



## LR1198

CMOS IC

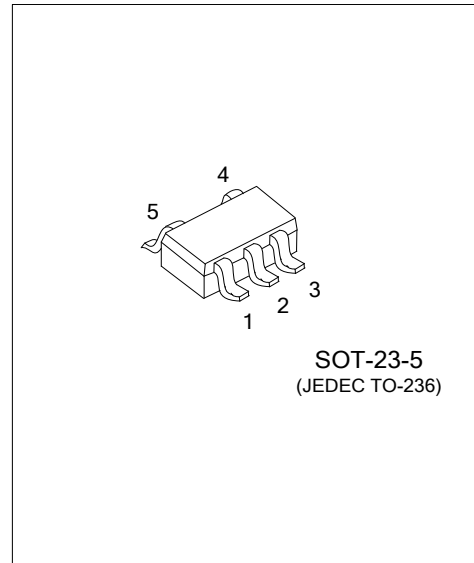
### 300mA, ULTRA-LOW NOISE, ULTRA-FAST CMOS LDO REGULATOR

#### DESCRIPTION

The LR1198 low-noise, low-dropout, linear regulator operates from a 2.5V to 5.5V input and is guaranteed to deliver 300mA. The LR1198 is designed and optimized for battery-powered systems to work with low noise and low quiescent current. For further reduction of output noise, a noise bypass pin is available.

The LR1198 also requires only 1µF (typ.) of output capacitance for stability with any load, reducing the amount of board space necessary for power applications, critical in hand-held wireless devices.

The LR1198 consumes less than 0.01µA in shutdown mode. The other features include ultra low dropout voltage, current limiting protection, thermal shutdown protection and high ripple rejection ratio.



SOT-23-5  
(JEDEC TO-236)

#### FEATURES

- \* 300mA Guaranteed Output Current
- \* 0.01µA Shutdown Current
- \* 550mV Dropout at 300mA Load
- \* Low Temperature Coefficient
- \* Current Limiting Protection
- \* Thermal Shutdown Protection
- \* Only 1µF Output Capacitor Required for Stability
- \* Excellent Line/Load Transient

#### ORDERING INFORMATION

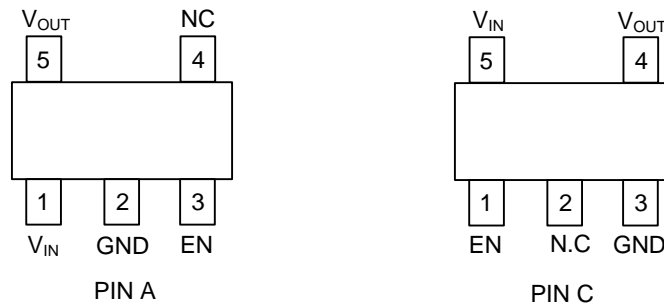
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LR1198L-xx-AE5-A-R	LR1198G-xx-AE5-A-R	SOT-23-5	Tape Reel
LR1198L-xx-AE5-C-R	LR1198G-xx-AE5-C-R	SOT-23-5	Tape Reel

<p>LR1198G-xx-AE5-A-R</p>	<p>(1) Packing Type (2) Pin Code (3) Package Type (4) Output Voltage Code (5) Green Package</p> <p>(1) R: Tape Reel (2) refer to PIN CONFIGURATION (3) AE5: SOT-23-5 (4) xx: Refer to Marking Information (5) G: Halogen Free and Lead Free, K: Lead Free</p>
---------------------------	---

