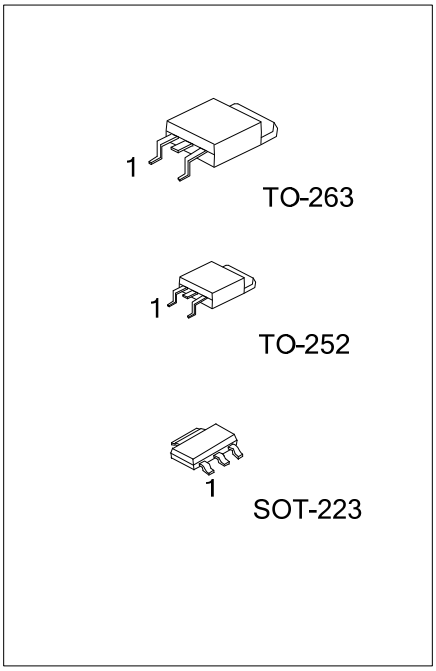
3A LOW DROPOUT LINEAR REGULATOR



■ DESCRIPTION

The UTC **LR8845** belonged to low quiescent current, low dropout linear regulators operated from 2.5V 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 **LR8845** is designed and optimized for battery-powered systems to work with low noise.

The UTC **LR8845** 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: 300μA (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

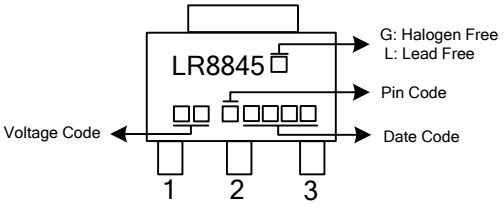
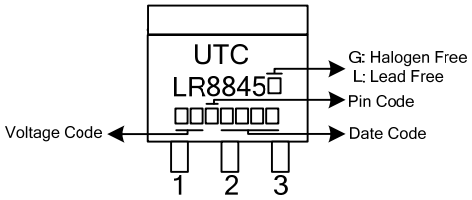
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
LR8845L-xx-AA3-D-R	LR8845G-xx-AA3-D-R	SOT-223	I	G	O	Tape Reel
LR8845L-xx-TN3-D-R	LR8845G-xx-TN3-D-R	TO-252	I	G	O	Tape Reel
LR8845L-xx-TN3-D-T	LR8845G-xx-TN3-D-T	TO-252	I	G	O	Tube
LR8845L-xx-TQ3-D-R	LR8845G-xx-TQ3-D-R	TO-263	I	G	O	Tape Reel
LR8845L-xx-TQ3-D-T	LR8845G-xx-TQ3-D-T	TO-263	I	G	O	Tube

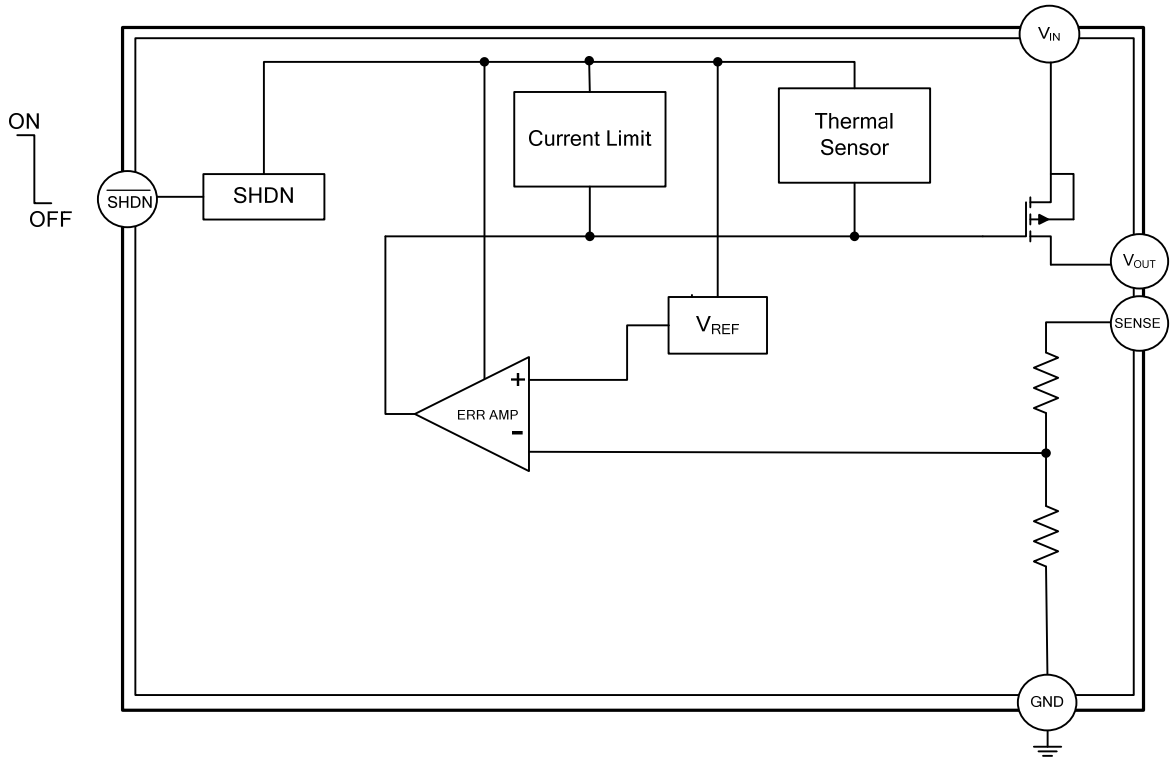
Note: 1. Pin assignment: I: V_{IN} O: V_{OUT} G: GND
2. xx: Output Voltage, refer to Marking Information.

LR8845L-xx-AA3-D-R (1)Packing Type (2)Pin Assignment (3)Package Type (4)Output Voltage Code (5)Lead Free	(1) R: Tape Reel, T: Tube (2) refer to Pin Assignment (3) AA3: SOT-223, TN3: TO-252, TQ2: TO-263 (4) xx: refer to Marking Information (5) G: Halogen Free, L: Lead Free

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	25:2.5V	
TO-252 TO-263		

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	7	V
Power Dissipation	P_D	Internally limited	mW
Junction Temperature	T_J	+150	°C
Operation 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
Junction to Ambient	TO-223	θ_{JA}	165	°C/W
	TO-252		108	
	TO-263		64	

■ 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}	T_A=25°C , I_{OUT}= 1mA ~3A		-2		2	%
		T_A=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			1.7		A
Ground Pin Current	I_{GND}	I_{OUT} = 0mA			300	400	μA
		I_{OUT}= 1mA to 3A			300		
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}		300	450	
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=V_{OUT}+V_D~6V			0.1	0.2	%/V
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+1V, I_{OUT}=10mA~3A			0.2	1	%
Output Voltage Noise	e_N	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		70		dB
		C_{OUT}=10μF	f=1kHz		60		
Shutdown Threshold	V_{IH}			2			V
	V_{IL}					0.4	
Thermal Shutdown Temperature	T_{SHDN}				150		°C
Thermal Shutdown Hysteresis	DT_{SHDN}				20		

Notes: 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