

# MC78LXXA / LM78LXXA

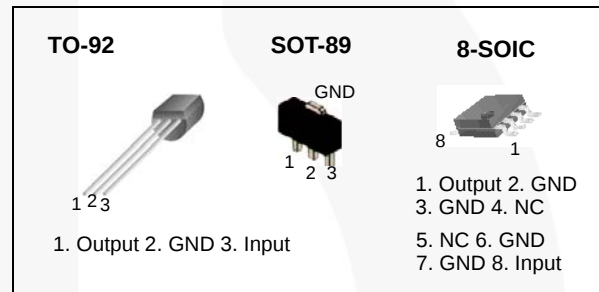
## 3-Terminal 0.1 A Positive Voltage Regulator

### Features

- Maximum Output Current of 100 mA
- Output Voltage of 5 V, 6 V, 8 V, 12 V, and 15 V
- Thermal Overload Protection
- Short-Circuit Current Limiting
- Output Voltage Offered in  $\pm 5\%$  Tolerance

### Description

The MC78LXXA / LM78LXXA series of fixed-voltage monolithic integrated circuit voltage regulators are suitable for applications that required supply current up to 100 mA.



### Ordering Information

| Product Number | Package | Packing Method | Output Voltage Tolerance | Operating Temperature |
|----------------|---------|----------------|--------------------------|-----------------------|
| LM78L05ACZ     | TO-92   | Bulk           | $\pm 5\%$                | 0 to +125°C           |
| LM78L05ACZX    |         | Tape & Reel    |                          |                       |
| LM78L05ACZX    |         | Ammo           |                          |                       |
| LM78L12ACZ     |         | Bulk           |                          |                       |
| LM78L12ACZX    |         | Tape & Reel    |                          |                       |
| MC78L05ACP     |         | Bulk           |                          |                       |
| MC78L05ACPX    |         | Ammo           |                          |                       |
| MC78L06ACP     |         | Bulk           |                          |                       |
| MC78L08ACP     |         | Bulk           |                          |                       |
| MC78L15ACP     |         | Bulk           |                          |                       |
| MC78L15ACPX    |         | Ammo           |                          |                       |
| MC78L05ACD     | 8-SOIC  | Rail           |                          |                       |
| MC78L05ACDX    |         | Tape & Reel    |                          |                       |
| MC78L05ACHX    | SOT-89  | Tape & Reel    |                          |                       |
| MC78L08ACHX    |         | Tape & Reel    |                          |                       |

## Block Diagram

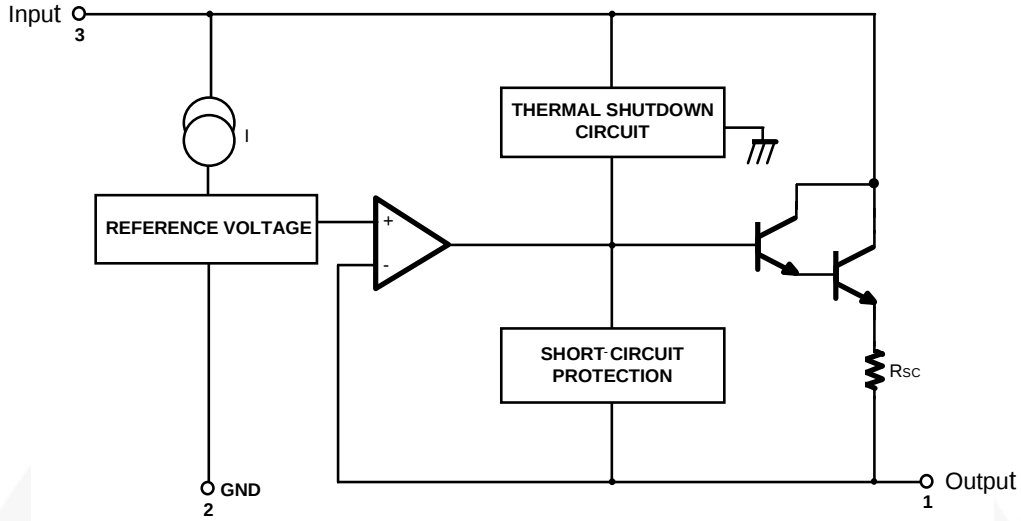


Figure 1. Block Diagram

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                            |                                    | Value       | Unit               |
|-----------------|--------------------------------------|------------------------------------|-------------|--------------------|
| $V_I$           | Input Voltage                        | $V_O = 5\text{ V to }8\text{ V}$   | 30          | V                  |
|                 |                                      | $V_O = 12\text{ V to }15\text{ V}$ | 35          | V                  |
| $T_J$           | Operating Junction Temperature Range |                                    | 0 to +150   | $^\circ\text{C}$   |
| $T_{STG}$       | Storage Temperature Range            |                                    | -65 to +150 | $^\circ\text{C}$   |
| $R_{\theta JC}$ | Thermal Resistance, Junction-Case    | TO-92                              | 50          | $^\circ\text{C/W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-Air     | TO-92                              | 150         | $^\circ\text{C/W}$ |
|                 |                                      | SOT-89                             | 225         | $^\circ\text{C/W}$ |
|                 |                                      | 8-SOIC                             | 160         | $^\circ\text{C/W}$ |

