



L1119

CMOS IC

1.5A LOW DROPOUT REGULATORS

DESCRIPTION

The UTC **L1119** is a fast ultra low-dropout linear regulator that developed in CMOS process which allows low quiescent current operation independent of output load current. This CMOS process also allows the device to operate under extremely low dropout conditions.

The UTC **L1119** allows to operate from a 2.5V~7.0V input supply. Wide range of preset output voltage options are available and respond very fast to step changes in load which makes them suitable for low voltage microprocessor applications.

FEATURES

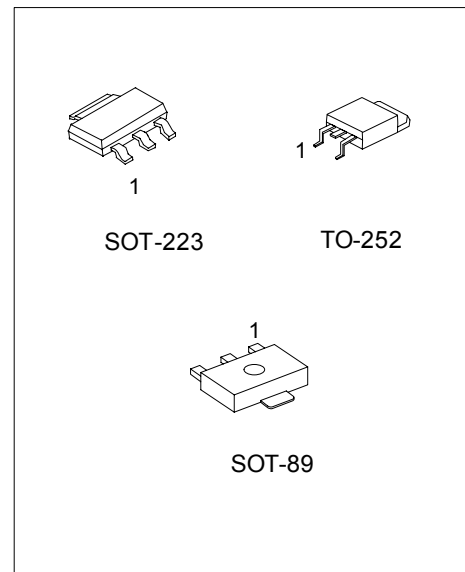
- * Low ground current
- * Load regulation of 0.04%
- * Output current of 1.5A DC is guaranteed
- * Accurate output voltage.($\pm 1.5\%$)
- * Extremely low output capacitor requirements
- * Over temperature/ Over current protection

ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
L1119-xx-AA3-A-R	L1119L-xx-AA3-A-R	SOT-223	G	O	I	Tape Reel
L1119-xx-AA3-C-R	L1119L-xx-AA3-C-R	SOT-223	G	I	O	Tape Reel
L1119-xx-AB3-A-R	L1119L-xx-AB3-A-R	SOT-89	G	O	I	Tape Reel
L1119-xx-AB3-B-R	L1119L-xx-AB3-B-R	SOT-89	O	G	I	Tape Reel
L1119-xx-AB3-C-R	L1119L-xx-AB3-C-R	SOT-89	G	I	O	Tape Reel
L1119-xx-AB3-D-R	L1119L-xx-AB3-D-R	SOT-89	I	G	O	Tape Reel
L1119-xx-TN3-D-R	L1119L-xx-TN3-D-R	TO-252	I	G	O	Tape Reel
L1119-xx-TN3-D-T	L1119L-xx-TN3-D-T	TO-252	I	G	O	Tube

Note: Pin assignment: I: V_{IN} O: V_{OUT} G: GND

L1119L-xx-AA3-A-R	(1) R: Tape Reel, T: Tube (2) refer to Pin Assignment (3) AA3: SOT-223, AB3: SOT-89, TN3: TO-252 (4) xx: refer to Marking Information (5) L: Lead Free Plating, Blank: Pb/Sn
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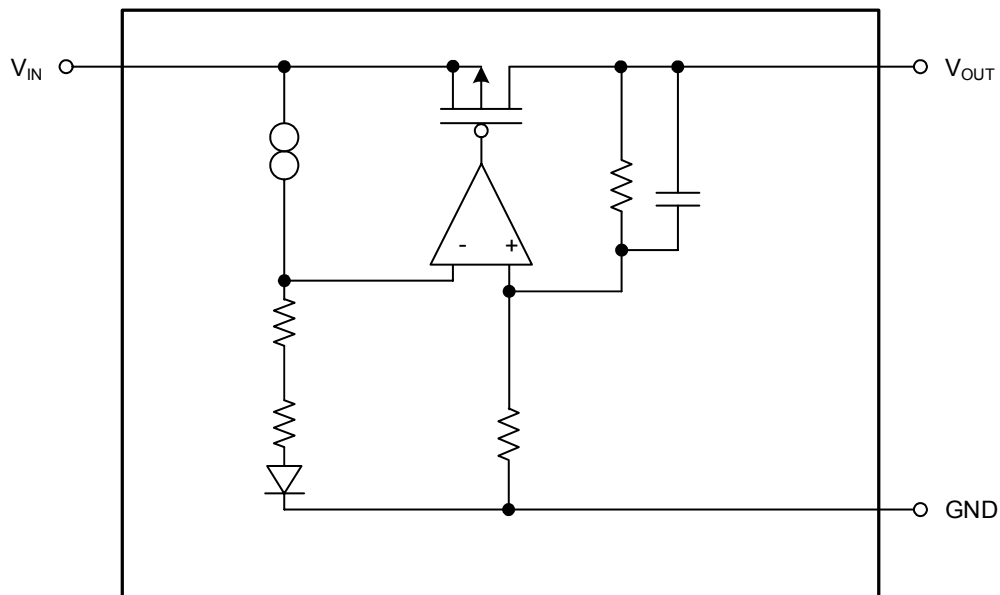


