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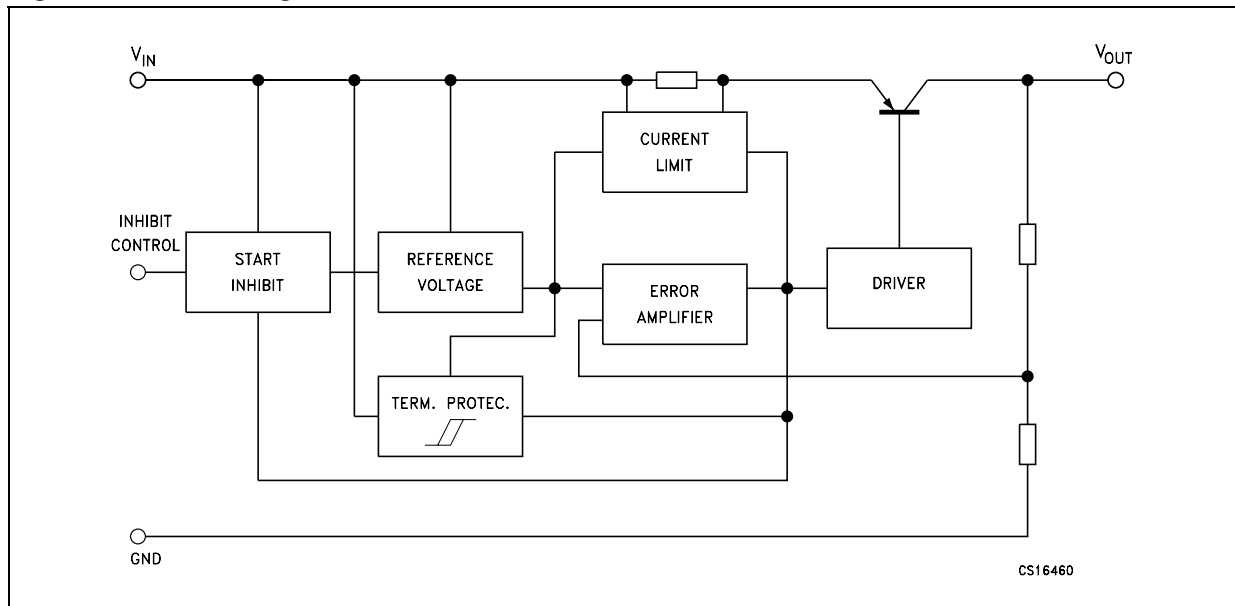
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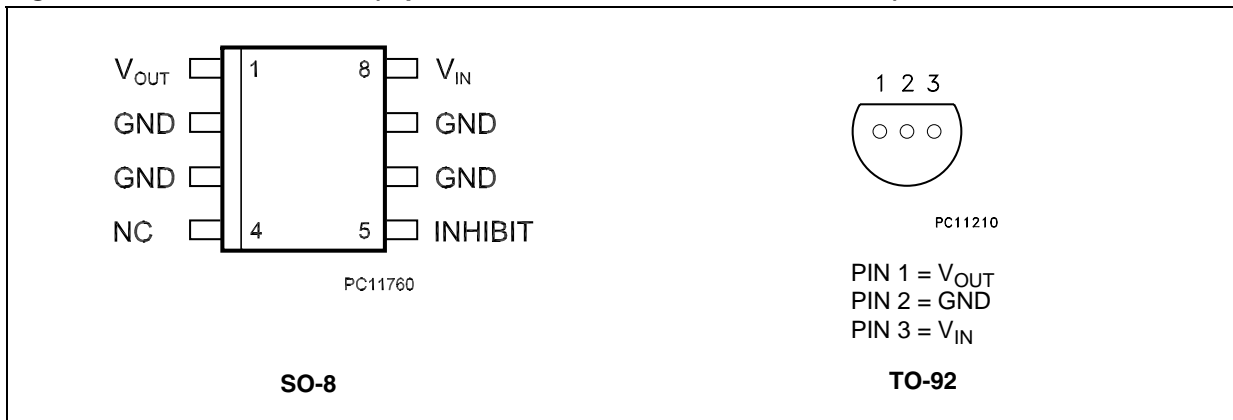
# 1 Diagram

Figure 1. Block diagram



## 2 Pin configuration

Figure 2. Pin connections (top view for SO-8, bottom view for TO-92)



### 3 Maximum ratings

**Table 2. Absolute maximum ratings**

| Symbol    | Parameter                            | Value                             | Unit |
|-----------|--------------------------------------|-----------------------------------|------|
| $V_I$     | DC input voltage                     | 20                                | V    |
| $I_O$     | Output current                       | Internally limited <sup>(1)</sup> |      |
| $P_{TOT}$ | Power dissipation                    | Internally limited                |      |
| $T_{STG}$ | Storage temperature range            | -65 to 150                        | °C   |
| $T_{OP}$  | Operating junction temperature range | -40 to 125                        | °C   |

1. Our SO-8 package used for Voltage Regulators is modified internally to have pins 2, 3, 6 and 7 electrically communed to the die attach flag. This particular frame decreases the total thermal resistance of the package and increases its ability to dissipate power when an appropriate area of copper on the printed circuit board is available for heatsinking. The external dimensions are the same as for the standard SO-8.

**Table 3. Thermal data**

*Note: If the Inhibit pin is left floating, the regulator is in ON mode. However, to avoid any noise picking-up, it is suggested to ground it when the Inhibit function is not used.*

## 4 Electrical characteristics

**Table 4. Electrical characteristics for LE12AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |
|--------------|---------------------------|---|---------------------|------|-------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 3.3\text{ V}$                                       | 1.225               | 1.25 | 1.275 | V             |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 3.3\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 1.2                 |      | 1.3   |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   | 2.5                 |      | 18    | V             |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |
| $\Delta V_O$ | Line regulation           | $V_I = 2.5\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 15    | mV            |
| $\Delta V_O$ | Load regulation           | $V_I = 2.8\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 15    | mV            |
| $I_d$        | Quiescent current         | $V_I = 2.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             | 0.5  | 1     | mA            |
|              |                           | $V_I = 2.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     | 1.5  | 3     |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            | 50   | 100   | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 3.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ | 82   |       | dB            |
|              |                           |   | $f = 1\text{ kHz}$  | 77   |       |               |
|              |                           |   | $f = 10\text{ kHz}$ | 60   |       |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     | 1.25 |       | V             |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |



