

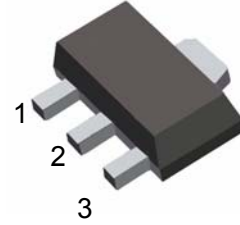
THREE-TERMINAL POSITIVE VOLTAGE REGULATOR

FEATURES

Maximum Output current I_o : 0.1 A
 Output voltage V_o : 5 V
 Continuous total dissipation
 P_D : 0.5 W ($T_a = 25^\circ\text{C}$)

SOT-89

- 1. OUT
- 2. GND
- 3. IN



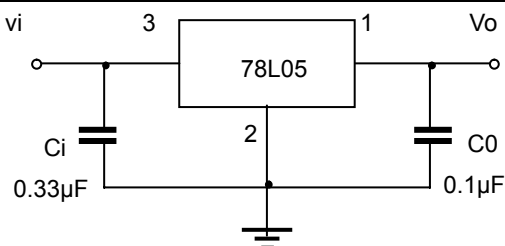
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--------------------------------------|-----------|----------|------------------|
| Input Voltage | V_I | 30 | V |
| Operating Junction Temperature Range | T_{OPR} | 0~+125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -55~+150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ($V_i=10\text{V}, I_o=40\text{mA}, C_i=0.33\mu\text{F}, C_o=0.1\mu\text{F}$, unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------|--------------|---|------|-----|------|---------------|
| Output voltage | V_o | 25°C | 4.8 | 5.0 | 5.2 | V |
| | | $7\text{V} \leq V_i \leq 20\text{V}, I_o = 1\text{mA} \sim 40\text{mA}$ | 4.75 | 5.0 | 5.25 | V |
| | | $I_o = 1\text{mA} \sim 70\text{mA}$ | 4.75 | 5.0 | 5.25 | V |
| Load Regulation | ΔV_o | $I_o = 1\text{mA} \sim 100\text{mA}$ | | 15 | 60 | mV |
| | | $I_o = 1\text{mA} \sim 40\text{mA}$ | | 8 | 30 | mV |
| Line regulation | ΔV_o | $7\text{V} \leq V_i \leq 20\text{V}$ | | 32 | 150 | mV |
| | | $8\text{V} \leq V_i \leq 20\text{V}$ | | 26 | 100 | mV |
| Quiescent Current | I_q | 25°C | | 3.8 | 6 | mA |
| Quiescent Current Change | ΔI_q | $8\text{V} \leq V_i \leq 20\text{V}$ | | | 1.5 | mA |
| | ΔI_q | $1\text{mA} \leq I_o \leq 40\text{mA}$ | | | 0.1 | mA |
| Output Noise Voltage | V_N | $10\text{Hz} \leq f \leq 100\text{KHz}$ | | 42 | | μV |
| Ripple Rejection | RR | $8\text{V} \leq V_i \leq 20\text{V}, f = 120\text{Hz}$ | 41 | 49 | | dB |
| Dropout Voltage | V_d | 25°C | | 1.7 | | V |