*Pb-free plating product number: L1119L-xx

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	12 :1.2V 15 :1.5V 18 :1.8V 25 :2.5V 33 :3.3V 50 :5.0V	VOLTAGE CODE ← [Pin 1] [Pin 2] [Pin 3] → DATE CODE L1119 LEAD PLATING
SOT-89		DATE CODE ← [Pin 1] [Pin 2] [Pin 3] → LEAD PLATING L1119 PIN CODE VOLTAGE CODE
TO-252		VOLTAGE CODE ← [Pin 1] [Pin 2] [Pin 3] → DATE CODE UTC L1119 LEAD PLATING PIN CODE

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Supply Voltage	V_{IN}	-0.3 ~ +7.5	V
Output Voltage	V_{OUT}	-0.3 ~ +7.5	V
Output Current	I_{OUT}	Short Circuit Protected	
Power Dissipation	P_D	Internally Limited	
Operating Junction 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.

■ RECOMMENDED OPERATING RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Input Supply Voltage	V_{IN}	2.5 ~ 7.0	V
Maximum Operating Current (DC)	$I_{OPR(MAX)}$	1.5	A
Operating Junction Temperature	T_J	-40 ~ +125	

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

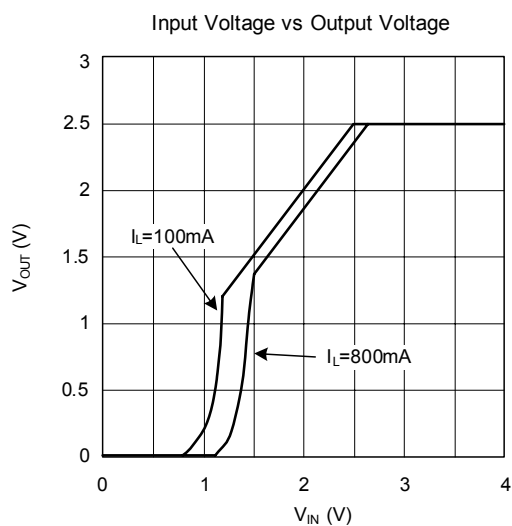
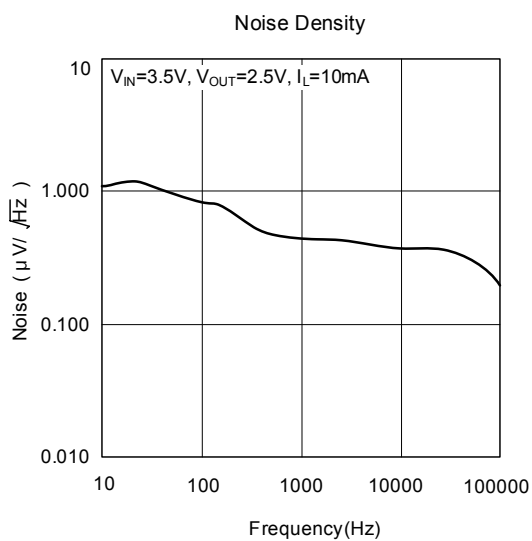
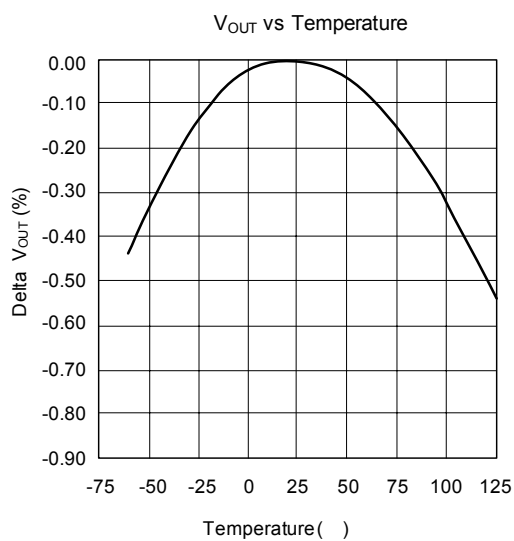
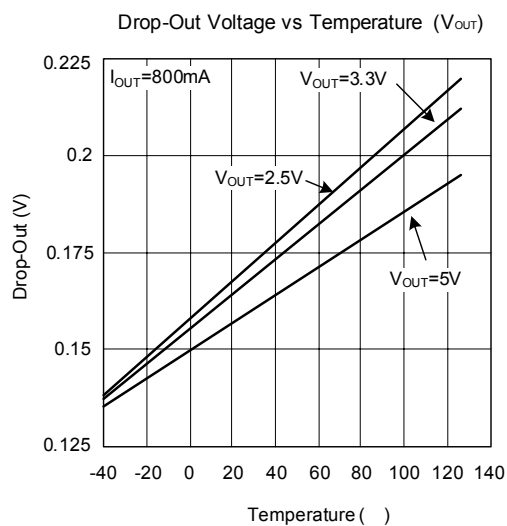
