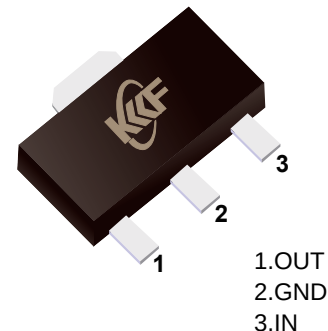


## 78L12

### ■ Three-Terminal Positive Voltage Regulator



#### ■ Features

- Maximum Output current  $I_o$ : 0.1A
- Output Voltage  $V_o$ : 12V
- Continuous Total Dissipation  $P_d$ : 0.5W ( $T_a = 25^\circ\text{C}$ )

#### ■ Simplified outline(SOT-89)

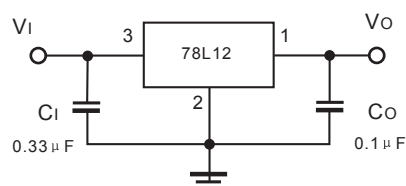
#### ■ Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

| Parameter                            | Symbol    | Rating          | Unit             |
|--------------------------------------|-----------|-----------------|------------------|
| Input Voltage                        | $V_i$     | 35              | V                |
| Operating Junction Temperature Range | $T_{opr}$ | $-55 \sim +125$ | $^\circ\text{C}$ |
| Storage Temperature Range            | $T_{stg}$ | $-55 \sim +150$ | $^\circ\text{C}$ |

#### ■ Electrical Characteristics ( $V_i=19\text{V}$ , $I_o=40\text{mA}$ , $C_i=0.33\mu\text{F}$ , $C_o=0.1\mu\text{F}$ , unless otherwise specified)

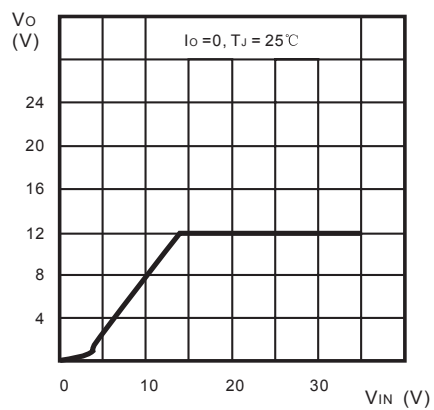
| Parameter                | Symbol       | Test conditions                                                                                                | Min  | Typ | Max  | Unit          |
|--------------------------|--------------|----------------------------------------------------------------------------------------------------------------|------|-----|------|---------------|
| Output Voltage           | $V_o$        | $T_J = 25^\circ\text{C}$                                                                                       | 11.5 | 12  | 12.5 | V             |
|                          |              | $T_J = 0 \sim 125^\circ\text{C}$ , $14\text{V} \leq V_i \leq 27\text{V}$ , $I_o = 1\text{mA} \sim 40\text{mA}$ | 11.4 | 12  | 12.6 | V             |
|                          |              | $T_J = 0 \sim 125^\circ\text{C}$ , $I_o = 1\text{mA} \sim 70\text{mA}$                                         | 11.4 | 12  | 12.6 | V             |
| Load Regulation          | $\Delta V_o$ | $T_J = 25^\circ\text{C}$ , $I_o = 1\text{mA} \sim 100\text{mA}$                                                |      | 22  | 100  | mV            |
|                          |              | $T_J = 25^\circ\text{C}$ , $I_o = 1\text{mA} \sim 40\text{mA}$                                                 |      | 13  | 50   | mV            |
| Line Regulation          | $\Delta V_o$ | $T_J = 25^\circ\text{C}$ , $14.5\text{V} \leq V_i \leq 27\text{V}$                                             |      | 55  | 250  | mV            |
|                          |              | $T_J = 25^\circ\text{C}$ , $16\text{V} \leq V_i \leq 27\text{V}$                                               |      | 49  | 200  | mV            |
| Quiescent Current        | $I_q$        | $T_J = 25^\circ\text{C}$                                                                                       |      | 4.3 | 6.5  | mA            |
| Quiescent current Change | $\Delta I_q$ | $T_J = 0 \sim 125^\circ\text{C}$ , $16\text{V} \leq V_i \leq 27\text{V}$                                       |      |     | 1.5  | mA            |
|                          |              | $T_J = 0 \sim 125^\circ\text{C}$ , $1\text{mA} \leq I_o \leq 40\text{mA}$                                      |      |     | 0.1  |               |
| Output Noise Voltage     | $V_N$        | $T_J = 25^\circ\text{C}$ , $10\text{Hz} \leq f \leq 100\text{KHz}$                                             |      | 70  |      | $\mu\text{V}$ |
| Ripple Rejection         | RR           | $T_J = 0 \sim 125^\circ\text{C}$ , $15\text{V} \leq V_i \leq 25\text{V}$ , $f = 120\text{Hz}$                  | 37   | 42  |      | dB            |
| Dropout Voltage          | $V_d$        | $T_J = 25^\circ\text{C}$                                                                                       |      | 1.7 |      | V             |