**Table 5. Electrical characteristics for LE25AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 4.5\text{ V}$                                       | 2.475               | 2.5  | 2.525 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 4.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 2.45                |      | 2.55  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 15    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 3.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 3.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 3.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 4.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 82    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 77    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 6. Electrical characteristics for LE25C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 4.5\text{ V}$                                       | 2.45                | 2.5  | 2.55 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 4.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 2.4                 |      | 2.6  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 20   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 3.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 3.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 3.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 4.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 82   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 77   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 7. Electrical characteristics for LE27AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 4.7\text{ V}$                                       | 2.673               | 2.7  | 2.727 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 4.7\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 2.646               |      | 2.754 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 15    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 3.7\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 4.7 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 82    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 77    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 8. Electrical characteristics for LE27C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 4.7\text{ V}$                                       | 2.646               | 2.7  | 2.754 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 4.7\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 2.592               |      | 2.808 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 20    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 3.7\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 4.7 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 82    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 77    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 9. Electrical characteristics for LE30AB** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions  | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|--|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5\text{ V}$  | 2.970               | 3    | 3.030 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5\text{ V}$ , $T_A = -25\text{ to }85\text{ }^\circ\text{C}$ | 2.940               |      | 3.060 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$  |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |  | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                                  |                     | 3    | 15    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 4\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                                   |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                                      | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                                    |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$   | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5 \pm 1\text{ V}$   | $f = 120\text{ Hz}$ |      | 81    | dB            |               |
|              |                           |  | $f = 1\text{ kHz}$  |      | 76    |               |               |
|              |                           |  | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$   |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$  |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ }^\circ\text{C}$                    |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$  |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$          | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 10. Electrical characteristics for LE30C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5\text{ V}$   | 2.940               | 3    | 3.060 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$    | 2.880               |      | 3.120 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 3.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 20    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 4\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                          |                     | 3    | 25    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                             | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                           |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5 \pm 1\text{ V}$                                    | $f = 120\text{ Hz}$ |      | 81    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 76    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 11. Electrical characteristics for LE33AB** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions  | Min.                | Typ. | Max.  | Unit          |
|--------------|---------------------------|--|---------------------|------|-------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5.3\text{ V}$  | 3.267               | 3.3  | 3.333 | V             |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5.3\text{ V}$ , $T_A = -25\text{ to }85\text{ }^\circ\text{C}$ | 3.234               |      | 3.366 |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$  |                     |      | 18    | V             |
| $I_O$        | Output current limit      |  | 150                 |      |       | mA            |
| $\Delta V_O$ | Line regulation           | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                                      |                     | 3    | 15    | mV            |
| $\Delta V_O$ | Load regulation           | $V_I = 4.3\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                                   |                     | 3    | 15    | mV            |
| $I_d$        | Quiescent current         | $V_I = 4.3\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                                      | ON MODE             | 0.5  | 1     | mA            |
|              |                           | $V_I = 4.3\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                                    |                     | 1.5  | 3     |               |
|              |                           | $V_I = 6\text{ V}$   | OFF MODE            | 50   | 100   | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5.3 \pm 1\text{ V}$   | $f = 120\text{ Hz}$ | 80   |       | dB            |
|              |                           |  | $f = 1\text{ kHz}$  | 75   |       |               |
|              |                           |  | $f = 10\text{ kHz}$ | 60   |       |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$   |                     | 50   |       | $\mu\text{V}$ |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$  |                     | 0.2  | 0.4   | V             |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ }^\circ\text{C}$                      |                     |      | 0.5   |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  |                     |      | 0.8   | V             |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  | 2                   |      |       | V             |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$  |                     | 10   |       | $\mu\text{A}$ |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$            | 2                   | 10   |       | $\mu\text{F}$ |

**Table 12. Electrical characteristics for LE33C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5.3\text{ V}$                                       | 3.234               | 3.3  | 3.366 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5.3\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 3.168               |      | 3.432 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                           |                     | 3    | 20    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 4.3\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 4.3\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 4.3\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5.3 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 80    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 75    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |



**Table 13. Electrical characteristics for LE35AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5.5\text{ V}$                                       | 3.465               | 3.5  | 3.535 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 3.43                |      | 3.57  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 4.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 15    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 4.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 4.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 4.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 79    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 74    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 14. Electrical characteristics for LE35C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 5.5\text{ V}$                                       | 3.43                | 3.5  | 3.57 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 5.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 3.36                |      | 3.64 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 4.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 3    | 20   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 4.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 4.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 4.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 5.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 79   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 74   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 15. Electrical characteristics for LE40AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6\text{ V}$   | 3.96                | 4    | 4.04 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$    | 3.92                |      | 4.08 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 4.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 20   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                          |                     | 3    | 15   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                             | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                           |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6 \pm 1\text{ V}$                                    | $f = 120\text{ Hz}$ |      | 78   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 73   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 16. Electrical characteristics for LE40C** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions  | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|--|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6\text{ V}$  | 3.92                | 4    | 4.08 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6\text{ V}$ , $T_A = -25\text{ to }85\text{ }^\circ\text{C}$ | 3.84                |      | 4.16 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$  |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |  | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 4.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                                  |                     | 4    | 30   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                                   |                     | 3    | 25   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                                      | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                                    |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$   | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6 \pm 1\text{ V}$   | $f = 120\text{ Hz}$ |      | 78   | dB            |               |
|              |                           |  | $f = 1\text{ kHz}$  |      | 73   |               |               |
|              |                           |  | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$   |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$  |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ }^\circ\text{C}$                    |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ }^\circ\text{C}$  | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$  |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$          | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 17. Electrical characteristics for LE45AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6.5\text{ V}$                                       | 4.445               | 4.5  | 4.545 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 4.41                |      | 4.59  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 20    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 5.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 77    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 72    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 18. Electrical characteristics for LE45C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6.5\text{ V}$                                       | 4.41                | 4.5  | 4.59 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6.5\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 4.32                |      | 4.68 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.2\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 30   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5.5\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5.5\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 5.5\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6.5 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 77   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 72   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 19. Electrical characteristics for LE47AB** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions  | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|--|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6.7\text{ V}$  | 4.653               | 4.7  | 4.747 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6.7\text{ V}$ , $T_A = -25\text{ to }85^\circ\text{C}$ | 4.606               |      | 4.794 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$  |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |  | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                            |                     | 4    | 20    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5.7\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                           |                     | 3    | 15    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                              | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                            |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$   | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6.7 \pm 1\text{ V}$                                     | $f = 120\text{ Hz}$ |      | 77    | dB            |               |
|              |                           |  | $f = 1\text{ kHz}$  |      | 72    |               |               |
|              |                           |  | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$   |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$  |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125^\circ\text{C}$                      |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125^\circ\text{C}$  |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125^\circ\text{C}$  | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$  |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$    | 2                   | 10   |       | $\mu\text{F}$ |               |

**Table 20. Electrical characteristics for LE47C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max.  | Unit          |               |
|--------------|---------------------------|---|---------------------|------|-------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 6.7\text{ V}$                                       | 4.606               | 4.7  | 4.794 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 6.7\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$  | 4.512               |      | 4.888 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18    | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |       | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.4\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 30    | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 5.7\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                        |                     | 3    | 25    | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                           | ON MODE             |      | 0.5   | 1             | mA            |
|              |                           | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                         |                     |      | 1.5   | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50    | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 6.7 \pm 1\text{ V}$                                  | $f = 120\text{ Hz}$ |      | 77    | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 72    |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60    |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |       | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4   | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5   |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8   | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |       | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |       | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |       | $\mu\text{F}$ |               |



**Table 21. Electrical characteristics for LE50AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 7\text{ V}$   | 4.95                | 5    | 5.05 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 7\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$    | 4.9                 |      | 5.1  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 | 350  | 425  | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 20   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 6\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                          |                     | 3    | 15   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 6\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                             | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 6\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                           |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 7 \pm 1\text{ V}$                                    | $f = 120\text{ Hz}$ |      | 76   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 71   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 22. Electrical characteristics for LE50C** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_1 = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 7\text{ V}$   | 4.9                 | 5    | 5.1  | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 7\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$    | 4.8                 |      | 5.2  |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 | 350  | 425  | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 5.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 4    | 30   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 6\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                          |                     | 3    | 25   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 6\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                             | ON MODE             |      | 0.5  | 1             | mA            |
|              |                           | $V_I = 6\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                           |                     |      | 1.5  | 3             |               |
|              |                           | $V_I = 6\text{ V}$  | OFF MODE            |      | 50   | 100           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 7 \pm 1\text{ V}$                                    | $f = 120\text{ Hz}$ |      | 76   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 71   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 60   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 6\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