## Electrical Characteristics (MC78L05A / LM78L05A)

$V_I = 10\text{ V}$ ,  $I_O = 40\text{ mA}$ ,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol              | Parameter                                 |           | Conditions                                                     |                                | Min. | Typ.  | Max. | Unit              |
|---------------------|-------------------------------------------|-----------|----------------------------------------------------------------|--------------------------------|------|-------|------|-------------------|
| V <sub>O</sub>      | Output Voltage                            |           | T <sub>J</sub> = 25°C                                          |                                | 4.8  | 5.0   | 5.2  | V                 |
| ΔV <sub>O</sub>     | Line Regulation <sup>(1)</sup>            |           | T <sub>J</sub> = 25°C                                          | 7 V ≤ V <sub>I</sub> ≤ 20 V    |      | 8     | 150  | mV                |
|                     |                                           |           |                                                                | 8 V ≤ V <sub>I</sub> ≤ 20 V    |      | 6     | 100  | mV                |
| ΔV <sub>O</sub>     | Load Regulation <sup>(1)</sup>            |           | T <sub>J</sub> = 25°C                                          | 1 mA ≤ I <sub>O</sub> ≤ 100 mA |      | 11    | 60   | mV                |
|                     |                                           |           |                                                                | 1 mA ≤ I <sub>O</sub> ≤ 40 mA  |      | 5.0   | 30.0 | mV                |
| V <sub>O</sub>      | Output Voltage                            |           | 7 V ≤ V <sub>I</sub> ≤ 20 V                                    | 1 mA ≤ I <sub>O</sub> ≤ 40 mA  |      |       | 5.25 | V                 |
|                     |                                           |           | 7 V ≤ V <sub>I</sub> ≤ V <sub>MAX</sub> <sup>(2)</sup>         | 1 mA ≤ I <sub>O</sub> ≤ 70 mA  | 4.75 |       | 5.25 | V                 |
| I <sub>Q</sub>      | Quiescent Current                         |           | T <sub>J</sub> = 25°C                                          |                                |      | 2.0   | 5.5  | mA                |
| ΔI <sub>Q</sub>     | Quiescent Current Change                  | With Line | 8 V ≤ V <sub>I</sub> ≤ 20 V                                    |                                |      |       | 1.5  | mA                |
| ΔI <sub>Q</sub>     |                                           | With Load | 1 mA ≤ I <sub>O</sub> ≤ 40 mA                                  |                                |      |       | 0.1  | mA                |
| V <sub>N</sub>      | Output Noise Voltage                      |           | T <sub>A</sub> = 25°C, 10 Hz ≤ f ≤ 100 kHz                     |                                |      | 40    |      | μV/V <sub>O</sub> |
| ΔV <sub>O</sub> /ΔT | Temperature Coefficient of V <sub>O</sub> |           | I <sub>O</sub> = 5 mA                                          |                                |      | -0.65 |      | mV/°C             |
| RR                  | Ripple Rejection                          |           | f = 120 Hz, 8 V ≤ V <sub>I</sub> ≤ 18 V, T <sub>J</sub> = 25°C |                                | 41   | 80    |      | dB                |
| V <sub>D</sub>      | Dropout Voltage                           |           | T <sub>J</sub> = 25°C                                          |                                |      | 1.7   |      | V                 |

### Notes:

- The maximum steady-state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represents pulse test conditions with junction temperature as indicated at the initiation of tests.
- Power dissipation  $P_D \leq 0.75\text{ W}$ .

