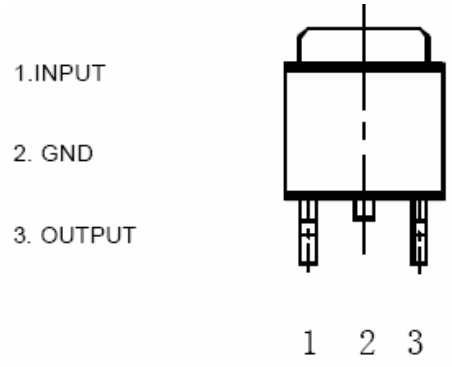
# Three-terminal positive Voltage Regulator

# HM78M05

## FEATURES

- Output Crrent in Excess of 1.0A
- Output Voltage is 5V
- Internal thermal Overload protection
- Internal Short Circuit Current Limiting

## PIN CONNECTION




## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Characteristics | Symbol | Value | Unit |
|---|---|---|---|
| Input Voltage | Vi | 7～25 | V |
| Storage Temperature Range | Tstg | -85～150 | ℃ |

## ELECTRICAL CHARACTERISTICS

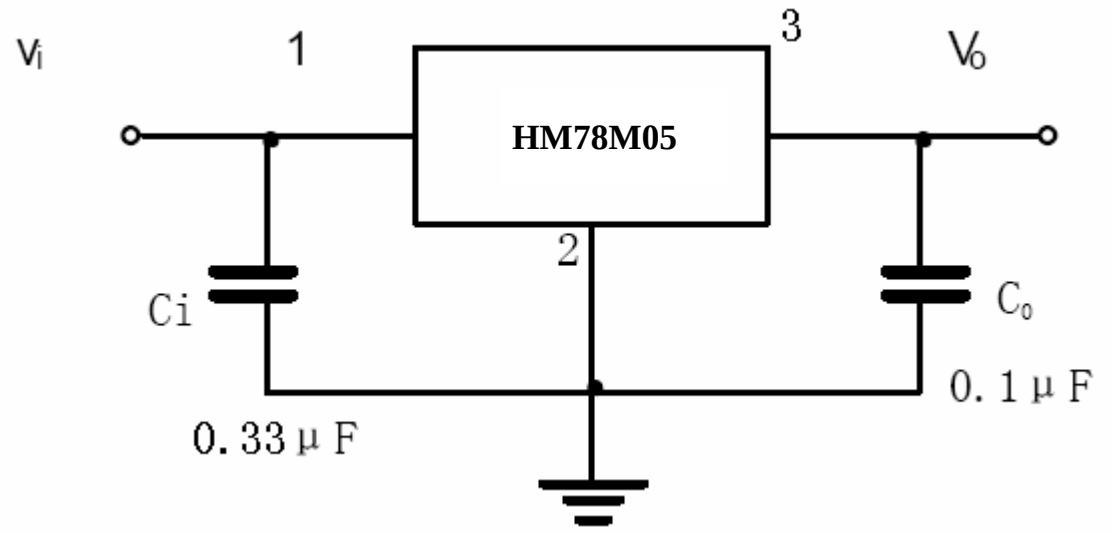
(unless otherwise noted, Vi=10V,Io=350mA, 0℃<Tj<125℃,C1=0.33μF,Co=0.1μF)

| Characteristics | Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Output Voltage | Vo | Tj=25℃ | 4.8 | 5.0 | 5.2 | V |
| | | 7V≤Vi≤20V,Io=5mA～350mA | 4.75 | 5 | 5.25 | |
| Load Regulation | ΔVo | Tj=25℃,Io=5mA～500mA | | 25 | 100 | mV |
| | | Tj=25℃,Io=5mA～200mA | | 10 | 50 | |
| Line Regulation | ΔVo | 7V≤Vi≤25V,Io=200mA, Tj=25℃ | | 4 | 100 | mV |
| | | 8V≤Vi≤25V,Io=200mA, Tj=25℃ | | 2 | 50 | |
| Quiescent Current | Iq | Tj=25℃ | | 4 | 6 | mA |
| Quiescent Current Charge | ΔIq | 8V≤Vi≤25V,Io=200mA | | | 0.8 | mA |
| | | 5mA≤Io≤350mA | | | 0.5 | |