**Table 23. Electrical characteristics for LE80AB** (refer to the test circuits,  $T_J = 25\text{ °C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |               |
|--------------|---------------------------|---|---------------------|------|------|---------------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 10\text{ V}$  | 7.92                | 8    | 8.08 | V             |               |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 10\text{ V}$ , $T_A = -25\text{ to }85\text{ °C}$   | 7.84                |      | 8.16 |               |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |               |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |               |
| $\Delta V_O$ | Line regulation           | $V_I = 8.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                         |                     | 5    | 25   | mV            |               |
| $\Delta V_O$ | Load regulation           | $V_I = 9\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                          |                     | 3    | 15   | mV            |               |
| $I_d$        | Quiescent current         | $V_I = 9\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                             | ON MODE             |      | 0.7  | 1.6           | mA            |
|              |                           | $V_I = 9\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                           |                     |      | 1.7  | 3.6           |               |
|              |                           | $V_I = 9\text{ V}$  | OFF MODE            |      | 70   | 140           | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 10 \pm 1\text{ V}$                                   | $f = 120\text{ Hz}$ |      | 72   | dB            |               |
|              |                           |   | $f = 1\text{ kHz}$  |      | 66   |               |               |
|              |                           |   | $f = 10\text{ kHz}$ |      | 57   |               |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |               |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |               |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125\text{ °C}$                       |                     |      | 0.5  |               |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125\text{ °C}$   |                     |      | 0.8  | V             |               |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125\text{ °C}$   | 2                   |      |      | V             |               |
| $I_I$        | Control input current     | $V_I = 9\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |               |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$ | 2                   | 10   |      | $\mu\text{F}$ |               |

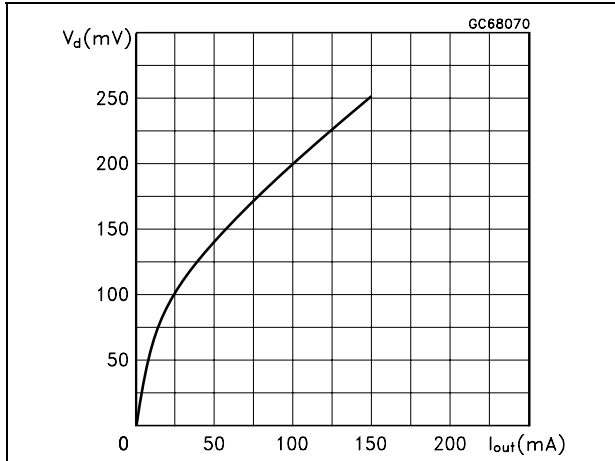
**Table 24. Electrical characteristics for LE80C** (refer to the test circuits,  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = 0.1\text{ }\mu\text{F}$ ,  $C_O = 2.2\text{ }\mu\text{F}$  unless otherwise specified.)

| Symbol       | Parameter                 | Test conditions   | Min.                | Typ. | Max. | Unit          |
|--------------|---------------------------|---|---------------------|------|------|---------------|
| $V_O$        | Output voltage            | $I_O = 10\text{ mA}$ , $V_I = 10\text{ V}$  | 7.84                | 8    | 8.16 | V             |
|              |                           | $I_O = 10\text{ mA}$ , $V_I = 10\text{ V}$ , $T_A = -25\text{ to }85^\circ\text{C}$ | 7.68                |      | 8.32 |               |
| $V_I$        | Operating input voltage   | $I_O = 100\text{ mA}$   |                     |      | 18   | V             |
| $I_O$        | Output current limit      |   | 150                 |      |      | mA            |
| $\Delta V_O$ | Line regulation           | $V_I = 8.7\text{ to }18\text{ V}$ , $I_O = 0.5\text{ mA}$                           |                     | 5    | 35   | mV            |
| $\Delta V_O$ | Load regulation           | $V_I = 9\text{ V}$ , $I_O = 0.5\text{ to }100\text{ mA}$                            |                     | 3    | 25   | mV            |
| $I_d$        | Quiescent current         | $V_I = 9\text{ to }18\text{ V}$ , $I_O = 0\text{ mA}$                               | ON MODE             | 0.7  | 1.6  | mA            |
|              |                           | $V_I = 9\text{ to }18\text{ V}$ , $I_O = 100\text{ mA}$                             |                     | 1.7  | 3.6  |               |
|              |                           | $V_I = 9\text{ V}$  | OFF MODE            | 70   | 140  | $\mu\text{A}$ |
| SVR          | Supply voltage rejection  | $I_O = 5\text{ mA}$ , $V_I = 10 \pm 1\text{ V}$                                     | $f = 120\text{ Hz}$ | 72   |      | dB            |
|              |                           |   | $f = 1\text{ kHz}$  | 66   |      |               |
|              |                           |   | $f = 10\text{ kHz}$ | 57   |      |               |
| eN           | Output noise voltage      | $B = 10\text{ Hz to }100\text{ kHz}$  |                     | 50   |      | $\mu\text{V}$ |
| $V_d$        | Dropout voltage           | $I_O = 100\text{ mA}$   |                     | 0.2  | 0.4  | V             |
|              |                           | $I_O = 100\text{ mA}$ , $T_A = -40\text{ to }125^\circ\text{C}$                     |                     |      | 0.5  |               |
| $V_{IL}$     | Control input logic low   | $T_A = -40\text{ to }125^\circ\text{C}$   |                     |      | 0.8  | V             |
| $V_{IH}$     | Control input logic high  | $T_A = -40\text{ to }125^\circ\text{C}$   | 2                   |      |      | V             |
| $I_I$        | Control input current     | $V_I = 9\text{ V}$ , $V_C = 6\text{ V}$   |                     | 10   |      | $\mu\text{A}$ |
| $C_O$        | Output bypass capacitance | $\text{ESR} = 0.1\text{ to }10\text{ }\Omega$ , $I_O = 0\text{ to }100\text{ mA}$   | 2                   | 10   |      | $\mu\text{F}$ |

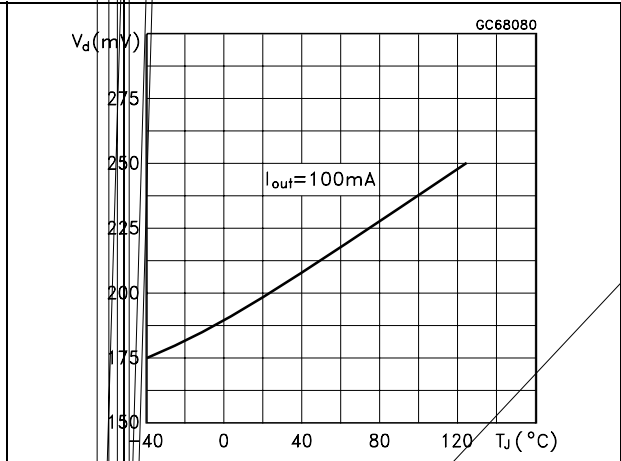
# 5 Typical performance characteristics

(unless otherwise specified  $V_{O(NOM)} = 3.3\text{ V}$ )

