



DC COMPONENTS CO., LTD.

INTEGRATED CIRCUIT

DA78L09

DA78L09A

## TECHNICAL SPECIFICATIONS OF 3-TERMINAL POSITIVE VOLTAGE REGULATOR

### Description

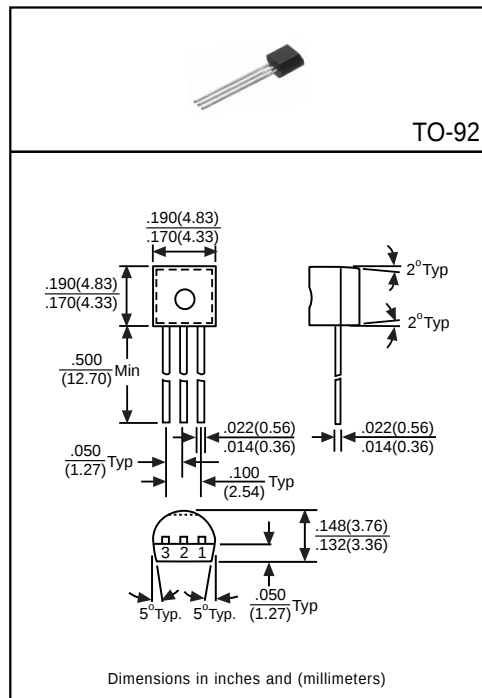
These regulators employ internal current limiting and thermal shutdown, making them essentially indestructible. They can deliver up to 100mA output current, if the case temperature can keep in  $T_c=25^{\circ}\text{C}$ . They are intended as fixed voltage regulators in a wide range of applications including local(on-card) regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators.

### Pinning

- 1 = Output
- 2 = Ground
- 3 = Input

### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ )

| Characteristic                      | Symbol    | Rating         | Unit               |
|-------------------------------------|-----------|----------------|--------------------|
| Input Voltage                       | $V_i$     | 30             | V                  |
| Total Power Dissipation             | $P_D$     | Internal limit | W                  |
| Operating Temperature Range         | $T_{opr}$ | 0 to +125      | $^{\circ}\text{C}$ |
| Maximum Junction Temperature        | $T_J$     | 125            | $^{\circ}\text{C}$ |
| Storage Temperature Range           | $T_{STG}$ | -55 to +150    | $^{\circ}\text{C}$ |
| Lead Temperature(Soldering 10 Sec.) | $T_L$     | 260            | $^{\circ}\text{C}$ |



### Electrical Characteristics

( $V_{in}=15\text{V}$ ,  $I_{out}=40\text{mA}$ ,  $0^{\circ}\text{C}\leq T_J\leq 125^{\circ}\text{C}$ ,  $C_{in}=0.33\mu\text{F}$ ,  $C_{out}=0.1\mu\text{F}$ , unless otherwise specified)

| Characteristic            | Symbol          | Min  | Typ  | Max  | Unit          | Test Conditions                                                                   |
|---------------------------|-----------------|------|------|------|---------------|-----------------------------------------------------------------------------------|
| Output Voltage            | DA78L09A        | 8.73 | 9.00 | 9.27 | V             | $T_J=25^{\circ}\text{C}$                                                          |
|                           | DA78L09         | 8.55 | 9.00 | 9.45 |               |                                                                                   |
|                           | DA78L09A        | 8.55 | -    | 9.45 |               | $1\text{mA}\leq I_o\leq 70\text{mA}$                                              |
|                           | DA78L09         | 8.50 | -    | 9.50 |               |                                                                                   |
|                           | DA78L09A        | 8.55 | -    | 9.45 |               | $1\text{mA}\leq I_o\leq 40\text{mA}$ and $11.5\text{V}\leq V_{in}\leq 24\text{V}$ |
|                           | DA78L09         | 8.50 | -    | 9.50 |               |                                                                                   |
| Line Regulation           | Regline         | -    | -    | 200  | mV            | $T_J=25^{\circ}\text{C}$ , $11.5\text{V}\leq V_{in}\leq 24\text{V}$               |
|                           |                 | -    | -    | 150  |               | $T_J=25^{\circ}\text{C}$ , $13\text{V}\leq V_{in}\leq 24\text{V}$                 |
| Load Regulation           | Regload         | -    | -    | 45   | mV            | $T_J=25^{\circ}\text{C}$ , $1\text{mA}\leq I_o\leq 40\text{mA}$                   |
|                           |                 | -    | -    | 90   |               | $T_J=25^{\circ}\text{C}$ , $1\text{mA}\leq I_o\leq 100\text{mA}$                  |
| Input Bias Current        | $I_{ib}$        | -    | -    | 6.0  | mA            | $T_J=25^{\circ}\text{C}$                                                          |
| Input Bias Current Change | $\Delta I_{ib}$ | -    | -    | 0.1  | mA            | $1\text{mA}\leq I_o\leq 40\text{mA}$                                              |
|                           |                 | -    | -    | 1.5  |               | $11.5\text{V}\leq V_{in}\leq 24\text{V}$                                          |
| Output Noise Voltage      | $V_n$           | -    | 70   | -    | $\mu\text{V}$ | $T_A=25^{\circ}\text{C}$ , $10\text{Hz}\leq f\leq 100\text{KHz}$                  |
| Ripple Rejection          | RR              | 38   | 44   | -    | dB            | $15\text{V}\leq V_{in}\leq 25\text{V}$ , $f=120\text{Hz}$                         |
| Dropout Voltage           | $V_D$           | -    | 1.7  | -    | V             | $T_J=25^{\circ}\text{C}$                                                          |