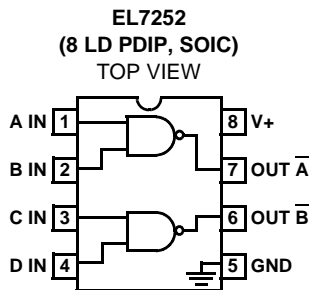
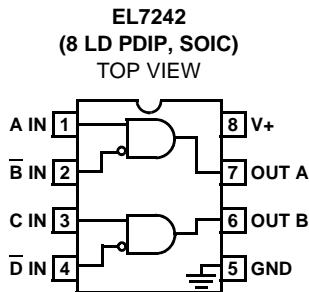


Dual Input, High Speed, Dual Channel Power MOSFET Driver

The EL7242/EL7252 dual input, 2-channel drivers achieve the same excellent switching performance of the EL7212 family while providing added flexibility. The 2-input logic and configuration is applicable to numerous power MOSFET drive circuits. As with other Intersil drivers, the EL7242/EL7252 are excellent for driving large capacitive loads with minimal delay and switching times. “Shoot-thru” protection and latching circuits can be implemented by simply “cross-coupling” the 2-channels.

Pinouts



Manufactured under U.S. Patent Nos. 5,334,883, #5,341,047

Features

- Logic AND/NAND input
- 3V and 5V Input compatible
- Clocking speeds up to 10MHz
- 20ns Switching/delay time
- 2A Peak drive
- Isolated drains
- Low output impedance
- Low quiescent current
- Wide operating voltage — 4.5V to 16V
- Pb-free available (RoHS compliant)

Applications

- Short circuit protected switching
- Undervoltage shut-down circuits
- Switch-mode power supplies
- Motor controls
- Power MOSFET switching
- Switching capacitive loads
- Shoot-thru protection
- Latching drivers

Ordering Information

| PART NUMBER | PART MARKING | PACKAGE | PKG. DWG. # |
|-------------------------|--------------|-----------------------|-------------|
| EL7242CNZ (Note 1) | EL7242CN Z | 8 Ld PDIP** (Pb-free) | E8.3 |
| EL7242CSZ (Note 1) | 7242CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7242CSZ-T7* (Note 1) | 7242CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7242CSZ-T13* (Note 1) | 7242CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7242CN (Note 2) | EL7242CN | 8 Ld PDIP | MDP0031 |
| EL7242CS (Note 2) | 7242CS | 8 Ld SOIC | MDP0027 |
| EL7242CS-T7* (Note 2) | 7242CS | 8 Ld SOIC | MDP0027 |
| EL7242CS-T13* (Note 2) | 7242CS | 8 Ld SOIC | MDP0027 |
| EL7252CSZ (Note 1) | 7252CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7252CSZ-T7* (Note 1) | 7252CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7252CSZ-T13* (Note 1) | 7252CSZ | 8 Ld SOIC (Pb-free) | MDP0027 |
| EL7252CN | EL7252CN | 8 Ld PDIP | E8.3 |
| EL7252CS | 7252CS | 8 Ld SOIC | MDP0027 |
| EL7252CS-T7* (Note 2) | 7252CS | 8 Ld SOIC | MDP0027 |
| EL7252CS-T13* (Note 2) | 7252CS | 8 Ld SOIC | MDP0027 |

*Please refer to TB347 for details on reel specifications.

**Pb-free PDIPs can be used for through hole wave solder processing only. They are not intended for use in Reflow solder processing applications.

NOTES:

1. These Intersil Pb-free plastic packaged products employ special Pb-free material sets, molding compounds/die attach materials, and 100% matte tin plate plus anneal (e3 termination finish, which is RoHS compliant and compatible with both SnPb and Pb-free soldering operations). Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.
2. These parts are not recommended for new designs.