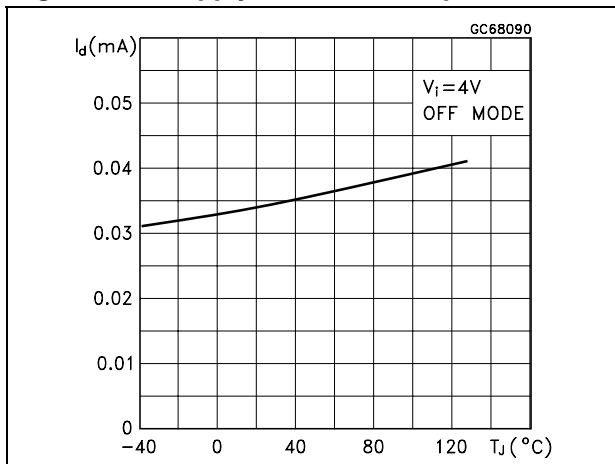
**Figure 4. Dropout voltage vs output current**



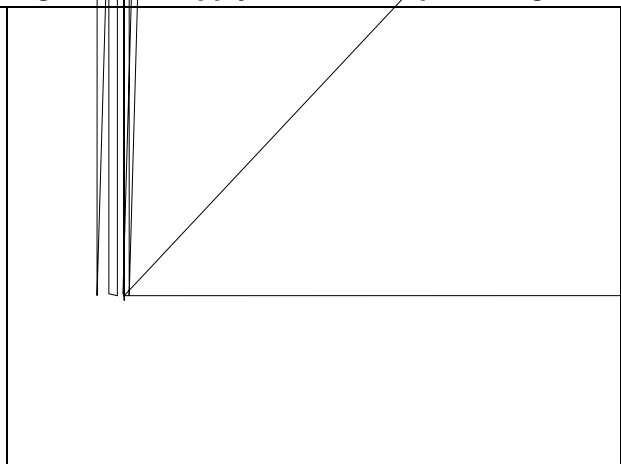
**Figure 5. Dropout voltage vs temperature**



