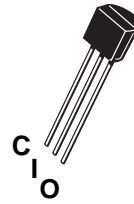




**79L05**

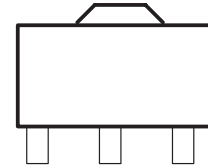
## Negative-Voltage Regulators

- 3-Terminal Regulators
- Output Current Up to 100 mA
- No External Components Required
- Internal Thermal-Overload Protection
- Internal Short-Circuit Current Limiting
- Direct Replacement for Motorola MC79L00 Series



TO-92

79L05ACZ



SOT-89

79L05CPK

COMMON INPUT OUTPUT

### description

This series of fixed negative-voltage integrated-circuit voltage regulators is designed for a wide range of applications. These include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used to control series pass elements to make high-current voltage-regulator circuits. One of these regulators can deliver up to 100 mA of output current. The internal current-limiting and thermal-shutdown features make them essentially immune to overload. When used as a replacement for a zener-diode and resistor combination, these devices can provide effective improvement in output impedance of two orders of magnitude, with lower bias current.

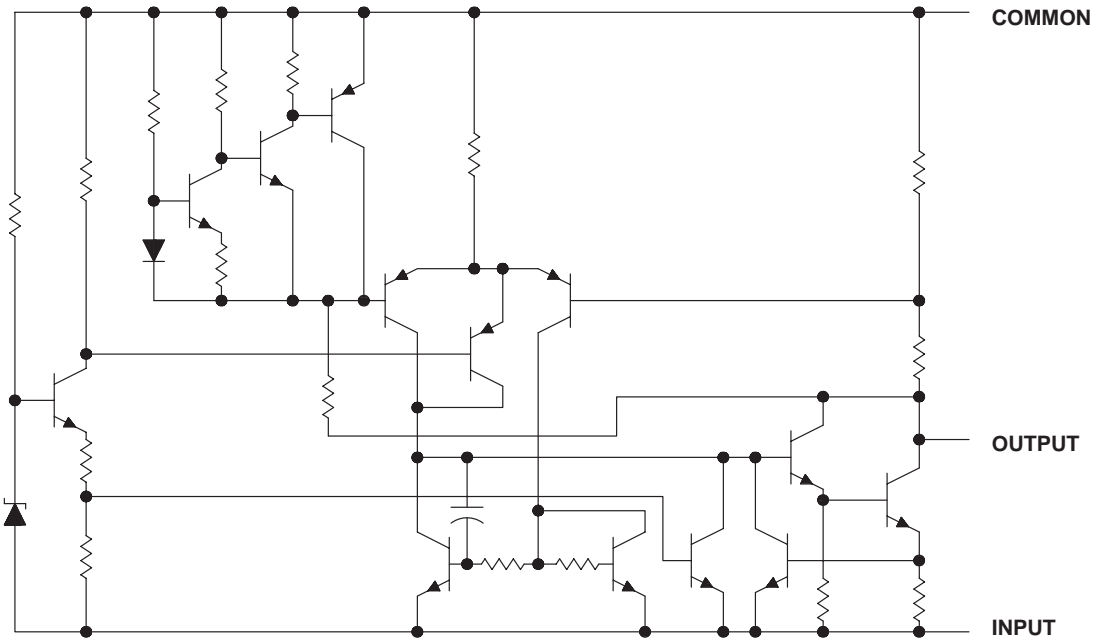
### electrical characteristics at specified virtual junction temperature, $V_I = -10\text{ V}$ , $I = 40\text{ mA}$ (unless otherwise noted)

| PARAMETER                 | TEST CONDITIONS  | T ‡        | 79L05 |     |       | UNIT |
|---------------------------|--|------------|-------|-----|-------|------|
|                           |  |            | MIN   | TYP | MAX   |      |
| Output voltage            |  | 25°C       | -4.8  | -5  | -5.2  | V    |
|                           | $I_O = 1\text{ mA to }40\text{ mA}$ , $V_I = -7\text{ V to }-20\text{ V}$  | Full range | -4.75 |     | -5.25 |      |
|                           |  | Full range | -4.75 |     | -5.25 |      |
| Input voltage regulation  | $V_I = -7\text{ V to }-20\text{ V}$  | 25°C       |       | 15  | 150   | mV   |
|                           | $V_I = -8\text{ V to }-20\text{ V}$  |            |       |     | 100   |      |
| Ripple rejection          | $V_I = -8\text{ V to }-18\text{ V}$ $f = 120\text{ Hz}$                    | 25°C       | 41    | 49  |       | dB   |
| Output voltage regulation | $I_O = 1\text{ mA to }100\text{ mA}$                                       | 25°C       |       | 20  | 60    | mV   |
|                           | $I_O = 1\text{ mA to }40\text{ mA}$  |            |       | 10  | 30    |      |
| Output noise voltage      | $f = 10\text{ Hz to }100\text{ kHz}$                                       | 25°C       |       | 40  |       | µV   |
| Dropout voltage           |  | 25°C       |       | 1.7 |       | V    |
| Bias current              |  | 25°C       |       |     | 6     | mA   |
|                           |  | 125°C      |       |     | 5.5   |      |
| Bias current change       | $V_I = -8\text{ V to }-20\text{ V}$<br>$I_O = 1\text{ mA to }40\text{ mA}$ | Full range |       |     | 1.5   | mA   |
|                           |  |            |       |     | 0.1   |      |

‡ Pulse-testing techniques maintain  $T_J$  as close to  $T_A$  as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Full range for the 79L05 is  $T_J = 0^\circ\text{C to }70^\circ\text{C}$

# WS 79L05

## equivalent schematic



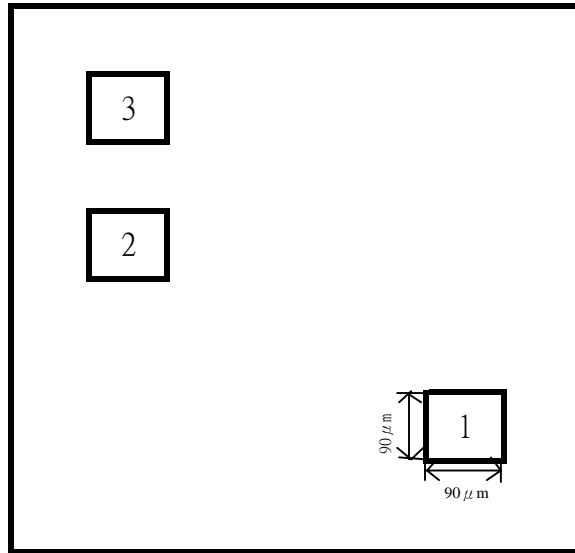
## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

- Input voltage: 79L05 ..... -30V
- Operating free-air, case, or virtual junction temperature.....150 °C
- Lead temperature 1.6 mm (1/16 inch) from case for 10 seconds ..... 260°C
- Storage temperature range,  $T_{stg}$  ..... -65°C to 150°C

## recommended operating conditions

| 79L05   | MIN | MAX | UNIT |
|---|-----|-----|------|
| Input voltage, $V_I$                          | -7  | -20 | V    |
| Output current, $I_O$                         |     | 100 | mA   |
| Operating virtual junction temperature, $T_J$ | 0   | 70  | °C   |

Pad Location WS79L00



chip size 1.15 x 1.35mm

**Pad Location Coordinates**

| Pad N | Pad Name | X( μ m) | Y( μ m) |
|-------|----------|---------|---------|
| 1     | Ground   | 1150    | 115     |
| 2     | Input    | 115     | 690     |
| 3     | Output   | 115     | 950     |