Absolute Maximum Ratings ($T_A = +25^{\circ}\text{C}$)

| | |
|------------------------------------|-------------------------|
| Supply (V+ to GND) | 16.5V |
| Input Pins | -0.3V to +0.3V above V+ |
| Combined Peak Output Current | .4A |
| Storage Temperature Range | -65°C to +150°C |

Operating Conditions

| | |
|--------------------------------------|----------------|
| Ambient Operating Temperature | -40°C to +85°C |
| Operating Junction Temperature | +125°C |

Thermal Information

| | |
|--|---|
| Power Dissipation | |
| 8 Ld SOIC | .570mW |
| 8 Ld PDIP* | 1.050mW |
| Pb-Free Reflow Profile | see link below |
| | http://www.intersil.com/pbfree/Pb-FreeReflow.asp |
| *Pb-free PDIPs can be used for through hole wave solder processing only. They are not intended for use in Reflow solder processing applications. | |

CAUTION: Do not operate at or near the maximum ratings listed for extended periods of time. Exposure to such conditions may adversely impact product reliability and result in failures not covered by warranty.

IMPORTANT NOTE: All parameters having Min/Max specifications are guaranteed. Typical values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore: $T_J = T_C = T_A$

DC Electrical Specifications $T_A = +25^{\circ}\text{C}$, $V = 15\text{V}$, unless otherwise specified.

| PARAMETER | DESCRIPTION | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---------------------|---------------------------|---------------------------|-----|-----|-----|---------------|
| INPUT | | | | | | |
| V_{IH} | Logic '1' Input Voltage | | 2.4 | | | V |
| I_{IH} | Logic '1' Input Current | @V+ | | 0.1 | 10 | μA |
| V_{IL} | Logic '0' Input Voltage | | | | 0.8 | V |
| I_{IL} | Logic '0' Input Current | @0V | | 0.1 | 10 | μA |
| V_{HVS} | Input Hysteresis | | | 0.3 | | V |
| OUTPUT | | | | | | |
| R_{OH} | Pull-up Resistance | $I_{OUT} = -100\text{mA}$ | | 3 | 6 | Ω |
| R_{OL} | Pull-down Resistance | $I_{OUT} = +100\text{mA}$ | | 4 | 6 | Ω |
| I_{PK} | Peak Output Current | Source | | 2 | | A |
| | | Sink | | 2 | | A |
| I_{DC} | Continuous Output Current | Source/Sink | 100 | | | mA |
| POWER SUPPLY | | | | | | |
| I_S | Power Supply Current | Inputs High | | 1 | 2.5 | mA |
| V_S | Operating Voltage | | 4.5 | | 16 | V |

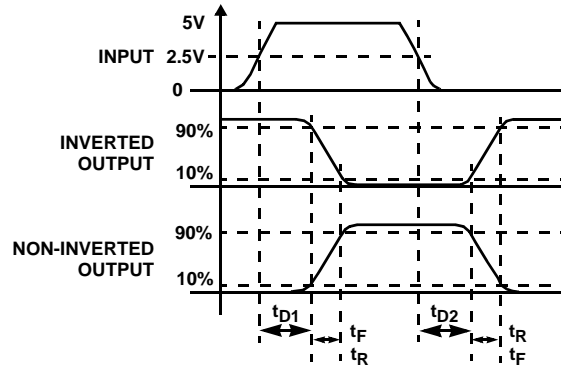
AC Electrical Specifications $T_A = +25^{\circ}\text{C}$, $V = 15\text{V}$, unless otherwise specified.

| PARAMETER | DESCRIPTION | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|----------------------------------|------------------------------|-----------------------|-----|-----|-----|-------|
| SWITCHING CHARACTERISTICS | | | | | | |
| t_R | Rise Time (Note 3) | $C_L = 500\text{pF}$ | | | 10 | ns |
| | | $C_L = 1000\text{pF}$ | | | 20 | ns |
| t_F | Fall Time (Note 3) | $C_L = 500\text{pF}$ | | | 10 | ns |
| | | $C_L = 1000\text{pF}$ | | | 20 | ns |
| t_{D-ON} | Turn-On Delay Time (Note 3) | | | 20 | 25 | ns |
| t_{D-OFF} | Turn-Off Delay Time (Note 3) | | | 20 | 25 | ns |

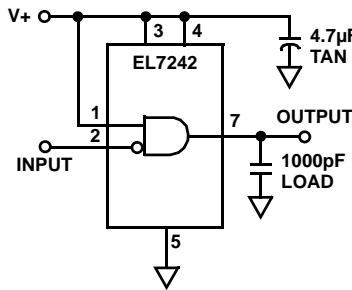
NOTE:

3. Limits established by characterization and are not production tested.

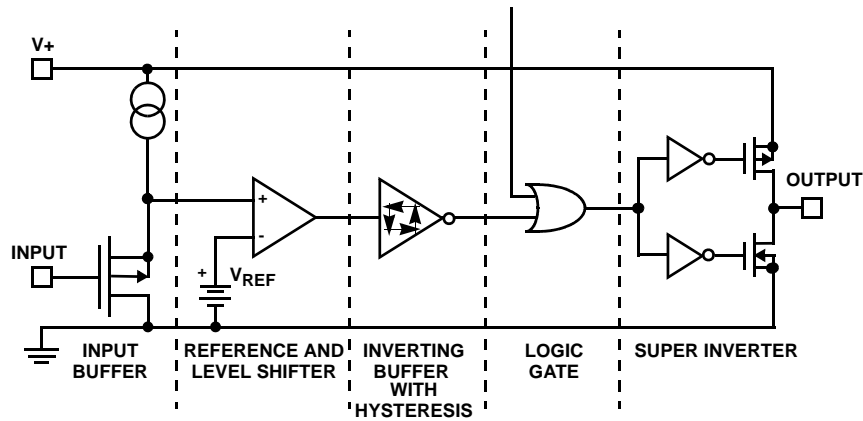
Timing Table



Standard Test Configuration



Simplified Schematic



Typical Performance Curves

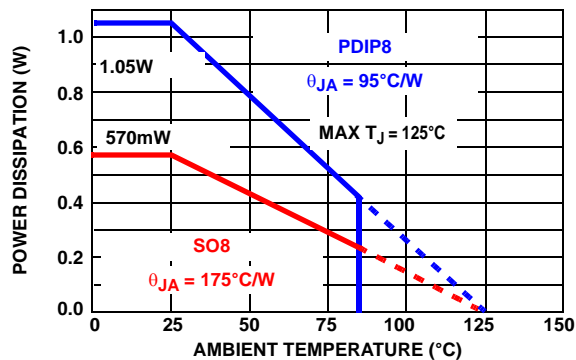


FIGURE 1. MAX POWER/DERATING CURVES

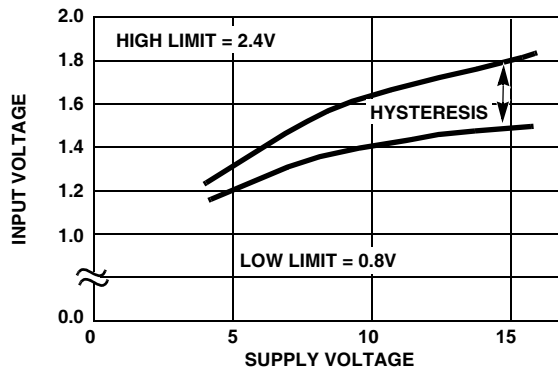


FIGURE 2. SWITCH THRESHOLD vs SUPPLY VOLTAGE

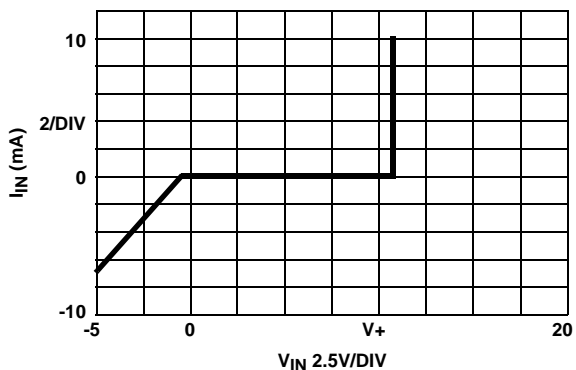


FIGURE 3. INPUT CURRENT vs VOLTAGE

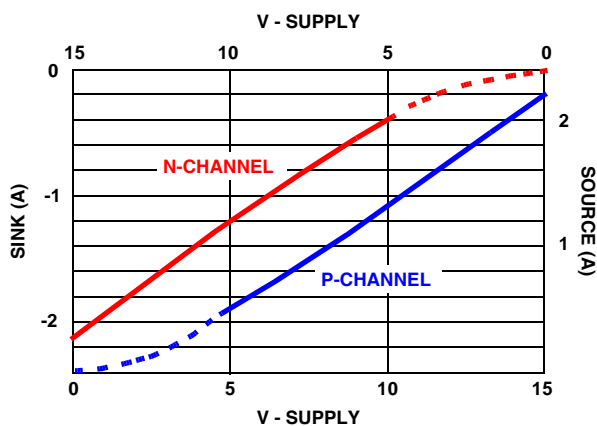


FIGURE 4. PEAK DRIVE vs SUPPLY VOLTAGE

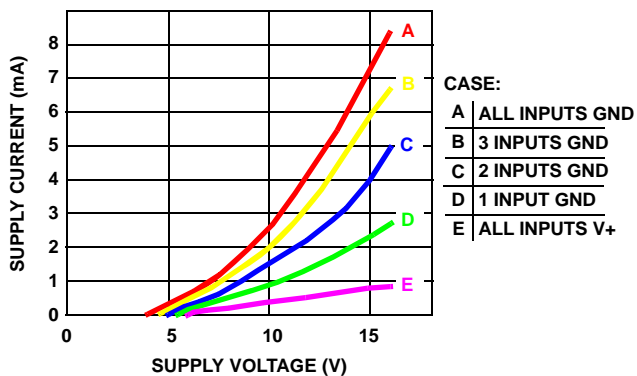


FIGURE 5. QUIESCENT SUPPLY CURRENT

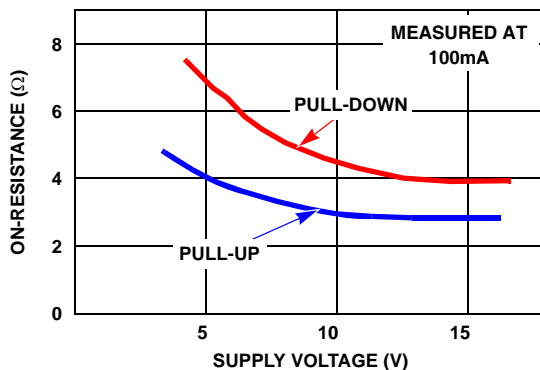


FIGURE 6. ON-RESISTANCE vs SUPPLY VOLTAGE

Typical Performance Curves (Continued)