**Figure 6. Supply current vs temperature**



**Figure 7. Supply current vs input voltage**



**Figure 8. Short circuit current vs dropout voltage**



**Figure 9. SVR vs frequency**



Figure 10. Logic controlled precision 3.3/5.0 V selectable output

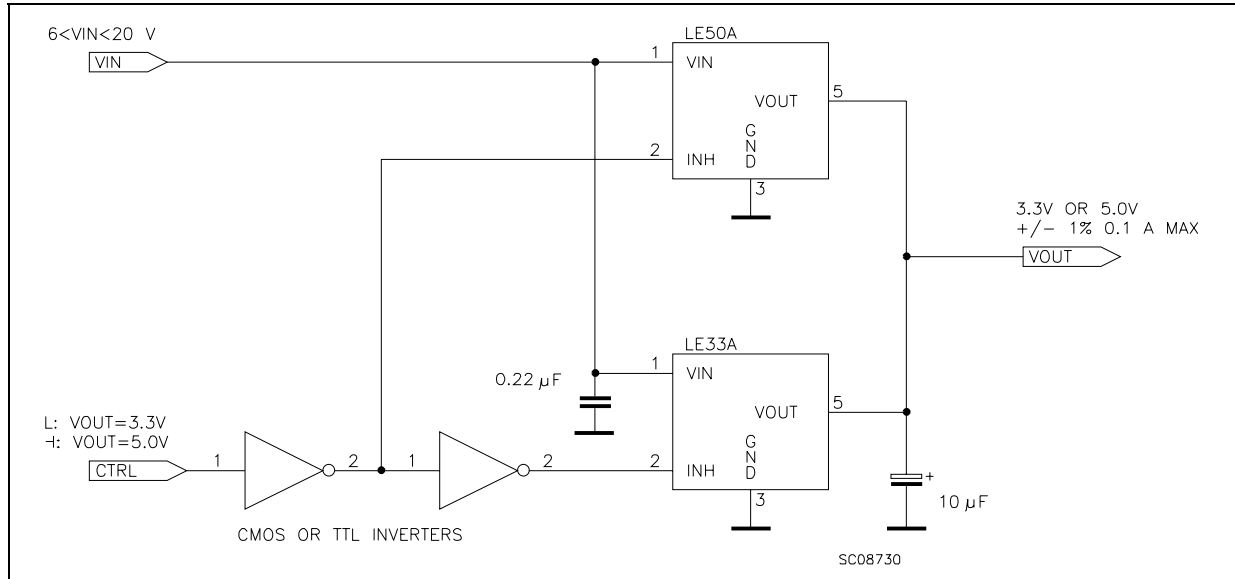


Figure 11. Sequential multi-output supply

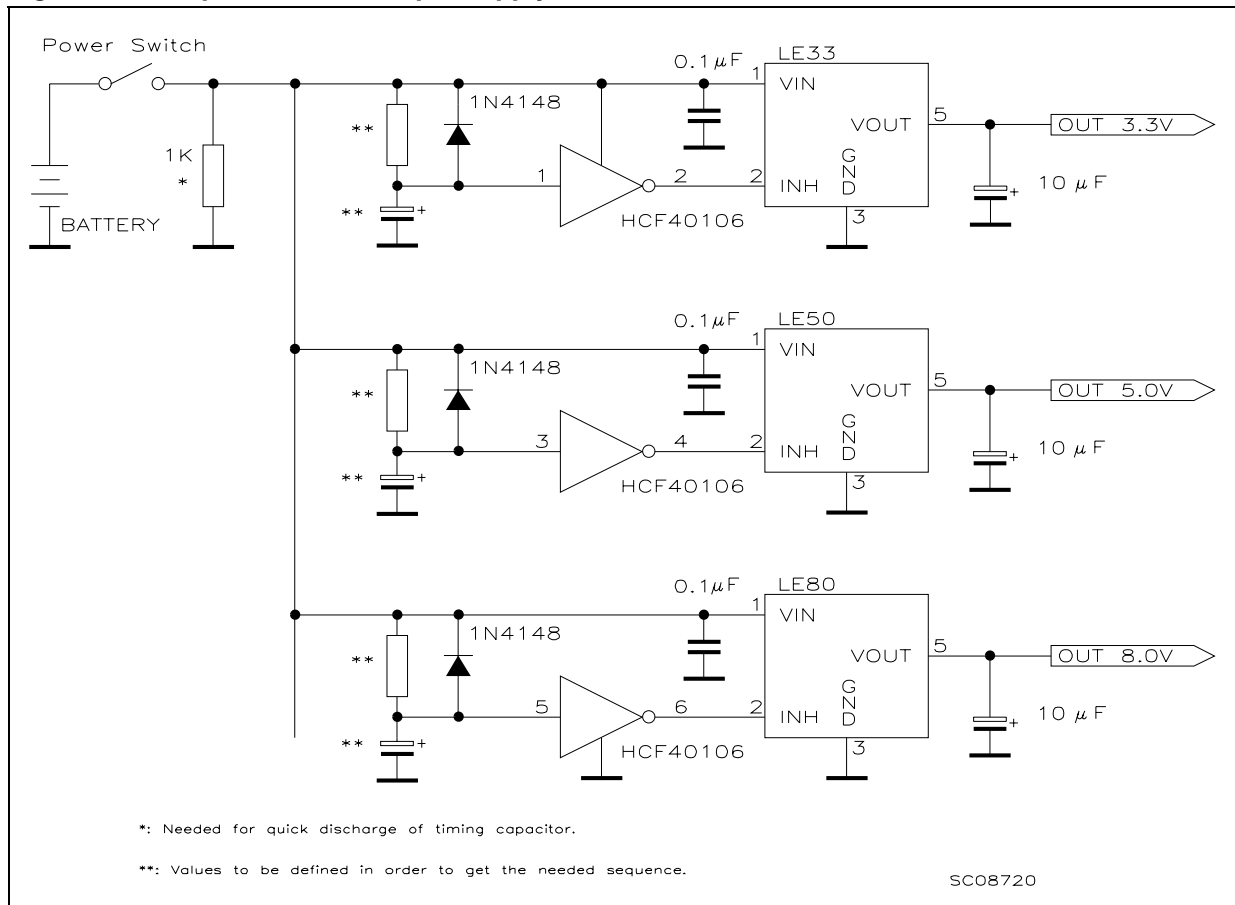


Figure 12. Multiple supply with ON/OFF toggle switch

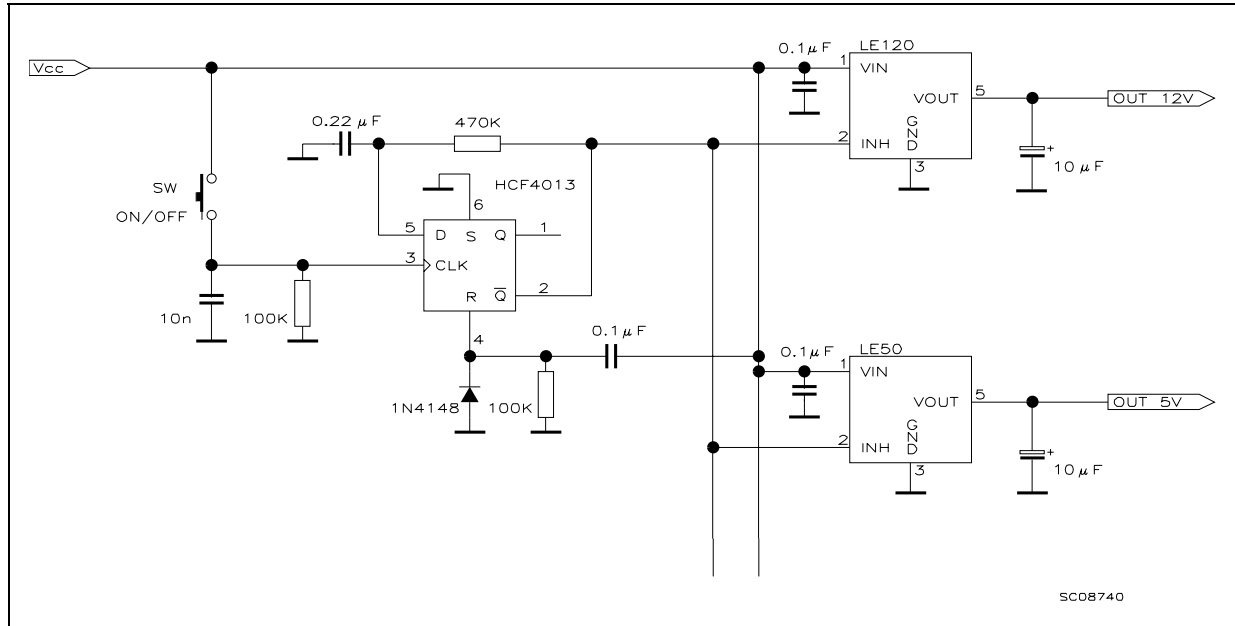
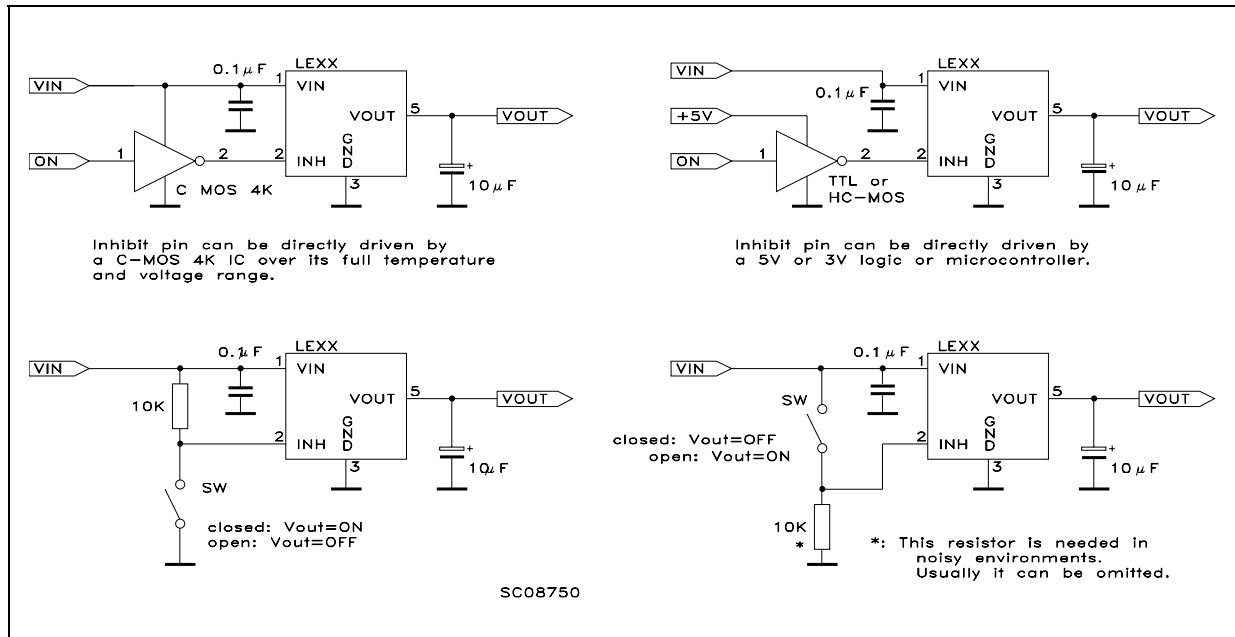


