

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.

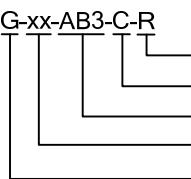
■ FEATURES

- * 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	O	G	I	-	-	Tape Reel
LR1101L-xx-AF5-R	LR1101G-xx-AF5-R	SOT-25	I	G	EN	NC	O	Tape Reel

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

 (1)Packing Type (2)Pin Assignment (3)Package Type (4)Output Voltage Code (5)Green Package	(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, L: Lead Free

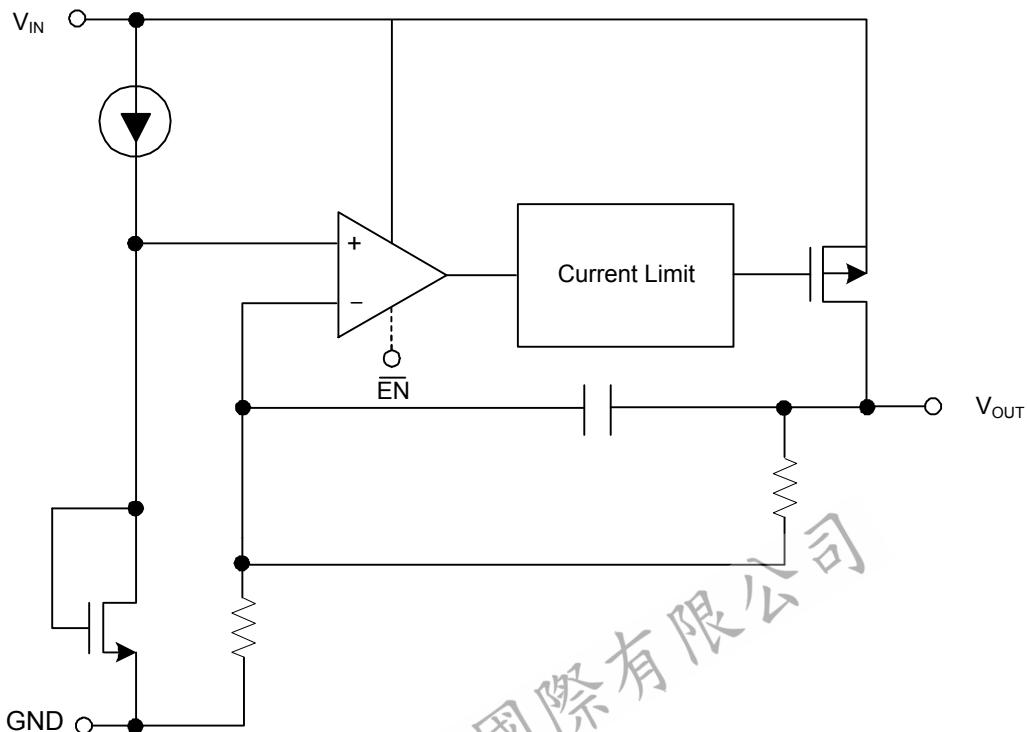
■ MARKING INFORMATIONS

PACKAGE	VOLTAGE CODE	PIN CODE	1	2	3	4	5	MARKING
SOT-89	15:1.5V 18:1.8V	C	G	I	O	-	-	Date Code Voltage Code Pin Code L: Lead Free G: Halogen Free
	25:2.5V 28:2.8V	-	I	G	<u>EN</u>	NC	O	Voltage Code SGXX L: Lead Free G: Halogen Free
SOT-25	30:3.0V 33:3.3V 35:3.5V	-	I	G	<u>EN</u>	NC	O	Voltage Code SGXX L: Lead Free G: Halogen Free
	36:3.6V 47:4.7V 50:5.0V	5	O	G	I	-	-	Voltage Code SGXX L: Lead Free G: Halogen Free
SOT-23								

■ PIN DESCRIPTION

PIN NO.			PIN NAME	DESCRIPTION
SOT-89	SOT-25	SOT-23		
1	2	2	GND	Ground
2	1	3	V_{IN}	Input voltage
3	5	1	V_{OUT}	Output voltage
-	3	-	<u>EN</u>	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	P _D	500	mW
	SOT-23		250	mW
	SOT-25		250	mW
Junction Temperature		T _J	+125	°C
Operating Temperature		T _{OPR}	-40 ~ +85	°C
Storage Temperature		T _{STG}	-65 ~ +150	°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	θ _{JA}	180	°C/W
	SOT-23		250	°C/W
	SOT-25		250	°C/W

