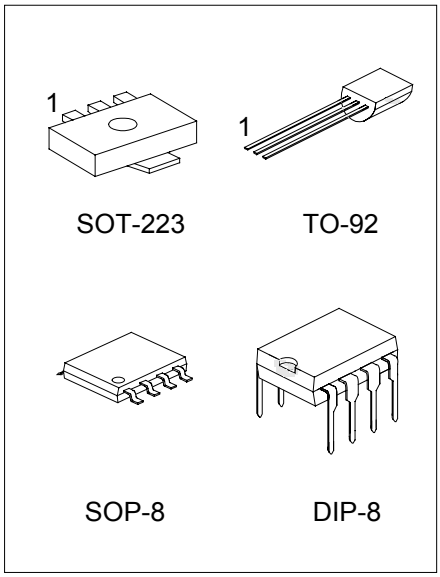
UTC LM2954 LINEAR INTEGRATED CIRCUIT

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 3.3, 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.

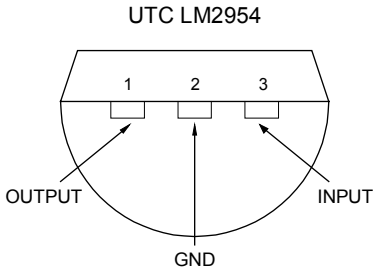
APPLICATIONS

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

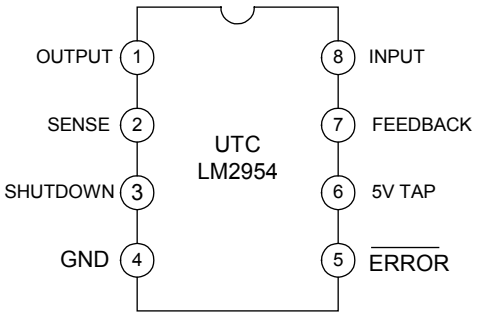
ORDERING INFORMATION

PART NUMBER	TEMPERATURE RANGE	PACKAGE	ACCURACY
UTC LM2954-5.0	-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	8-Pin SOP-8 plastic	1.0%
UTC LM2954	-40°C ~ +125°C	8-Pin DIP-8 plastic	1.0%

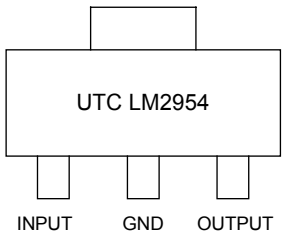
PIN CONFIGURATIONS



TO-92 Plastic Package
Bottom View



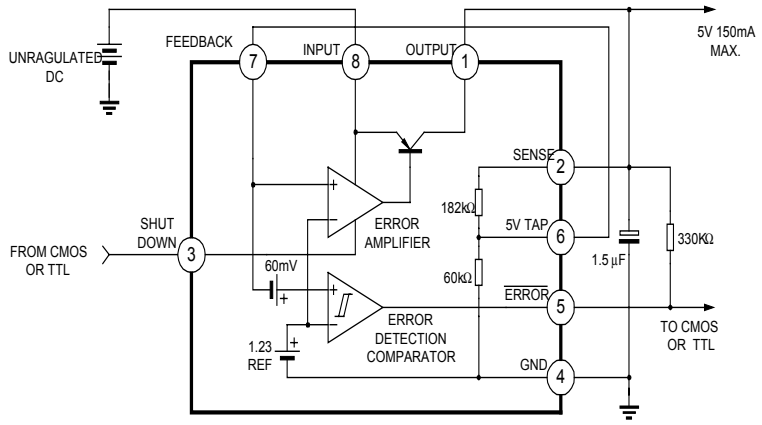
SOP-8 OR DIP-8 PACKAGE



SOT-223 PACKAGE

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 LM2954-3.3 UTC LM2954-5.0 UTC LM2954	T_J=25°C (note 1)	3.27 4.95	3.3 5.0	3.33 5.05	V
	UTC LM2954-3.3 UTC LM2954-5.0 UTC LM2954	-25°C<=T_J<=+85°C (note 1)	3.23 4.9	3.3 5.0	3.36 5.1	V
	UTC LM2954-3.3 UTC LM2954-5.0 UTC LM2954	100μA<=I_L<=300 mA Tj<=Tj(max) (note 1)	3.23 4.9	3.3 5.0	3.36 5.1	V
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 I_L=200mA (note 2)	50 380	80 450	150 600	mV
Ground Current		I_L=100μA I_L=200mA	0.75 8	0.12 12	0.14 14	mA
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 C_L=200μF C_L=3.3μF (Bypass=0.01μF) pins 7 to (utc2954)			430 160 100	μV
For 8-Pin Version Only						
Reference Voltage			1.22	1.235	1.25	V
Reference Voltage		(Note 4)	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
Lower Threshold Voltage		(Note 3)			7.6	%V_O
Hysteresis		(Note 3)		15		mV
Shutdown Input						

PARAMETER	PART NUMBER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
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

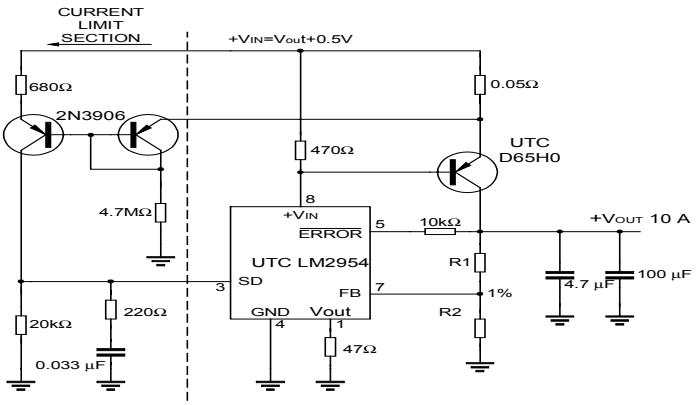
Note 1: Additional conditions for 8-pin versions are feedback tied to 5V Tap an Output tied to Output Sense (V_{out}=5V) and Vshutdown<=0.8V.

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.

Note 4: Vref≤Vout≤(Vin-1V), 2.3V≤Vin≤30V, 100μA≤I_L≤100mA, T_J≤T_{JMAX}

APPLICATION CIRCUIT (10A LOW DROPOUT REGULATOR)



Vout=1.23V*(1+R1/R2)

For 5V output use internal resistors.Wire pin 6 to 7 and wire pin 2 to +Vout

Fig.2

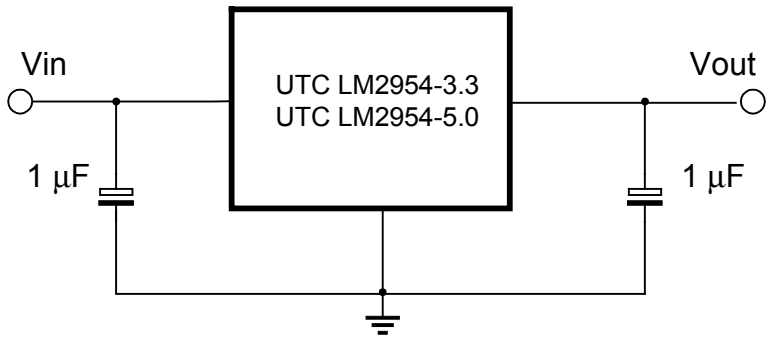


Fig. 3