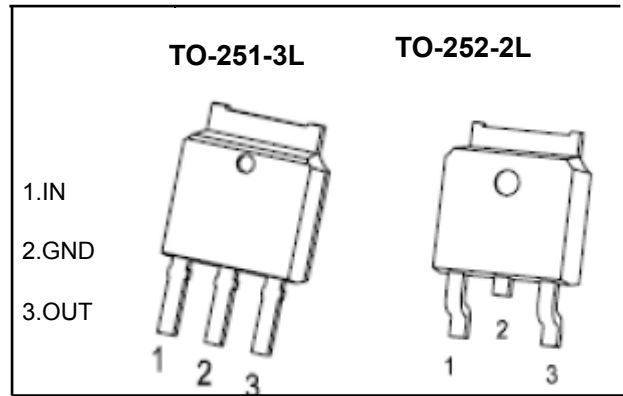


## TO-251-3L/TO-252-2L Plastic-Encapsulate Voltage Regulators

78M05 Three-terminal positive voltage regulator

### FEATURES

- Maximum output current  $I_{OM}$ : 1.2 A
- Output voltage  $V_o$ : 5V
- Continuous total dissipation
  - $P_D$ : 1.25W( $T_a = 25^\circ\text{C}$ )
  - 10W( $T_c = 25^\circ\text{C}$ )



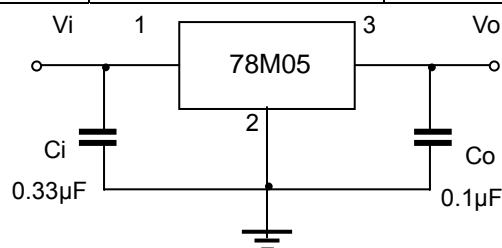
### ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter                                | Symbol          | Value   | Unit               |
|--|-----------------|---------|--------------------|
| Input Voltage                            | $V_i$           | 35      | V                  |
| Thermal Resistance from Junction to Air  | $R_{\theta JA}$ | 100     | $^\circ\text{C/W}$ |
| Thermal Resistance from Junction to Case | $R_{\theta JC}$ | 12.5    | $^\circ\text{C/W}$ |
| 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 ( $V_i=10\text{V}, I_o=500\text{mA}, C_i=0.33\mu\text{F}, C_o=0.1\mu\text{F}$ , unless otherwise specified)

| Parameter                | Symbol                  | Test conditions  | Min  | Typ  | Max  | Unit                       |
|--------------------------|-------------------------|--|------|------|------|----------------------------|
| Output Voltage           | $V_o$                   | $25^\circ\text{C}$   | 4.8  | 5.0  | 5.2  | V                          |
|                          |                         | $7\text{V} \leq V_i \leq 20\text{V}, I_o=5\text{mA}-1\text{A}, P \leq 10\text{W}$<br>$0-125^\circ\text{C}$ | 4.75 | 5.00 | 5.25 | V                          |
| Load Regulation          | $\Delta V_o$            | $I_o=5\text{mA}-1.5\text{A}$<br>$25^\circ\text{C}$   |      | 9    | 100  | mV                         |
|                          |                         | $I_o=250\text{mA}-750\text{mA}$<br>$25^\circ\text{C}$  |      | 4    | 50   | mV                         |
| Line Regulation          | $\Delta V_o$            | $7\text{V} \leq V_i \leq 25\text{V}$<br>$25^\circ\text{C}$   |      | 4    | 100  | mV                         |
|                          |                         | $8\text{V} \leq V_i \leq 12\text{V}$<br>$25^\circ\text{C}$   |      | 1.6  | 50   | mV                         |
| Quiescent Current        | $I_q$                   | $25^\circ\text{C}$   |      | 5    | 8    | mA                         |
| Quiescent Current Change | $\Delta I_q$            | $7\text{V} \leq V_i \leq 25\text{V}$<br>$0-125^\circ\text{C}$  |      | 0.3  | 1.3  | mA                         |
|                          |                         | $5\text{mA} \leq I_o \leq 1\text{A}$<br>$0-125^\circ\text{C}$  |      | 0.03 | 0.5  | mA                         |
| Output Noise Voltage     | $V_N$                   | $10\text{Hz} \leq f \leq 100\text{KHz}$<br>$25^\circ\text{C}$  |      | 42   |      | $\mu\text{V}$              |
| Output voltage drift     | $\Delta V_o / \Delta T$ | $I_o=5\text{mA}$<br>$0-125^\circ\text{C}$  |      | -1.1 |      | $\text{mV}/^\circ\text{C}$ |
| Ripple Rejection         | RR                      | $8\text{V} \leq V_i \leq 18\text{V}, f=120\text{Hz}$<br>$0-125^\circ\text{C}$                              | 62   | 73   |      | dB                         |
| Dropout Voltage          | $V_d$                   | $I_o=1\text{A}$<br>$25^\circ\text{C}$  |      | 2    |      | V                          |
| Output resistance        | $R_o$                   | $f=1\text{KHz}$<br>$25^\circ\text{C}$  |      | 10   |      | $\text{m}\Omega$           |
| Short Circuit Current    | $I_{sc}$                | $25^\circ\text{C}$   |      | 230  |      | mA                         |
| Peak Current             | $I_{pk}$                | $25^\circ\text{C}$   |      | 2.2  |      | A                          |

### TYPICAL APPLICATION



# Typical Characteristics