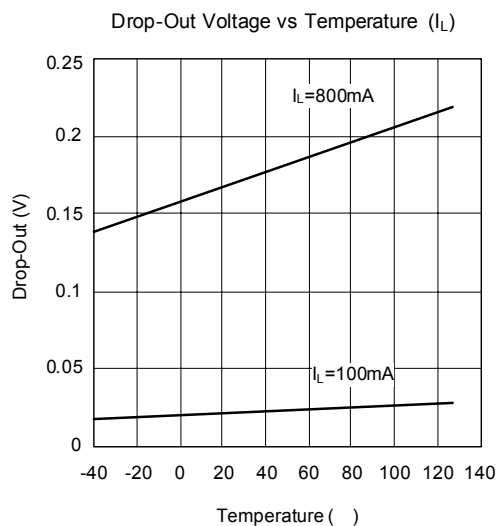
($T_J=25^{\circ}\text{C}$, $V_{IN}=V_{OUT}+1\text{V}$, $I_L=10\text{mA}$, $C_{OUT}=33\mu\text{F}$, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Dropout Voltage (Note)	V _D	I _L = 150 mA		38	45	mV
		I _L = 1.5 A		870		
Peak Output Current	I _{PEAK}		2.0	2.5		A
Ground Pin Current	I _{GND}	I _L = 150 mA		4	9	mA
		I _L = 1.5 A		5	14	
Output Voltage Tolerance	V _{OUT}	10 mA ≤ I _L ≤ 1.5A V _{OUT} +1 ≤ V _{IN} ≤ 7.0V	-1.5	0	+1.5	%
Line Regulation	ΔV _{OUT}	V _{OUT} +1V<V _{IN} <7.0V		0.1		%
Load Regulation	ΔV _{OUT}	10 mA < I _L < 1.5 A		1.5		%
SHORT CIRCUIT PROTECTION						
Short Circuit Current	I _{SC}			4.5		A
AC PARAMETERS						
Output Noise Density	ρ _{N(f)}	f = 120Hz		0.8		μV
Output Noise Voltage	e _N	BW = 10Hz – 100kHz		150		μV(rms)
		BW = 300Hz – 300kHz		100		
Ripple Rejection	RR	V _{IN} = V _{OUT} + 1.5V C _{OUT} =100uF, V _{OUT} = 3.3V		60		dB
		V _{IN} = V _{OUT} + 0.3V C _{OUT} =100uF, V _{OUT} = 3.3V		40		
OVER TEMPERATURE PROTECTION						
Shutdown Threshold	T _{SHDN}			165		°C
Thermal Shutdown Hysteresis	T _{HYS}			10		°C

