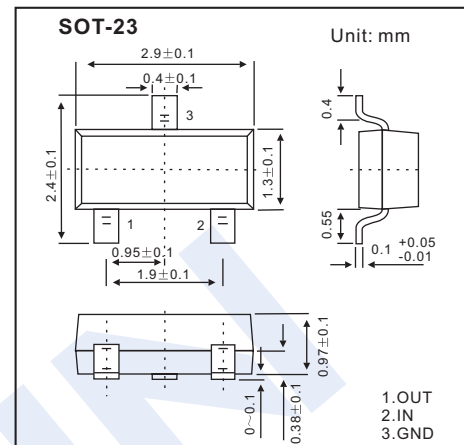


## Three-Terminal Positive Voltage Regulator

## LM78L05



### Features

- Maximum Output current  $I_o$ : 0.1A
- Output Voltage  $V_o$ : 5V
- Continuous Total Dissipation  $P_d$ : 0.35W ( $T_a = 25^\circ\text{C}$ )

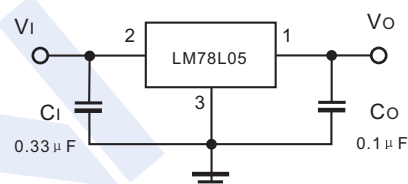
### Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

| Parameter                            | Symbol    | Rating     | Unit             |
|--------------------------------------|-----------|------------|------------------|
| Input Voltage                        | $V_i$     | 30         | V                |
| Operating Junction Temperature Range | $T_{OPR}$ | -55 ~ +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       | Testconditions  | Min  | Typ | Max  | Unit          |
|--------------------------|--------------|---|------|-----|------|---------------|
| Output Voltage           | $V_o$        | $T_J = 25^\circ\text{C}$  | 4.8  | 5.0 | 5.2  | V             |
|                          |              | $T_J = 0\sim 125^\circ\text{C}$ , $7\text{V} \leq V_i \leq 20\text{V}$ , $I_o=1\text{mA}\sim 40\text{mA}$ | 4.75 | 5.0 | 5.25 | V             |
|                          |              | $T_J = 0\sim 125^\circ\text{C}$ , $I_o=1\text{mA}\sim 70\text{mA}$  | 4.75 | 5.0 | 5.25 | V             |
| Load Regulation          | $\Delta V_o$ | $T_J = 25^\circ\text{C}$ , $I_o=1\text{mA}\sim 100\text{mA}$  |      | 15  | 60   | mV            |
|                          |              | $T_J = 25^\circ\text{C}$ , $I_o=1\text{mA}\sim 40\text{mA}$   |      | 8   | 30   | mV            |
| Line Regulation          | $\Delta V_o$ | $7\text{V} \leq V_i \leq 20\text{V}$  |      | 32  | 150  | mV            |
|                          |              | $T_J = 25^\circ\text{C}$ , $8\text{V} \leq V_i \leq 20\text{V}$   |      | 26  | 100  | mV            |
| Quiescent Current        | $I_q$        | $T_J = 25^\circ\text{C}$  |      | 3.8 | 6    | mA            |
| Quiescent current Change | $\Delta I_q$ | $T_J = 0\sim 125^\circ\text{C}$ , $8\text{V} \leq V_i \leq 20\text{V}$                                    |      |     | 1.5  | mA            |
|                          |              | $T_J = 0\sim 125^\circ\text{C}$ , $1\text{mA} \leq I_o \leq 40\text{mA}$                                  |      |     | 0.1  | mA            |
| Output Noise Voltage     | $V_N$        | $T_J = 25^\circ\text{C}$ , $10\text{Hz} \leq f \leq 100\text{kHz}$  |      | 42  |      | $\mu\text{V}$ |
| Ripple Rejection         | RR           | $T_J = 0\sim 125^\circ\text{C}$ , $8\text{V} \leq V_i \leq 20\text{V}$ , $f = 120\text{Hz}$               | 41   | 49  |      | dB            |
| Dropout Voltage          | $V_d$        | $T_J = 25^\circ\text{C}$  |      | 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.

## LM78L05

## ■ Typical Characteristics

