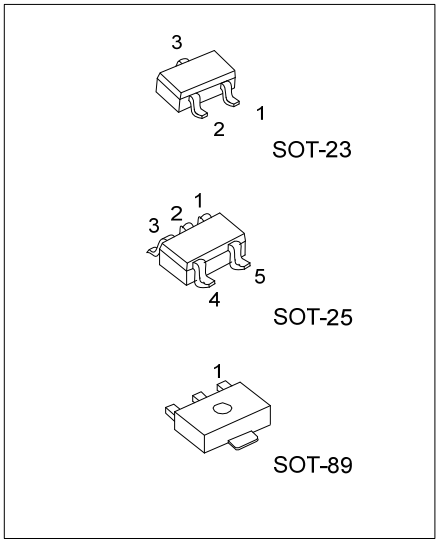
LR1101

CMOS IC

100mA, 4μA QUIESCENT CURRENT CMOS LDO REGULATOR



*Pb-free plating product number:LR1101L

■ 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 1.2V ~ 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

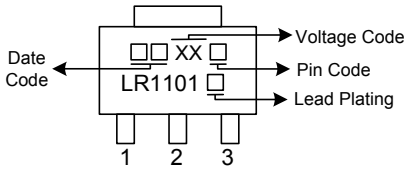
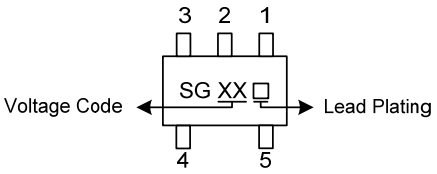
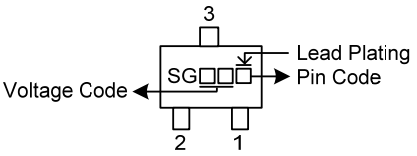
Ordering Number		Package	Pin Assignment					Packing
Normal	Lead Free Plating		1	2	3	4	5	
LR1101-xx-AB3-C-R	LR1101L-xx-AB3-C-R	SOT-89	G	I	O	-	-	Tape Reel
LR1101-xx-AE3-5-R	LR1101L-xx-AE3-5-R	SOT-23	G	O	I	-	-	Tape Reel
LR1101-xx-AF5-R	LR1101L-xx-AF5-R	SOT-25	I	G	$\overline{EN}$	NC	O	Tape Reel

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

LR1101L-xx-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, AE3:SOT-23, AF5:SOT-25
(4)Output Voltage Code	(4) xx:refer to Marking Information
(5)Lead Plating	(5) L:Lead Free Plating, Blank:Pb/Sn

