

LM2954

LINEAR INTEGRATED CIRCUIT

300 mA LOW-DROPOUT VOLTAGE REGULATOR

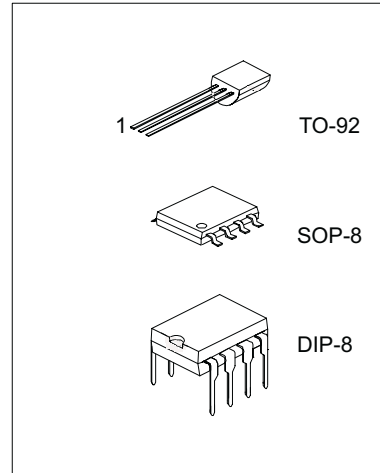
DESCRIPTION

The Contek LM2954 is a monolithic integrated voltage regulator with low dropout voltage, and low quiescent current. It includes many features that suitable for different applications.

Available in 3-pin TO-92, DIP-8 and SOP-8 packages.

FEATURES

- *High accuracy 3.0, 3.3, 3.7 or 5V fixed output for TO-92, DIP-8 and SOP-8 package.
- *Extremely low quiescent current and dropout voltage.
- *Extremely tight load and line regulation.
- *Current and thermal limiting.
- *Very low temperature coefficient.
- *Logic controlled shutdown and error flag available for DIP and SOP package.
- *Output voltage programmable for DIP and SOP package.



APPLICATIONS

- *Battery powered equipment.
- *High efficient linear regulator down to 1.24V.
- *Cellular phones.

ORDERING INFORMATION

PART NUMBER	TEMPERATURE RANGE	PACKAGE	ACCURACY
ContekLM2954-3.0	-40 C ~ +125 C	3-Pin TO-92 plastic	1.0%
ContekLM2954-3.3	-40 C ~ +125 C	3-Pin TO-92 plastic	1.0%
ContekLM2954	-40 C ~ +125 C	3-Pin TO-92 plastic	1.0%
ContekLM2954F	-40 C ~ +125 C	8-Pin SOP-8 plastic	1.0%
ContekLM2954P	-40 C ~ +125 C	8-Pin DIP-8 plastic	1.0%

PIN CONFIGURATIONS

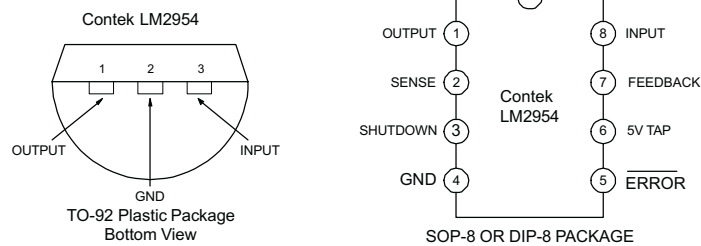


Fig. 1



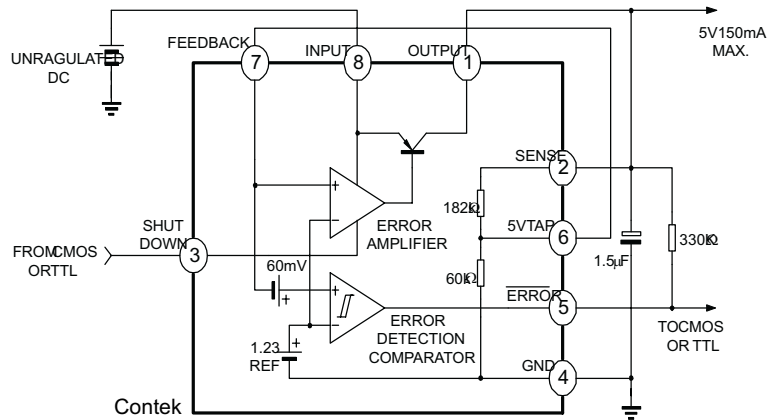
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<http://www.contek-ic.com> E-mail:sales@contek-ic.com

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BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{cc}	-0.3 ~ +30	V
Feedback Voltage	V _{feedback}	-1.5 ~ +30	V
Shutdown Voltage	V _{shutdown}	-0.3 ~ +30	V
Comparator Output Voltage	V _{co}	-0.3 ~ +30	V
Storage temperature	T _{str}	-65 ~ +150	C
Operating Junction Temperature	T _j	-40 ~ +125	C

ELECTRICAL CHARACTERISTICS

(Tested at T_J=25 C, V_{IN}=6V, I_L=100μA and C_L=1F, unless otherwise specified)

PARAMETER	PART NUMBER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT		
Output Voltage	Contek LM2954-3.0	T _J =25 C	2.97	3.0	3.03	V		
	Contek LM2954-3.3		3.27	3.3	3.33			
	Contek LM2954-3.7		3.66	3.7	3.74			
	Contek LM2954 (note 1)		4.95	5.0	5.05			
	Contek LM2954							
	Contek LM2954-3.0	-25 C ≤ T _J ≤ +85 C	2.94	3.0	3.06	V		
			Contek LM2954-3.3	3.23	3.3		3.36	
			Contek LM2954-3.7	3.63	3.7		3.77	
			Contek LM2954 (note 1)	4.9	5.0		5.1	
			Contek LM2954					
	Contek LM2954-3.0	100μA ≤ I _L ≤ 300 mA	T _J ≤ T _J (max)	2.94	3.0	3.06	V	
				Contek LM2954-3.3	3.23	3.3		3.36
				Contek LM2954-3.7	3.66	3.7		3.74
				Contek LM2954 (note 1)	4.9	5.0		5.1
				Contek LM2954				
Output Voltage Temperature Coefficient			20		100	ppm/ C		
Line Regulation		6V ≤ V _{IN} ≤ 30V		0.1	0.2	%		



