

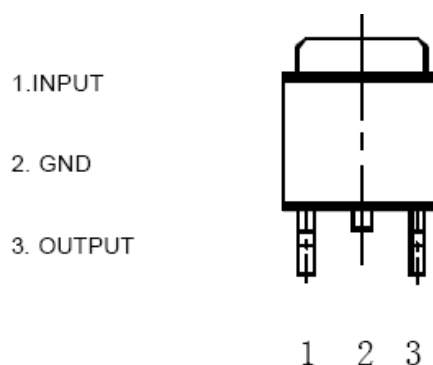
## Three-terminal positive Voltage Regulator

### BL78D05

#### FEATURES

- Output Current in Excess of 1A
- 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                    | $V_i$           | 35        | V     |
| Thermal Resistance Junction-Case | $R_{\theta JC}$ | 10        | °C /W |
| Thermal Resistance Junction-Air  | $R_{\theta JA}$ | 93        | °C /W |
| Operating Temperature            | $T_{opr}$       | -40 ~ 85  | °C    |
| Storage Temperature Range        | $T_{stg}$       | -55 ~ 150 | °C    |

#### ELECTRICAL CHARACTERISTICS

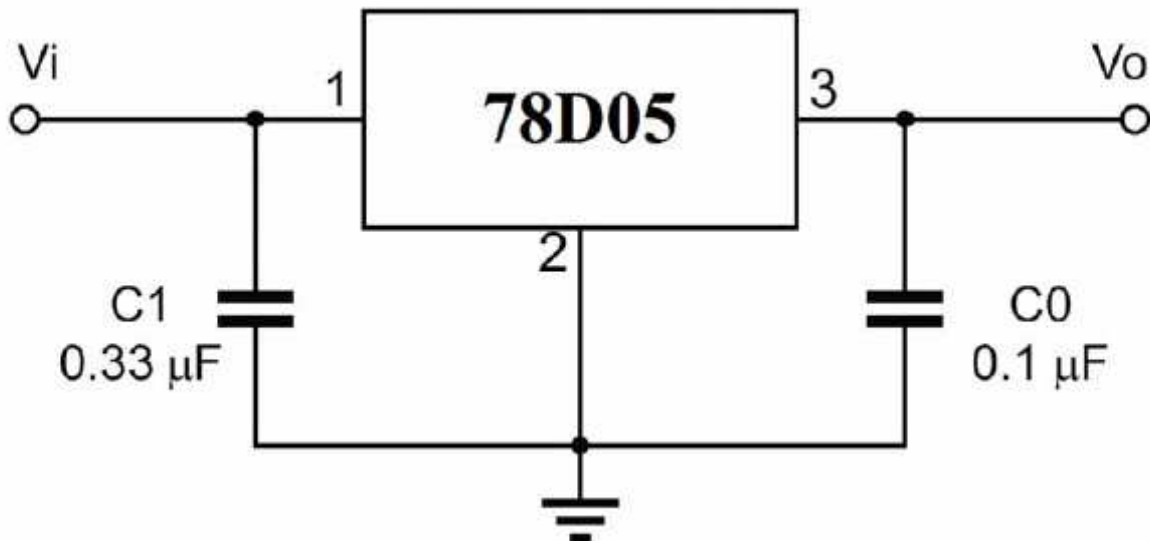
(unless otherwise noted,  $V_i=10V, I_o=500mA, -40^{\circ}C < T_j < 85^{\circ}C, C_1=0.33\mu F, C_o=0.1\mu F$ )

| Characteristics  | Symbol  | Test Conditions   | Min             | Typ | Max  | Unit |    |
|------------------|---------|---|-----------------|-----|------|------|----|
| Output Voltage   | $V_o$   | $T_j=+25^{\circ}C$  | 4.9             | 5.0 | 5.1  | V    |    |
|                  |         | $5.0mA \leq I_o \leq 1.0A, P_o \leq 15W$<br>$V_i=7V$ to 20V | 4.85            | 5.0 | 5.15 |      |    |
| Line Regulation* | Regline | $T_j=+25^{\circ}C$  | $V_i=7V$ to 25V |     | 4.0  | 100  | mV |
|                  |         |   | $V_i=8V$ to 12V |     | 2    | 50   |    |
| Load Regulation* | Regload | $T_j=+25^{\circ}C$  |                 | 25  | 100  | mV   |    |

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|                          |                   |   |                                    |    |      |     |                   |
|--------------------------|-------------------|---|------------------------------------|----|------|-----|-------------------|
|                          |                   |   | $I_o=250\text{mA to }750\text{mA}$ |    | 10   | 50  |                   |
| Quiescent Current        | $I_Q$             | $T_J=+25^\circ\text{C}$                                 |                                    |    | 5.0  | 8.0 | mA                |
| Quiescent Current Change | $\Delta I_Q$      | $I_o=5.0\text{mA to }1.0\text{A}$                       |                                    |    | 0.03 | 0.5 | mA                |
|                          |                   | $V_i=8\text{V to }25\text{V}$                           |                                    |    | 0.3  | 1.3 |                   |
| Output Noise Voltage     | $V_N$             | $f=10\text{Hz to }100\text{KHz}, T_A=+25^\circ\text{C}$ |                                    |    | 40   | 200 | $\mu\text{V}/V_o$ |
| Ripple Rejection         | RR                | $f=120\text{Hz}$  | $V_i=8\text{V to }18\text{V}$      | 56 | 73   |     | dB                |
| Dropout Voltage          | $V_{\text{Drop}}$ | $I_o=1\text{A}, T_J=+25^\circ\text{C}$                  |                                    |    | 2    |     | V                 |
| Short Circuit Current    | $I_{\text{SC}}$   | $V_i=35\text{V}, T_A=+25^\circ\text{C}$                 |                                    |    | 230  |     | mA                |
| Peak Current             | $I_{\text{PK}}$   | $T_J=+25^\circ\text{C}$                                 |                                    |    | 1.6  |     | A                 |

### 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