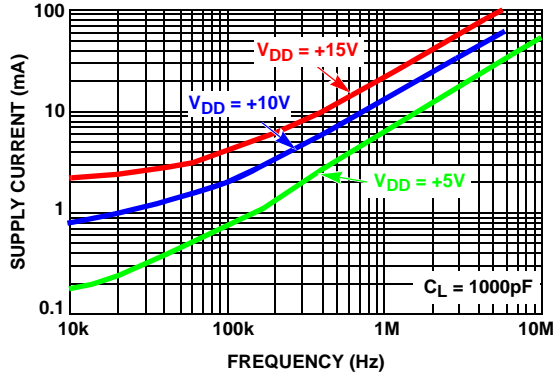


FIGURE 7. AVERAGE SUPPLY CURRENT vs VOLTAGE AND FREQUENCY

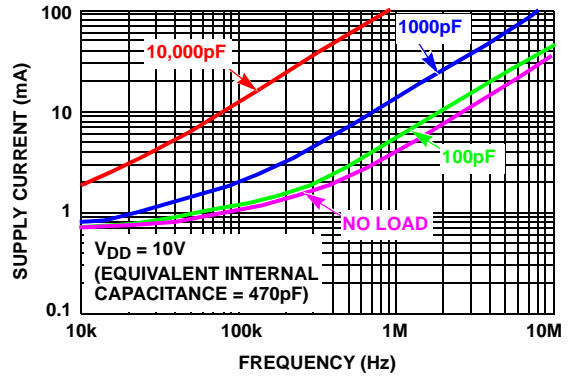


FIGURE 8. AVERAGE SUPPLY CURRENT vs CAPACITIVE LOAD

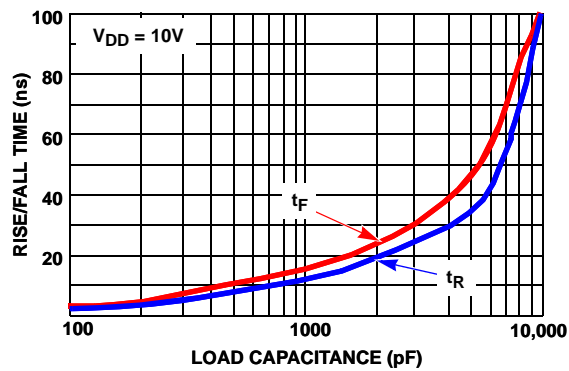


FIGURE 9. RISE/FALL TIME vs LOAD

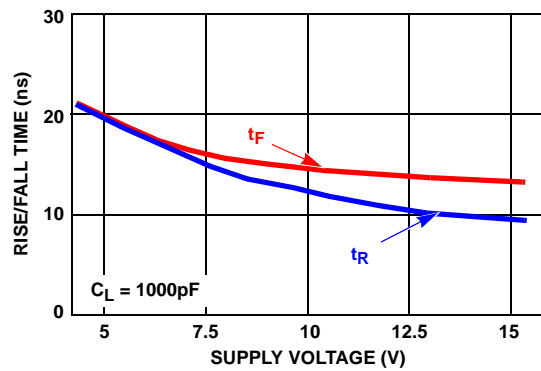


FIGURE 10. RISE/FALL TIME vs SUPPLY VOLTAGE

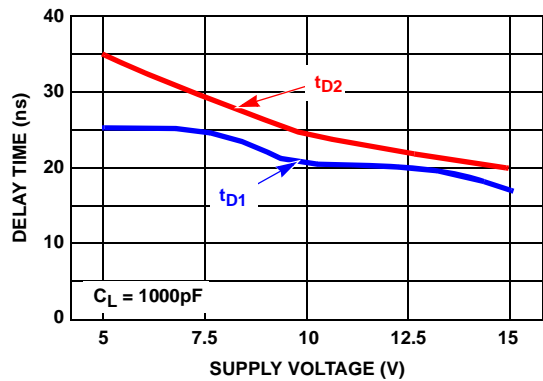


FIGURE 11. PROPAGATION DELAY vs SUPPLY VOLTAGE

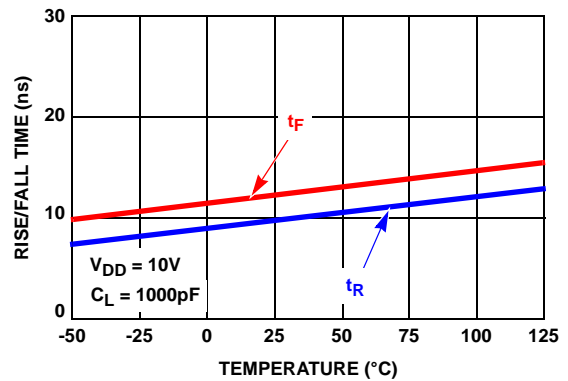


FIGURE 12. RISE/FALL TIME vs TEMPERATURE

Typical Performance Curves (Continued)

