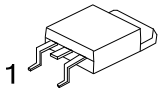
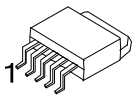
L11830

CMOS IC

3A LOW DROPOUT LINEAR REGULATOR



TO-263



TO-263-5

■ DESCRIPTION

The UTC **L11830** belonged to low quiescent current, low dropout, linear regulators operated from 2.25V to 6V input and are guaranteed to deliver 3A. Wide range of preset output voltage options are available. Built-in low on-resistance transistor provides low dropout voltage and large output current. The UTC **L11830** is designed and optimized for battery-powered systems to work with low noise.

The UTC **L11830** consumes less than 2μA in shutdown mode. Other features include ultra low dropout voltage, current limiting protection, thermal shutdown protection and high ripple rejection ratio.

■ FEATURES

* 3A Guaranteed Output Current
* low quiescent current: 60μA (typ.)
* 2μA Shutdown Current
* Short Circuit Current Fold-back
* Low Temperature Coefficient
* Current Limiting Protection
* Thermal Shutdown Protection
* Excellent Line/Load Transient
* SENSE Option Improves Load Regulation

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
L11830L-xx-TQ2-D-R	L11830G-xx-TQ2-D-R	TO-263	I	G	O	-	-	Tape Reel
L11830L-xx-TQ2-D-T	L11830G-xx-TQ2-D-T	TO-263	I	G	O	-	-	Tube
L11830L-xx-TQ3-A-R	L11830G-xx-TQ3-A-R	TO-263	G	O	I	-	-	Tape Reel
L11830L-xx-TQ3-A-T	L11830G-xx-TQ3-A-T	TO-263	G	O	I	-	-	Tube
L11830L-xx-TQ5-R	L11830G-xx-TQ5-R	TO-263-5	I	S	G	A	O	Tape Reel
L11830L-xx-TQ5-T	L11830G-xx-TQ5-T	TO-263-5	I	S	G	A	O	Tube

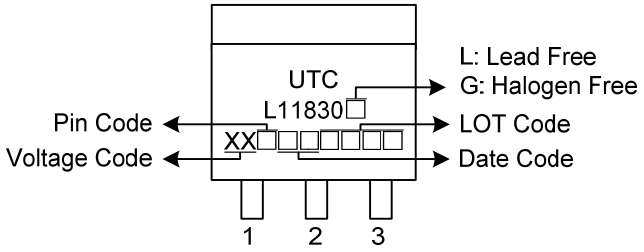
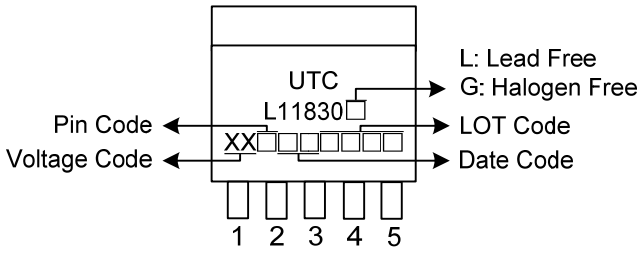
Note: Pin Assignment: I:V_{IN} O:V_{OUT} G:GND S: $\overline{SHDN}$ A: SENSE

L11830L-xx-AA3-x-R

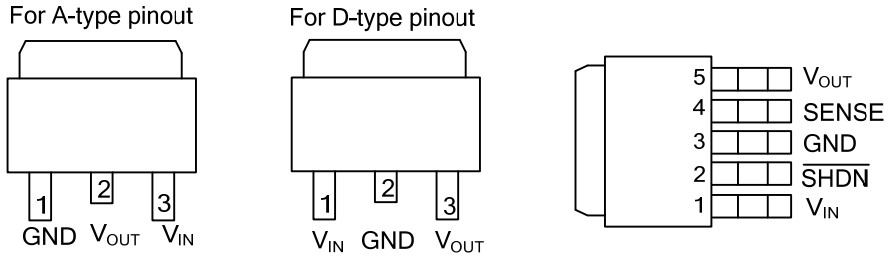
(1)Packing Type
(2)Pin Assignment
(3)Package Type
(4)Output Voltage Code
(5)Lead Plating

(1) R: Tape Reel, T: Tube
(2) refer to Pin Assignment
(3) TQ2: TO-263, TQ3: TO-263, TQ5: TO-263-5
(4) xx: refer to Marking Information
(5) G: Halogen Free, L: Lead Free

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-263	15 :1.5V 18 :1.8V 25 :2.5V 33 :3.3V	
TO-263-5	15 :1.5V 18 :1.8V 25 :2.5V 33 :3.3V	

