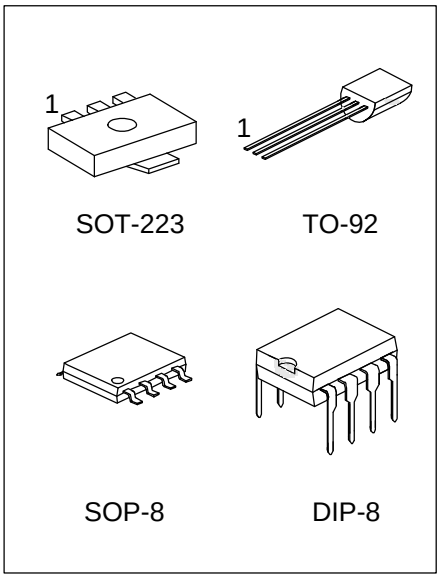
UTC LM2954 LINEAR INTEGRATED CIRCUIT

300 mA LOW-DROPOUT VOLTAGE REGULATOR



DESCRIPTION

The UTC 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,SOP-8 and SOT-223 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
UTC LM2954-3.0	-40°C ~ +125°C	3-Pin TO-92 plastic	1.0%
UTC LM2954-3.3	-40°C ~ +125°C	3-Pin TO-92 plastic	1.0%
UTC LM2954	-40°C ~ +125°C	3-Pin TO-92 plastic	1.0%
UTC LM2954F	-40°C ~ +125°C	8-Pin SOP-8 plastic	1.0%
UTC LM2954P	-40°C ~ +125°C	8-Pin DIP-8 plastic	1.0%

PIN CONFIGURATIONS

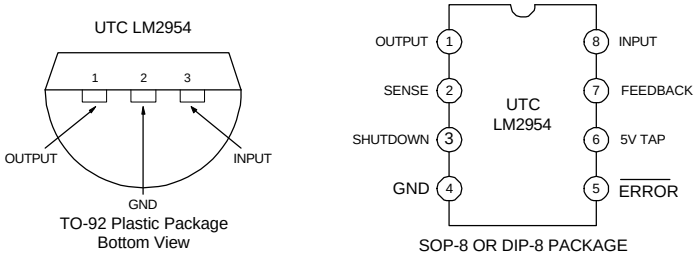
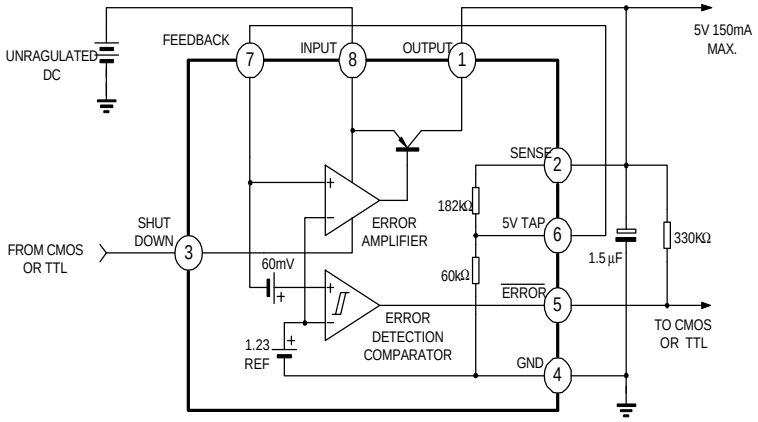


Fig. 1

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	-0.3 ~ +30	V
Feedback Voltage	Vfeedback	-1.5 ~ +30	V
Shutdown Voltage	Vshutdown	-0.3 ~ +30	V
Comparator Output Voltage	Vco	-0.3 ~ +30	V
Storage temperature	Tstr	-65 ~ +150	°C
Operating Junction Temperature	Tj	-40 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(Tested at Tj=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	UTC LM2954-3.0	T_J=25°C	2.97	3.0	3.03	
	UTC LM2954-3.3		3.27	3.3	3.33	V
	UTC LM2954-3.7		3.66	3.7	3.74	
	UTC LM2954	(note 1)	4.95	5.0	5.05	
	UTC LM2954					
	UTC LM2954-3.0	-25°C<=T_J<=+85°C	2.94	3.0	3.06	
	UTC LM2954-3.3		3.23	3.3	3.36	V
	UTC LM2954-3.7		3.63	3.7	3.77	
	UTC LM2954	(note 1)	4.9	5.0	5.1	
	UTC LM2954					
	UTC LM2954-3.0	100μA<=I_L<=300 mA	2.94	3.0	3.06	
	UTC LM2954-3.3	Tj<=Tj(max)	3.23	3.3	3.36	V
	UTC LM2954-3.7		3.66	3.7	3.74	
	UTC LM2954	(note 1)	4.9	5.0	5.1	
	UTC LM2954					
Output Voltage Temperature Coefficient			20		100	ppm/°C
Line Regulation		6V<=V_{IN}<=30V		0.1	0.2	%
Load Regulation		100μA<=I_L<=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=100μA	0.75	0.12	0.14	mA
		I_L=200mA	8	12	14	
Dropout Ground Current		V_{IN}=4.5V,I_L=100μA	110	170	200	μA
Current Limit		Vout=0	300			mA
Output Noise 10Hz to 100KHz		C_L=1μF			430	
		C_L=200μF			160	μV
		C_L=3.3μF			100	
		(Bypass=0.01μF)				
		pins 7 to (utc2954)				
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	μA
Output Low Voltage		V_{IN}=4.5V I_{OL}=400μA			250	mV
Upper Threshold Voltage		(Note 3)	3.2			%V_O

