

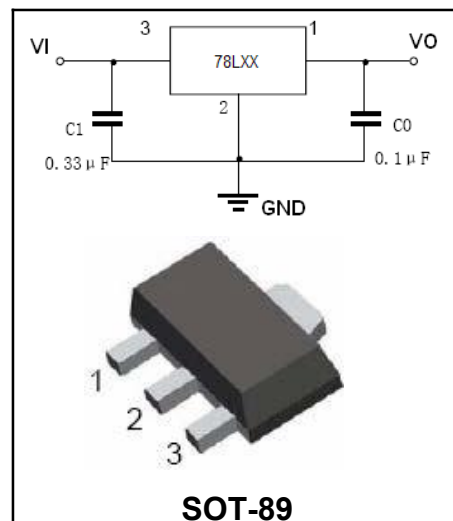
Three-Terminal Low Current Positive Voltage Regulators

FEATURES

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

APPLICATIONS

- ◆ Three-terminal positive voltage regulator.



Marking Code

78L33HSI	78L33
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MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_I	Input voltage	30	V
I_{CM}	Maximum output current	100	mA
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	250	$^{\circ}\text{C}/\text{W}$
P_D	Power dissipation	500	mW
T_J	Operating junction temperature	0 to +125	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	-65 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

(VIN=8.3V, IO=40mA, 0℃<Tj<125℃, CI=0.33μF, CO=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions	78L33HSI			UNIT
			MIN	TYP	MAX	
Output voltage	VO	Tj=25℃ 5.8V≤Vi≤20V, Io=1mA-40mA Vi=8.3V, Io=1mA-70mA	3.168 3.135 3.135	3.3 - -	3.432 3.465 3.465	V
Load regulation	Reg _{load}	Tj=25℃, Io=1mA-100mA Tj=25℃, Io=1mA-40mA	-	-	60 30	mV
Line regulation	Reg _{line}	5.8V≤Vi≤20V, Tj=25℃ 6.3V≤Vi≤20V, Tj=25℃	-	-	150 100	mV
Input Bias Current	I _{IB}	Tj=25℃ Tj=125℃	-	-	6.0 5.5	mA
Input Bias Current Change	ΔI _{IB}	6.3V≤Vi≤20V 1mA≤Io≤40mA	-	-	1.5 0.1	mA
Output noise voltage	V _N	10Hz ≤f≤100KHz	-	40	-	μV
Ripple rejection	RR	Io=40mA, 6.3V≤Vi≤16.3V f=120Hz, Tj=25℃	41	49	-	dB
Dropout voltage	VI-VO	Tj=25℃	-	2.5	-	V