■ PIN CONFIGURATION



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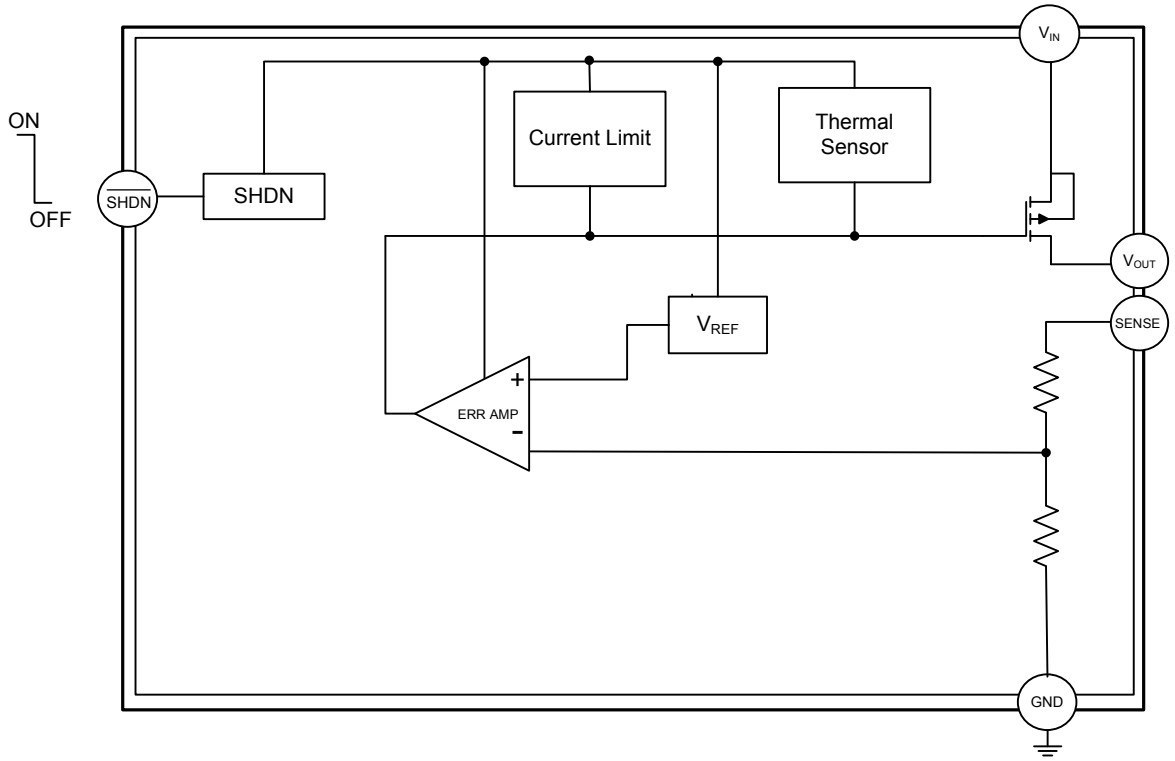
■ PIN DESCRIPTION

PIN NAME	DESCRIPTION
V_{IN}	Power Input Voltage. Supply voltage can range from 2.25V to 6V. Bypass with a 0.1μF capacitor to GND.
GND	Ground
$\overline{SHDN}$	Active-Low Shutdown Input. A logic low at $\overline{SHDN}$ reduces supply current to 0.01μA. Connect $\overline{SHDN}$ to V_{IN} for normal operation.
V_{OUT}	Output Voltage
SENSE	Remote sense pin.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_a=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{IN}	7	V
Power Dissipation	TO-263/TO-263-5	P_D	Internally limited	mW
Junction Temperature		T_J	+150	°C
Operation Temperature		T_{OPR}	-40 ~ +125	°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
Junction to Ambient	TO-263/TO-263-5	θ_{JA}	64	°C/W
Junction to Case	TO-263/TO-263-5	θ_{JC}	4	°C/W

■ ELECTRICAL CHARACTERISTICS

(V_{IN} = V_{OUT} + 1V whichever is greater, C_{IN} =0.1μF, C_{OUT} =2.2μF(Ceramic), T_a= 25°C, unless otherwise specified)

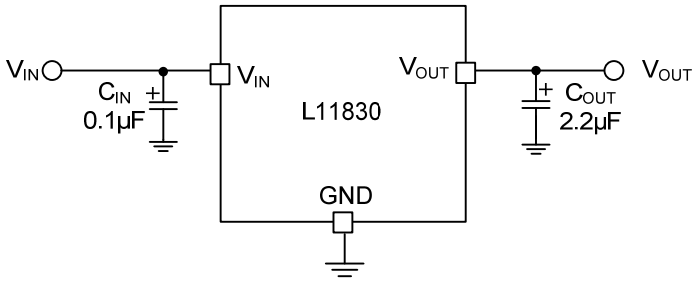
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}			Note1		6	V
Output Voltage Accuracy	V_{OUT}	Ta=25°C , I_{OUT}= 1mA ~3A		-2		2	%
		Ta=0~85°C, I_{OUT}= 1mA~3A		-3		3	
Maximum Output Current	I_{OUT}				3		A
Short-Circuit Current Limit	I_{LIMIT}	V_{OUT}>1.2V			4.5		A
Short-Circuit Current	I_{SC}	V_{OUT}<0.4V			1		A
Ground Pin Current	I_{GND}	I_{OUT} = 0mA			60	350	μA
		I_{OUT}= 1mA to 3A			60		
Dropout Voltage (Note 2)	V_D	I_{OUT}=3A	1.5V<=V_{OUT}<=1.8V			1000	mV
			1.8V<V_{OUT}<2.5V			700	
			2.5<=V_{OUT}			450	
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=V_{OUT}+V_D~6V			0.08	0.18	%/V
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+1V, I_{OUT}=10mA~3A			0.25	1	%
Output Voltage Noise	eN	f=10Hz to100kHz，C_{OUT}=2.2μF			30		μV_{RMS}
Shutdown Supply Current	I_{OFF}	$\overline{SHDN}$ =GND			2	10	μA
Power Supply Rejection	PSRR	I_{OUT}=100mA	f=100Hz		60		dB
		C_{OUT}=10μF	f=1kHz		45		
Shutdown Threshold	V_{IH}			2			V
	V_{IL}					0.4	
Thermal Shutdown Temperature	T_{SHDN}				160		°C
Thermal Shutdown Hysteresis	DT_{SHDN}				50		

Note: 1. $V_{IN(MIN)}$= V_{OUT}+ $V_{DROPOUT}$

2. The dropout voltage is defined as V_{IN} -V_{OUT}, which is measured when V_{OUT} is $V_{OUT(NORMAL)}$ × 98%

■ TYPICAL APPLICATION CIRCUIT

For To-263



For TO-263-5