Continues:

| Characteristics | Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Output Noise Voltage | $V_N$ | 10Hz≤f≤100kHz, Tj=25℃ | | 40 | 200 | μV |
| Dropout Voltage | Vd | Tj=25℃ | | 1.7 | | V |
| Ripple Rejection | RR | 8V≤Vi≤18V,f=120Hz, Io=300mA, Tj=25℃ | 56 | 80 | | dB |
| Short Circuit Current Limit | Isc | Tj=25℃ | | 950 | | mA |

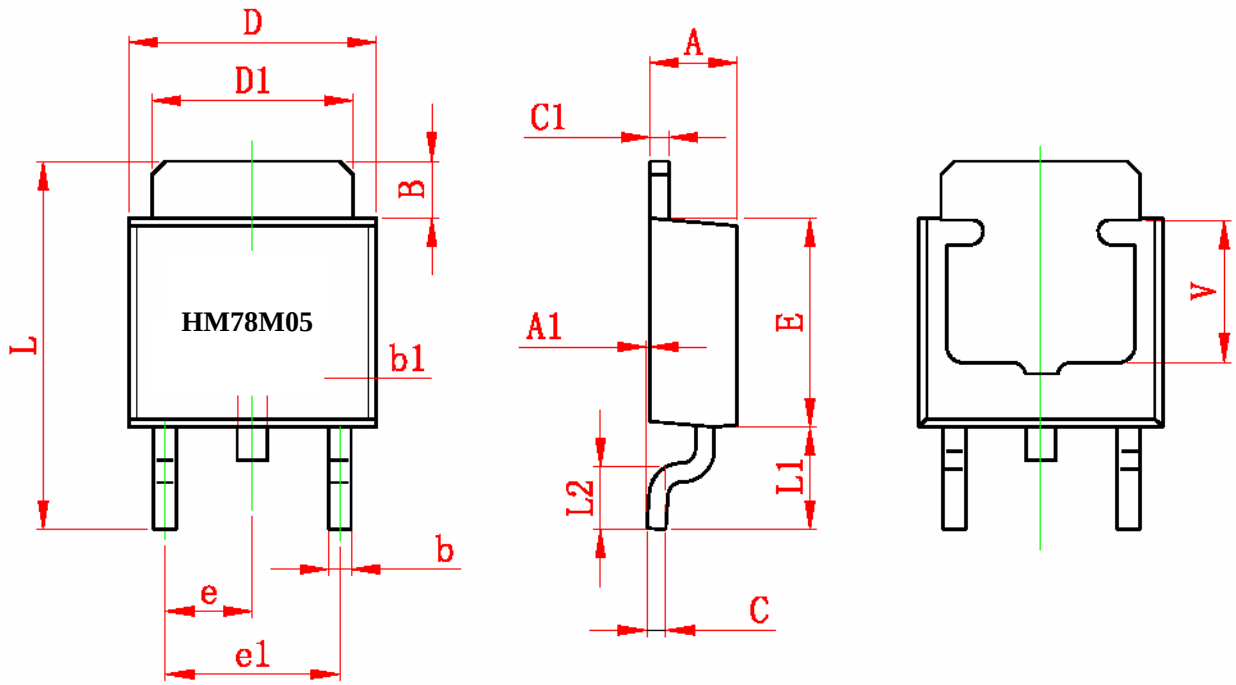
## APPLICATION CIRCUIT




*Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

## OUTLINE DRAWING

**TO-252-2L**




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 0.000 | 0.127 | 0.000 | 0.005 |
| B | 1.350 | 1.650 | 0.053 | 0.065 |
| b | 0.500 | 0.700 | 0.020 | 0.028 |
| b1 | 0.700 | 0.900 | 0.028 | 0.035 |
| c | 0.430 | 0.580 | 0.017 | 0.023 |
| c1 | 0.430 | 0.580 | 0.017 | 0.023 |
| D | 6.350 | 6.650 | 0.250 | 0.262 |
| D1 | 5.200 | 5.400 | 0.205 | 0.213 |
| E | 5.400 | 5.700 | 0.213 | 0.224 |
| e | 2.300 TYP | | 0.091 TYP | |
| e1 | 4.500 | 4.700 | 0.177 | 0.185 |
| L | 9.500 | 9.900 | 0.374 | 0.390 |
| L1 | 2.550 | 2.900 | 0.100 | 0.114 |
| L2 | 1.400 | 1.780 | 0.055 | 0.070 |
| V | 3.80 REF | | 0.150 REF | |