Figure 13. Basic inhibit functions



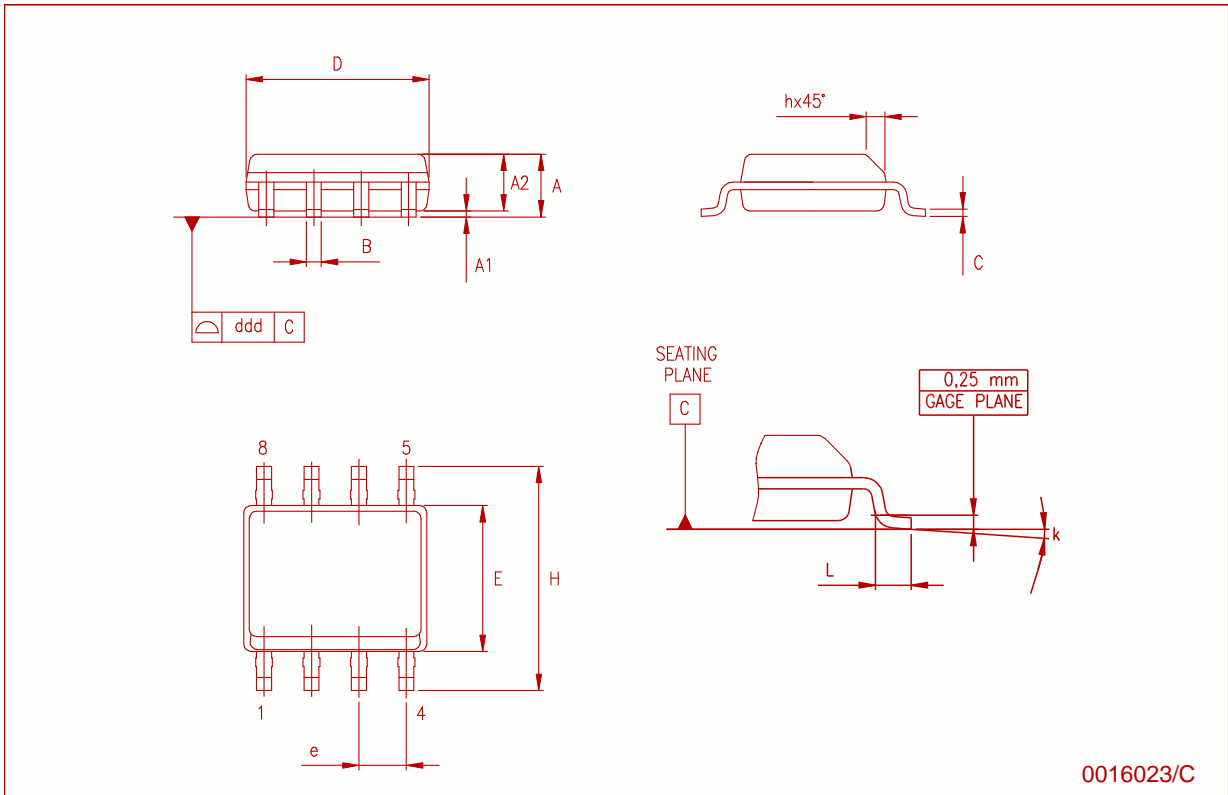
## 6 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com).



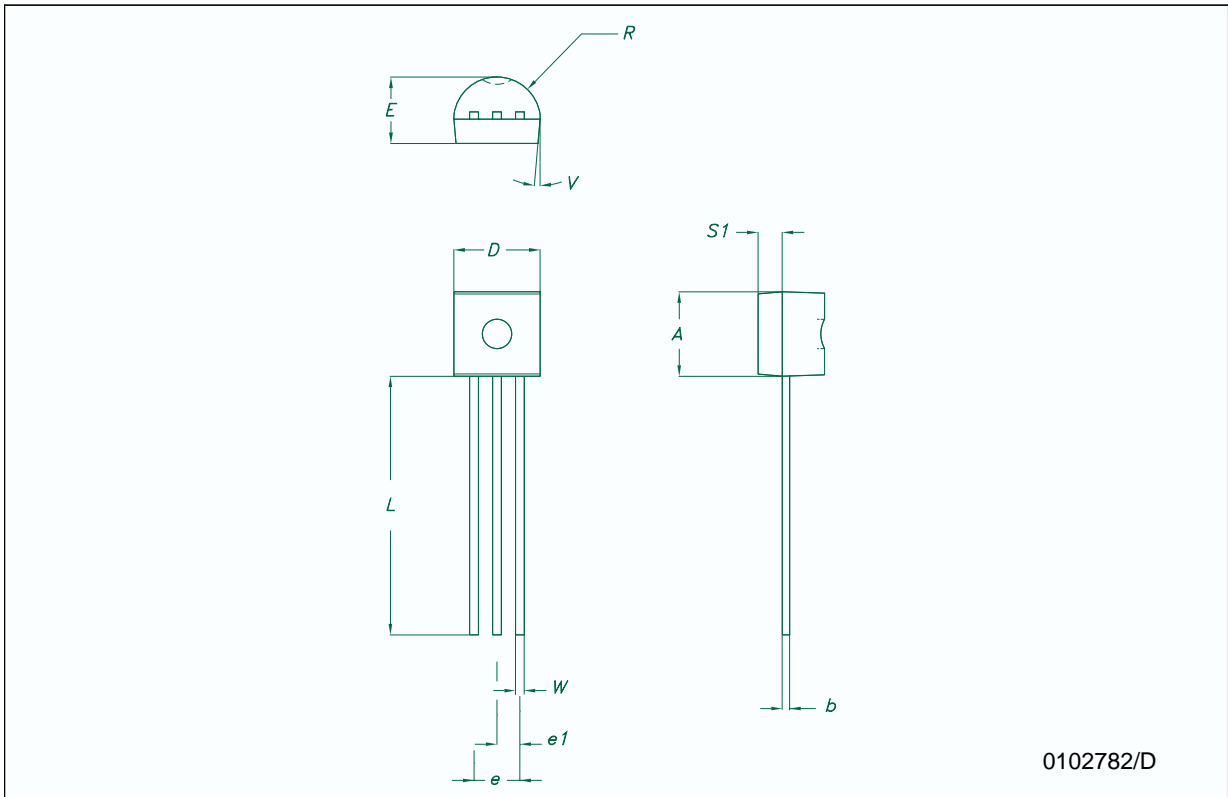
**SO-8 mechanical data**

| Dim. | mm.       |      |      | inch. |       |       |
|------|-----------|------|------|-------|-------|-------|
|      | Min.      | Typ. | Max. | Min.  | Typ.  | Max.  |
| A    | 1.35      |      | 1.75 | 0.053 |       | 0.069 |
| A1   | 0.10      |      | 0.25 | 0.04  |       | 0.010 |
| A2   | 1.10      |      | 1.65 | 0.043 |       | 0.065 |
| B    | 0.33      |      | 0.51 | 0.013 |       | 0.020 |
| C    | 0.19      |      | 0.25 | 0.007 |       | 0.010 |
| D    | 4.80      |      | 5.00 | 0.189 |       | 0.197 |
| E    | 3.80      |      | 4.00 | 0.150 |       | 0.157 |
| e    |           | 1.27 |      |       | 0.050 |       |
| H    | 5.80      |      | 6.20 | 0.228 |       | 0.244 |
| h    | 0.25      |      | 0.50 | 0.010 |       | 0.020 |
| L    | 0.40      |      | 1.27 | 0.016 |       | 0.050 |
| k    | 8° (max.) |      |      |       |       |       |
| ddd  |           |      | 0.1  |       |       | 0.04  |



