

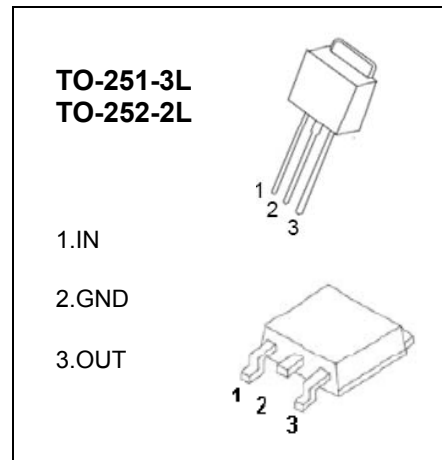


## TO-251-3L/TO-252-2L Plastic-Encapsulate Regulators

### 78M09 Three-terminal positive voltage regulator

#### FEATURES

- Maximum output current  $I_{OM}$ : 0.5 A
- Output voltage  $V_o$ : 9V
- Continuous total dissipation  
 $P_D$ : 1.25 W ( $T_a = 25^\circ\text{C}$ )



#### ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter                            | Symbol    | Value    | Unit             |
|--------------------------------------|-----------|----------|------------------|
| Input Voltage                        | $V_i$     | 25       | V                |
| Operating Junction Temperature Range | $T_{OPR}$ | 0-+125   | $^\circ\text{C}$ |
| Storage Temperature Range            | $T_{STG}$ | -65-+150 | $^\circ\text{C}$ |

#### ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=16\text{V}$ , $I_o=350\text{mA}$ , $C_i=0.33\mu\text{F}$ , $C_o=0.1\mu\text{F}$ , unless otherwise specified)

| Parameter                | Symbol       | Test conditions   | Min                    | Typ  | Max  | Unit          |
|--------------------------|--------------|---|------------------------|------|------|---------------|
| Output Voltage           | $V_o$        | $25^\circ\text{C}$  | 8.65                   | 9    | 9.35 | V             |
|                          |              | $11.5\text{V} \leq V_i \leq 24\text{V}$ , $I_o=5\text{mA}-350\text{mA}$ , $P_o \leq 15\text{W}$ | 0-125 $^\circ\text{C}$ | 8.55 | 9    | 9.45          |
| Load Regulation          | $\Delta V_o$ | $I_o=5\text{mA}-500\text{mA}$   | 25 $^\circ\text{C}$    | 20   | 180  | mV            |
|                          |              | $I_o=5\text{mA}-200\text{mA}$   | 25 $^\circ\text{C}$    | 10   | 90   | mV            |
| Line Regulation          | $\Delta V_o$ | $11.5\text{V} \leq V_i \leq 26\text{V}$ , $I_o=200\text{mA}$                                    | 25 $^\circ\text{C}$    | 6    | 100  | mV            |
|                          |              | $12\text{V} \leq V_i \leq 26\text{V}$ , $I_o=200\text{mA}$                                      | 25 $^\circ\text{C}$    | 2    | 50   | mV            |
| Quiescent Current        | $I_q$        |   | 25 $^\circ\text{C}$    | 4.6  | 6    | mA            |
| Quiescent Current Change | $\Delta I_q$ | $11.5\text{V} \leq V_i \leq 26\text{V}$ , $I_o=200\text{mA}$                                    | 0-125 $^\circ\text{C}$ |      | 0.8  | mA            |
|                          | $\Delta I_q$ | $5\text{mA} \leq I_o \leq 350\text{mA}$   | 0-125 $^\circ\text{C}$ |      | 0.5  | mA            |
| Output Noise Voltage     | $V_N$        | $10\text{Hz} \leq f \leq 100\text{KHz}$   | 25 $^\circ\text{C}$    | 60   |      | $\mu\text{V}$ |
| Ripple Rejection         | RR           | $13 \leq V_i \leq 23\text{V}$ , $f=120\text{Hz}$ , $I_o=300\text{mA}$                           | 0-125 $^\circ\text{C}$ | 56   | 80   | dB            |
| Dropout Voltage          | $V_d$        | $I_o=350\text{mA}$  | 25 $^\circ\text{C}$    | 2    |      | V             |
| Short Circuit Current    | $I_{sc}$     | $V_i=16\text{V}$  | 25 $^\circ\text{C}$    | 250  |      | mA            |
| Peak Current             | $I_{pk}$     |   | 25 $^\circ\text{C}$    | 0.5  |      | A             |

#### TYPICAL APPLICATION

