

## SOT-89 Three-terminal positive voltage regulator

### FEATURES

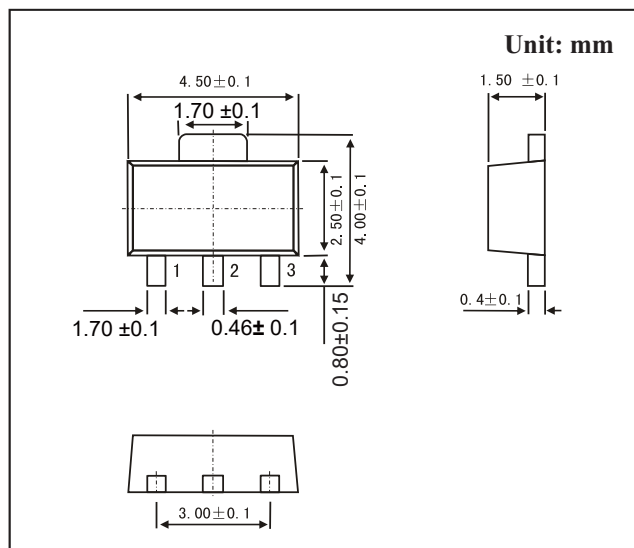
Maximum output current IOM: 0.1A  
Output voltage VO: 9V

Continuous total dissipation

PD: 0.6 W (  $T_a = 25^\circ\text{C}$  )

### MECHANICAL DATA

- Case: SOT-89 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any



### ABSOLUTE MAXIMUM RATINGS

(Operating temperature range applies unless otherwise specified)

| Parameter                                   | Symbol          | Value    | Unit                      |
|---------------------------------------------|-----------------|----------|---------------------------|
| Input Voltage                               | $V_i$           | 30       | V                         |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 166.7    | $^\circ\text{C}/\text{W}$ |
| Operating Junction Temperature Range        | $T_{OPR}$       | -25~+125 | $^\circ\text{C}$          |
| Storage Temperature Range                   | $T_{STG}$       | -65~+150 | $^\circ\text{C}$          |

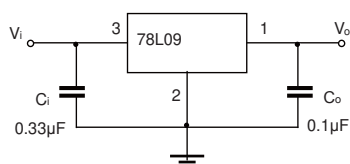
### ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE

( $V_i=16\text{V}$ ,  $I_o=40\text{mA}$ ,  $C_i=0.33\mu\text{F}$ ,  $C_o=0.1\mu\text{F}$ , unless otherwise specified)

| Pa rameter               | Symbol         | Test conditions                                   |        | Min  | Typ | Max  | Unit  |
|--------------------------|----------------|---------------------------------------------------|--------|------|-----|------|-------|
| Output voltage           | Vo             |                                                   | 25℃    | 8.64 | 9.0 | 9.36 | V     |
|                          |                | 12V≤V <sub>i</sub> ≤24V, I <sub>o</sub> =1mA-40mA | 0-125℃ | 8.55 | 9.0 | 9.45 | V     |
|                          |                | I <sub>o</sub> =1mA-70mA                          |        | 8.55 | 9.0 | 9.45 | V     |
| Load Regulation          | △Vo            | I <sub>o</sub> =1mA-100mA                         | 25℃    |      | 19  | 90   | mV    |
|                          |                | I <sub>o</sub> =1mA-40mA                          | 25℃    |      | 11  | 40   | mV    |
| Line regulation          | △Vo            | 12V≤V <sub>i</sub> ≤24V                           | 25℃    |      | 45  | 175  | mV    |
|                          |                | 13V≤V <sub>i</sub> ≤24V                           | 25℃    |      | 40  | 125  | mV    |
| Quiescent Current        | Iq             |                                                   | 25℃    |      | 4.1 | 6.0  | mA    |
| Quiescent Current Change | △Iq            | 13V≤V <sub>i</sub> ≤24V                           | 0-125℃ |      |     | 1.5  | mA    |
|                          | △Iq            | 1mA≤I <sub>o</sub> ≤40mA                          | 0-125℃ |      |     | 0.1  | mA    |
| Output Noise Voltage     | V <sub>N</sub> | 10Hz≤f≤100KHz                                     | 25℃    | 58   |     |      | μV/Vo |
| Ripple Rejection         | RR             | 15V≤V <sub>i</sub> ≤25V,f=120Hz                   | 0-125℃ |      | 45  |      | dB    |
| Dropout Voltage          | Vd             |                                                   | 25℃    |      | 1.7 |      | V     |

\* Pulse test.

