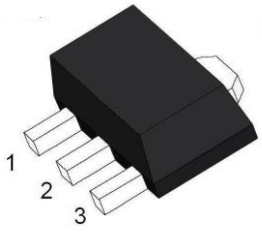
Three-Terminal Low Current Positive Voltage Regulators



1.VOUT
2.GND
3.VIN
SOT-89

Marking Code	
78L24SI	**78L24**

FEATURES

- Wide range of available,fixed output voltage.
- Low cost.
- Internal short-circuit current limiting.
- Internal thermal overload protection.
- No extermal components required.
- MSL3
- ESD:HBM(Class 1C)
- Complementary negative regulators offered (79LXX series).

APPLICATIONS

- Three-terminal positive voltage regulator.

MAXIMUM RATING

Operating temperature Range applies unless otherwise specified.

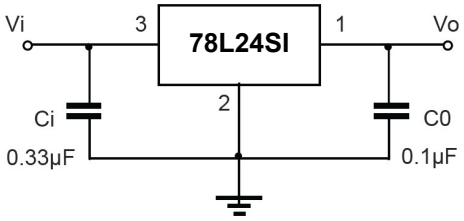
Parameters	Symbol	Value	Unit
Input Voltage	V_I	30	V
Maximum output current	I_{CM}	100	mA
Thermal Resistance, Junction to Case	R_{thj-c}	250	℃/W
Power dissipation	P_D	500	mW
Operating junction temperature	T_J	0 to +125	℃
Storage temperature range	T_{STG}	-65 to +150	℃

ELECTRICAL CHARACTERISTICS

(V_{IN}=33V,I_O=40mA,0℃<T_j<125℃,C_I=0.33μF,CO=0.1μf,unless otherwise specified)

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Output Voltage	Vo	TJ = 25℃	23	24	25	V
		V_i=27V-38V,I_o=1mA-40mA	22.8	-	25.2	V
		V_i=27V-33V,I_o=1mA-70mA	22.8	-	25.2	V
Load regulation	△ Reg_{load}	T_j=25℃, I_O=1mA-100mA	-	40	200	mV
		T_j=25℃, I_O=1mA-40mA	-	20	100	mV
Line regulation	△ Reg_{line}	28V≤V_i≤80V, T_j=25℃	-	50	300	mV
		27V≤V_i≤38V, T_j=25℃	-	60	350	mV
Intput Bias Current	I_{IB}	T_j=25℃	-	3.1	6.5	mA
		T_j=125℃	-	-	6.0	mA
Intput Bias Current Change	$\triangle I_{IB}$	28V≤V_i≤38V	-	-	1.5	mA
		1mA≤I_O≤40mA	-	-	0.1	mA
Output noise voltage	V_N	10Hz≤f≤100KHz,T_A=25℃	-	200	-	μV
Ripple rejection	RR	I_O=40mA,29V≤V_i≤35V,f=120Hz, T_J=25℃	31	45	-	dB
Dropout voltage	V_I-V_O	T_J=25℃	-	1.7	-	V

TYPICAL APPLICTION



Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Figure 1. Dropout Characteristics

