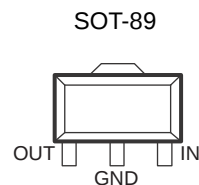




FEATURES

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

PIN DESCRIPTION



APPLICATIONS

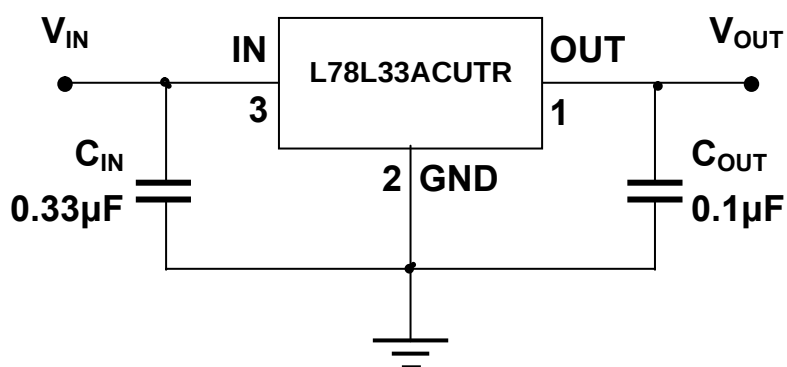
- Three-terminal positive voltage regulator.

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
P_D	Power dissipation	500	mW
T_{OPR}	Operating junction temperature	0 to +125	°C
T_j, T_{stg}	Storage temperature range	-40 to +150	°C

TYPICAL APPLICATION CIRCUIT



Conventional Circuit



ELECTRICAL CHARACTERISTICS

($V_{IN}=10V, I_O=40mA, 0^{\circ}C < T_J < 125^{\circ}C, C_I=0.33\mu F, C_O=0.1\mu F$, unless otherwise specified)

Parameter	Symbol	Test conditions	78L33			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_J=25^{\circ}C$ $5.3V \leq V_I \leq 20V, I_O=1mA-40mA$ $V_I=8.3V, I_O=1mA-70mA$	3.168 3.135 3.135	3.3	3.432 3.465 3.465	V
Load regulation	Reg_{load}	$T_J=25^{\circ}C, I_O=1mA-100mA$ $T_J=25^{\circ}C, I_O=1mA-40mA$			60 30	mV
Line regulation	Reg_{line}	$5.3V \leq V_I \leq 20V, T_J=25^{\circ}C$ $6.3V \leq V_I \leq 20V, T_J=25^{\circ}C$			150 100	mV
Input Bias Current	I_{IB}	$T_J=25^{\circ}C$ $T_J=125^{\circ}C$			6.0 5.5	mA
Input Bias Current Change	ΔI_{IB}	$6.3V \leq V_I \leq 20V$ $1mA \leq I_O \leq 40mA$			1.5 0.1	mA
Output noise voltage	V_N	$10Hz \leq f \leq 100KHz$		40		μV
Ripple rejection	RR	$I_O=40mA, 6.3V \leq V_I \leq 16.3V$ $f=120Hz, T_J=25^{\circ}C$	41	49		dB
Dropout voltage	V_I-V_O	$T_J=25^{\circ}C$		1.7		V



TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Figure 1. Dropout Characteristics

