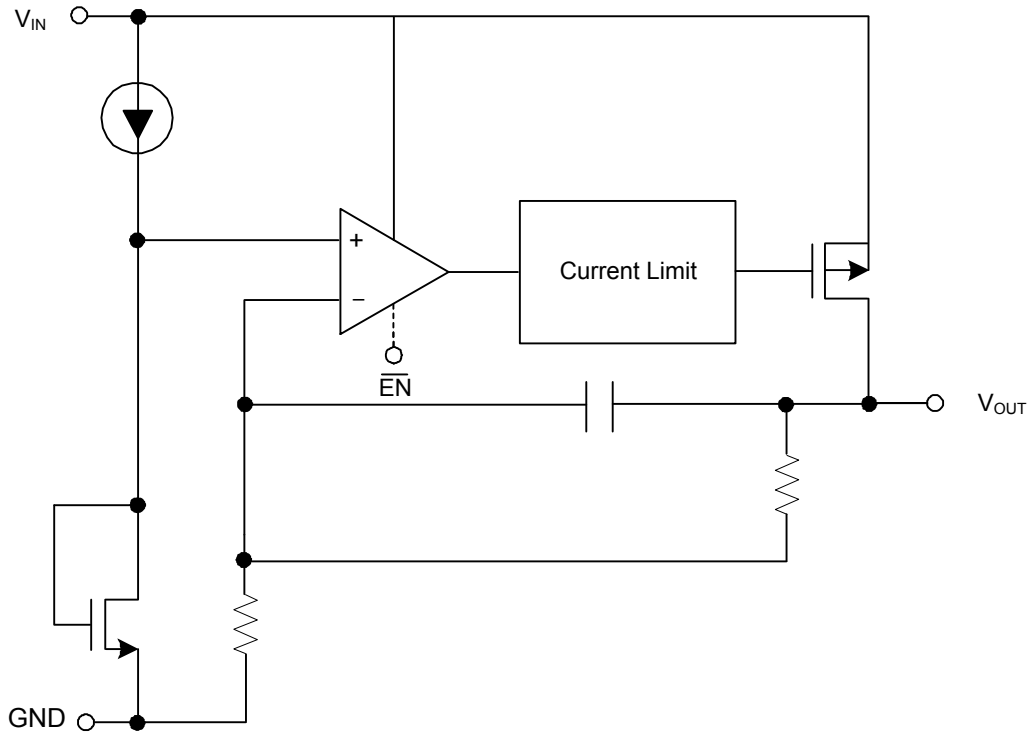
MARKING INFORMATIONS

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	-	-	<p>LR1101 XX Date Code</p> <p>Voltage Code Pin Code G: Halogen Free L: Lead Free</p>
SOT-25		-	I	G	$\overline{\text{EN}}$	NC	O	<p>SG XX Voltage Code</p> <p>G: Halogen Free L: Lead Free</p>
SOT-23		5	G	O	I	-	-	<p>SG XX Voltage Code</p> <p>L: Lead Free G: Halogen Free</p>

PIN DESCRIPTION

PIN NO.			PIN NAME	DESCRIPTION
SOT-89	SOT-25	SOT-23		
2	1	3	V_{IN}	Input voltage
3	5	2	V_{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)