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PARAMETER	PART NUMBER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Load Regulation		100 μ A \leq I _L \leq 300 mA		0.2	0.5	%
Dropout Voltage		I _L =100mA	50	80	150	mV
		I _L =200mA (note 2)	380	450	600	
Ground Current		I _L =100 μ A	0.75	0.12	0.14	mA
		I _L =200mA	8	12	14	
Dropout Ground Current		V _{IN} =4.5V, I _L =100 μ A	110	170	200	μ A
Current Limit		V _{out} =0	300			mA
Output Noise 10Hz to 100KHz		CL=1 μ F			430	μ V
		CL=200 μ F			160	
		CL=3.3 μ F			100	
		(Bypass=0.01 μ F) pins 7 to (Contek 2954)				
For 8-Pin Version Only						
Reference Voltage			1.22	1.235	1.25	V
Reference Voltage		(Note 7)	1.19		1.27	V
Feedback Pin Bias Current				20	40	nA
Reference Voltage Temperature Coefficient				50		ppm/ C
Feedback Bias Current Temperature Coefficient				0.1		nA/ C
Error Comparator						
Output Leakage Current		V _{OH} =30V			1	μ A
Output Low Voltage		V _{IN} =4.5V I _{OL} =400 μ A			250	mV
Upper Threshold Voltage		(Note 3)	3.2			%V _O
Lower Threshold Voltage		(Note 3)			7.6	%V _O
Hysteresis		(Note 3)		15		mV
Shutdown Input						
Input Logic Voltage		Low(Regulator ON)		1.3		V
		High(Regulator OFF)	2.0		0.70	
Shutdown Pin Input Current		V _{shutdown} =2.4V		30	50	μ A
		V _{shutdown} =30V		450	600	μ A
Regulator Output Current Shutdown		V _{shutdown} \geq 2V, V _{IN} \leq 30V, V _{out} =0, Feedback pin tied to 5V Tap.		3	10	μ A

Note 1: Additional conditions for 8-pin versions are feedback tied to 5V Tap an Output tied to Output Sense (V_{out}=5V) and V_{shutdown} \leq 0.8V.

Note 2: Dropout Voltage is defined as the input to output differential at which the output voltage drops 100mV below its nominal value measured at 1V differential.

Note 3: Comparator thresholds are expressed in terms of percentage value of voltage output.



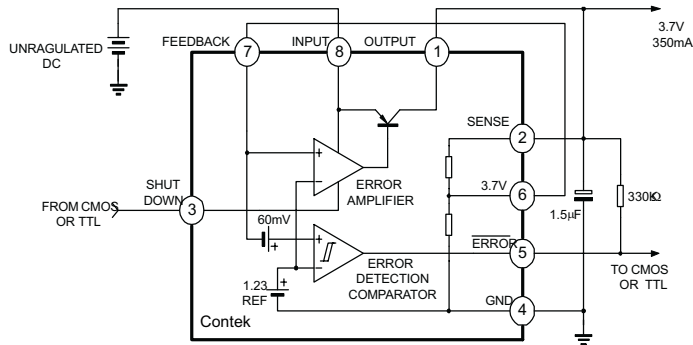
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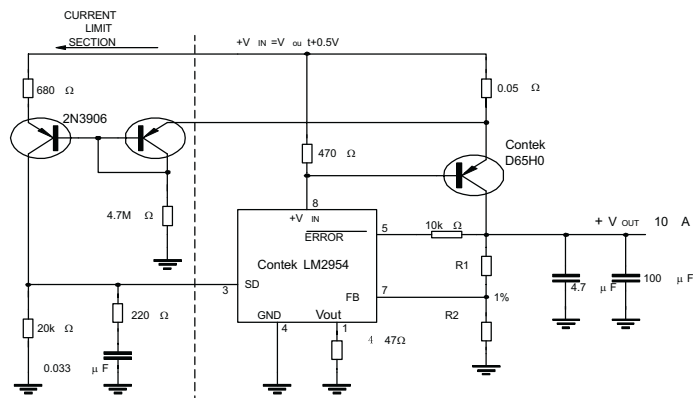
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APPLICATION CIRCUIT



10A LOW DROPOUT REGULATOR



$$V_{out} = 1.23V * (1 + R1/R2)$$

For 5V output use internal Resistor. Wire Pin 6 to 7 and wire pin 2 to +V out

Fig.2



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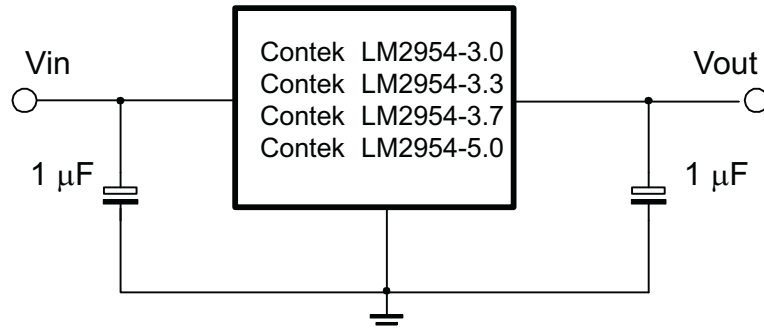


Fig. 3