



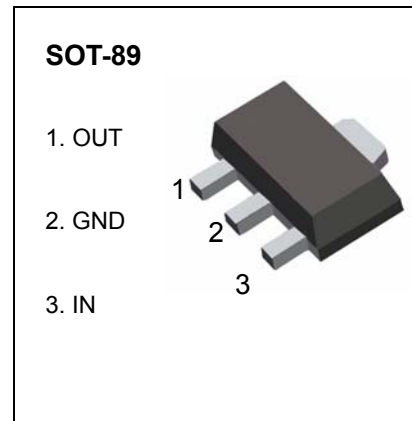
# SHENZHEN HAOLIN ELECTRONICS TECHNOLOGY CO., LTD

## SOT-89 Encapsulate Three Terminal Voltage Regulator

### 78L05 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 ( $T_a = 25^\circ\text{C}$ )



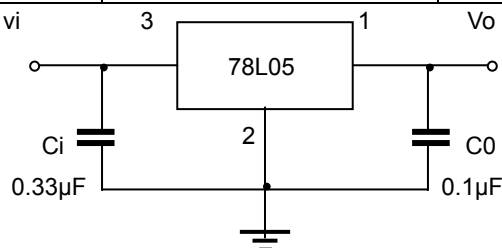
#### ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| 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 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=10V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$ , 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       |   |
|                          |              | 0-125 $^\circ\text{C}$                               | $7V \leq V_i \leq 20V, I_o = 1mA \sim 40mA$ | 4.75 | 5.0 | 5.25    | V |
|                          |              |  | $I_o = 1mA \sim 70mA$                       | 4.75 | 5.0 | 5.25    | V |
| Load Regulation          | $\Delta V_o$ | $I_o = 1mA \sim 100mA, 25^\circ\text{C}$             |   | 15   | 60  | mV      |   |
|                          |              | $I_o = 1mA \sim 40mA, 25^\circ\text{C}$              |   | 8    | 30  | mV      |   |
| Line regulation          | $\Delta V_o$ | $7V \leq V_i \leq 20V$                               |   | 32   | 150 | mV      |   |
|                          |              | $8V \leq V_i \leq 20V, 25^\circ\text{C}$             |   | 26   | 100 | mV      |   |
| Quiescent Current        | $I_q$        | $25^\circ\text{C}$                                   |   | 3.8  | 6   | mA      |   |
| Quiescent Current Change | $\Delta I_q$ | $8V \leq V_i \leq 20V, 0-125^\circ\text{C}$          |   |      | 1.5 | mA      |   |
|                          |              | $1mA \leq I_o \leq 40mA, 0-125^\circ\text{C}$        |   |      | 0.1 | mA      |   |
| Output Noise Voltage     | $V_N$        | $10Hz \leq f \leq 100KHz, 25^\circ\text{C}$          |   | 42   |     | $\mu V$ |   |
| Ripple Rejection         | RR           | $8V \leq V_i \leq 20V, f=120Hz, 0-125^\circ\text{C}$ | 41  | 49   |     | dB      |   |
| Dropout Voltage          | $V_d$        | $25^\circ\text{C}$                                   |   | 1.7  |     | V       |   |