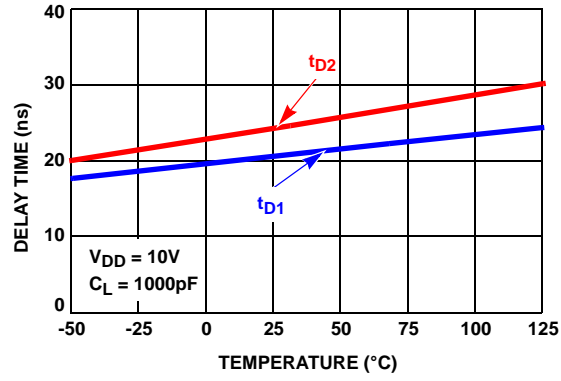
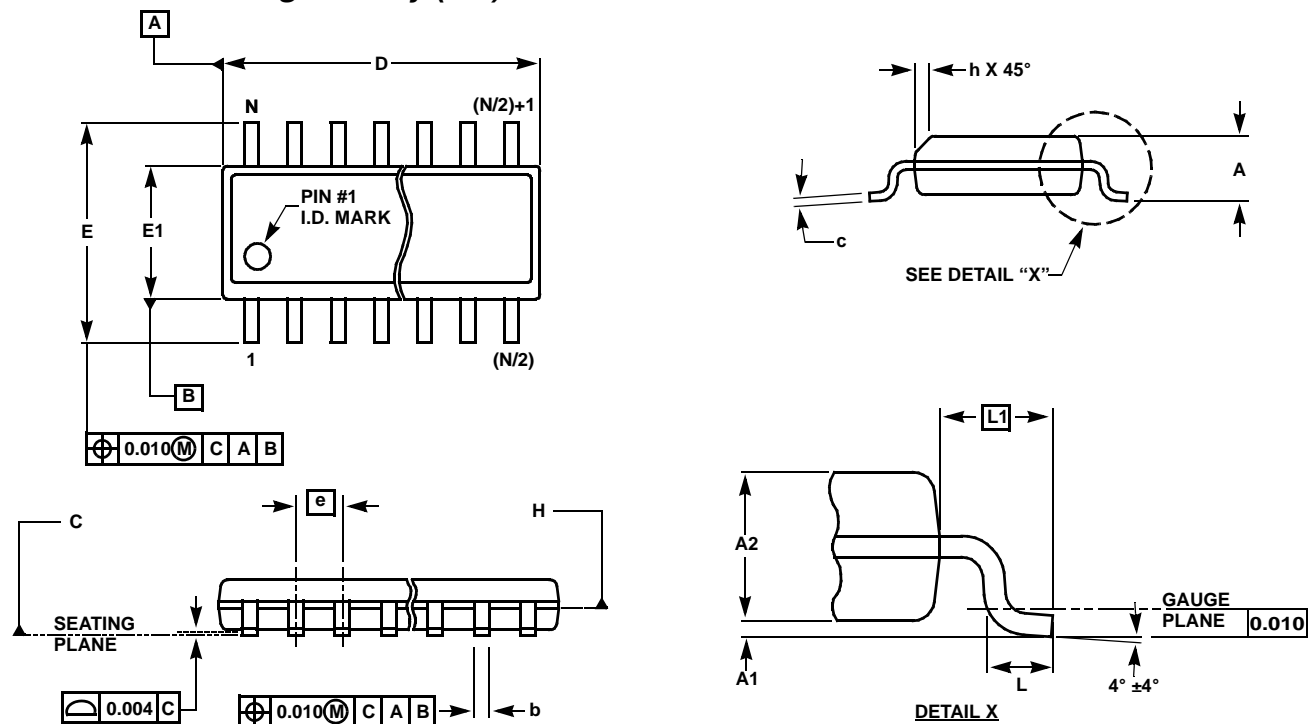


FIGURE 13. DELAY vs TEMPERATURE

Small Outline Package Family (SO)



MDP0027

SMALL OUTLINE PACKAGE FAMILY (SO)

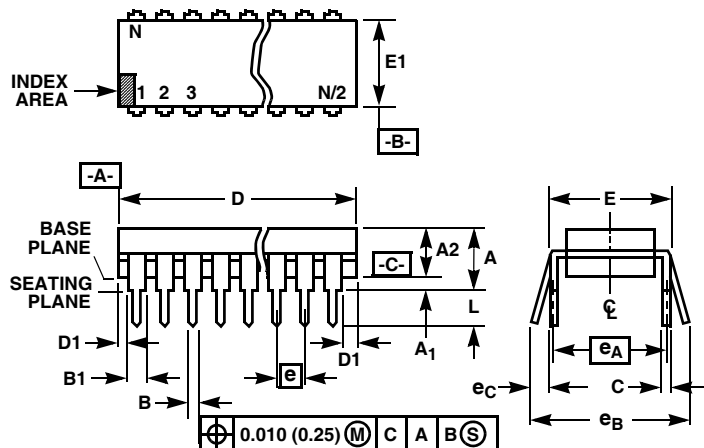
| SYMBOL | INCHES | | | | | | | TOLERANCE | NOTES |
|--------|--------|-------|---------------|------------------------|---------------|---------------|---------------|-----------|-------|
| | SO-8 | SO-14 | SO16 (0.150") | SO16 (0.300") (SOL-16) | SO20 (SOL-20) | SO24 (SOL-24) | SO28 (SOL-28) | | |
| A | 0.068 | 0.068 | 0.068 | 0.104 | 0.104 | 0.104 | 0.104 | MAX | - |
| A1 | 0.006 | 0.006 | 0.006 | 0.007 | 0.007 | 0.007 | 0.007 | ±0.003 | - |
| A2 | 0.057 | 0.057 | 0.057 | 0.092 | 0.092 | 0.092 | 0.092 | ±0.002 | - |
| b | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | ±0.003 | - |
| c | 0.009 | 0.009 | 0.009 | 0.011 | 0.011 | 0.011 | 0.011 | ±0.001 | - |
| D | 0.193 | 0.341 | 0.390 | 0.406 | 0.504 | 0.606 | 0.704 | ±0.004 | 1, 3 |
| E | 0.236 | 0.236 | 0.236 | 0.406 | 0.406 | 0.406 | 0.406 | ±0.008 | - |
| E1 | 0.154 | 0.154 | 0.154 | 0.295 | 0.295 | 0.295 | 0.295 | ±0.004 | 2, 3 |
| e | 0.050 | 0.050 | 0.050 | 0.050 | 0.050 | 0.050 | 0.050 | Basic | - |
| L | 0.025 | 0.025 | 0.025 | 0.030 | 0.030 | 0.030 | 0.030 | ±0.009 | - |
| L1 | 0.041 | 0.041 | 0.041 | 0.056 | 0.056 | 0.056 | 0.056 | Basic | - |
| h | 0.013 | 0.013 | 0.013 | 0.020 | 0.020 | 0.020 | 0.020 | Reference | - |
| N | 8 | 14 | 16 | 16 | 20 | 24 | 28 | Reference | - |