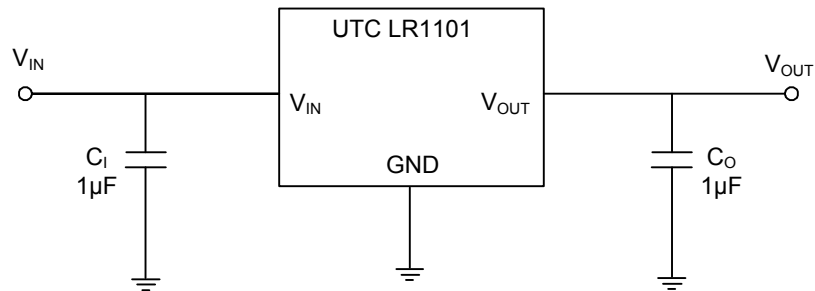
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage Range	V_{IN}		2		6	V
Output Voltage Accuracy	ΔV_{OUT}	$I_L = 1\text{mA}$	-2		+2	%
Line Regulation	ΔV_{LINE}	$V_{IN} = (V_{OUT} + 0.3\text{V})$ to 6V , $V_{IN} \geq 3.6\text{V}$, $I_{OUT} = 1\text{mA}$	-0.2		0.2	%/V
Load Regulation	ΔV_{LOAD}	$I_{LOAD} = 0\text{mA}$ 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	μA
		$I_{OUT} = 100\text{mA}$		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	μA
\overline{EN} Threshold	\overline{EN}	$V_{OUT} = \text{High}$	0		0.6	V
		$V_{OUT} = \text{Low}$	2		V_{IN}	
Short Current	I_{SC}	$V_{OUT} = 0$			500	mA