## MARKING

PACKAGE	VOLTAGE CODE	MARKING
SOT-23-5	15: 1.5V 28: 2.8V 30: 3.0V	

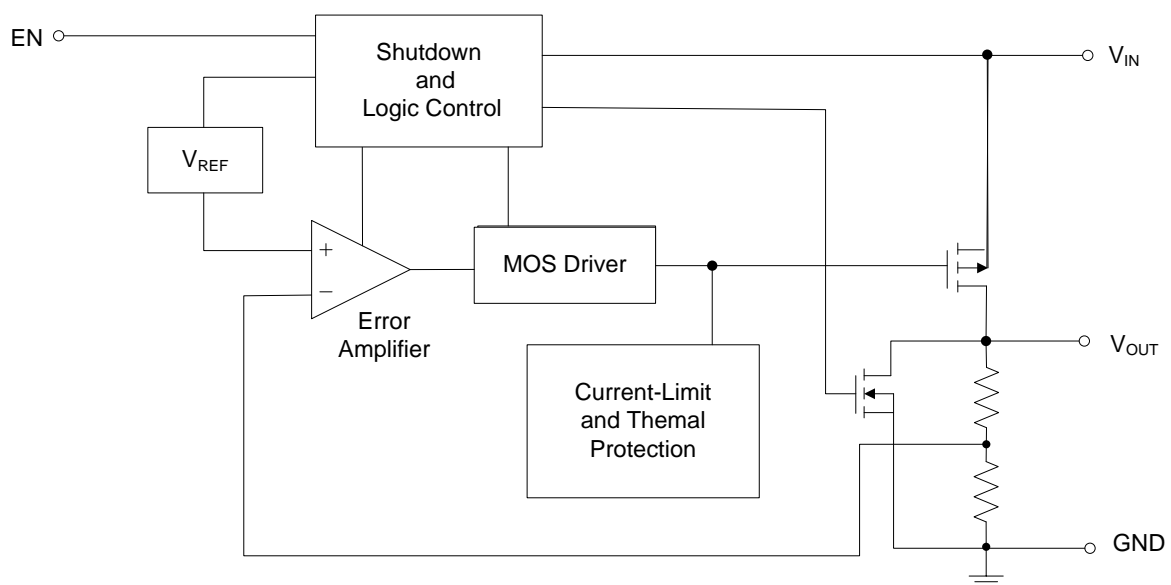
## PIN CONFIGURATION



## PIN DESCRIPTION

PIN No.		PIN NAME	DESCRIPTION
A	C		
1	5	$V_{IN}$	Power Input Voltage
2	3	GND	Ground
3	1	EN	Chip Enable (Active High). EN is internally pulled up by a resistor. It can be floating for normal operate.
4	2	N.C	
5	4	$V_{OUT}$	Output Voltage

## BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING (Note 1)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Input Voltage (Operating)	V <sub>IN</sub>	2.5 ~ 5.5	V
Supply Input Voltage (Survival)		-0.3 ~ +6	
Junction Temperature	T <sub>J</sub>	+125	°C
Operation Temperature Range	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature Range	T <sub>STG</sub>	-65 ~ +150	°C

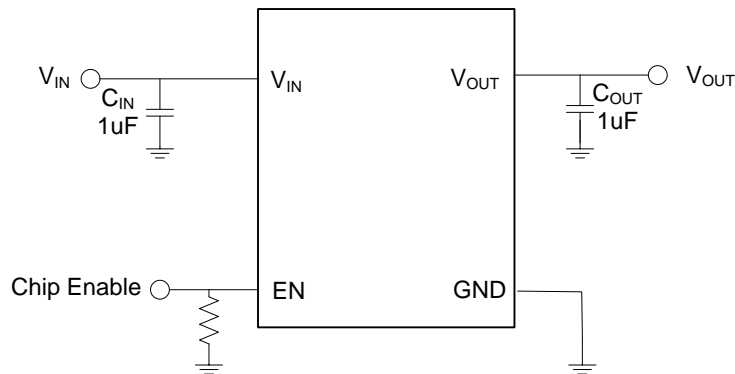
### ■ ELECTRICAL CHARACTERISTICS

(V<sub>IN</sub> = V<sub>OUT</sub> + 1V, C<sub>IN</sub> = C<sub>OUT</sub> = 1μF, T<sub>A</sub> = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage Accuracy	ΔV <sub>OUT</sub>	I <sub>OUT</sub> = 1mA	-2		+2	%
Current Limit	I <sub>LIM</sub>		200	360		mA
Quiescent Current	I <sub>Q</sub>	V <sub>EN</sub> ≥ 1.2V, I <sub>OUT</sub> = 0mA		90	150	μA
Dropout Voltage (Note 3)	V <sub>DROP</sub>	I <sub>OUT</sub> = 200mA		500	600	mV
		I <sub>OUT</sub> = 300mA		550	650	
Line Regulation	ΔV <sub>LINE</sub>	V <sub>IN</sub> = (V <sub>OUT</sub> + 0.3V) to 5.5V I <sub>OUT</sub> = 1mA			0.3	%
Load Regulation	ΔV <sub>LOAD</sub>	1mA < I <sub>OUT</sub> < 300mA			0.6	%
Standby Current	I <sub>STBY</sub>	V <sub>EN</sub> = GND, Shutdown		0.01	5	μA
EN Input Current	I <sub>ENH</sub>	V <sub>EN</sub> = V <sub>IN</sub>		0.01	3	μA
	I <sub>ENL</sub>	V <sub>EN</sub> = GND		3	10	
EN Threshold	V <sub>IH</sub>	V <sub>IN</sub> = 3 ~ 5.5V, Start-Up	1.6			V
	V <sub>IL</sub>	V <sub>IN</sub> = 3 ~ 5.5V, Shutdown			0.4	
Power Supply Rejection Rate	PSRR	C <sub>OUT</sub> = 1μF, I <sub>OUT</sub> = 10mA, f = 10kHz		50		dB
Thermal Shutdown Temperature	T <sub>SD</sub>			165		°C
Thermal Shutdown Temperature Hysteresis	ΔT <sub>SD</sub>			30		°C

- Notes: 1. Limits beyond which damage to the device may occur is indicated by absolute maximum ratings. Conditions for which the device is intended to be functional is indicated by operating ratings, but specific performance limits isn't be guaranteed. Only for the test conditions listed the guaranteed specifications can be applied. When the device is not operated under the listed test conditions some performance characteristics may degrade.
2. Which discharged through a 1.5kΩ resistor into each pin is a 100pF capacitor in the human body model.
3. The dropout voltage is defined as V<sub>IN</sub> - V<sub>OUT</sub>, which is measured when V<sub>OUT</sub> is V<sub>OUT(NORMAL)</sub> - 100mV.

## ■ TYPICAL APPLICATION CIRCUIT



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.