



Micro Commercial Components  
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## MC78L05F

### Features

- Internal Short Circuit Current Limiting
- Internal Thermal Overload Protection
- No External Components Required

### Maximum Ratings

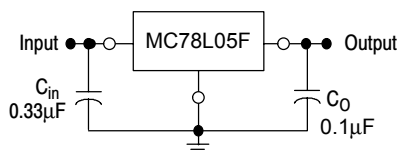
| Parameter                      | Symbol    | Value      | Unit |
|--------------------------------|-----------|------------|------|
| Input Voltage ( $V_o=5.8V$ )   | $V_1$     | 30         | V    |
| Operating Junction Temperature | $T_{OPR}$ | -20---+120 | °C   |
| Storage Temperature Range      | $T_{STG}$ | -55---+150 | °C   |

**Electrical Characteristics ( $V_1=10V$ ,  $I_o=40mA$ ,  $0^\circ C < T_j < 125^\circ C$ ,  
 $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified)**

| Parameter                | Sym                   | Min  | Typ        | Max            | Test conditions  |
|--------------------------|-----------------------|------|------------|----------------|--|
| Output Voltage           | $V_o$                 | 4.8V | 5.0V       | 5.2V           | $T_j=25^\circ C$   |
|                          |                       | 4.7V |            | 5.25V          | $7V \leq V_1 \leq 20V$ ,<br>$I_o=1mA-40mA$   |
|                          |                       | 5.0V |            |                |  |
|                          |                       | 4.7V |            | 5.25V          | $7V \leq V_1 \leq V_{MAX}$ ,<br>$I_o=1mA-700mA$ (Note)                                 |
| Load Regulation          | $\Delta V_o$          |      | 11mV       | 60mV           | $I_o=1mA-100mA$ ,<br>$T_j=25^\circ C$  |
|                          |                       |      | 5.0mV      | 30mV           | $I_o=1mA-40mA$ ,<br>$T_j=25^\circ C$   |
| Line regulation          | $\Delta V_o$          |      | 8mV<br>6mV | 150mV<br>100mV | $7V \leq V_1 \leq 20V$ , $T_j=25^\circ C$<br>$8V \leq V_1 \leq 20V$ , $T_j=25^\circ C$ |
| Quiescent Current        | $I_q$<br>$\Delta I_q$ |      | 2.0mA      | 5.5mA<br>1.5mA | $8V \leq V_1 \leq 20V$   |
| Quiescent Current Change | $\Delta I_q$          |      |            | 0.1mA          | $1mA \leq I_o \leq 40mA$   |
| Output Noise Voltage     | $V_N$                 |      | 40μV       |                | $10Hz \leq f \leq 100KHz$  |
| Ripple Rejection         | RR                    | 41dB | 80dB       |                | $8V \leq V_1 \leq 20V$<br>$f=120Hz$ , $T_j=25^\circ C$                                 |
| Dropout Voltage          | $V_d$                 |      | 1.7V       |                | $T_j=25^\circ C$   |

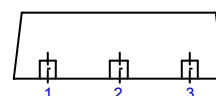
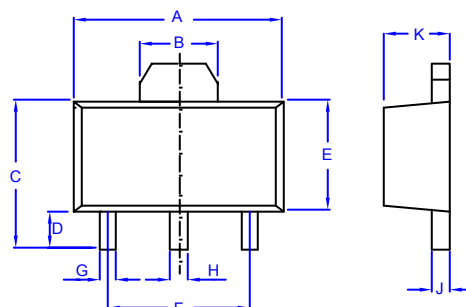
\*Note: Bypass Capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators

Typical Application:



### Three-Terminal Low Current Positive Voltage Regulator

### SOT-89



1. OUT
2. GND
3. IN

| DIMENSINS |        |      |      |      |       |
|-----------|--------|------|------|------|-------|
| DIM       | INCHES |      | MM   |      | NOTES |
|           | MIN    | MAX  | MIN  | MAX  |       |
| A         | .173   | .181 | 4.39 | 4.60 |       |
| B         | .063   | .071 | 1.60 | 1.80 |       |
| C         | .154   | .165 | 3.91 | 4.19 |       |
| D         | .031   | .039 | 0.80 | 1.00 |       |
| E         | .092   | .100 | 2.34 | 2.54 |       |
| F         | .118   | ---- | 3.00 | ---- | TYP   |
| G         | .013   | .019 | 0.33 | 0.48 |       |
| H         | .015   | .021 | 0.38 | 0.53 |       |
| J         | .015   | .016 | 0.38 | 0.41 |       |
| K         | .055   | .063 | 1.40 | 1.60 |       |

Figure 1. Representative Schematic Diagram