### TYPICAL APPLICATION

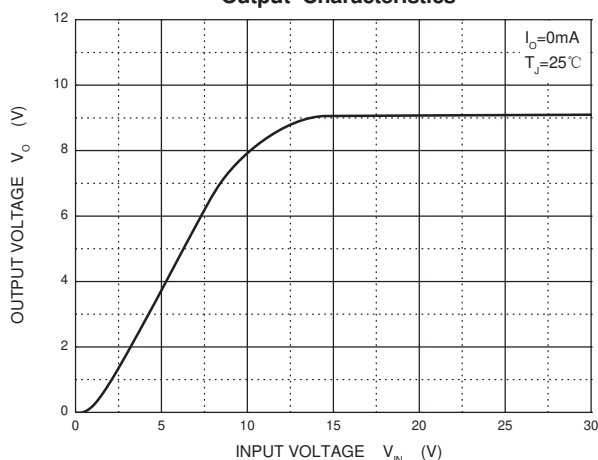


Note : Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

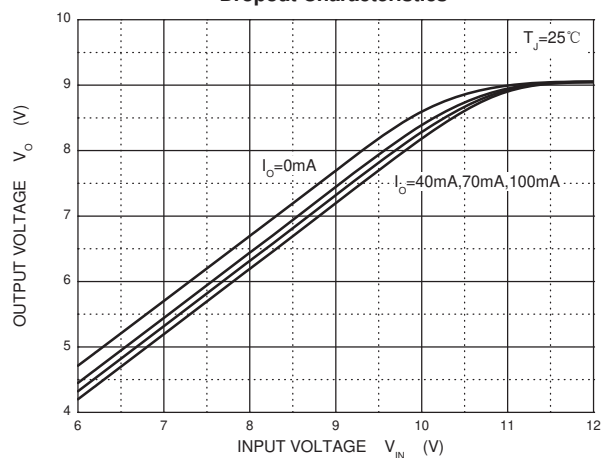
# RATINGS AND CHARACTERISTIC CURVES

## Typical Characteristics

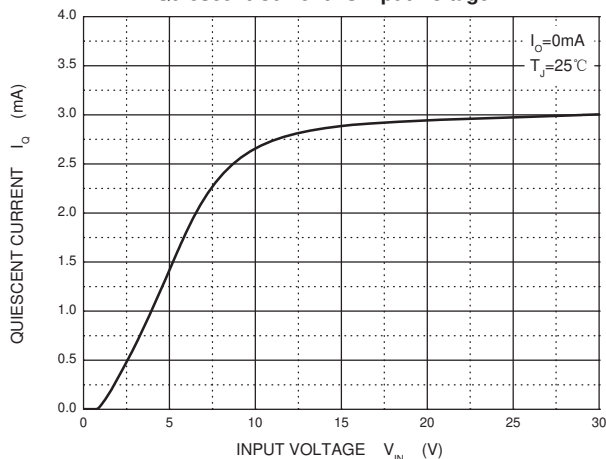
Output Characteristics



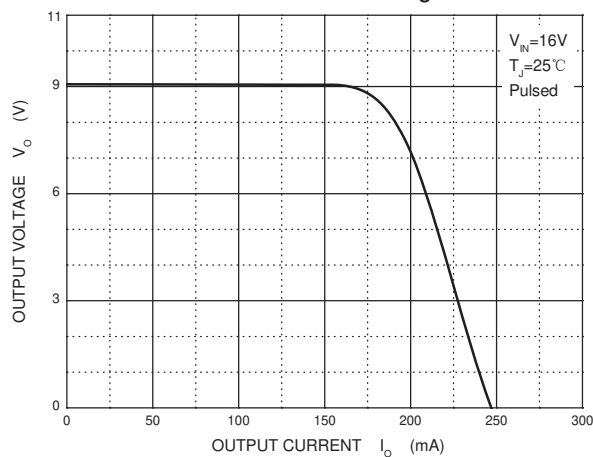
Dropout Characteristics



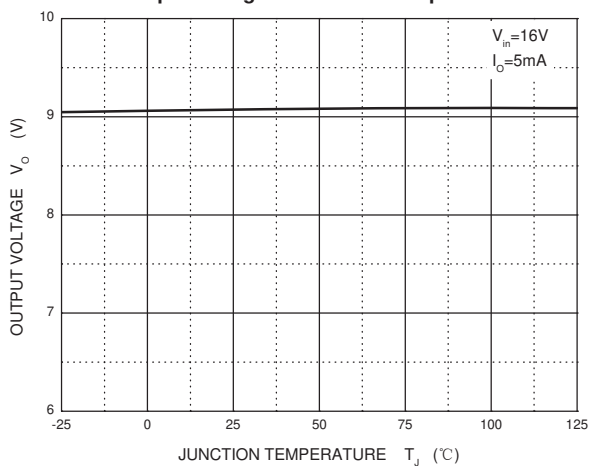
Quiescent Current vs Input Voltage



Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



Power Derating Curve

