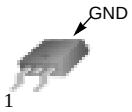
## Features

- Output Current up to 1A
- Output Voltages of 5V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area (SOA)Protection

**TO-252**




1. Input 2. GND 3. Output

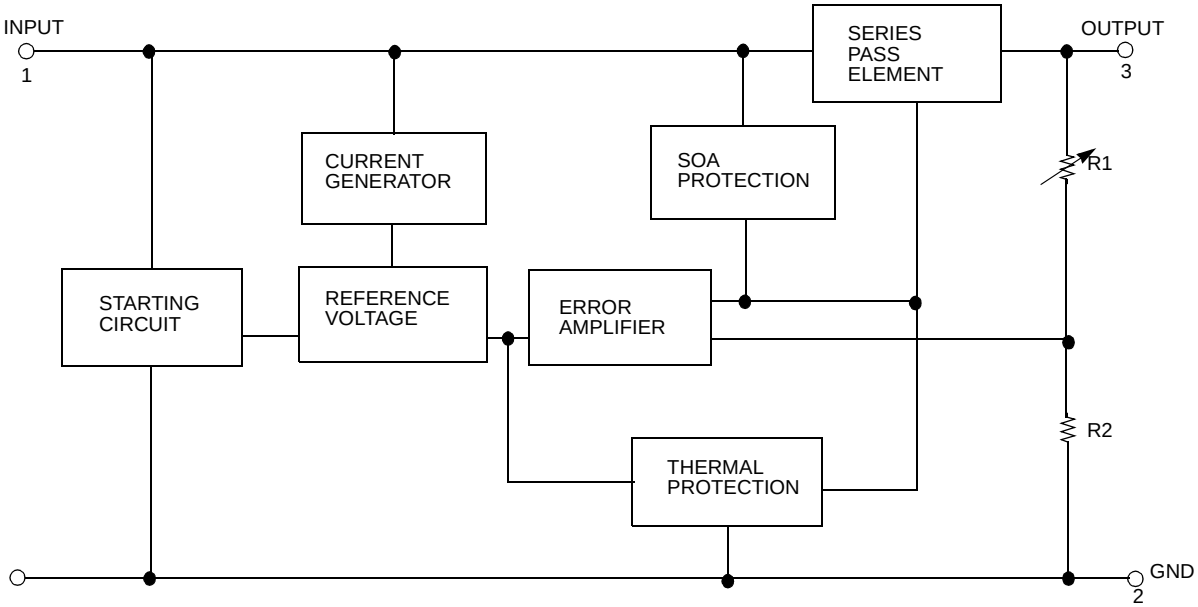
## Description

The 78MXX series of three-terminal

package with several fixed output voltages making it useful

in a wide range of applications.

## Internal Block Digram



## Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Input Voltage (for $V_O$ = 5V to 18V) | $V_I$ | 30 | V |
| Thermal Resistance Junction-Case (Note1)<br>TO-220 (Tc = +25°C) | $R_{\theta JC}$ | 2.5 | °C/W |
| Thermal Resistance Junction-Air (Note1, 2)<br>TO-220 (Ta = +25°C)<br>D-PAK (Ta = +25°C) | $R_{\theta JA}$ | <br>66<br>92 | °C/W |
| Operating Junction Temperature Range | $T_{OPR}$ | 0 ~ +150 | °C |
| Storage Temperature Range | $T_{STG}$ | -65 ~ +150 | °C |

**Note:**

1. Thermal resistance test board
   Size: 76.2mm * 114.3mm * 1.6mm(1S0P)
   JEDEC standard: JESD51-3, JESD51-7
2. Assume no ambient airflow

## Electrical Characteristics (78M05)

(Refer to the test circuits, $0 \leq T_J \leq +125°C$, $I_O$=350mA, $V_I$=10V, unless otherwise specified, $C_I$ = 0.33μF, $C_O$=0.1μF)

| Parameter | Symbol | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Output Voltage | $V_O$ | $T_J$ = +25°C | | 4.8 | 5 | 5.2 | V |
| | | $I_O$ = 5mA to 350mA<br>$V_I$ = 7V to 20V | | 4.75 | 5 | 5.25 | |
| Line Regulation (Note3) | $\Delta V_O$ | $I_O$ = 200mA<br>$T_J$ =+25°C | $V_I$ = 7V to 25V | - | - | 100 | mV |
| | | | $V_I$ = 8V to 25V | - | - | 50 | |
| Load Regulation (Note3) | $\Delta V_O$ | $I_O$ = 5mA to 0.5A, $T_J$ =+25°C | | - | - | 100 | mV |
| | | $I_O$ = 5mA to 200mA, $T_J$ =+25 °C | | - | - | 50 | |
| Quiescent Current | $I_Q$ | $T_J$ =+25°C | | - | 4.0 | 6.0 | mA |
| Quiescent Current Change | $\Delta I_Q$ | $I_O$ = 5mA to 350mA | | - | - | 1 | mA |
| | | $I_O$ = 200mA<br>$V_I$ = 8V to 25V | | - | - | 0.8 | |
| Output Voltage Drift | $\Delta V/\Delta T$ | $I_O$ = 5mA<br>$T_J$ = 0 to +125°C | | - | -0.5 | - | mV/°C |
| Output Noise Voltage | $V_N$ | f = 10Hz to 100kHz | | - | 40 | - | μV/Vo |
| Ripple Rejection | RR | f = 120Hz, $I_O$ = 300mA<br>$V_I$ = 8V to 18V, $T_J$ =+25 °C | | - | 80 | - | dB |
| Dropout Voltage | $V_D$ | $T_J$ =+25°C, $I_O$ = 500mA | | - | 2 | - | V |
| Short Circuit Current | $I_{SC}$ | $T_J$ =+25°C, $V_I$ = 35V | | - | 300 | - | mA |
| Peak Current | $I_{PK}$ | $T_J$ =+25°C | | - | 700 | - | mA |

**Note:**

3. Load and line regulation are specified at constant junction temperature. Change in $V_o$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.