## Electrical Characteristics (MC78L06A)

$V_I = 12\text{ V}$ ,  $I_O = 40\text{ mA}$ ,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol              | Parameter                                 |           | Conditions                                                                               |                                | Min. | Typ. | Max. | Unit              |
|---------------------|-------------------------------------------|-----------|------------------------------------------------------------------------------------------|--------------------------------|------|------|------|-------------------|
| V <sub>O</sub>      | Output Voltage                            |           | T <sub>J</sub> = 25°C                                                                    |                                | 5.75 | 6.0  | 6.25 | V                 |
| ΔV <sub>O</sub>     | Line Regulation <sup>(3)</sup>            |           | T <sub>J</sub> = 25°C                                                                    | 8.5 V ≤ V <sub>I</sub> ≤ 20 V  |      | 64   | 175  | mV                |
|                     |                                           |           |                                                                                          | 9 V ≤ V <sub>I</sub> ≤ 20 V    |      | 54   | 125  | mV                |
| ΔV <sub>O</sub>     | Load Regulation <sup>(3)</sup>            |           | T <sub>J</sub> = 25°C                                                                    | 1 mA ≤ I <sub>O</sub> ≤ 100 mA |      | 12.8 | 80.0 | mV                |
|                     |                                           |           |                                                                                          | 1 mA ≤ I <sub>O</sub> ≤ 70 mA  |      | 5.8  | 40.0 | mV                |
| V <sub>O</sub>      | Output Voltage                            |           | 8.5 V ≤ V <sub>I</sub> ≤ 20 V, 1 mA ≤ I <sub>O</sub> ≤ 40 mA                             |                                | 5.7  |      | 6.3  | V                 |
|                     |                                           |           | 8.5 V ≤ V <sub>I</sub> ≤ V <sub>MAX</sub> <sup>(4)</sup> , 1 mA ≤ I <sub>O</sub> ≤ 70 mA |                                | 5.7  |      | 6.3  | V                 |
| I <sub>Q</sub>      | Quiescent Current                         |           | T <sub>J</sub> = 25°C                                                                    |                                |      |      | 5.5  | mA                |
|                     |                                           |           | T <sub>J</sub> = 125°C                                                                   |                                |      | 3.9  | 6.0  | mA                |
| ΔI <sub>Q</sub>     | Quiescent Current Change                  | With Line | 9 V ≤ V <sub>I</sub> ≤ 20 V                                                              |                                |      |      | 1.5  | mA                |
| ΔI <sub>Q</sub>     |                                           | With Load | 1 mA ≤ I <sub>O</sub> ≤ 40 mA                                                            |                                |      |      | 0.1  | mA                |
| V <sub>N</sub>      | Output Noise Voltage                      |           | T <sub>A</sub> = 25°C, 10 Hz ≤ f ≤ 100 kHz                                               |                                |      | 40   |      | μV/V <sub>O</sub> |
| ΔV <sub>O</sub> /ΔT | Temperature Coefficient of V <sub>O</sub> |           | I <sub>O</sub> = 5 mA                                                                    |                                |      | 0.75 |      | mV/°C             |
| RR                  | Ripple Rejection                          |           | f = 120 Hz, 10 V ≤ V <sub>I</sub> ≤ 20 V, T <sub>J</sub> = 25°C                          |                                | 40   | 46   |      | dB                |
| V <sub>D</sub>      | Dropout Voltage                           |           | T <sub>J</sub> = 25°C                                                                    |                                |      | 1.7  |      | V                 |

### Notes:

- The maximum steady-state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represents pulse test conditions with junction temperature as indicated at the initiation of tests.
- Power dissipation  $P_D \leq 0.75\text{ W}$ .

## Electrical Characteristics (MC78L08A)

$V_I = 14\text{ V}$ ,  $I_O = 40\text{ mA}$ ,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol                | Parameter                        | Conditions                                                                               | Min.                                      | Typ. | Max. | Unit                       |
|-----------------------|----------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------|------|------|----------------------------|
| $V_O$                 | Output Voltage                   | $T_J = 25^\circ\text{C}$                                                                 | 7.7                                       | 8.0  | 8.3  | V                          |
| $\Delta V_O$          | Line Regulation <sup>(5)</sup>   | $T_J = 25^\circ\text{C}$                                                                 | $10.5\text{ V} \leq V_I \leq 23\text{ V}$ | 10   | 175  | mV                         |
|                       |                                  |                                                                                          | $11\text{ V} \leq V_I \leq 23\text{ V}$   | 8    | 125  | mV                         |
| $\Delta V_O$          | Load Regulation <sup>(5)</sup>   | $T_J = 25^\circ\text{C}$                                                                 | $1\text{ mA} \leq I_O \leq 100\text{ mA}$ | 15   | 80   | mV                         |
|                       |                                  |                                                                                          | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  | 8    | 40   | mV                         |
| $V_O$                 | Output Voltage                   | $10.5\text{ V} \leq V_I \leq 23\text{ V}$                                                | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  | 7.6  | 8.4  | V                          |
|                       |                                  | $10.5\text{ V} \leq V_I \leq V_{\text{MAX}}^{(6)}$                                       | $1\text{ mA} \leq I_O \leq 70\text{ mA}$  | 7.6  | 8.4  | V                          |
| $I_Q$                 | Quiescent Current                | $T_J = 25^\circ\text{C}$                                                                 |                                           | 2.0  | 5.5  | mA                         |
| $\Delta I_Q$          | Quiescent Current Change         | With Line                                                                                | $11\text{ V} \leq V_I \leq 23\text{ V}$   |      | 1.5  | mA                         |
| $\Delta I_Q$          |                                  | With Load                                                                                | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  |      | 0.1  | mA                         |
| $V_N$                 | Output Noise Voltage             | $T_A = 25^\circ\text{C}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$                     |                                           | 60   |      | $\mu\text{V}/V_O$          |
| $\Delta V_O/\Delta T$ | Temperature Coefficient of $V_O$ | $I_O = 5\text{ mA}$                                                                      |                                           | -0.8 |      | $\text{mV}/^\circ\text{C}$ |
| RR                    | Ripple Rejection                 | $f = 120\text{ Hz}$ , $11\text{ V} \leq V_I \leq 21\text{ V}$ , $T_J = 25^\circ\text{C}$ | 39                                        | 70   |      | dB                         |
| $V_D$                 | Dropout Voltage                  | $T_J = 25^\circ\text{C}$                                                                 |                                           | 1.7  |      | V                          |

