

**FEATURES**

- Output Current in Excess of 150mA
- 5V, 3.3V, 3.5V, 4.0V, and 4.5V Versions Available
- Very Low Quiescent Current
- Input-Output Differential Less Than 0.6V
- 60V Load Dump Protection
- -50V Reverse Transient Protection
- Internal Thermal Overload Protection
- Reverse Battery Protection
- Short Circuit Protection
- Similar to Industry Standard LM2930

**APPLICATIONS**

- Cordless Telephones
- Portable Consumer Equipment
- Portable Instrumentation
- Radio Control Systems

**PRODUCT DESCRIPTION**

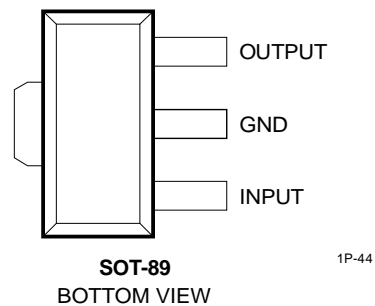
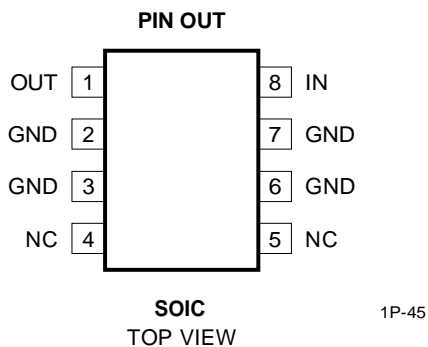
The CLM2930 is a positive low power voltage regulator. This device is an excellent choice for use in battery-powered applications such as cordless telephones, radio control systems, and automotive applications. The CLM2930 was originally designed for automotive applications, all circuitry is protected from reverse battery installation. During line transients, such as a load dump (+60V) when the input voltage to the regulator exceeds its maximum operating voltage, this device will automatically shut down to protect both internal circuits and as well as the load.

**ORDERING INFORMATION**

PART	PACKAGE	TEMPERATURE RANGE
CLM2930AS-X	Plastic SOIC	Industrial
CLM2930AM-X	SOT-89	Industrial

X = Output Voltage, 5V = standard product, for all other ranges contact factory.

**PIN CONNECTIONS**



## ABSOLUTE MAXIMUM RATINGS

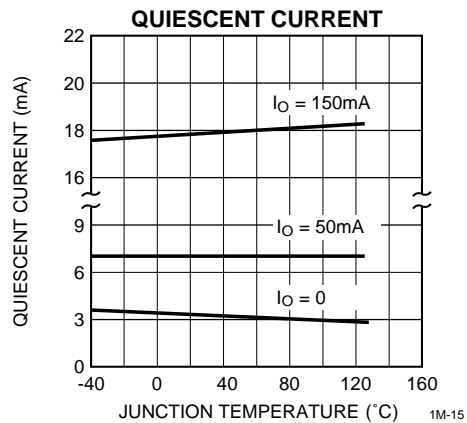
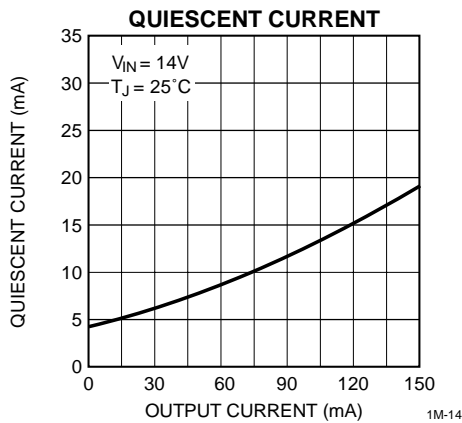
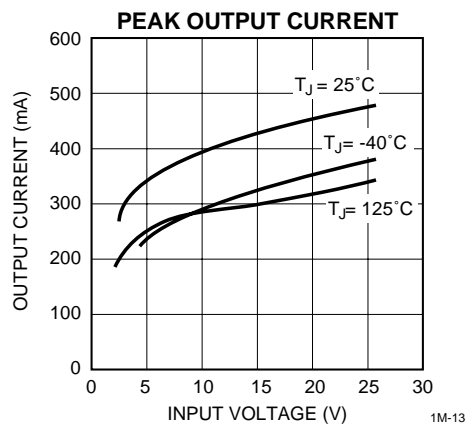
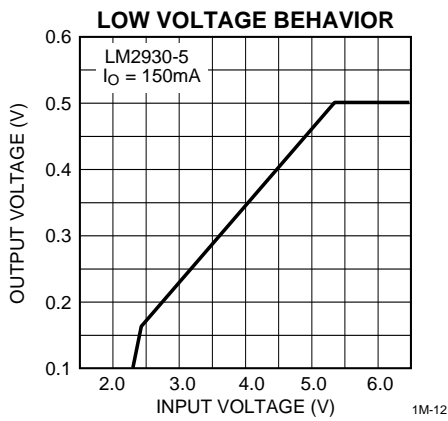
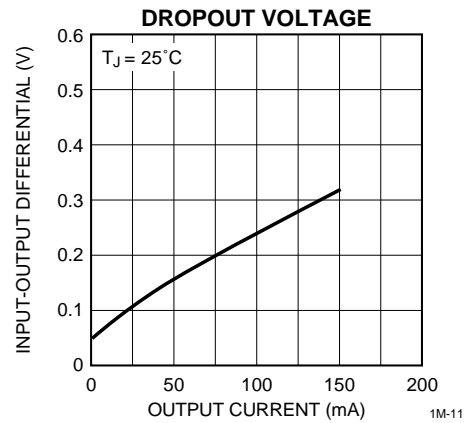
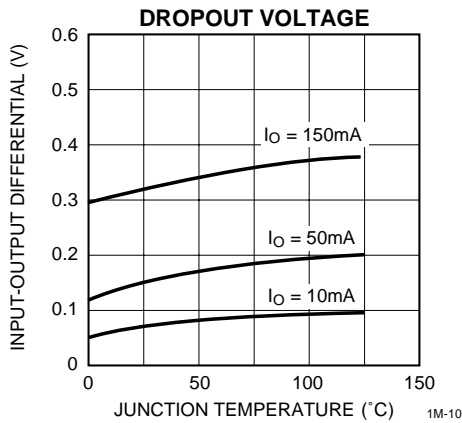
Power Dissipation . . . . . Internally Limited  
 Lead Temp. (Soldering, 5 Seconds) . . . . . 230°C  
 Storage Temperature Range . . . . . -65 to +150°C  
 Operating Junction Temperature Range . . . . . -40 to +85°C  
 Maximum Junction Temperature . . . . . +125°C

