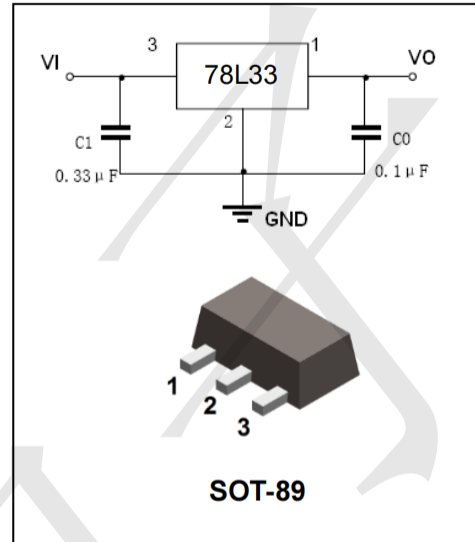


**FEATURES**

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

**APPLICATIONS**

- Three-terminal positive voltage regulator.



**ORDERING INFORMATION**

Type No.	Marking	Package Code	Shipping
78L33	78L33	SOT-89	1000 pcs / Tape & Reel

**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
$R_{\theta JA}$	Thermal Resistance Junction-to-Air	250	°C/W
$P_D$	Power dissipation ( $T_A = 25^\circ\text{C}$ )	500	mW
$T_{OPR}$	Operating Temperature Range	-40 ~ +125	°C
$T_J$	Junction Temperature	150	°C
$T_{STG}$	Storage Temperature Range	-65 ~ +150	°C

### ELECTRICAL CHARACTERISTICS

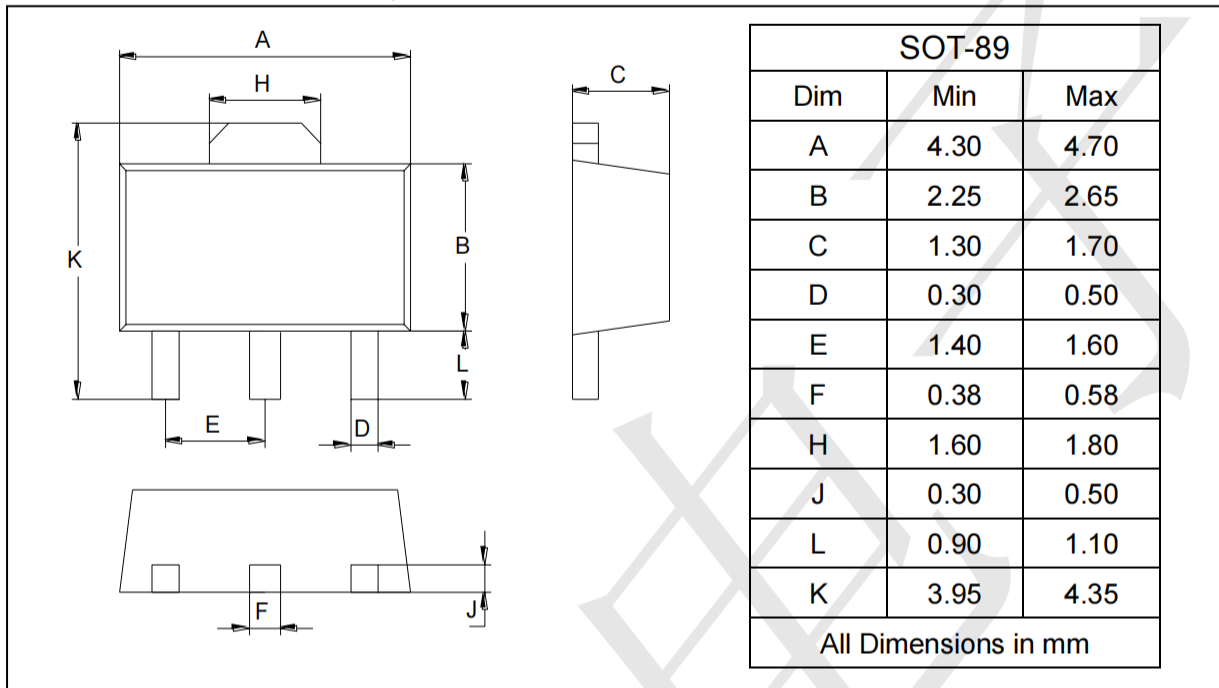
( $V_{IN}=8.3V, I_O=40mA, 0^\circ C < T_J < 125^\circ C, C_I=0.33\mu F, C_O=0.1\mu F$ , unless otherwise specified)

Parameter	Symbol	Test conditions	78L33			UNIT
			MIN	TYP	MAX	
Output voltage	$V_O$	$T_J=25^\circ C$	3.168	3.3	3.432	V
		$5.8V \leq V_i \leq 20V, I_O=1mA-40mA$	3.135	-	3.465	
		$V_i=8.3V, I_O=1mA-70mA$	3.135	-	3.465	
Load regulation	$Reg_{load}$	$T_J=25^\circ C, I_O=1mA-100mA$	-	-	60	mV
		$T_J=25^\circ C, I_O=1mA-40mA$	-	-	30	
Line regulation	$Reg_{line}$	$5.8V \leq V_i \leq 20V, T_J=25^\circ C$	-	-	150	mV
		$6.3V \leq V_i \leq 20V, T_J=25^\circ C$	-	-	100	
Input Bias Current	$I_{IB}$	$T_J=25^\circ C$	-	-	6.0	mA
		$T_J=125^\circ C$	-	-	5.5	
Input Bias Current Change	$\Delta I_{IB}$	$6.3V \leq V_i \leq 20V$ $1mA \leq I_O \leq 40mA$	-	-	1.5 0.1	mA
Output noise voltage	$V_N$	$10Hz \leq f \leq 100KHz$	-	40	-	$\mu V$
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	$V_i-V_O$	$T_J=25^\circ C$	-	2.5	-	V

## PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



## SOLDERING FOOTPRINT