Typical characteristics

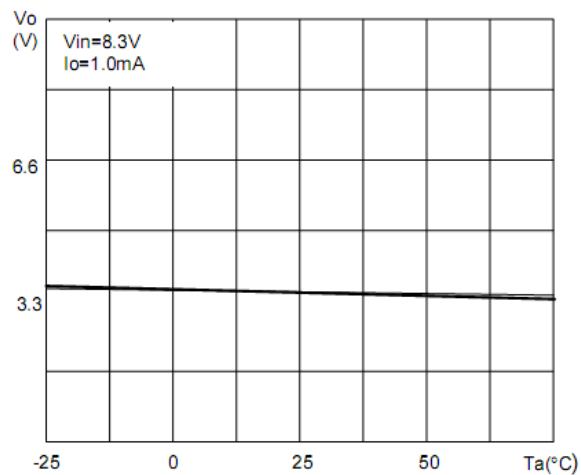


Fig1 .Output Voltage vs AmbientTemperature

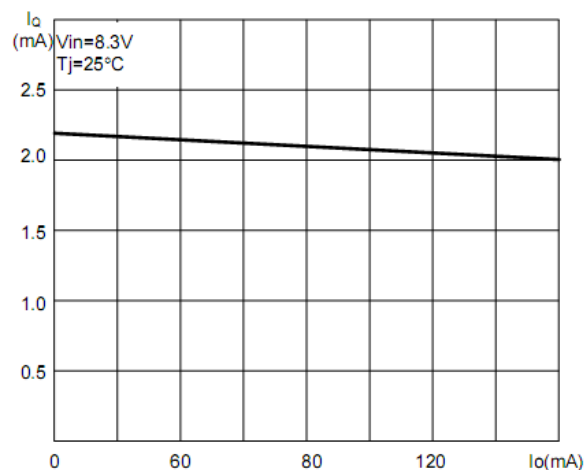


Figure 2. Quiescent Current vs Output Current

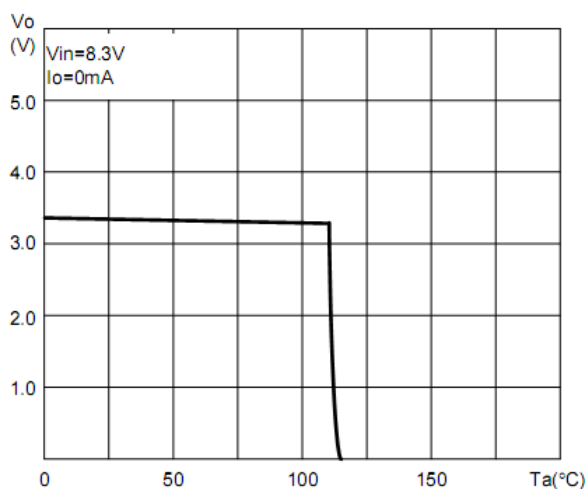


Figure 3 : Load Characteristics

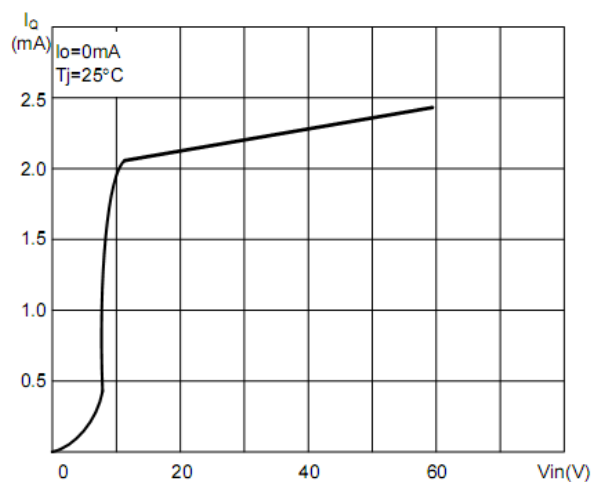


Figure 4 : Quiescent Current vs Input Voltage

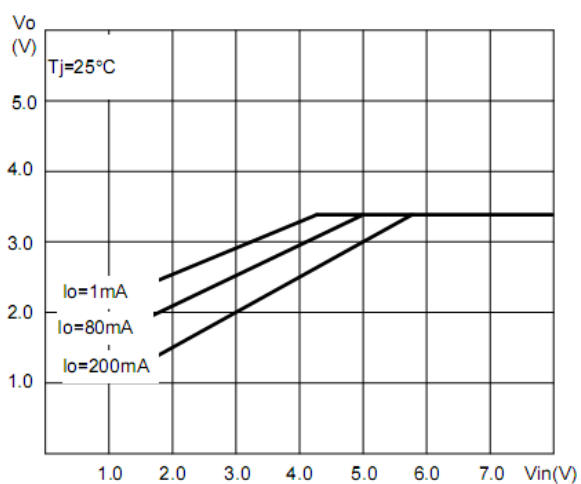


Figure5 : Thermal Shutdown

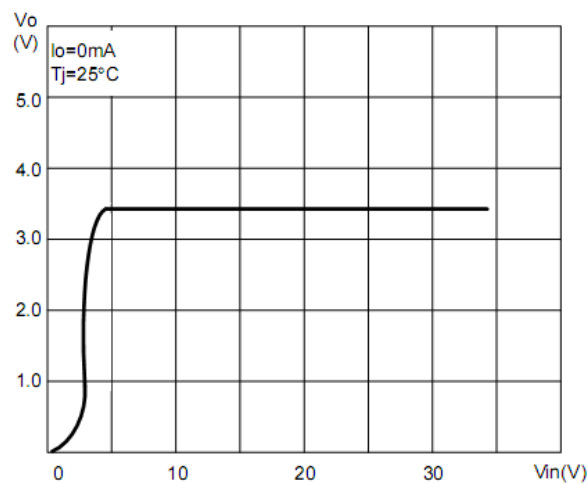


Figure 6 : Output Characteristics

Ordering information

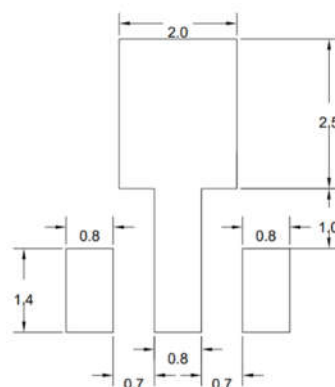
Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel, 7" reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

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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