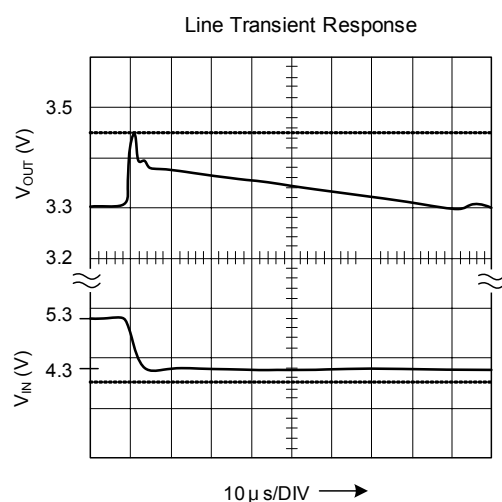
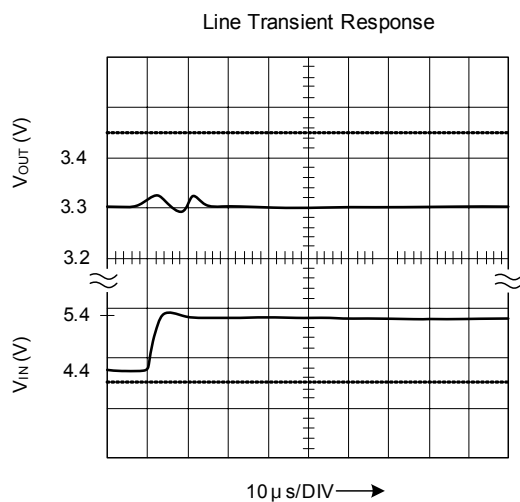
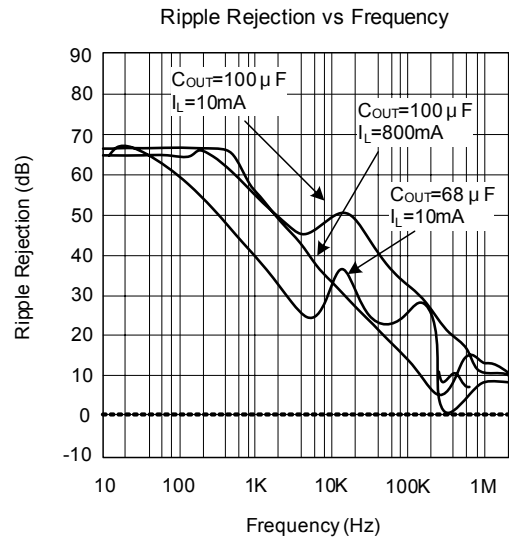
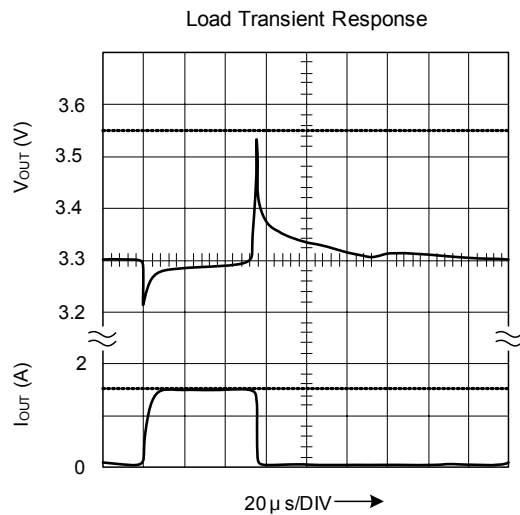
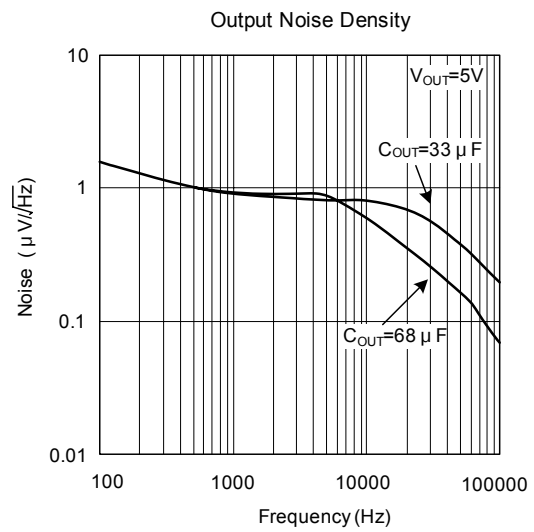
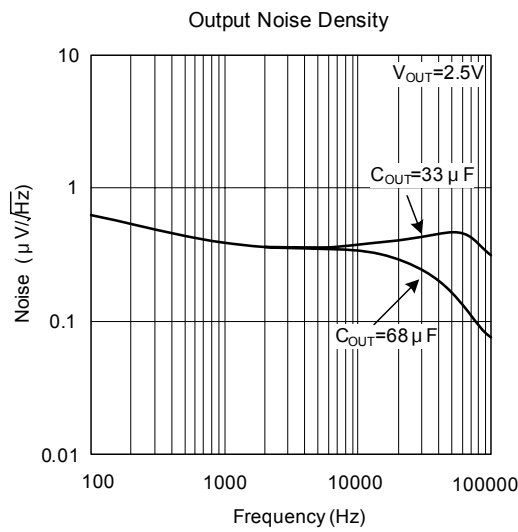
Note: Dropout voltage is defined as the minimum input to output differential voltage at which the output drops 2% below the nominal value. Dropout voltage specification applies only to output voltages of 2.5V and above. For output voltages below 2.5V, the drop-out voltage is nothing but the input to output differential, since the minimum input voltage is 2.5V.