ESD Rating . . . . . 2KV  
 Over Voltage Protection . . . . . 60V  
 Reverse Voltage (100mS) . . . . . -50V  
 Reverse Voltage (DC) . . . . . -15V  
 Input Supply Voltage . . . . . -0.3 to +26V

**ELECTRICAL CHARACTERISTICS:**  $V_S = 14V$ ,  $T_A = 25^\circ C$ ,  $I_O = 150mA$ ,  $C_2 = 100\mu F$ , unless otherwise specified.

PARAMETER	CLM2930A			CLM2930			UNITS	CONDITIONS (Note 2)
	MIN	TYP	MAX	MIN	TYP	MAX		
<b>3V VERSION</b>	<b>CLM2930A-3</b>			<b>CLM2930-3</b>				
Output Voltage	2.94 <b>2.88</b>	3.0 3.0	3.06 <b>3.12</b>	2.91 <b>2.85</b>	3.0 3.0	3.09 <b>3.15</b>	V V	6V < V <sub>IN</sub> < 26V, I <sub>O</sub> = 150mA Over Temp.
<b>3.3V VERSION</b>	<b>CLM2930A-3.3</b>			<b>CLM2930-3.3</b>				
Output Voltage	3.23 <b>3.20</b>	3.30 3.30	3.36 <b>3.39</b>	3.20 <b>3.16</b>	3.30 3.30	3.39 <b>3.43</b>	V V	6V < V <sub>IN</sub> < 26V, I <sub>O</sub> = 150mA Over Temp.
<b>4.0V VERSION</b>	<b>CLM2930A-4</b>			<b>CLM2930-4</b>				
Output Voltage	3.92 <b>3.90</b>	4.0 4.0	4.08 <b>4.10</b>	3.90 <b>3.86</b>	4.0 4.0	4.10 <b>4.14</b>	V V	6V < V <sub>IN</sub> < 26V, I <sub>O</sub> = 150mA Over Temp.
<b>5V VERSION</b>	<b>CLM2930A</b>			<b>CLM2930</b>				
Output Voltage	4.81 <b>4.75</b>	5.0	5.19 <b>5.25</b>	4.75 <b>4.50</b>	5.0	5.25 <b>5.50</b>	V V	6V < V <sub>IN</sub> < 26V, I <sub>O</sub> = 150mA Over Temp.
<b>ALL VOLTAGE OPTIONS</b>								
Long Term Stability		20			20		mV/1000	
Line Regulation		2.0 4.0	10 30		4.0	30	mV	9V < V <sub>IN</sub> < 16V 6V < V <sub>IN</sub> < 26V
Load Regulation		14	50		14	50	mV	5mA < I <sub>O</sub> < 150mA
Dropout Voltage		0.05 0.07 0.3	0.2 0.1 0.6		0.05 0.07 0.3	0.2 0.1 0.6	V V V	I <sub>O</sub> = 10mA I <sub>O</sub> = 50mA I <sub>O</sub> = 150mA
Quiescent Current		0.4 15	1.0		0.4 15	1.0	mA mA	I <sub>O</sub> < 10mA, 6V < V <sub>IN</sub> < 26V, -40°C < T <sub>J</sub> < 125°C I <sub>O</sub> = 150mA, V <sub>IN</sub> = 14V, T <sub>J</sub> = 25°C
Maximum Operational Input Current	26	33		26	33		V	
Maximum Line Transient	60	70		70	50		V	R <sub>L</sub> = 500Ω, V <sub>O</sub> < 5.5V, 100ms
Reverse Polarity Input Voltage, DC	-15	-30		-15	30		V	V <sub>O</sub> > -0.3V, R <sub>L</sub> = 500Ω
Reverse Polarity Input Voltage, Transient	-50	-80		-50	-80		V	1% Duty Cycle, τ < 100ms, R <sub>L</sub> = 500Ω
Current Limit	150	400	450	150	400	450	mA	
Output Noise Voltage		500			500		mVrms	10Hz-100kHz, C <sub>OUT</sub> = 100μF
Ripple Rejection		80			80		dB	f <sub>o</sub> = 120Hz

**TYPICAL PERFORMANCE CHARACTERISTICS**



TYPICAL PERFORMANCE CHARACTERISTICS (continued)