### Notes:

- The maximum steady-state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represents pulse test conditions with junction temperature as indicated at the initiation of tests.
- Power dissipation  $P_D \leq 0.75\text{ W}$ .

## Electrical Characteristics (MC78L12A / LM78L12A)

$V_I = 19\text{ V}$ ,  $I_O = 40\text{ mA}$ ,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol                | Parameter                        | Conditions                                                                               | Min. | Typ. | Max. | Unit                       |
|-----------------------|----------------------------------|------------------------------------------------------------------------------------------|------|------|------|----------------------------|
| $V_O$                 | Output Voltage                   | $T_J = 25^\circ\text{C}$                                                                 | 11.5 | 12.0 | 12.5 | V                          |
| $\Delta V_O$          | Line Regulation <sup>(7)</sup>   | $T_J = 25^\circ\text{C}$                                                                 |      | 20   | 250  | mV                         |
|                       |                                  | $14.5\text{ V} \leq V_I \leq 27\text{ V}$                                                |      | 15   | 200  | mV                         |
| $\Delta V_O$          | Load Regulation <sup>(7)</sup>   | $T_J = 25^\circ\text{C}$                                                                 |      | 20   | 100  | mV                         |
|                       |                                  | $1\text{ mA} \leq I_O \leq 40\text{ mA}$                                                 |      | 10   | 50   | mV                         |
| $V_O$                 | Output Voltage                   | $14.5\text{ V} \leq V_I \leq 27\text{ V}$                                                | 11.4 |      | 12.6 | V                          |
|                       |                                  | $14.5\text{ V} \leq V_I \leq V_{MAX}^{(8)}$                                              | 11.4 |      | 12.6 | V                          |
| $I_Q$                 | Quiescent Current                | $T_J = 25^\circ\text{C}$                                                                 |      | 2.1  | 6.0  | mA                         |
| $\Delta I_Q$          | Quiescent Current Change         | With Line                                                                                |      |      | 1.5  | mA                         |
| $\Delta I_Q$          |                                  | With Load                                                                                |      |      | 0.1  | mA                         |
| $V_N$                 | Output Noise Voltage             | $T_A = 25^\circ\text{C}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$                     |      | 80   |      | $\mu\text{V}/V_O$          |
| $\Delta V_O/\Delta T$ | Temperature Coefficient of $V_O$ | $I_O = 5\text{ mA}$                                                                      |      | -1.0 |      | $\text{mV}/^\circ\text{C}$ |
| RR                    | Ripple Rejection                 | $f = 120\text{ Hz}$ , $15\text{ V} \leq V_I \leq 25\text{ V}$ , $T_J = 25^\circ\text{C}$ | 37   | 65   |      | dB                         |
| $V_D$                 | Dropout Voltage                  | $T_J = 25^\circ\text{C}$                                                                 |      | 1.7  |      | V                          |

### Notes:

- The maximum steady-state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represents pulse test conditions with junction temperature as indicated at the initiation of tests.
- Power dissipation  $P_D \leq 0.75\text{ W}$ .