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

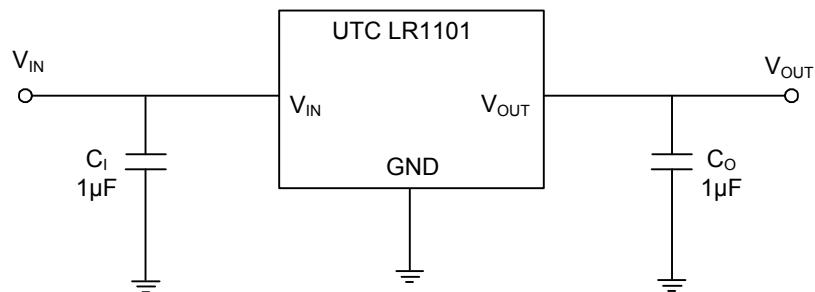
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage Range	V _{IN}		2		6	V
Output Voltage Accuracy	ΔV _{OUT}	I _L = 1mA	-2		+2	%
Line Regulation	ΔV _{LINE}	V _{IN} = (V _{OUT} + 0.3V) to 6V, V _{IN} ≥ 3.6V, I _{OUT} = 1mA	-0.2		0.2	%/V
Load Regulation	ΔV _{LOAD}	I _{OUT} = 0mA to 100mA		0.01	0.04	%/mA
Maximum Output Current	I _{MAX}	V _{IN} = V _{OUT} + 0.6V, V _{IN} ≥ 3.6V	100			mA
Current Limit	I _{LIMIT}	I _L = 100mA	150	250		mA
GND Pin Current	I _G	No Load		4	7	μA
		I _{OUT} = 100mA		4	10	
Dropout Voltage	V _D	I _{OUT} = 1mA, V _{IN} ≥ 3.6V		4	10	mV
		I _{OUT} = 50mA, V _{IN} ≥ 3.6V		200	300	
		I _{OUT} = 100mA, V _{IN} ≥ 3.6V		450	600	
Stand By Current	I _{STN-BY}	V _{OUT} = V _{IN}		0.1	1	μA
EN Threshold	EN	V _{OUT} = High	0		0.6	V
		V _{OUT} = Low	2		V _{IN}	
Short Current	I _{SC}	V _{OUT} = 0			650	mA
Thermal Shutdown		Exterior Calefaction	125			°C