#### ■ Typical Application

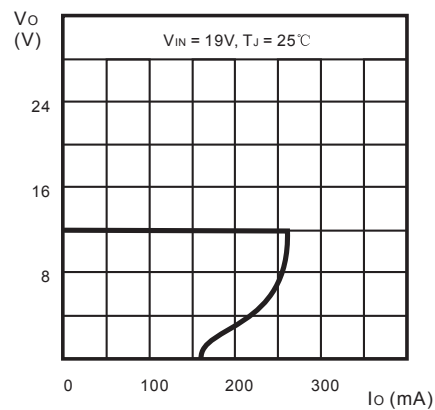


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

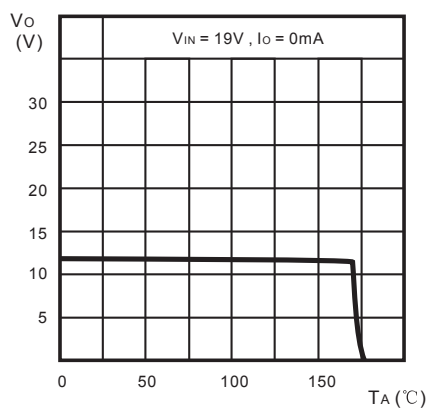
■ Typical Characteristics



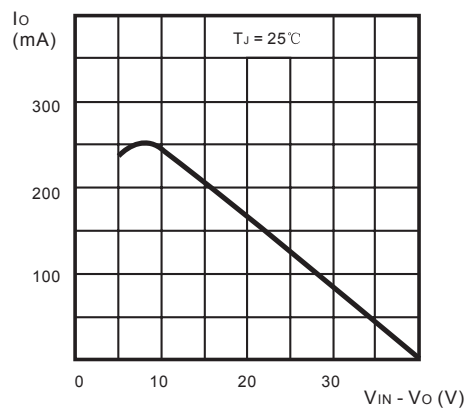
Output Characteristics



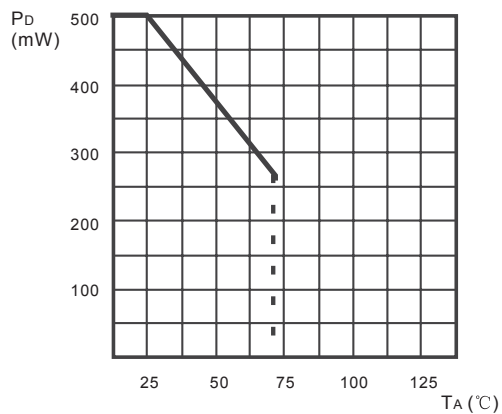
Load Characteristics



Thermal Shutdown

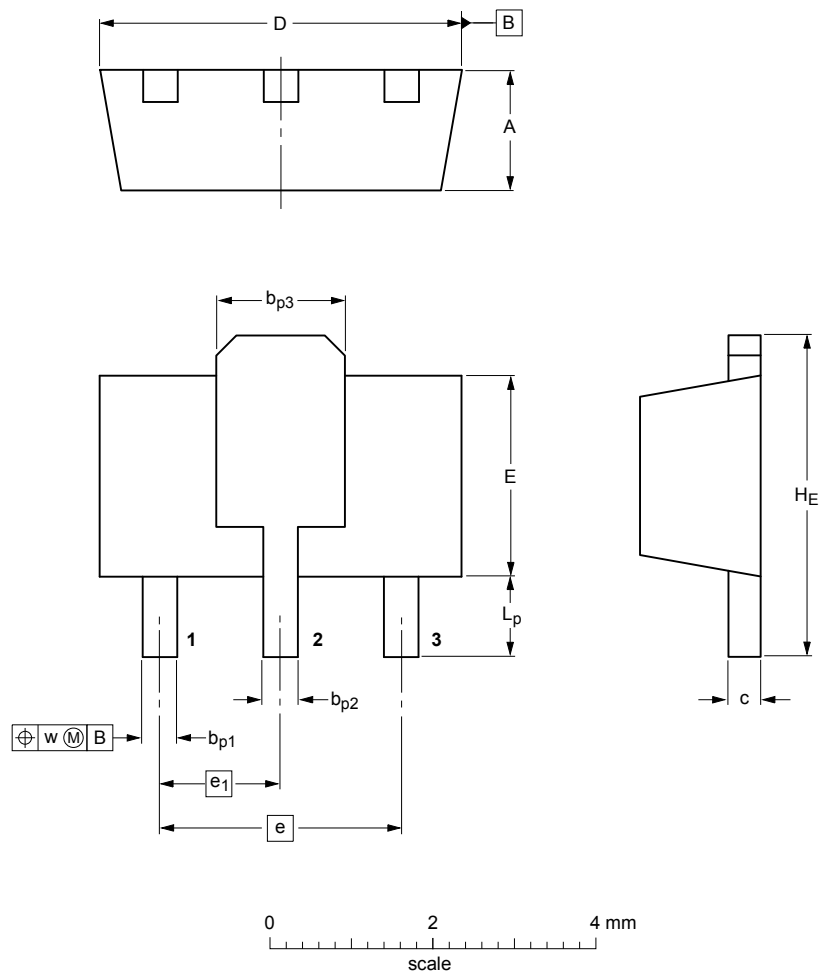


Short Circuit Output Current



Power Dissipation vs. Ambient Temperature

■ SOT-89



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | b <sub>p1</sub> | b <sub>p2</sub> | b <sub>p3</sub> | c            | D          | E          | e   | e <sub>1</sub> | H <sub>E</sub> | L <sub>p</sub> | w    |
|------|------------|-----------------|-----------------|-----------------|--------------|------------|------------|-----|----------------|----------------|----------------|------|
| mm   | 1.6<br>1.4 | 0.48<br>0.35    | 0.53<br>0.40    | 1.8<br>1.4      | 0.44<br>0.23 | 4.6<br>4.4 | 2.6<br>2.4 | 3.0 | 1.5            | 4.25<br>3.75   | 1.2<br>0.8     | 0.13 |