

March 17, 1998

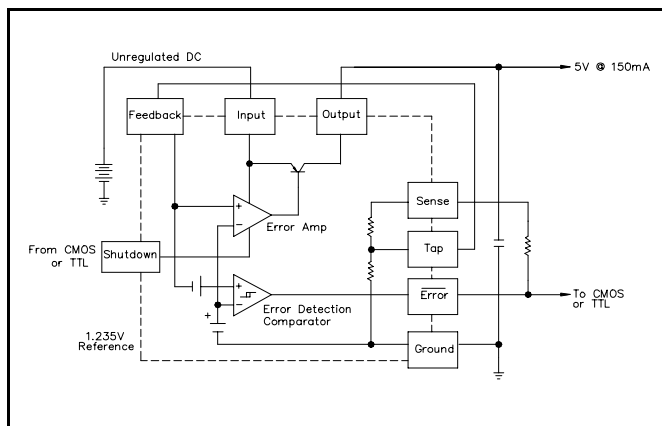
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## DESCRIPTION

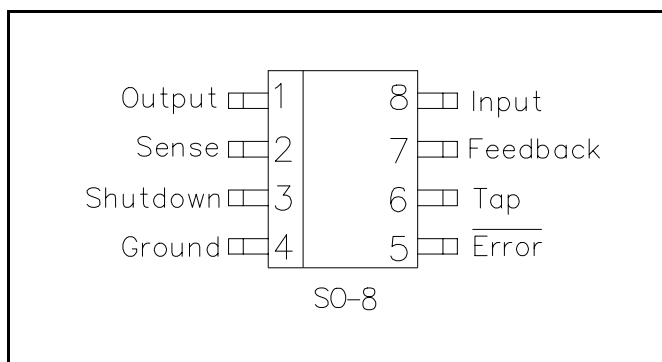
The LP2951 series of low power voltage regulators have low quiescent current and low dropout voltage. The quiescent current increases minimally during dropout conditions thereby extending battery life.

Available in the 8 lead SOIC package, the LP2951 series includes features such as shutdown and low output voltage detect (typically due to low battery conditions). This function may also be used as a power on reset function when triggered by CMOS or TTL inputs. The circuit can be used as a fixed voltage 5 volt (3.3 volt for LP2951CM-3.3) regulator or adjusted between 1.24 volts and 29 volts using external resistor pairs.

## BLOCK DIAGRAM



## PIN CONFIGURATION



## FEATURES

- Guaranteed 150mA current
- Adjustable output voltage - 1.24V to 29V
- Accurate 5V or 3.3V output @ 100mA
- Low dropout voltage - 350-400mV @ 100mA
- Regulator or reference functions
- Direct replacement for LP2951C, MIC2951-03, AS2951C

## APPLICATIONS

- Microcontroller supplies
- Linear regulators
- Adjustable Supplies
- Switching power supplies - post-regulation
- Portable modems
- Battery powered systems
- Cellular telephones
- Voltage references

## ORDERING INFORMATION

DEVICE <sup>(1)(2)</sup>	OUTPUT	PACKAGE
LP2951CM-X.X	ADJ	SO-8

Notes:

(1) Where -X.X denotes voltage options. Available voltages are: 3.3V (-3.3) and 5V (leave blank).

(2) Add suffix 'TR' for tape and reel.

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Maximum	Units
Supply Voltage	$V_{IN}$	-0.3 to 30	V
Shutdown Input Voltage		-0.3 to 30	V
Error Comp. Output Voltage		-0.3 to 30	V
Power Dissipation	$P_D$	Internally Limited	W
Thermal Resistance Junction to Ambient	$\theta_{JA}$	175	°C/W
Operating Junction Temperature Range	$T_J$	-40 to 125	°C
Storage Temperature Range	$T_{STG}$	-65 to 150	°C
Lead Temperature (Soldering) 5 Sec	$T_{LEAD}$	260	°C

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**ELECTRICAL CHARACTERISTICS**