■ APPLICATION INFORMATION

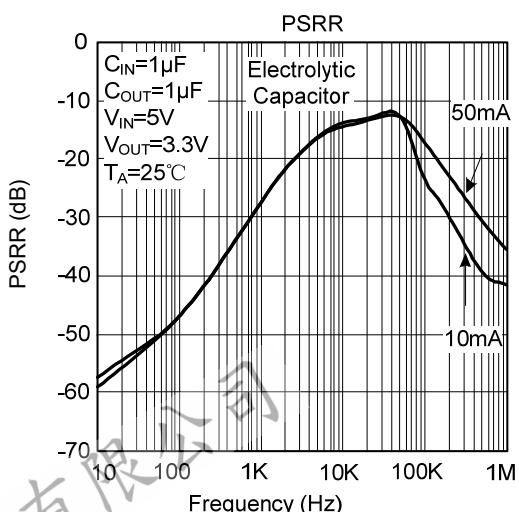
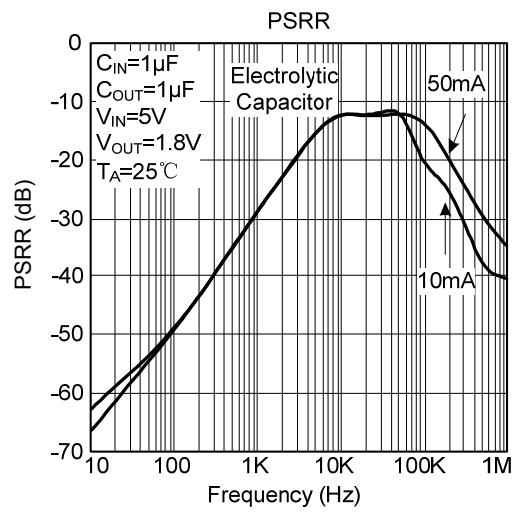
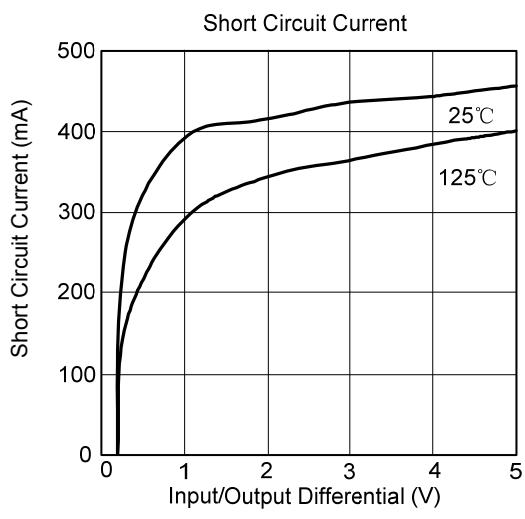
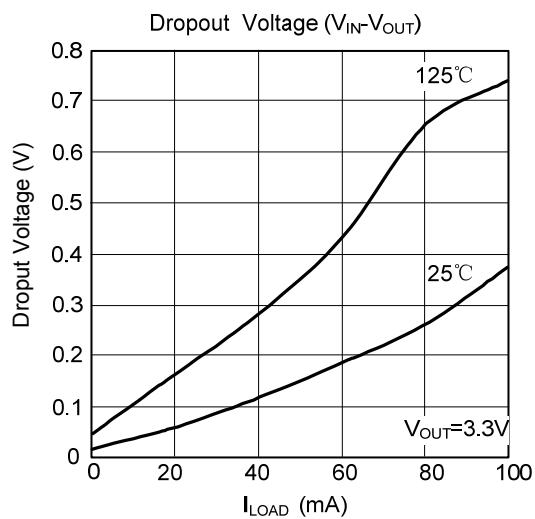
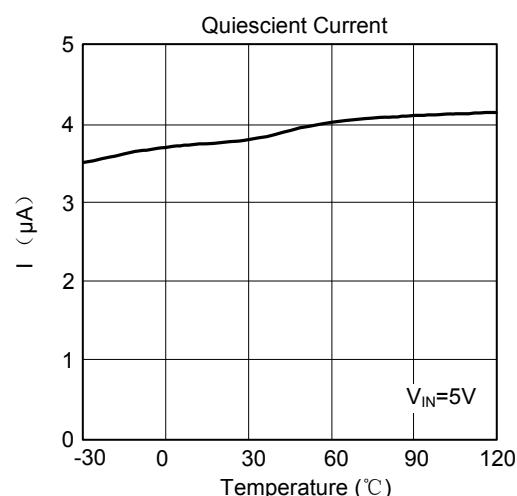
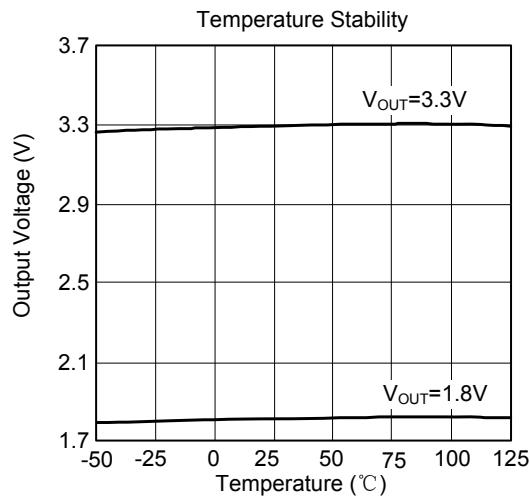
Between V_{OUT} and GND a $1\mu F$ (or larger) capacitor is recommended for stability. Without the capacitor the part may oscillate. When operating below $-25^{\circ}C$ any type of capacitor can be used, but not Aluminum electrolytes. If there's no limit the capacitance may be increased.