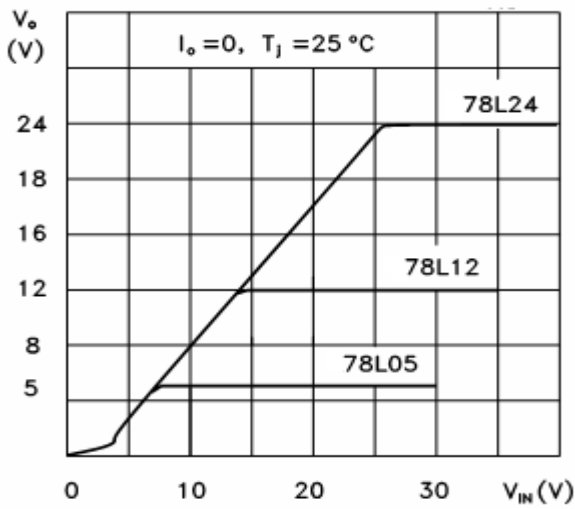
TYPICAL APPLICATION



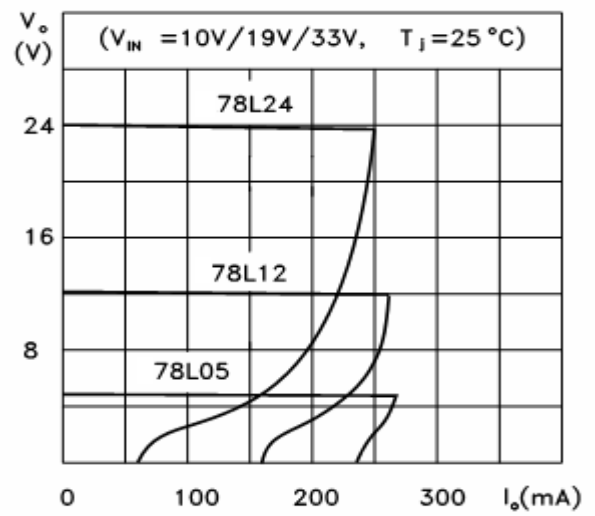
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

Typical Characteristics

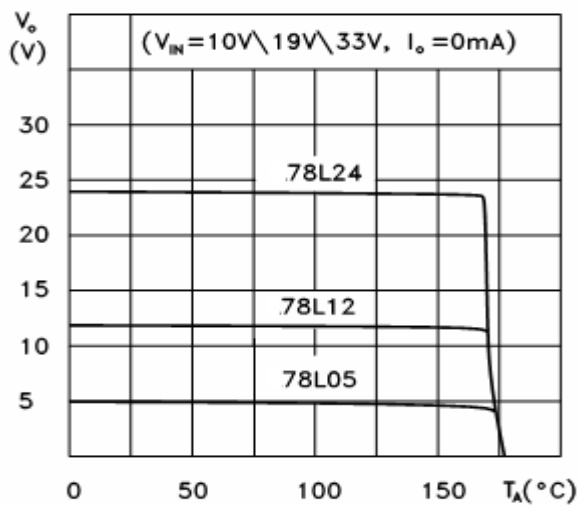
78L05/12/24 Output Characteristics



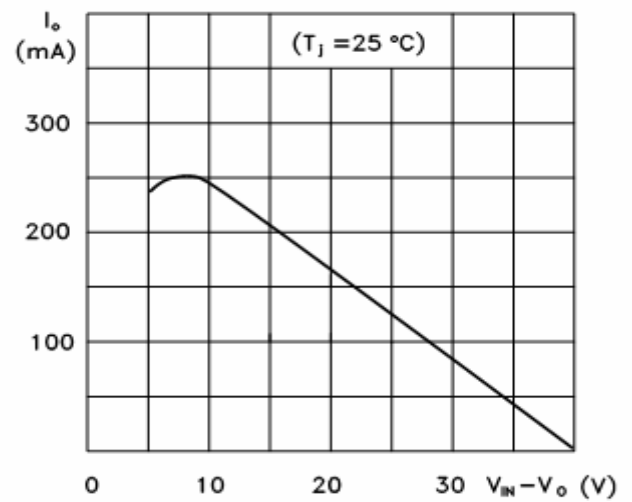
78L05/12/24 Load Characteristics



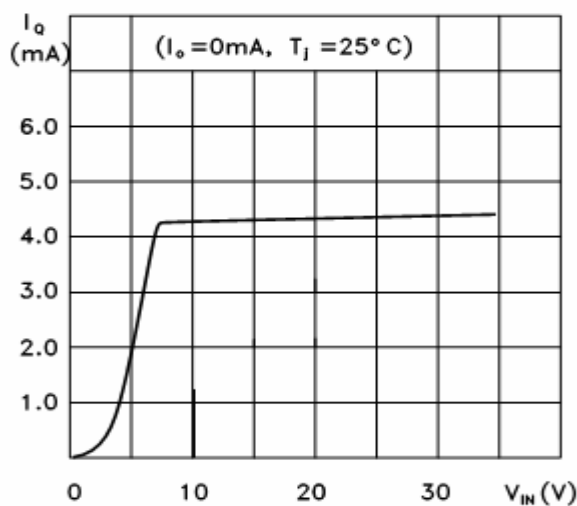
78L05/12/24 Thermal Shutdown



78L00 Series Short Circuit Output Current



78L05 Quiescent Current vs Input Voltage



Power dissipation vs. ambient temperature