## Electrical Characteristics (MC78L15A)

$V_I = 23\text{ V}$ ,  $I_O = 40\text{ mA}$ ,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol                | Parameter                        | Conditions                                                                                   | Min.                                      | Typ.  | Max.  | Unit                       |
|-----------------------|----------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------|-------|-------|----------------------------|
| $V_O$                 | Output Voltage                   | $T_J = 25^\circ\text{C}$                                                                     | 14.4                                      | 15.0  | 15.6  | V                          |
| $\Delta V_O$          | Line Regulation <sup>(9)</sup>   | $T_J = 25^\circ\text{C}$                                                                     | $17.5\text{ V} \leq V_I \leq 30\text{ V}$ | 25    | 300   | mV                         |
|                       |                                  |                                                                                              | $20\text{ V} \leq V_I \leq 30\text{ V}$   | 20    | 250   | mV                         |
| $\Delta V_O$          | Load Regulation <sup>(9)</sup>   | $T_J = 25^\circ\text{C}$                                                                     | $1\text{ mA} \leq I_O \leq 100\text{ mA}$ | 25    | 150   | mV                         |
|                       |                                  |                                                                                              | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  | 12    | 75    | mV                         |
| $V_O$                 | Output Voltage                   | $17.5\text{ V} \leq V_I \leq 30\text{ V}$                                                    | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  | 14.25 | 15.75 | V                          |
|                       |                                  | $17.5\text{ V} \leq V_I \leq V_{\text{MAX}}^{(10)}$                                          | $1\text{ mA} \leq I_O \leq 70\text{ mA}$  | 14.25 | 15.75 | V                          |
| $I_Q$                 | Quiescent Current                | $T_J = 25^\circ\text{C}$                                                                     |                                           | 2.1   | 6.0   | mA                         |
| $\Delta I_Q$          | Quiescent Current Change         | With Line                                                                                    | $20\text{ V} \leq V_I \leq 30\text{ V}$   |       | 1.5   | mA                         |
| $\Delta I_Q$          |                                  | With Load                                                                                    | $1\text{ mA} \leq I_O \leq 40\text{ mA}$  |       | 0.1   | mA                         |
| $V_N$                 | Output Noise Voltage             | $T_A = 25^\circ\text{C}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$                         |                                           | 90    |       | $\mu\text{V}/V_O$          |
| $\Delta V_O/\Delta T$ | Temperature Coefficient of $V_O$ | $I_O = 5\text{ mA}$                                                                          |                                           | -1.3  |       | $\text{mV}/^\circ\text{C}$ |
| RR                    | Ripple Rejection                 | $f = 120\text{ Hz}$ , $18.5\text{ V} \leq V_I \leq 28.5\text{ V}$ , $T_J = 25^\circ\text{C}$ | 34                                        | 60    |       | dB                         |
| $V_D$                 | Dropout Voltage                  | $T_J = 25^\circ\text{C}$                                                                     |                                           | 1.7   |       | V                          |

### Notes:

9. The maximum steady-state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represents pulse test conditions with junction temperature as indicated at the initiation of tests.
10. Power dissipation  $P_D \leq 0.75\text{ W}$ .