Thermal Shutdown		Exterior Calefaction	125			$^\circ\text{C}$

■ APPLICATION INFORMATION

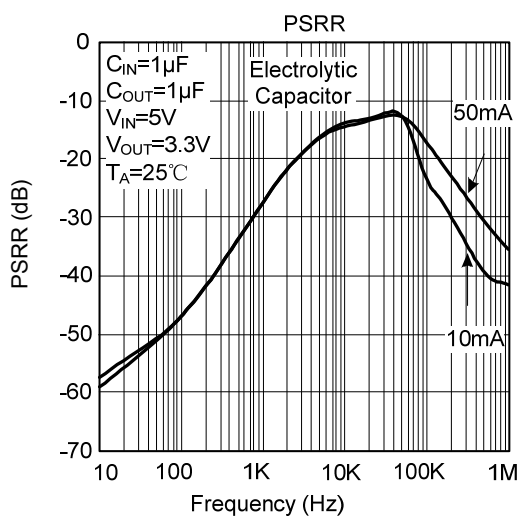
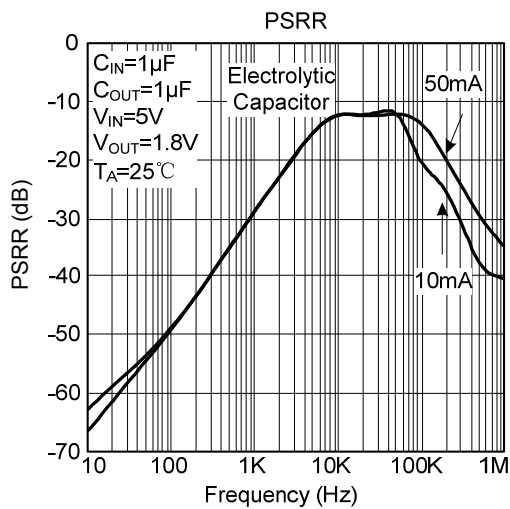
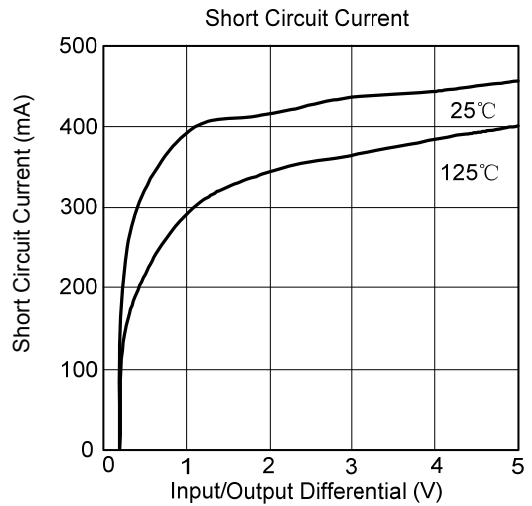
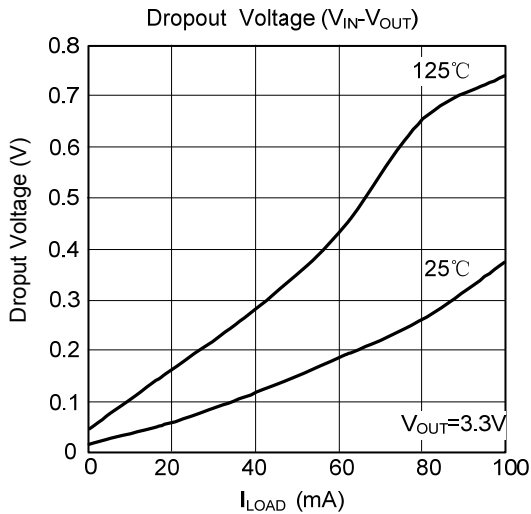
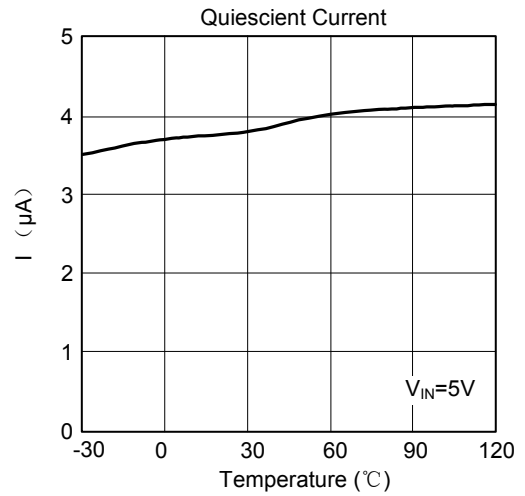
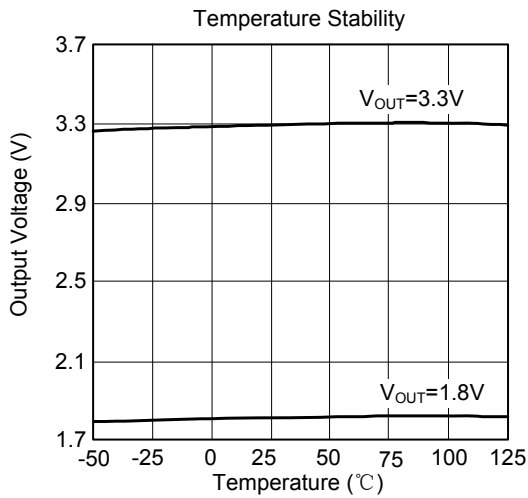
Between V_{OUT} and GND a $1\mu\text{F}$ (or larger) capacitor is recommended for stability. Without the capacitor the part may oscillate. When operating below -25°C any type of capacitor can be used, but not Aluminum electrolytes. If there's no limit the capacitance may be increased.

