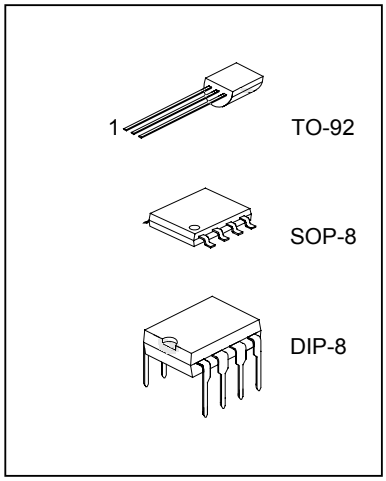
100 mA LOW-DROPOUT VOLTAGE REGULATOR



DESCRIPTION

The @vic AV2950/2951 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

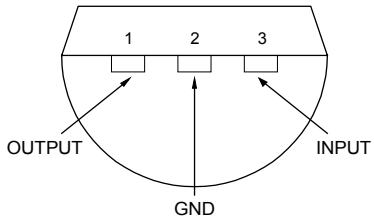
*High accuracy 2.5, 3.0, 3.3, 3.6 or 5V fixed output for TO-92, SOP-8 package.
*Extremely low quiescent current and dropout voltage.
*Extremely tight load and line regulation.
*Current and thermal limiting.
*Very low temperature coefficient.
*Logic controlled shutdown and error flag available for DIP and SOP package.
*Output voltage programmable for DIP and SOP package.

APPLICATIONS

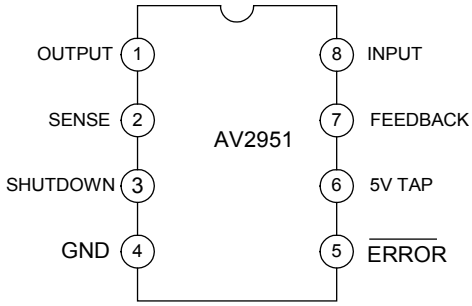
*Battery powered equipment.
*High efficient linear regulator down to 1.24V.
*Cellular phones.

PIN CONFIGURATIONS

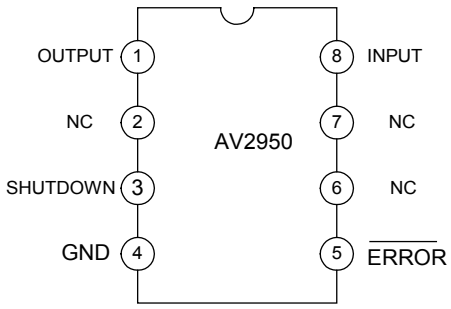
AV2950



TO-92 Plastic Package
Bottom View



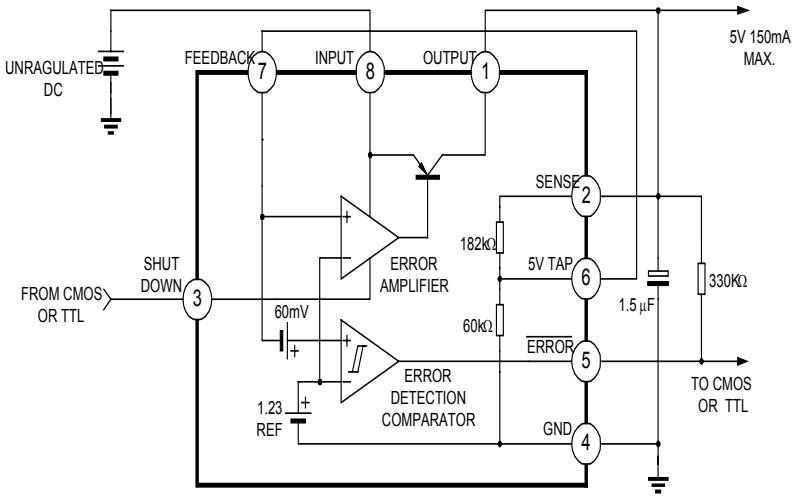
SOP-8 OR DIP-8 PACKAGE
FOR @vic AV2951



SOP-8 OR DIP-8 PACKAGE
FOR @vic AV2950

Fig.1

BLOCK DIAGRAM



FOR @vic AV2951

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
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=1μF, unless otherwise specified)

PARAMETER	PART NUMBER	TEST CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	AV2950-2.5 AV2950-3.0 AV2950-3.3 AV2950-3.6 AV2950-5.0 AV2951	T_J=25°C (note 1)	2.45 2.94 3.23 3.53 4.90	2.5 3.0 3.3 3.6 5.0	2.55 3.06 3.36 3.67 5.10	V
	AV2950-2.5 AV2950-3.0 AV2950-3.3 AV2950-3.6 AV2950-5.0 AV2951	-25°C≦T_J≦+85°C (note 1)	2.45 2.94 3.23 3.53 4.90	2.5 3.0 3.3 3.6 5.0	2.55 3.06 3.36 3.67 5.10	V
Output Voltage	AV2950-2.5 AV2950-3.0 AV2950-3.3 AV2950-3.6 AV2950-5.0 AV2951	100μA≦I_L≦100 mA Tj<=Tj(max) (note 1)	2.45 2.94 3.23 3.53 4.90	2.5 3.0 3.3 3.6 5.0	2.55 3.06 3.36 3.67 5.10	V
Output Voltage Temperature Coefficient			20		100	ppm/°C
Line Regulation		6V≦V_{IN}≦30V	0.03	0.1	0.2	%
Load Regulation		100μA≦I_L≦100 mA	0.04	0.1	0.2	%
Dropout Voltage		I_L=100μA I_L=100mA (note 2)	50 380	80 450	150 600	mV
Ground Current		I_L=100μA I_L=100mA	75 8	120 12	140 14	μA mA
Dropout Ground Current		V_{IN}=4.5V,I_L=100μA	110	170	200	μA
Current Limit		Vout=0	160	200	220	mA
Output Noise 10Hz ~ 100KHz		C_L=1μF C_L=200μF C_L=3.3μF (Bypass=0.01μF pins 7 to (utc2951))			430 160 100	μV
For LP2951 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