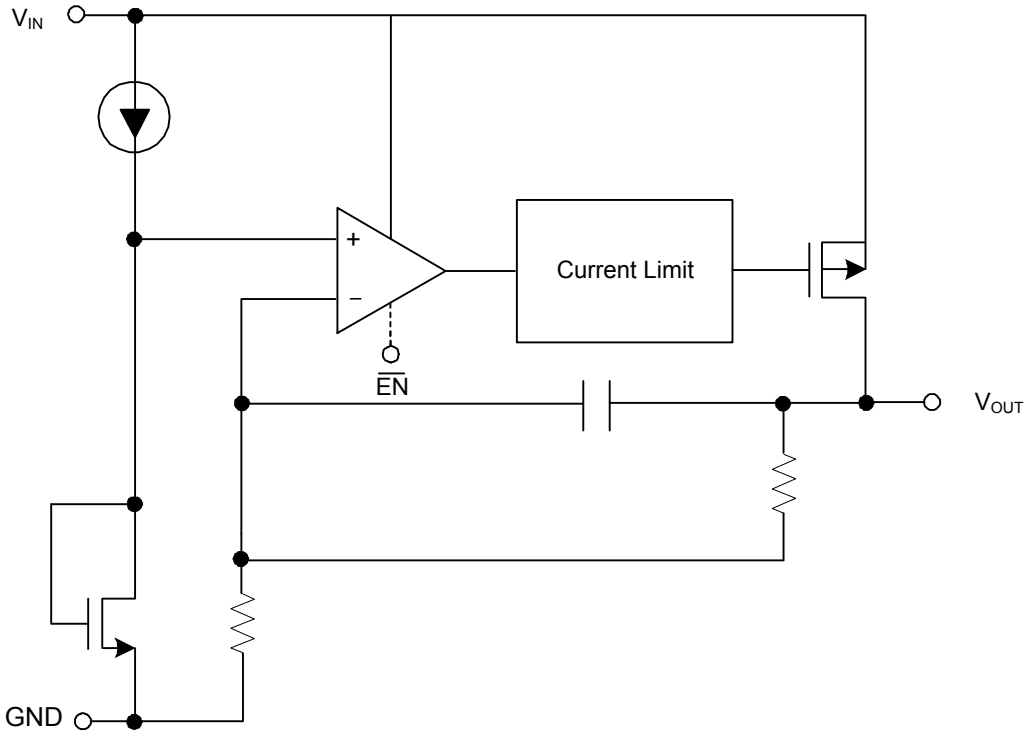
■ MARKING INFORMATIONS

PACKAGE	VOLTAGE CODE		PIN CODE	1	2	3	4	5	MARKING
SOT-89	12:1.2V 13:1.3V 14:1.4V 15:1.5V 16:1.6V	30:3.0V 31:3.1V 32:3.2V 33:3.3V 34:3.4V 35:3.5V	C	G	I	O	-	-	
SOT-25	17:1.7V 18:1.8V 19:1.9V 20:2.0V 21:2.1V 22:2.2V 23:2.3V 24:2.4V	36:3.6V 37:3.7V 38:3.8V 39:3.9V 40:4.0V 41:4.1V 42:4.2V 43:4.3V	-	I	G	$\overline{EN}$	NC	O	
SOT-23	25:2.5V 26:2.6V 27:2.7V 28:2.8V 2J:2.85V 29:2.9V	44:4.4V 45:4.5V 46:4.6V 47:4.7V 48:4.8V 49:4.9V 50:5.0V	5	G	O	I	-	-	

■ 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	-	$\overline{EN}$	Chip enable input
-	4	-	NC	No connection

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	7	V
Power Dissipation (Ta = 25℃)	SOT-89	P_D	500	mW
	SOT-23		250	mW
	SOT-25		250	mW
Junction Temperature		T_J	125	℃
Operating Temperature		T_{OPR}	-40 ~ +125	℃
Storage Temperature		T_{STG}	-65 ~ +150	℃

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	℃/W
	SOT-23		250	℃/W
	SOT-25		250	℃/W

■ ELECTRICAL CHARACTERISTICS

(V_{IN} = 5.5V, C_I = 1μF, Co = 1μF, T_A = 25℃ unless otherwise specified)

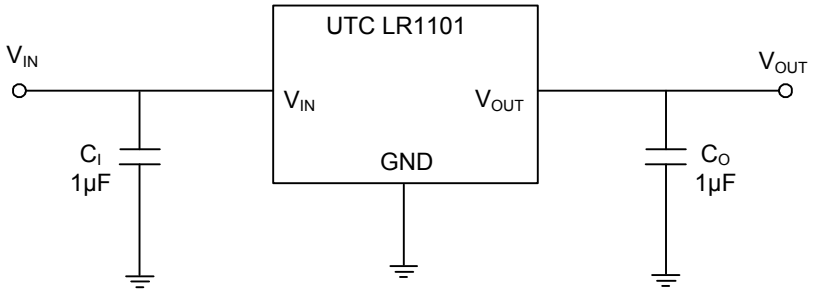
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage Range	V_{IN}		2		6	V
Output Voltage Accuracy	ΔV_{OUT}	I_L = 1mA	-2		+2	%
Line Regulation	ΔV_{LINE}	V_{IN} = (V_{OUT} + 0.3V) to 6V, V_{IN}≧3.6V, I_{OUT} = 1mA	-0.2		0.2	%/V
Load Regulation	ΔV_{LOAD}	I_{LOUT} = 0mA to 100mA		0.01	0.04	%/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}	$\overline{EN}$ = V_{IN}		0.1	1	μA
$\overline{EN}$ Threshold	$\overline{EN}$	V_{OUT} = High	0		0.6	V
		V_{OUT} = Low	2		V_{IN}	
Short Current	I_{SC}	V_{OUT} = 0			500	mA
Thermal Shutdown		Exterior Calefaction	125			℃

■ APPLICATION INFORMATION

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

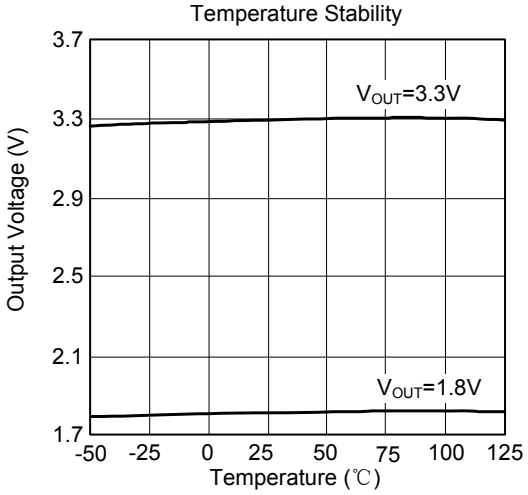
Between V_{IN} to GND a 1μF capacitor (or larger) should be placed.