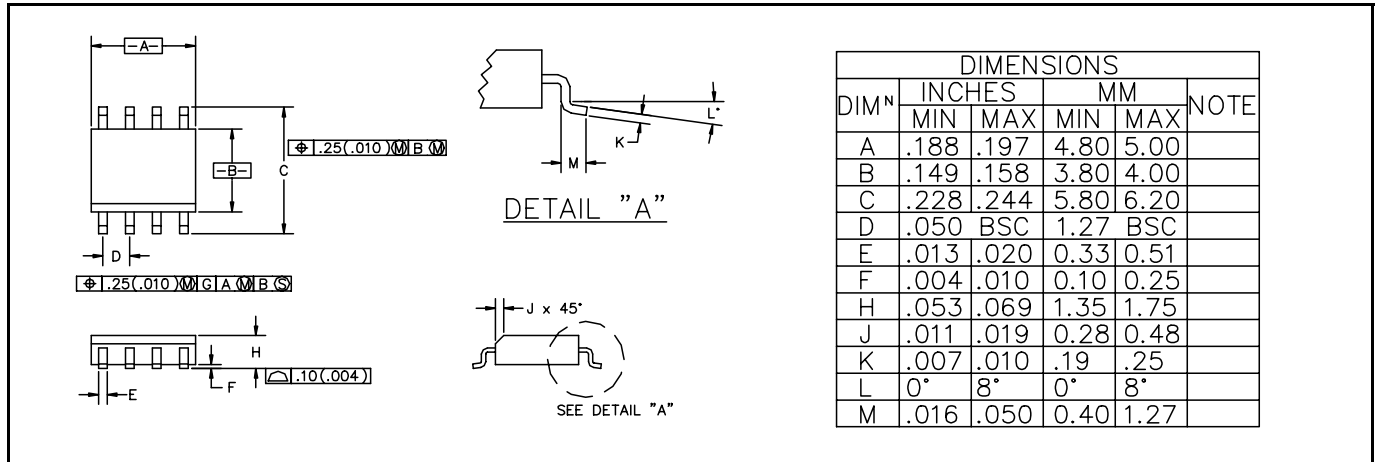
 Unless specified, limits are over operating temperature range ( $T_J = T_A$ ),  $V_{IN} = V_{OUT(NOM)} + 1V$ ,  $I_L = 100\mu A$ ,  $C_L = 1\mu F$ 

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage LP2951CM	$V_{OUT}$	$T_J = 25^\circ C, I_L = 100\mu A$	4.950	5.000	5.050	V
LP2951CM-3.3			3.267	3.300	3.333	
Temp Coefficient <sup>(1)</sup>	$T_C$	$0^\circ C \leq T_J \leq 70^\circ C$		20	120	ppm/ $^\circ C$
Line Regulation	$REG_{(LINE)}$	$(V_{O(NOM)} + 1V) \leq V_{IN} \leq 30V$		0.1	0.5	%
Load Regulation	$REG_{(LOAD)}$	$100\mu A \leq I_L \leq 100mA$		0.1	0.4	%
Dropout Voltage	$V_D$	$I_L = 100\mu A$		80	150	mV
		$I_L = 100mA$		380	600	
Ground Current	$I_{GND}$	$I_L = 100\mu A$		120	160	$\mu A$
		$I_L = 100mA$		8	14	mA
Dropout Ground Current	$I_{GND(D)}$	$V_{IN} = (V_{O(NOM)} - 0.5V), I_L = 100\mu A$		110	250	$\mu A$
Current Limit	$I_{CL}$	$V_{OUT} = 0$		200	250	mA
Reference Voltage	$V_{REF}$	$V_{REF} \leq V_{OUT} \leq (V_{IN} - 1V), T_J = 25^\circ C,$ $100\mu A \leq I_L \leq 100mA$	1.210	1.235	1.260	V
Feedback Bias Current	$I_{FB}$			20	60	nA
<b>Error Comparator</b>						
Output High Leakage Current		$V_{OH} = 30V$			2	$\mu A$
Output Low Voltage		$V_{IN} = (V_{O(NOM)} - 0.5V), I_{OL} = 400\mu A$		150	400	mV
Threshold Voltage		Upper	25	60		mV
		Lower		75	140	
Hysteresis				15		mV
<b>Shutdown Input</b>						
Input Logic Voltage	$V_{SD}$	Low			0.6	V
		High	2.0			V
Input Current	$I_{SD}$	$V_{SHUTDOWN} = 2.4V$			100	$\mu A$
		$V_{SHUTDOWN} = 30V$			750	
Regulator Shutdown Output Current	$I_{O(SD)}$	$V_{SHUTDOWN} \geq 2V, V_{IN} \leq 30V,$ $V_{OUT} = 0, \text{Feedback pin to Tap}$			20	$\mu A$

**NOTE:**

(1) Temperature coefficient is defined as the worst case voltage change divided by total temperature range.

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**OUTLINE DRAWING SO-8**

**LAND PATTERN SO-8**