■ TYPICAL CHARACTERISTICS

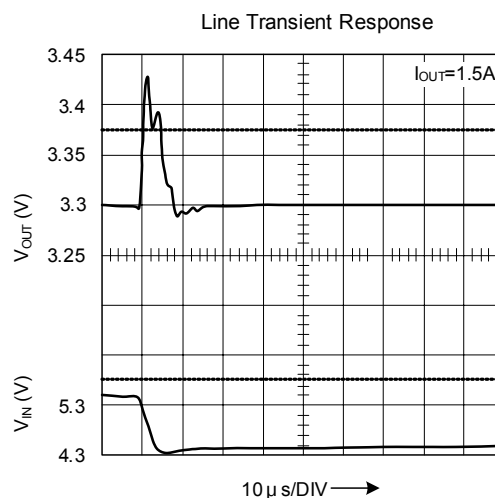
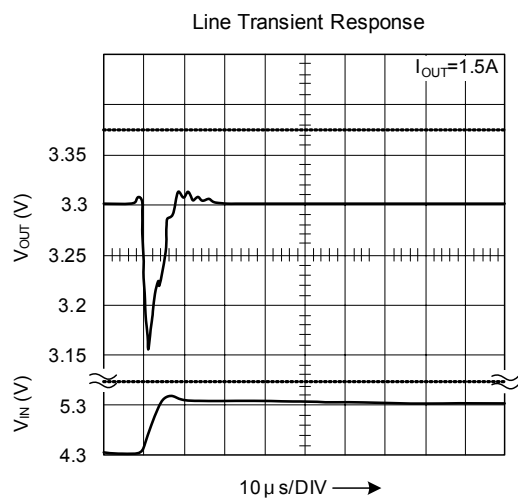
($V_{IN}=V_{OUT}+1V$, $V_{OUT}=2.5V$, $C_{OUT}=33\mu F$, $I_{OUT}=10mA$, $C_{IN}=68\mu F$, $T_a=25^\circ C$.)



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



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