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

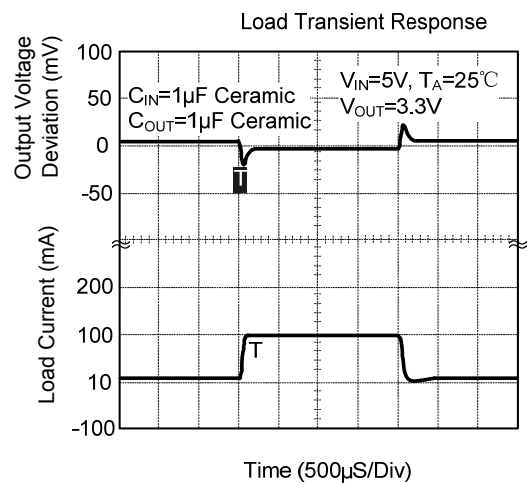
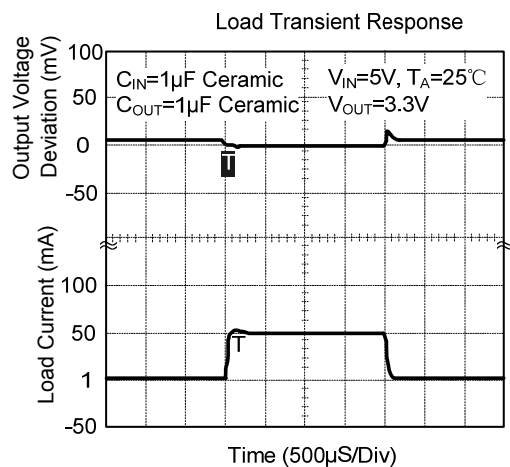
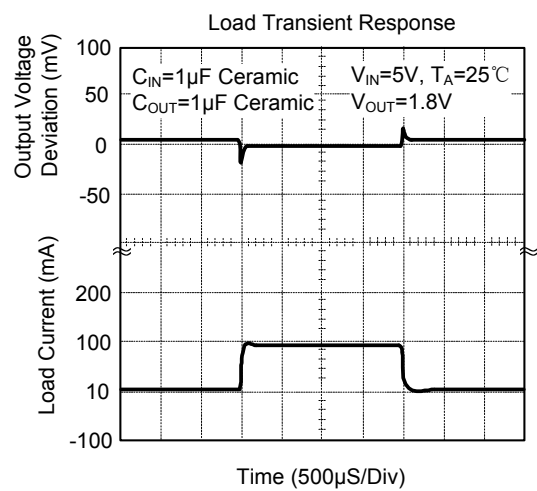
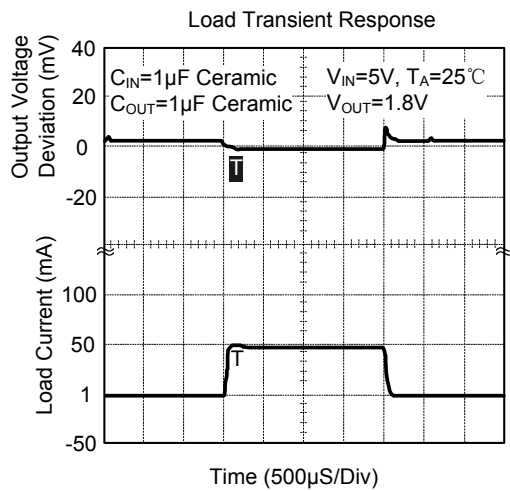
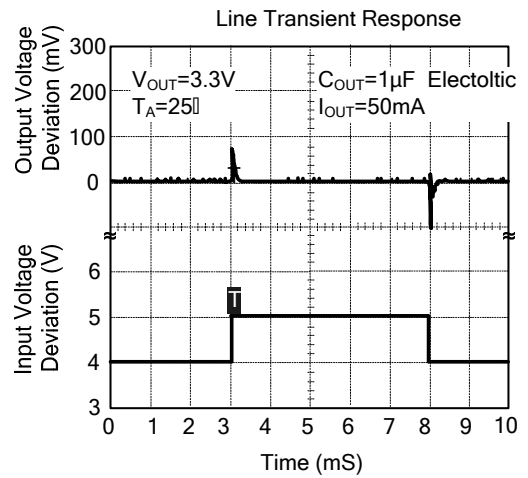
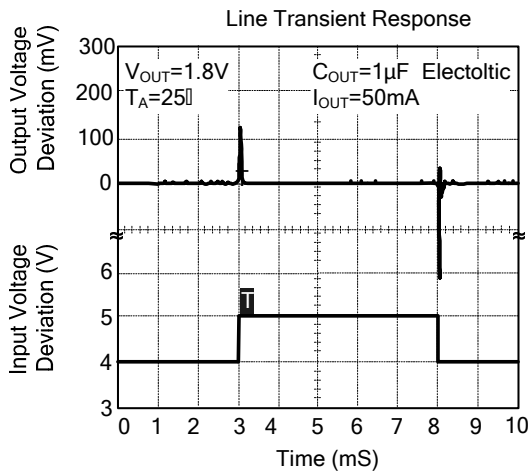
■ APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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