## Typical Application

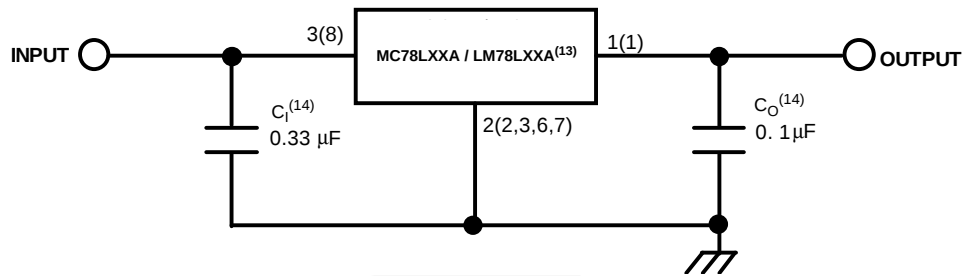


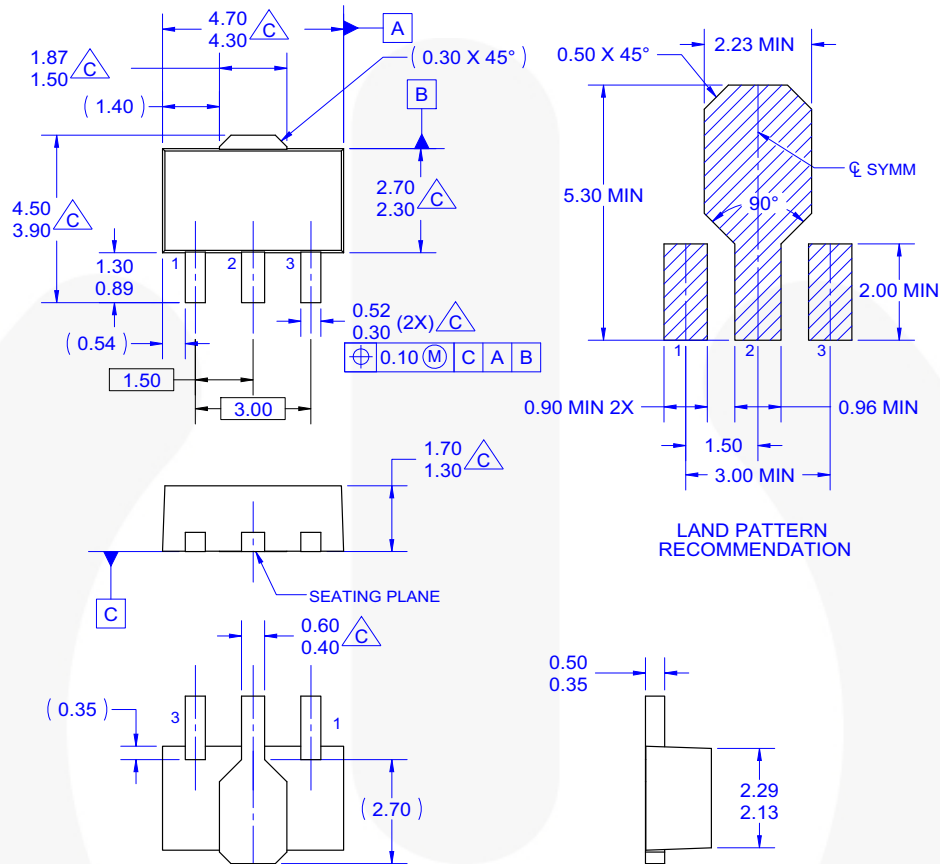
Figure 2. Typical Application

### Notes:

13. To specify an output voltage, substitute voltage value for "XX".
14.  $C_1$  is required if the regulator is located an appreciable distance from the power supply filter. Though  $C_0$  is not needed for stability, it improves transient response. Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulator.

# Physical Dimensions

## SOT-89



NOTES: UNLESS OTHERWISE SPECIFIED.

A. REFERENCE TO JEDEC TO-243 VARIATION AA.  
B. ALL DIMENSIONS ARE IN MILLIMETERS.

C. DOES NOT COMPLY JEDEC STANDARD VALUE.  
D. DIMENSIONS ARE EXCLUSIVE OF BURRS,  
MOLD FLASH AND TIE BAR PROTRUSION.  
E. DIMENSION AND TOLERANCE AS PER ASME  
Y14.5-1994.  
F. DRAWING FILE NAME: MA03CREV2

**Figure 3. 3-Lead, SOT-89, JEDEC TO-243, Option AA**

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For current tape and reel specifications, visit Fairchild Semiconductor's online packaging area:

[http://www.fairchildsemi.com/packaging/tr/sot89\\_tr.pdf](http://www.fairchildsemi.com/packaging/tr/sot89_tr.pdf).

Physical Dimensions (Continued)