Rev. M 2/07

NOTES:

1. Plastic or metal protrusions of 0.006" maximum per side are not included.
2. Plastic interlead protrusions of 0.010" maximum per side are not included.
3. Dimensions "D" and "E1" are measured at Datum Plane "H".
4. Dimensioning and tolerancing per ASME Y14.5M-1994

Dual-In-Line Plastic Packages (PDIP)



NOTES:

- Controlling Dimensions: INCH. In case of conflict between English and Metric dimensions, the inch dimensions control.
- Dimensioning and tolerancing per ANSI Y14.5M-1982.
- Symbols are defined in the "MO Series Symbol List" in Section 2.2 of Publication No. 95.
- Dimensions A, A1 and L are measured with the package seated in JEDEC seating plane gauge GS-3.
- D, D1, and E1 dimensions do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.010 inch (0.25mm).
- E and e_A are measured with the leads constrained to be perpendicular to datum $-C-$.
- e_B and e_C are measured at the lead tips with the leads unconstrained. e_C must be zero or greater.
- B1 maximum dimensions do not include dambar protrusions. Dambar protrusions shall not exceed 0.010 inch (0.25mm).
- N is the maximum number of terminal positions.
- Corner leads (1, N, N/2 and N/2 + 1) for E8.3, E16.3, E18.3, E28.3, E42.6 will have a B1 dimension of 0.030 - 0.045 inch (0.76 - 1.14mm).

E8.3 (JEDEC MS-001-BA ISSUE D)
8 LEAD DUAL-IN-LINE PLASTIC PACKAGE

| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|--------|-----------|-------|-------------|-------|-------|
| | MIN | MAX | MIN | MAX | |
| A | - | 0.210 | - | 5.33 | 4 |
| A1 | 0.015 | - | 0.39 | - | 4 |
| A2 | 0.115 | 0.195 | 2.93 | 4.95 | - |
| B | 0.014 | 0.022 | 0.356 | 0.558 | - |
| B1 | 0.045 | 0.070 | 1.15 | 1.77 | 8, 10 |
| C | 0.008 | 0.014 | 0.204 | 0.355 | - |
| D | 0.355 | 0.400 | 9.01 | 10.16 | 5 |
| D1 | 0.005 | - | 0.13 | - | 5 |
| E | 0.300 | 0.325 | 7.62 | 8.25 | 6 |
| E1 | 0.240 | 0.280 | 6.10 | 7.11 | 5 |
| e | 0.100 BSC | | 2.54 BSC | | - |
| e_A | 0.300 BSC | | 7.62 BSC | | 6 |
| e_B | - | 0.430 | - | 10.92 | 7 |
| L | 0.115 | 0.150 | 2.93 | 3.81 | 4 |
| N | 8 | | 8 | | 9 |

Rev. 0 12/93

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