L78L33ACD13TR

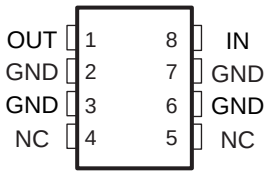
Low Dropout Linear Regulator

Features

- Wide range of available,fixed output voltage.
- Low cost.
- Internal short-circuit current limiting.
- Internal thermal overload protection.
- No extermal components required.

Pin Configuration

SOP-8(SOIC-8)



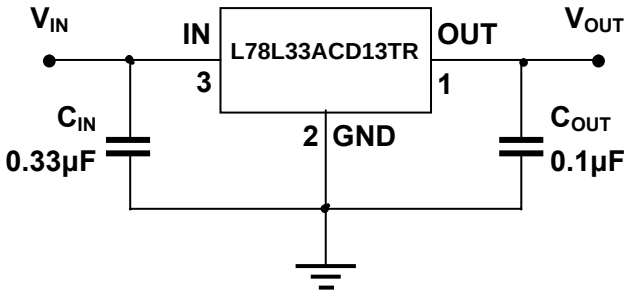
Applications

- Three-terminal positive voltage regulator.

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_I	Input voltage	30	V
I_{CM}	Maximum output current	100	mA
P_D	Power dissipation	500	mW
T_{OPR}	Operating junction temperature	0 to +125	℃
T_j,T_{stg}	Storage temperature range	-40 to +150	℃

Typical Application



Conventional Circuit

Electrical Characteristics

(V_{IN}=10V,I_O=40mA,0℃<T_j<125℃,C_I=0.33μF,C_O=0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	V_O	T_j=25℃ 5.3V≤V_i≤20V,I_O=1mA-40mA V_1=8.3V,I_O=1mA-70mA	3.168 3.135 3.135	3.3	3.432 3.465 3.465	V
Load regulation	Reg_{load}	T_j=25℃, I_O=1mA-100mA T_j=25℃, I_O=1mA-40mA			60 30	mV
Line regulation	Reg_{line}	5.3V≤V_i≤20V, T_j=25℃ 6.3V≤V_i≤20V, T_j=25℃			150 100	mV
Input Bias Current	I_{IB}	T_j=25℃ T_j=125℃			6.0 5.5	mA
Input Bias Current Change	△I_{IB}	6.3V≤V_i≤20V 1mA≤I_O≤40mA			1.5 0.1	mA
Output noise voltage	V_N	10Hz ≤f≤100KHz		40		μV
Ripple rejection	RR	I_O=40mA,6.3V≤V_i≤16.3V f=120Hz,T_j=25℃	41	49		dB
Dropout voltage	V_I-V_O	T_j=25℃		1.7		V