TO-92 Straight Lead for Bulk Packing

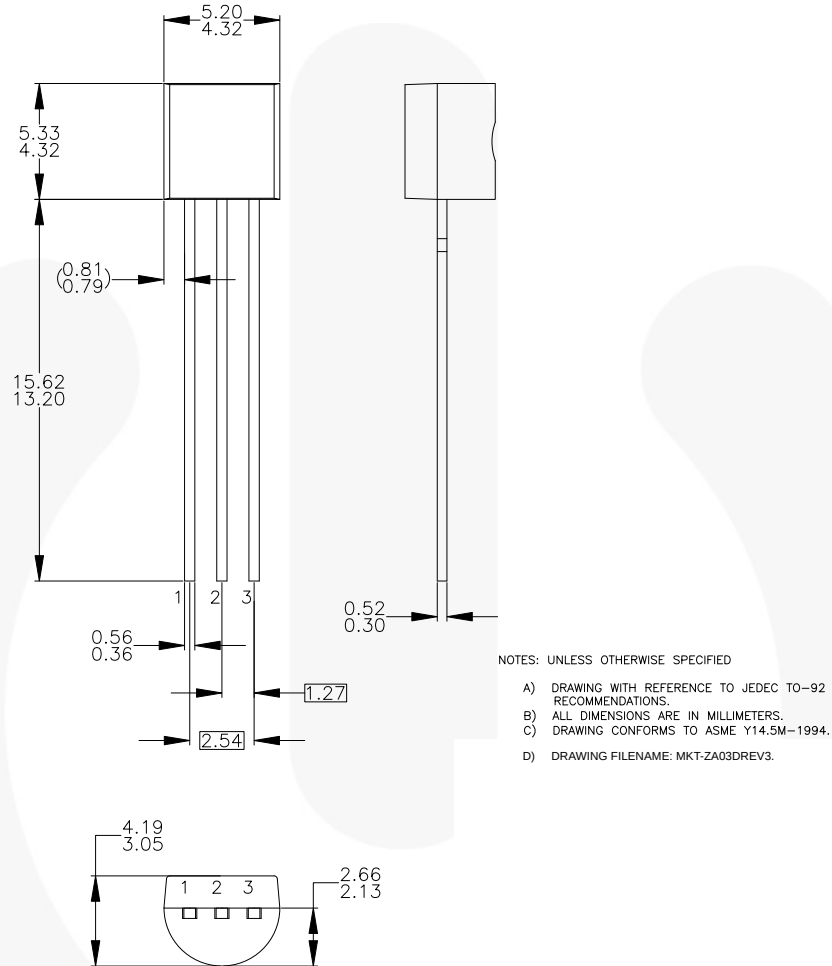


Figure 4. 3-Lead, TO-92, MOLDED STD STRAIGHT LEAD (NO EOL CODE)

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## Physical Dimensions (Continued)

## TO-92 Formed Lead For T&amp;R and Ammo Packing

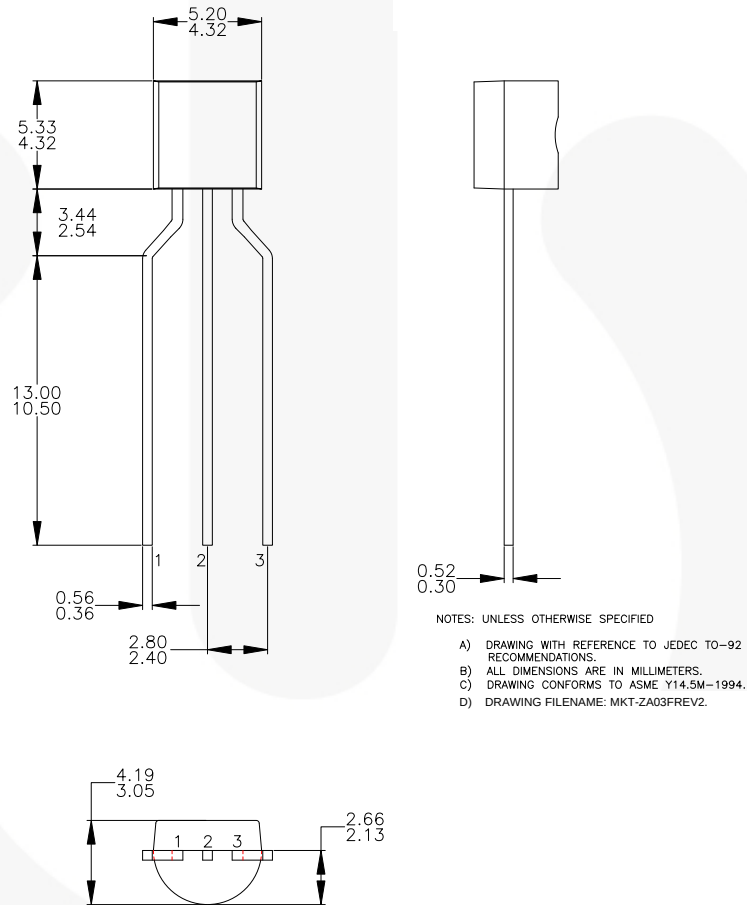


Figure 5. 3-Lead, TO-92, MOLDED 0.200 IN LINE SPACING LD FORM (J61Z OPTION)

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## Physical Dimensions (Continued)