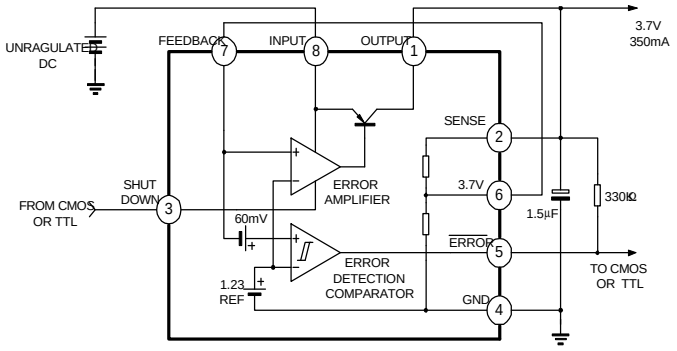
PARAMETER	PART NUMBER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Lower Threshold Voltage		(Note 3)			7.6	%V_O
Hysteresis		(Note 3)		15		mV
Shutdown Input						
Input Logic Voltage		Low(Regulator ON) High(Regulator OFF)	 2.0	1.3	0.70	V
Shutdown Pin Input Current		$V_{shutdown}$=2.4V		30	50	μA
		$V_{shutdown}$=30V		450	600	μA
Regulator Output Current Shutdown		Vshutdown>=2V,V_{IN}<=30V, V_{out}=0, Feedback pin tied to 5V Tap.		3	10	μA

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

APPLICATION CIRCUIT



10A LOW DROPOUT REGULATOR

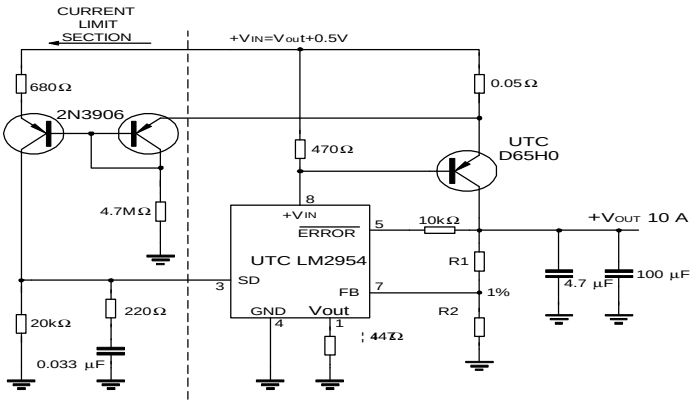


Fig.2

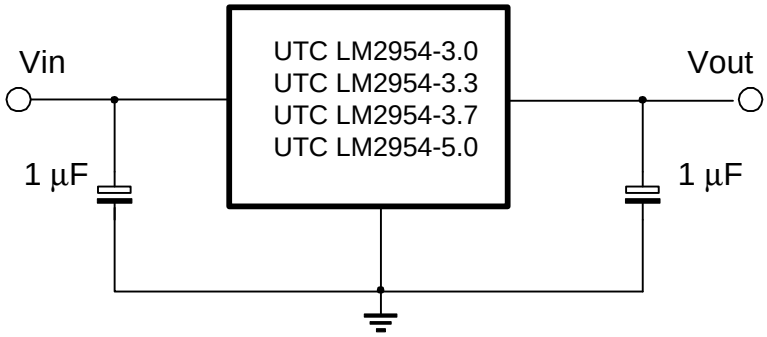


Fig. 3