Typical Characteristics @ Ta=25℃ unless otherwise specified

Figure 1. Dropout Characteristics

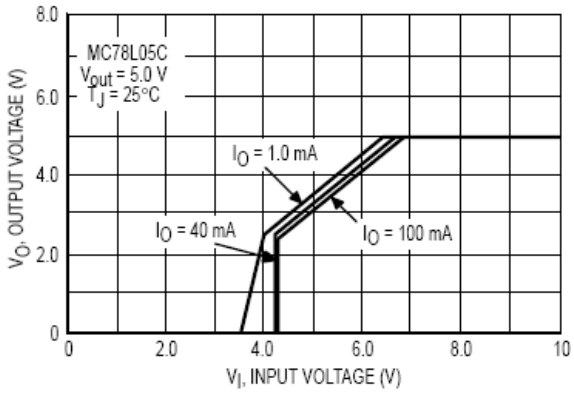


Figure 2. Dropout Voltage versus Junction Temperature

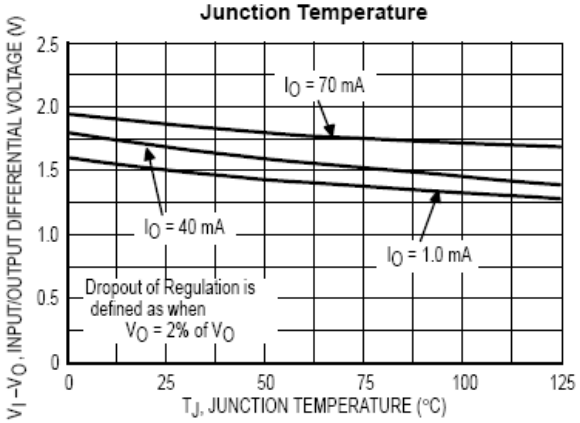


Figure 3. Input Bias Current versus Ambient Temperature

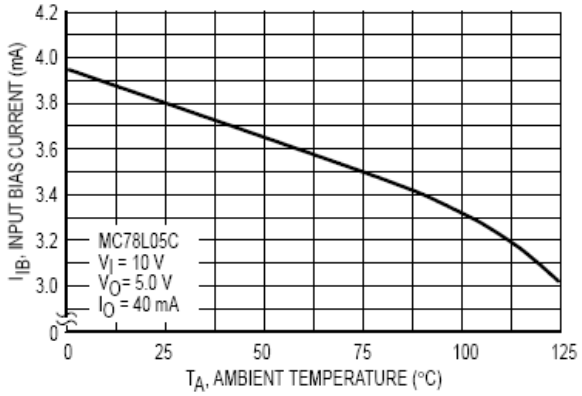
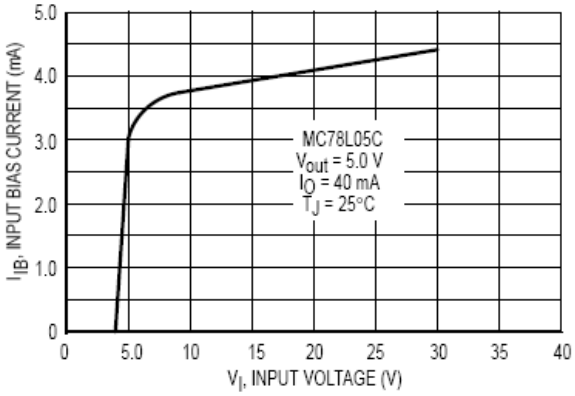
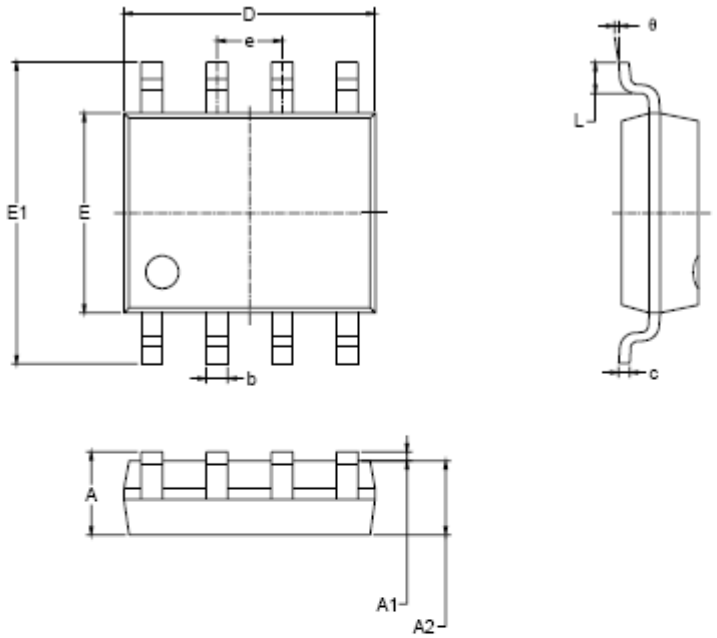


Figure 4. Input Bias Current versus Input Voltage



SOP-8(SOIC-8) Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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