## 8-SOIC

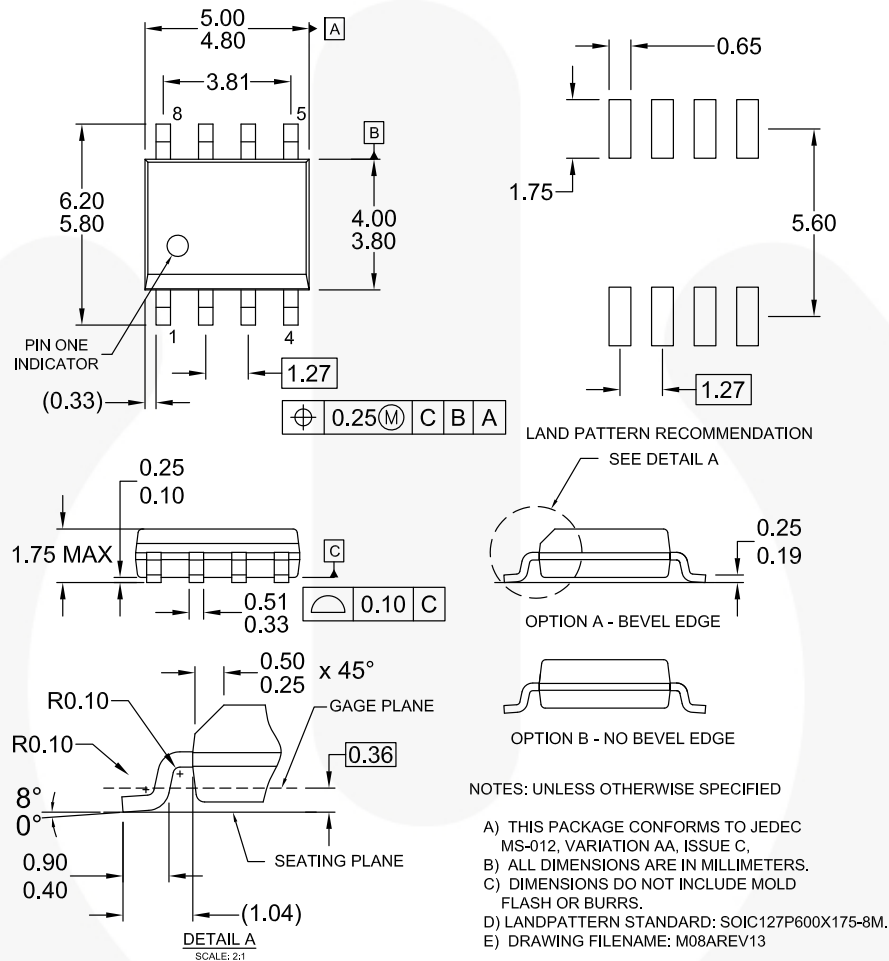


Figure 6. 8-Lead, SOIC, JEDEC MS-012, 0.150" NARROW BODY

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|                                                                                   |                                                |                                                                                   |                                                                                     |
|-----------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2Cool™                                                                            | FPS™                                           |  | Sync-Lock™                                                                          |
| AccuPower™                                                                        | F-PFS™                                         | PowerTrench®                                                                      | SYSTEM GENERAL®                                                                     |
| AX-CAP®*                                                                          | FRFET®                                         | PowerXS™                                                                          | TinyBoost™                                                                          |
| BitSiC™                                                                           | Global Power Resource™                         | Programmable Active Droop™                                                        | TinyBuck™                                                                           |
| Build it Now™                                                                     | GreenBridge™                                   | QFET®                                                                             | TinyCalc™                                                                           |
| CorePLUS™                                                                         | Green FPS™                                     | QS™                                                                               | TinyLogic®                                                                          |
| CorePOWER™                                                                        | Green FPS™ e-Series™                           | Quiet Series™                                                                     | TINYOPTO™                                                                           |
| CROSSVOLT™                                                                        | Gmax™                                          | RapidConfigure™                                                                   | TinyPower™                                                                          |
| CTL™                                                                              | GTO™                                           |  | TinyPWM™                                                                            |
| Current Transfer Logic™                                                           | IntelliMAX™                                    | Saving our world, 1mW/W/kW at a time™                                             | TinyWire™                                                                           |
| DEUXPEED®                                                                         | ISOPLANAR™                                     | SignalWise™                                                                       | TranSiC™                                                                            |
| Dual Cool™                                                                        | Making Small Speakers Sound Louder and Better™ | SmartMax™                                                                         | TriFault Detect™                                                                    |
| EcoSPARK®                                                                         | MegaBuck™                                      | SMART START™                                                                      | TRUECURRENT®*                                                                       |
| EfficientMax™                                                                     | MICROCOUPLER™                                  | Solutions for Your Success™                                                       | μSerDes™                                                                            |
| ESBC™                                                                             | MicroFET™                                      | SPM®                                                                              |  |
|  | MicroPak™                                      | STEALTH™                                                                          | UHC®                                                                                |
| Fairchild®                                                                        | MicroPak2™                                     | SuperFET™                                                                         | Ultra FRFET™                                                                        |
| Fairchild Semiconductor®                                                          | MillerDrive™                                   | SuperSOT™-3                                                                       | UniFET™                                                                             |
| FACT Quiet Series™                                                                | MotionMax™                                     | SuperSOT™-6                                                                       | VCX™                                                                                |
| FACT®                                                                             | mWSaver™                                       | SuperSOT™-8                                                                       | VisualMax™                                                                          |
| FAST®                                                                             | OptoHiT™                                       | SupreMOS®                                                                         | VoltagePlus™                                                                        |
| FastvCore™                                                                        | OPTOLOGIC®                                     | SyncFET™                                                                          | XS™                                                                                 |
| FETBench™                                                                         | OPTOPLANAR®                                    |                                                                                   |                                                                                     |

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## PRODUCT STATUS DEFINITIONS

### Definition of Terms

| Datasheet Identification | Product Status        | Definition                                                                                                                                                                                          |
|--------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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