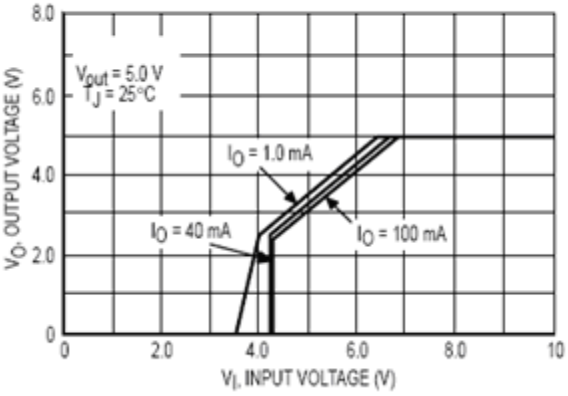


Figure 2. Dropout Voltage versus Junction Temperature

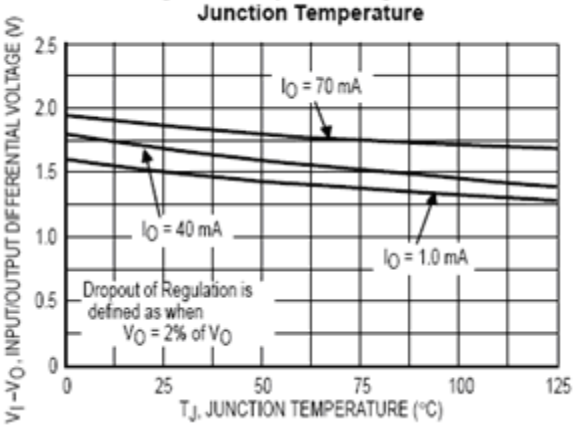


Figure 3. Input Bias Current versus Ambient Temperature

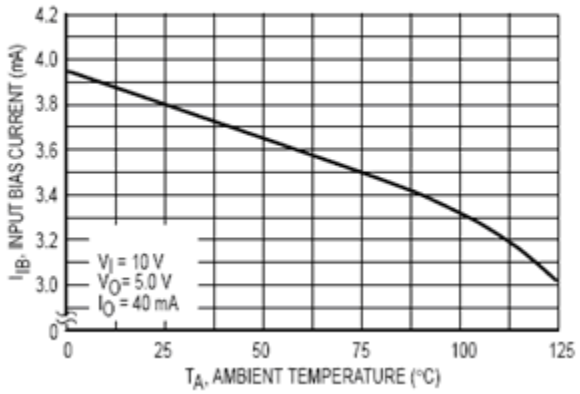
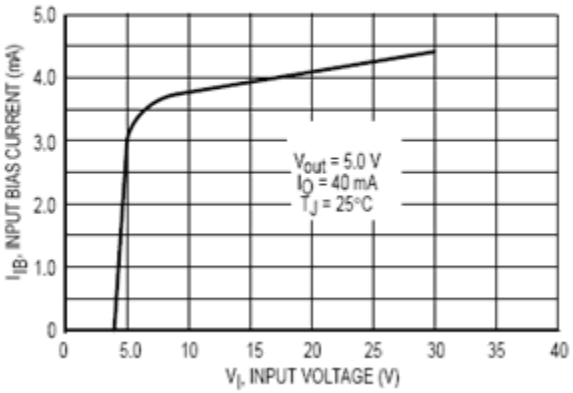


Figure 4. Input Bias Current versus Input Voltage

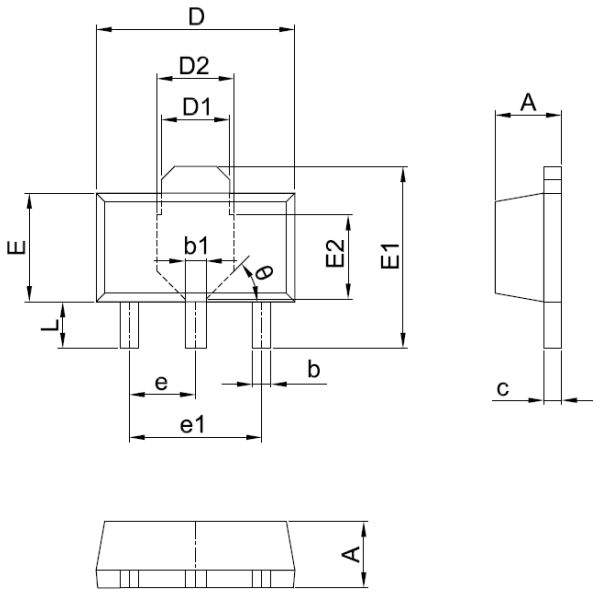


Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

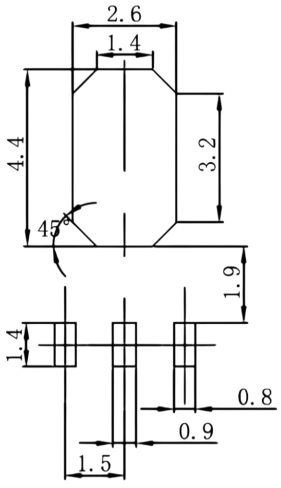
Package Dimensions

SOT-89



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



UNIT:MM

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