■ APPLICATION CIRCUIT

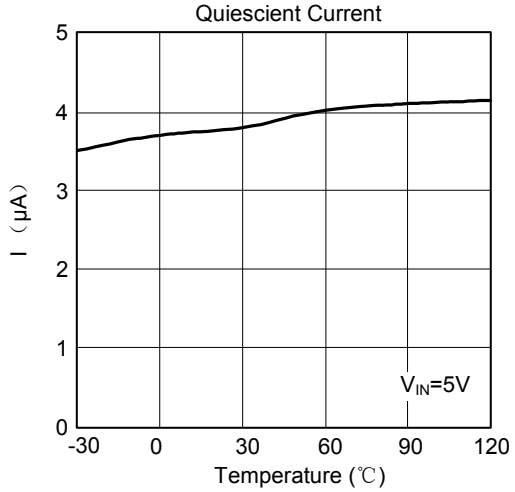


■ TYPICAL CHARACTERISTICS

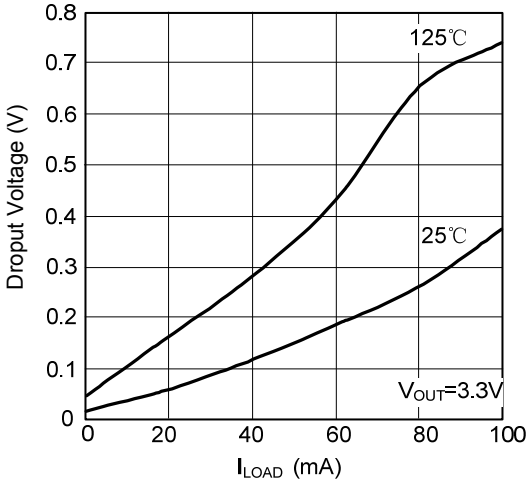
Temperature Stability



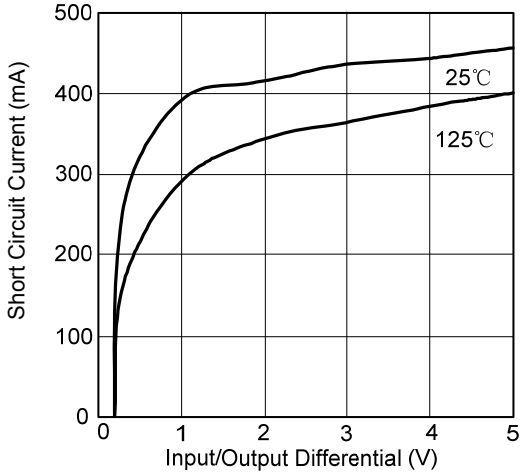
Quiescient Current



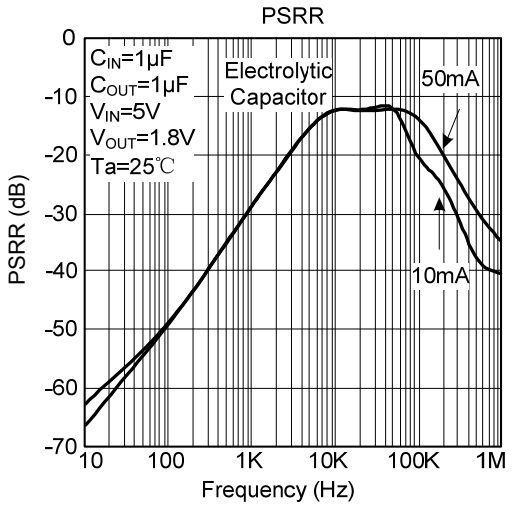
Dropout Voltage (V_{IN}-V_{OUT})



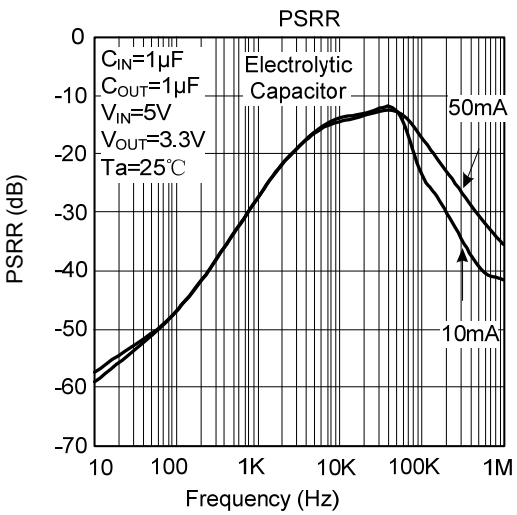
Short Circuit Current



PSRR



PSRR



■ TYPICAL CHARACTERISTICS(Cont.)