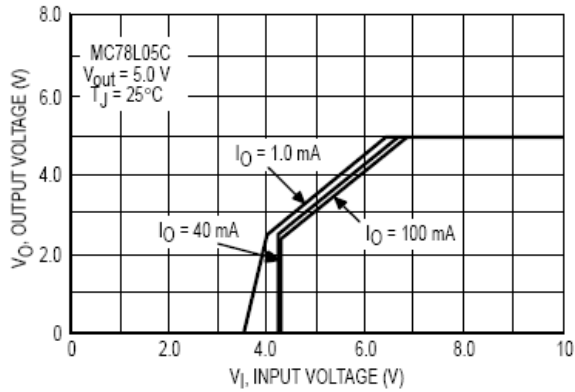


Figure 2. Dropout Voltage versus Junction Temperature

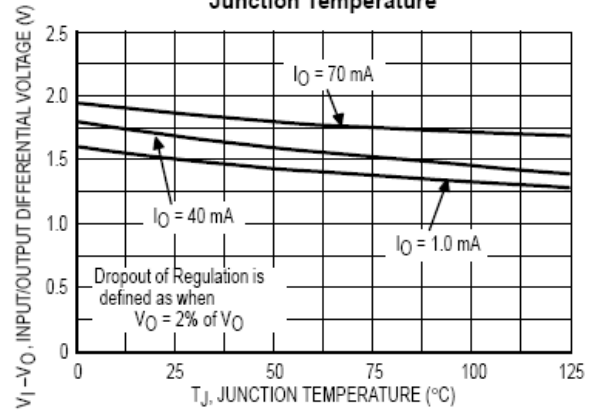


Figure 3. Input Bias Current versus Ambient Temperature

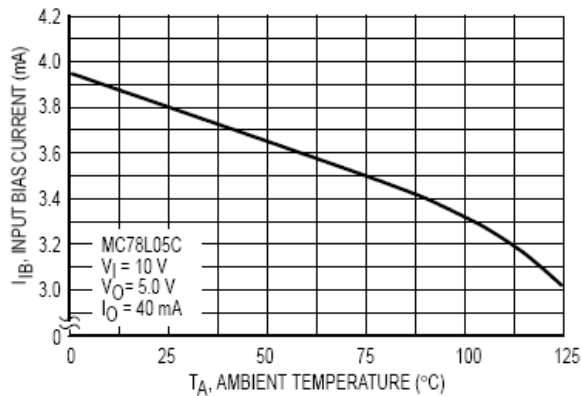
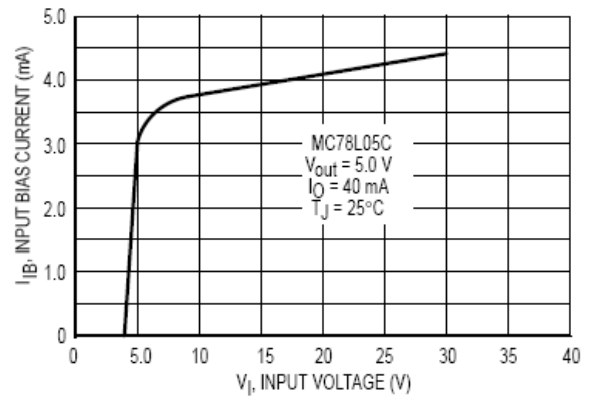


Figure 4. Input Bias Current versus Input Voltage

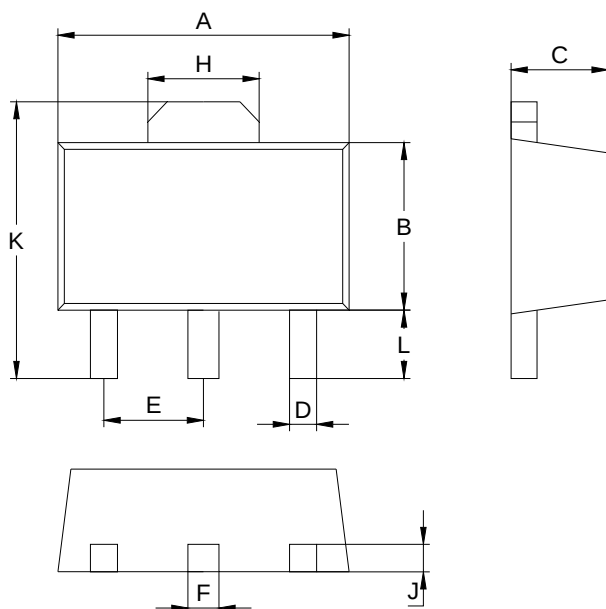




PACKAGE OUTLINE

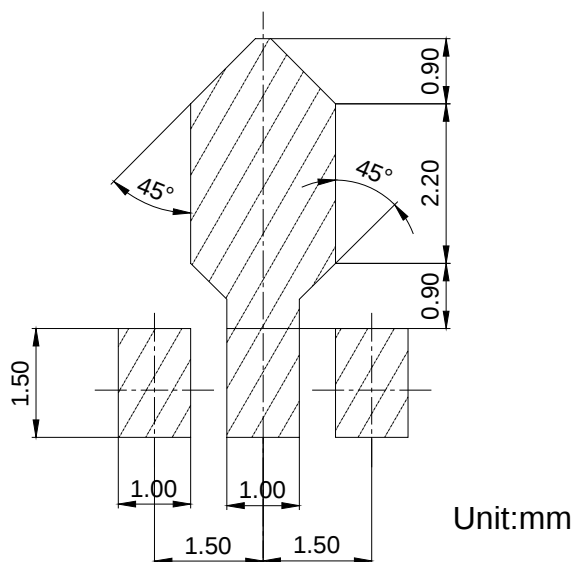
Plastic surface mounted package

SOT-89



SOT-89		
Dim	Min	Max
A	4.30	4.70
B	2.25	2.65
C	1.50 Typical	
D	0.40 Typical	
E	1.40	1.60
F	0.48 Typical	
H	1.60	1.80
J	0.40 Typical	
L	0.90	1.10
K	3.95	4.35
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit:mm



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