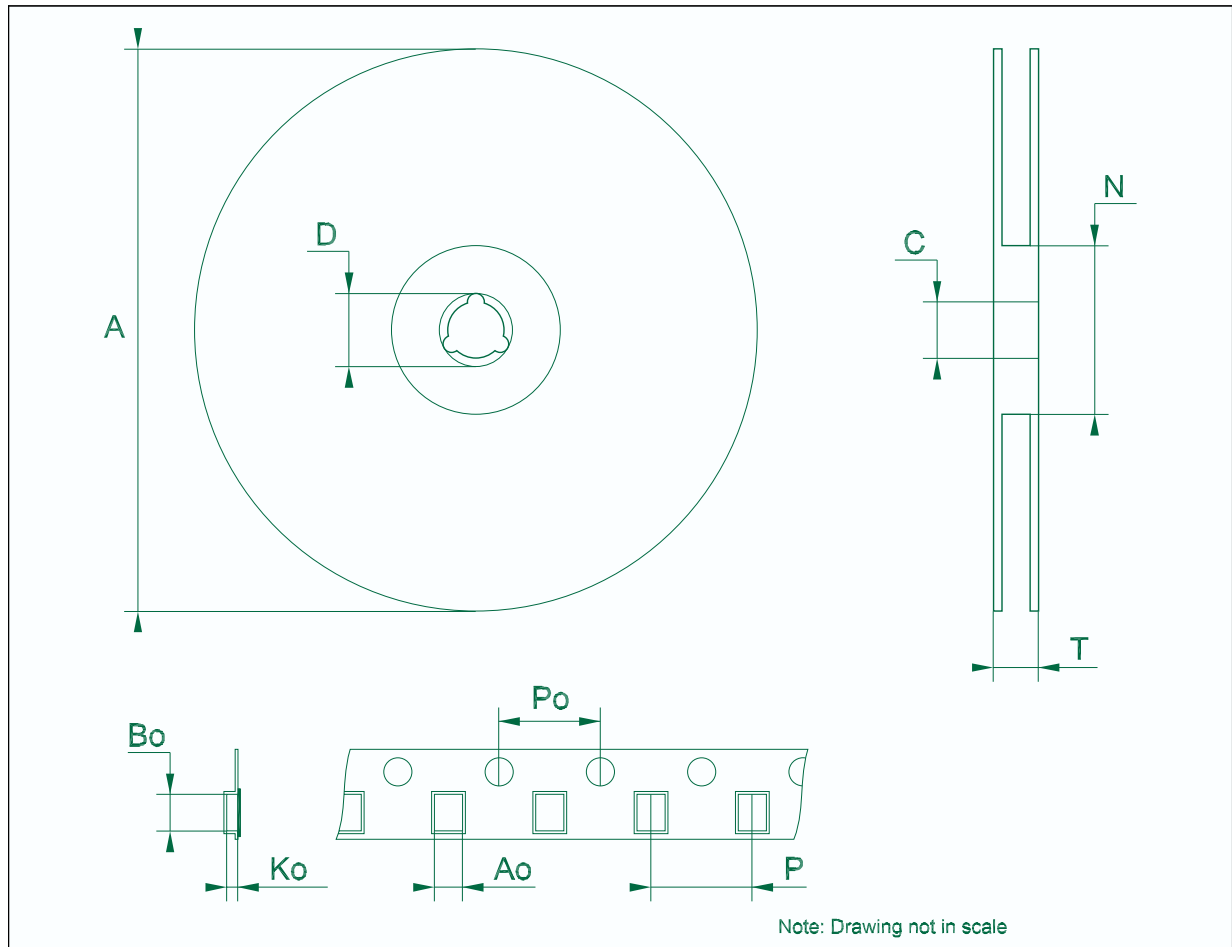
**TO-92 mechanical data**

| Dim.     | mm.  |      |       | mils. |      |       |
|----------|------|------|-------|-------|------|-------|
|          | Min. | Typ. | Max.  | Min.  | Typ. | Max.  |
| A        | 4.32 |      | 4.95  | 170.1 |      | 194.9 |
| b        | 0.36 |      | 0.51  | 14.2  |      | 20.1  |
| D        | 4.45 |      | 4.95  | 175.2 |      | 194.9 |
| E        | 3.30 |      | 3.94  | 129.9 |      | 155.1 |
| e        | 2.41 |      | 2.67  | 94.9  |      | 105.1 |
| e1       | 1.14 |      | 1.40  | 44.9  |      | 55.1  |
| L        | 12.7 |      | 15.49 | 500.0 |      | 609.8 |
| R        | 2.16 |      | 2.41  | 85.0  |      | 94.9  |
| S1       | 0.92 |      | 1.52  | 36.2  |      | 59.8  |
| W        | 0.41 |      | 0.56  | 16.1  |      | 22.0  |
| $\alpha$ |      | 5°   |       |       | 5°   |       |



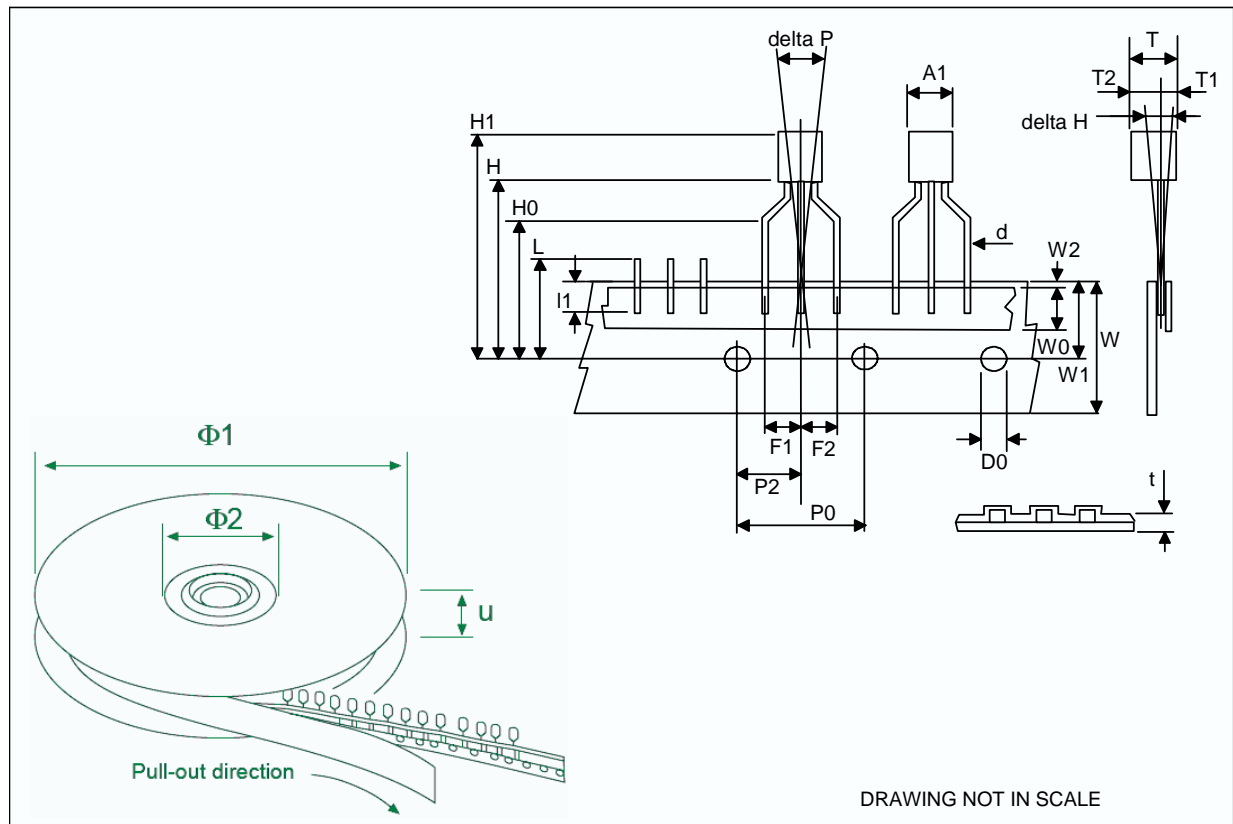
**Tape & reel SO-8 mechanical data**

| Dim. | mm.  |      |      | inch. |      |        |
|------|------|------|------|-------|------|--------|
|      | Min. | Typ. | Max. | Min.  | Typ. | Max.   |
| A    |      |      | 330  |       |      | 12.992 |
| C    | 12.8 |      | 13.2 | 0.504 |      | 0.519  |
| D    | 20.2 |      |      | 0.795 |      |        |
| N    | 60   |      |      | 2.362 |      |        |
| T    |      |      | 22.4 |       |      | 0.882  |
| Ao   | 8.1  |      | 8.5  | 0.319 |      | 0.335  |
| Bo   | 5.5  |      | 5.9  | 0.216 |      | 0.232  |
| Ko   | 2.1  |      | 2.3  | 0.082 |      | 0.090  |
| Po   | 3.9  |      | 4.1  | 0.153 |      | 0.161  |
| P    | 7.9  |      | 8.1  | 0.311 |      | 0.319  |