#### TYPICAL APPLICATION

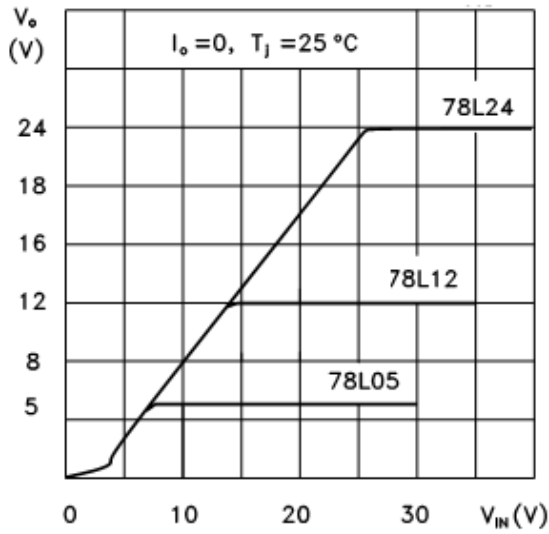


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

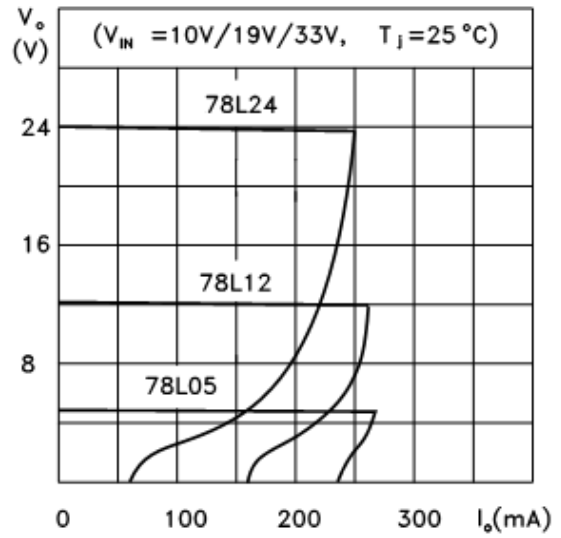
# Typical Characteristics

# 78LXX

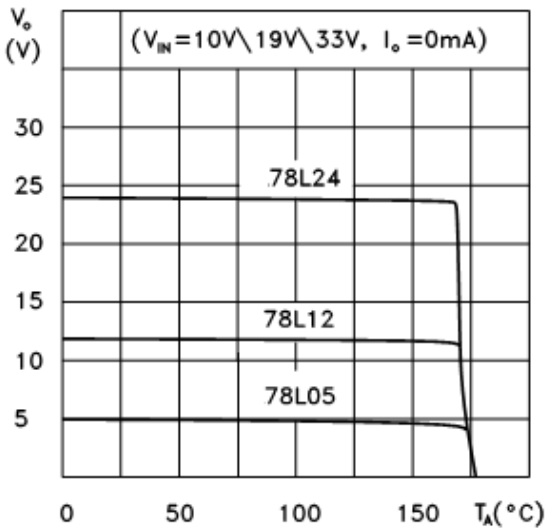
78L05/12/24 Output Characteristics



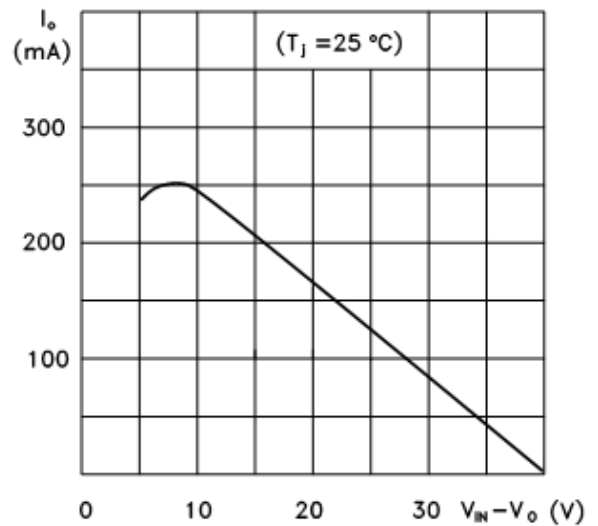
78L05/12/24 Load Characteristics



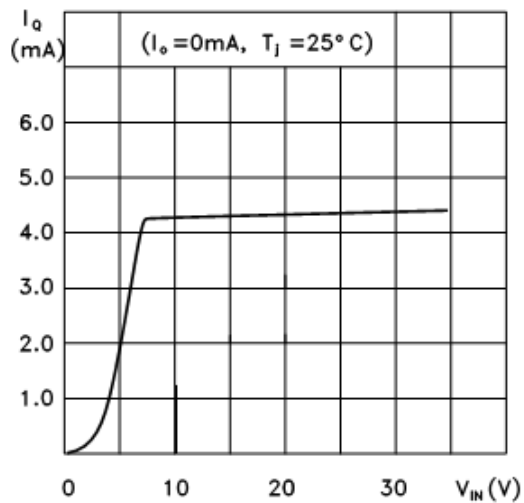
78L05/12/24 Thermal Shutdown



78L00 Series Short Circuit Output Current



78L05 Quiescent Current vs Input Voltage



PD-TA

