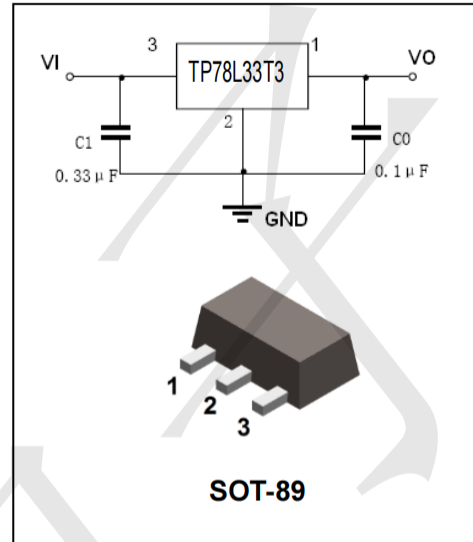


FEATURES

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

HF



APPLICATIONS

- Three-terminal positive voltage regulator.

ORDERING INFORMATION

| Type No. | Marking | Package Code | Shipping |
|-----------|---------|--------------|------------------------|
| TP78L33T3 | 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 |

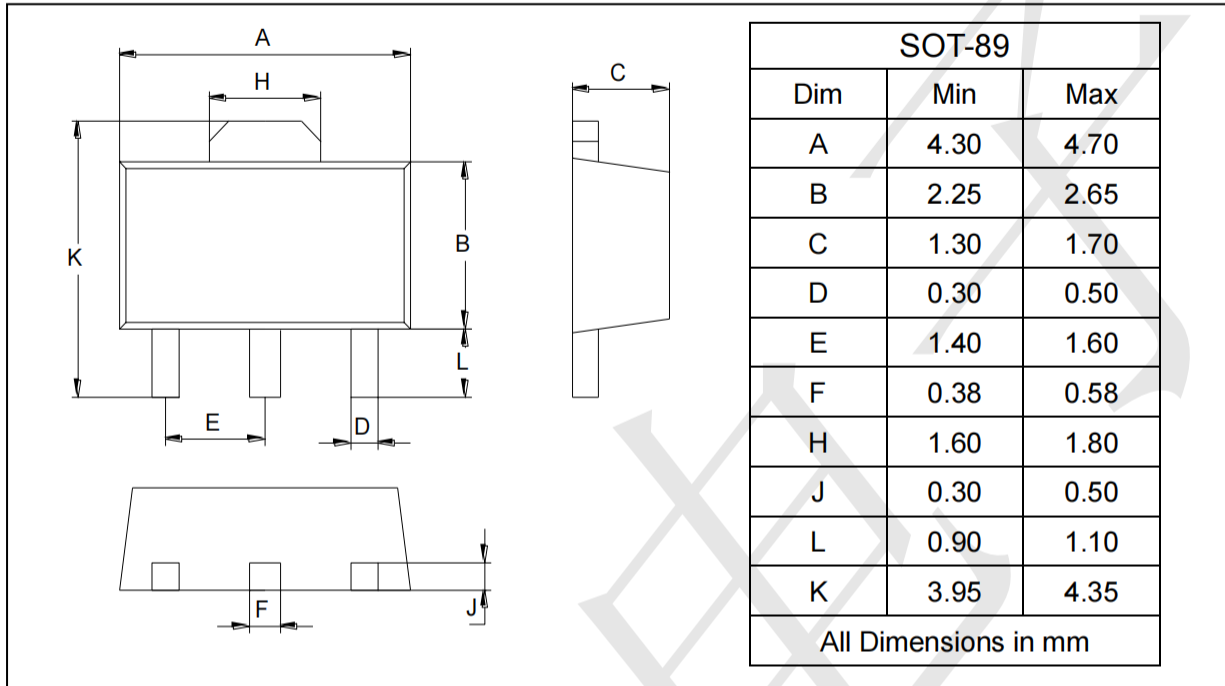
ELECTRICAL CHARACTERISTICS

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

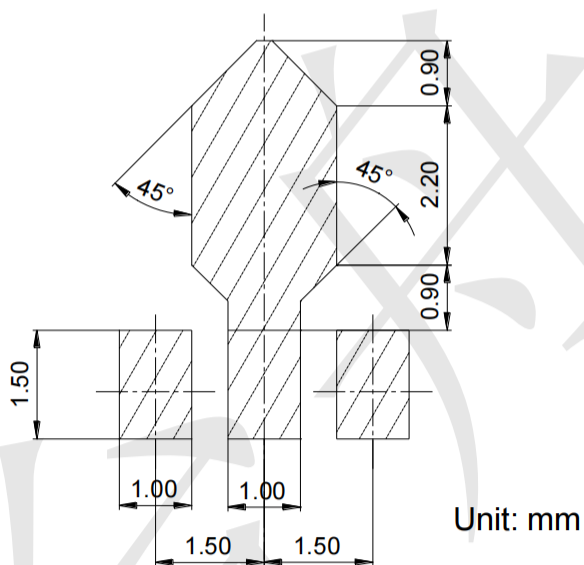
| Parameter | Symbol | Test conditions | TP78L33T3 | | | UNIT |
|---------------------------|-----------------|---|-----------|-----|-------|---------|
| | | | MIN | TYP | MAX | |
| Output voltage | V_O | $T_J=25^\circ C$ | 3.168 | 3.3 | 3.432 | V |
| | | $5.8V \leq V_i \leq 20V, I_O=1mA-40mA$ | 3.135 | - | 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 | ΔI_{IB} | $6.3V \leq V_i \leq 20V$ | - | - | 1.5 | mA |
| | | $1mA \leq I_O \leq 40mA$ | - | - | 0.1 | |
| 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 | $T_J=25^\circ C$ | - | 2.5 | - | V |

PACKAGE OUTLINE

Plastic surface mounted package



SOLDERING FOOTPRINT



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