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

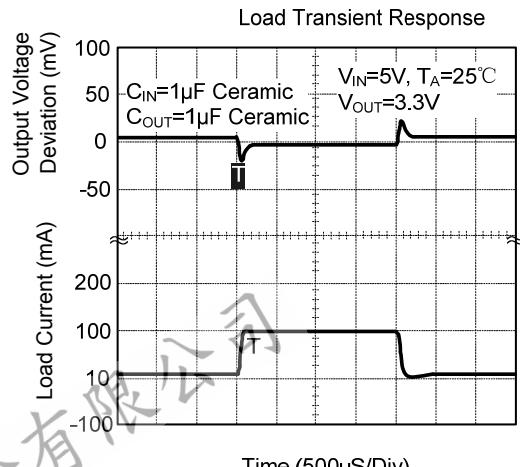
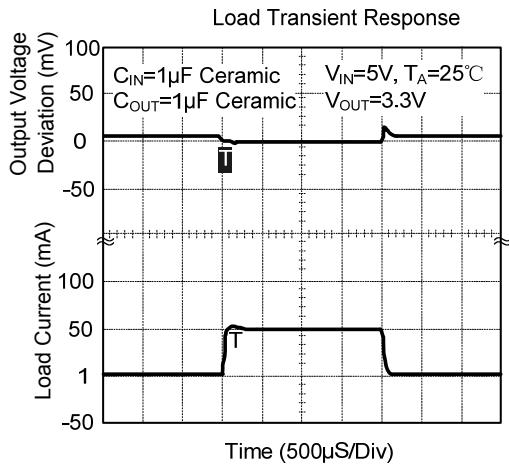
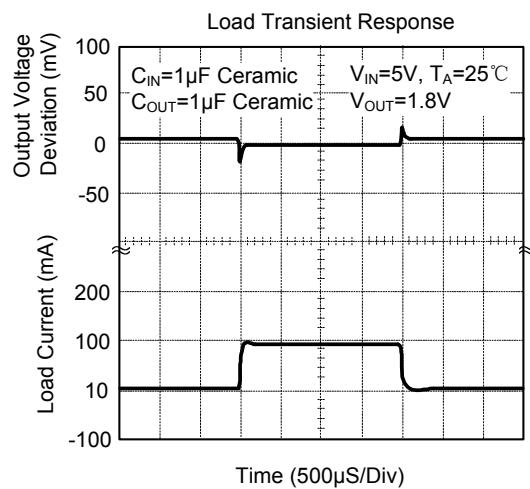
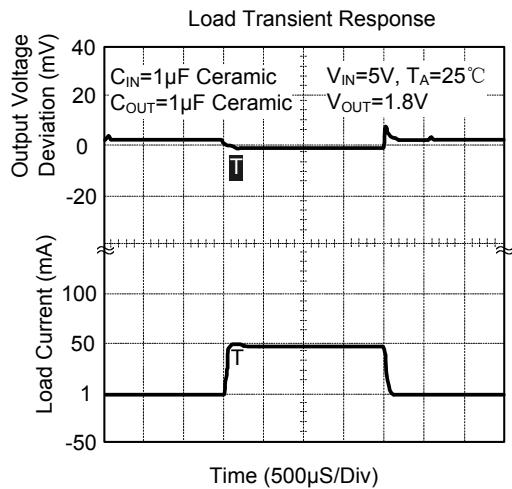
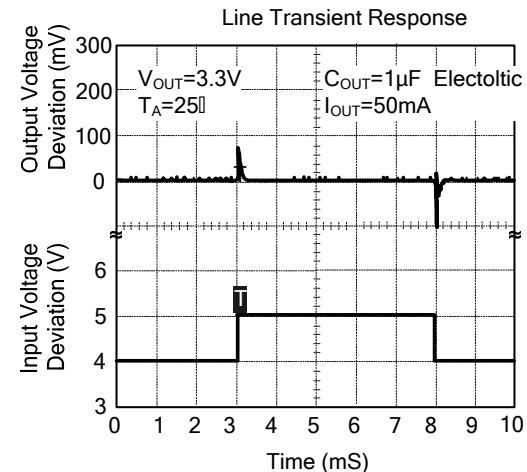
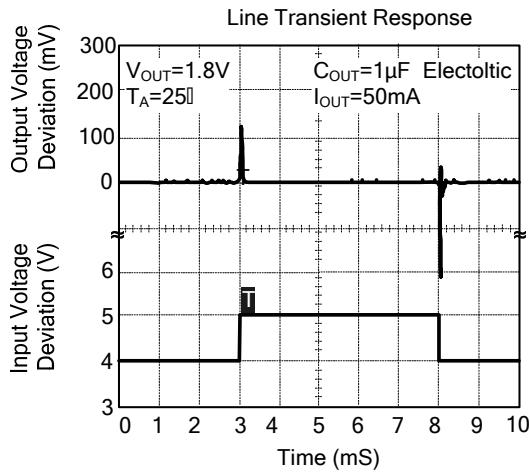
■ APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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