**Tape & reel for TO-92 mechanical data**

| Dim.    | mm.   |       |       | inch. |        |       |
|---------|-------|-------|-------|-------|--------|-------|
|         | Min.  | Typ.  | Max.  | Min.  | Typ.   | Max.  |
| A1      |       | 4.80  |       |       | 0.189  |       |
| T       |       | 3.80  |       |       | 0.150  |       |
| T1      |       | 1.60  |       |       | 0.063  |       |
| T2      |       | 2.30  |       |       | 0.091  |       |
| d       |       | 0.48  |       |       | 0.019  |       |
| P0      | 12.5  |       | 12.9  | 0.492 |        | 0.508 |
| P2      | 5.65  |       | 7.05  | 0.222 |        | 0.278 |
| F1, F2  | 2.44  | 2.54  | 2.94  | 0.096 | 0.100  | 0.116 |
| delta H |       | ±2    |       |       | 0.079  |       |
| W       | 17.5  | 18.00 | 19.0  | 0.689 | 0.709  | 0.748 |
| W0      | 5.7   |       | 6.3   | 0.224 |        | 0.248 |
| W1      | 8.5   |       | 9.25  | 0.335 |        | 0.364 |
| W2      |       | 0.50  |       |       | 0.20   |       |
| H       |       | 18.50 | 18.70 |       | 0.728  | 0.726 |
| H0      | 15.50 |       | 16.50 | 0.610 |        | 0.650 |
| H1      |       | 25.00 |       |       | 0.984  |       |
| D0      | 3.8   |       | 4.2   | 0.150 |        | 0.165 |
| t       |       | 0.90  |       |       | 0.035  |       |
| L1      |       | 3     |       |       | 0.118  |       |
| delta P |       | ±1    |       |       | 0.039  |       |
| u       |       | 50    |       |       | 1.968  |       |
| Φ1      |       | 360   |       |       | 14.173 |       |
| Φ2      |       | 30    |       |       | 1.181  |       |



## 7 Order codes

Table 25. Order codes

| Packages               |                           |                        |                           |                           | Output voltage |
|------------------------|---------------------------|------------------------|---------------------------|---------------------------|----------------|
| SO-8                   | SO-8 (T&R)                | TO-92                  | TO-92 (T&R)               | TO-92 (Ammopak)           |                |
|                        | LE12ABD-TR <sup>(1)</sup> |                        |                           |                           | 1.25 V         |
| LE25ABD                | LE25ABD-TR <sup>(1)</sup> |                        |                           | LE25ABZ-AP <sup>(1)</sup> | 2.5 V          |
|                        | LE25CD-TR <sup>(1)</sup>  |                        | LE25CZ-TR <sup>(1)</sup>  | LE25CZ-AP <sup>(1)</sup>  | 2.5 V          |
| LE27ABD <sup>(1)</sup> | LE27ABD-TR <sup>(1)</sup> |                        |                           |                           | 2.7 V          |
| LE27CD <sup>(1)</sup>  |                           |                        |                           |                           | 2.7 V          |
|                        | LE30ABD-TR <sup>(1)</sup> |                        | LE30ABZ-TR                |                           | 3 V            |
|                        | LE30CD-TR                 |                        | LE30CZ-TR                 |                           | 3 V            |
|                        |                           | LE33ABZ                | LE33ABZ-TR <sup>(1)</sup> | LE33ABZ-AP <sup>(1)</sup> | 3.3 V          |
|                        | LE33CD-TR                 | LE33CZ                 | LE33CZ-TR                 | LE33CZ-AP                 | 3.3 V          |
|                        | LE35ABD-TR <sup>(1)</sup> | LE35ABZ <sup>(1)</sup> | LE35ABZ-TR <sup>(1)</sup> | LE35ABZ-AP <sup>(1)</sup> | 3.5 V          |
| LE35CD <sup>(1)</sup>  | LE35CD-TR <sup>(1)</sup>  |                        | LE35CZ-TR <sup>(1)</sup>  | LE35CZ-AP <sup>(1)</sup>  | 3.5 V          |
|                        | LE40ABD-TR <sup>(1)</sup> | LE40ABZ <sup>(1)</sup> | LE40ABZ-TR <sup>(1)</sup> | LE40ABZ-AP <sup>(1)</sup> | 4 V            |
|                        | LE40CD-TR <sup>(1)</sup>  | LE40CZ                 | LE40CZ-TR <sup>(1)</sup>  | LE40CZ-AP <sup>(1)</sup>  | 4 V            |
|                        |                           |                        |                           | LE45ABZ-AP <sup>(1)</sup> | 4.5 V          |
|                        | LE45CD-TR                 |                        |                           | LE45CZ-AP <sup>(1)</sup>  | 4.5 V          |
| LE47ABD <sup>(1)</sup> | LE47ABD-TR <sup>(1)</sup> |                        | LE47ABZ-TR <sup>(1)</sup> | LE47ABZ-AP <sup>(1)</sup> | 4.7 V          |
|                        | LE47CD-TR <sup>(1)</sup>  | LE47CZ <sup>(1)</sup>  | LE47CZ-TR <sup>(1)</sup>  | LE47CZ-AP <sup>(1)</sup>  | 4.7 V          |
|                        | LE50ABD-TR                | LE50ABZ                | LE50ABZ-TR                | LE50ABZ-AP                | 5 V            |
|                        | LE50CD-TR                 | LE50CZ                 | LE50CZ-TR                 | LE50CZ-AP                 | 5 V            |
|                        |                           |                        | LE80ABZ-TR <sup>(1)</sup> |                           | 8 V            |
|                        | LE80CD-TR                 |                        | LE80CZ-TR <sup>(1)</sup>  |                           | 8 V            |

1. Available on request.

## 8 Revision history

**Table 26. Document revision history**

| Date        | Revision | Changes   |
|-------------|----------|---|
| 09-Jul-2004 | 6        | I <sub>O</sub> typ. and max. are changed in tab. 24 and 25 - pag. 14.                 |
| 16-Mar-2005 | 7        | Add Tape & Reel for TO-92 - Note on Table 3.  |
| 12-Feb-2007 | 8        | Change value T <sub>OP</sub> on <a href="#">Table 2</a> .                             |
| 26-Jul-2007 | 9        | Add <a href="#">Table 1</a> in cover page.  |
| 29-Nov-2007 | 10       | Modified: <a href="#">Table 25</a> .  |
| 12-Feb-2008 | 11       | Modified: <a href="#">Table 25 on page 37</a> .                                       |
| 10-Jul-2008 | 12       | Modified: <a href="#">Table 1 on page 1</a> and <a href="#">Table 25 on page 37</a> . |

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