PARAMETER	PART NUMBER	TEST CONDITION	MIN	TYP	MAX	UNIT
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

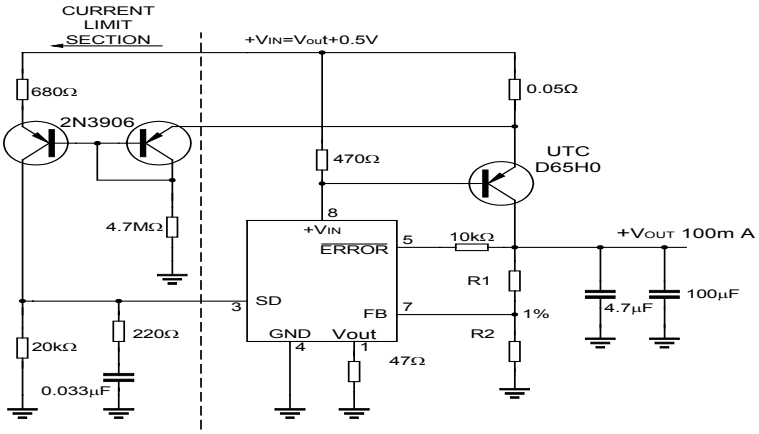
Note 1: Additional conditions for 8-pin versions are feedback tied to 5V Tap an Output tied to Output Sense (V_{out}=5V) and Vshutdown<=0.8V.

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.

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

APPLICATION CIRCUIT (10 Ampere 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

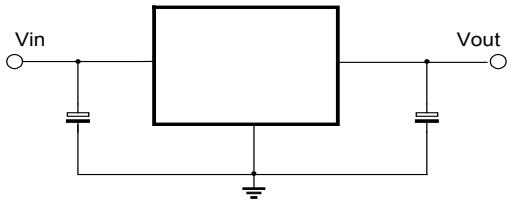


Fig.3

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.4 Dropout Characteristics

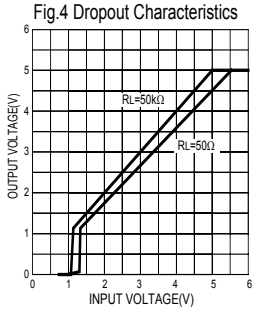


Fig.5 Input Current

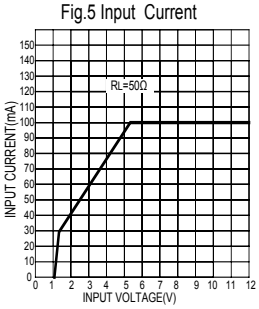


Fig. 6 Dropout Voltage

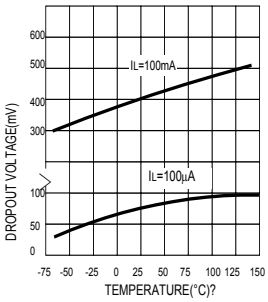


Fig. 7 Ground Pin Current

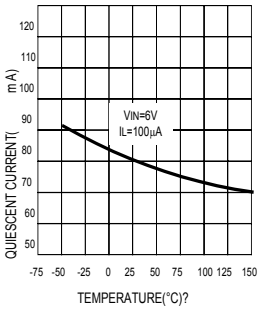


Fig. 8 Ground Pin Current

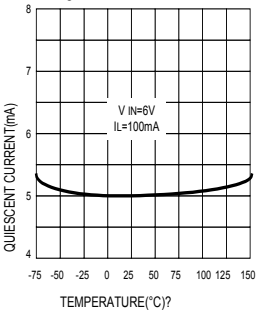


Fig. 9 Shutdown Threshold Voltage

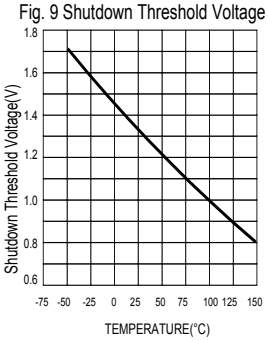


Fig. 10 Short Circuit Current

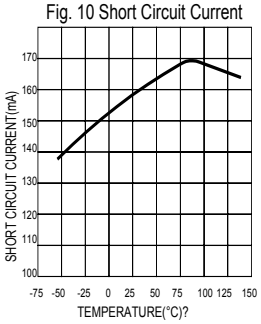
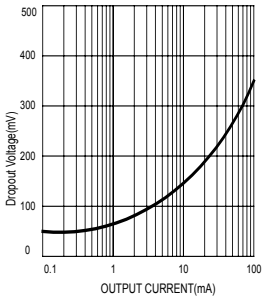


Fig. 11 Dropout Voltage



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