

### Dual Channel, High Speed, High Current Line Driver with 3-State

The EL7232 3-state drivers are particularly well suited for ATE and microprocessor based applications. The low quiescent power dissipation makes this part attractive in battery applications. The 2A peak drive capability, makes the EL7232 an excellent choice when driving high speed capacitive lines, as well. The input circuitry provides level shifting from TTL levels to the supply rails. The EL7232 is available in 8 Ld PDIP and 8 Ld SO packages.

### Ordering Information

PART NUMBER	PART MARKING	PACKAGE	PKG. DWG. #
EL7232CN <b>No longer available or supported, recommended replacement: EL7232CNZ</b>	EL7232CN	8 Ld PDIP	E8.3
EL7232CNZ (Note)	EL7232CN Z	8 Ld PDIP**	E8.3
EL7232CSZ (Note)	7232CSZ	8 Ld SOIC (Pb-free)	M8.15E
EL7232CSZ-T7* (Note)	7232CSZ	8 Ld SOIC (Pb-free) Tape and Reel	M8.15E
EL7232CSZ-T13* (Note)	7232CSZ	8 Ld SOIC (Pb-free) Tape and Reel	M8.15E

\*-T7" suffix for 1k unit or "-T13" suffix for 2.5k unit Tape and Reel options. 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.

NOTE: 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.

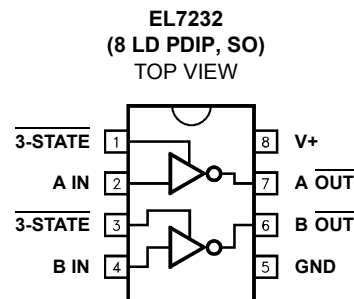
### Features

- 3-State output
- 3V and 5V input compatible
- Clocking speeds up to 10MHz
- 20ns Switching/delay time
- 2A Peak drive
- Low, matched output impedance 5Ω
- Low quiescent current 2.5mA
- Wide operating voltage 4.5V to 16V
- Pb-free available (RoHS compliant)

### Applications

- Parallel bus line drivers
- EPROM and PROM programming
- Motor controls
- Charge pumps
- Sampling circuits
- Pin drivers
- Bridge circuits

### Pinout



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

### Truth Table

3-STATE	INPUT	OUTPUT
1	0	1
1	1	0
0	0	Open
0	1	Open

**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

**Thermal Information**

Operating Junction Temperature ..... +125°C  
 Storage Temperature Range ..... -65°C to +150°C  
 Ambient Operating Temperature ..... -40°C to +85°C  
 Power Dissipation  
     SOIC ..... 570mW  
     PDIP ..... 1050mW  
 Pb-free reflow profile ..... see link below  
<http://www.intersil.com/pbfree/Pb-FreeReflow.asp>

*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:  $T_J = T_C = T_A$*

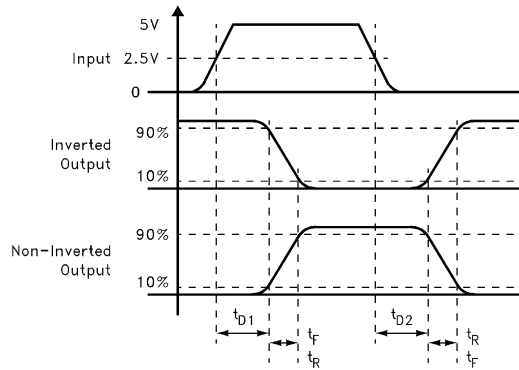
DC Electrical Specifications  $T_A = +25^\circ\text{C}$ ,  $V = 15\text{V}$  unless otherwise specified.

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>						
$V_{IH}$	Logic "1" Input Voltage		2.4			V
$I_{IH}$	Logic "1" Input Current	@V+		0.1	10	$\mu\text{A}$
$V_{IL}$	Logic "0" Input Voltage				0.8	V
$I_{IL}$	Logic "0" Input Current	@0V		0.1	10	$\mu\text{A}$
$V_{HVS}$	Input Hysteresis			0.3		V
<b>OUTPUT</b>						
$R_{OH}$	Pull-Up Resistance	$I_{OUT} = -100\text{mA}$		3	6	$\Omega$
$R_{OL}$	Pull-Down Resistance	$I_{OUT} = +100\text{mA}$		4	6	$\Omega$
$I_{OFF}$	3-State Output Leakage	$V_{OUT} = V+$ $V_{OUT} = 0\text{V}$	0.2		10	$\mu\text{A}$
$I_{PK}$	Peak Output Current	Source Sink		2.0 2.0		A
$I_{DC}$	Continuous Output Current	Source/Sink	100			mA
<b>POWER SUPPLY</b>						
$I_S$	Power Supply Current	Inputs High		1	2.5	mA
$V_S$	Operating Voltage		4.5		16	V

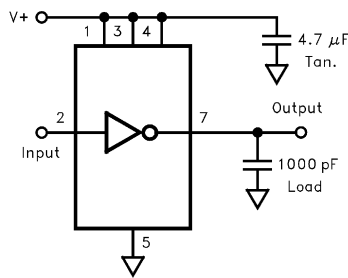
AC Electrical Specifications  $T_A = +25^\circ\text{C}$ ,  $V = 15\text{V}$  unless otherwise specified.

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>SWITCHING CHARACTERISTICS</b>						
$t_R$	Rise Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		7.5 10		ns
$t_F$	Fall Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$		10 13	20	ns
$t_{D-ON}$	Turn-On Delay Time			18	25	ns
$t_{D-OFF}$	Turn-Off Delay Time			20	25	ns
$HIZ_{ON}$	Three-State Delay, Enable			22		ns
$HIZ_{OFF}$	Three-State Delay, Disable			22		ns

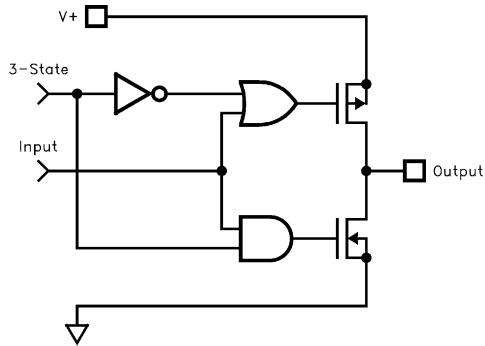
Timing Table



Standard Test Configuration



Simplified Schematic



Typical Performance Curves

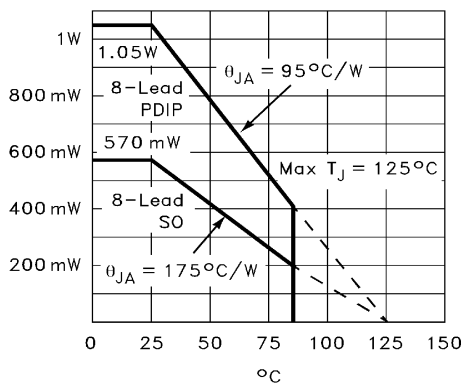


FIGURE 1. MAX POWER/DERATING CURVES

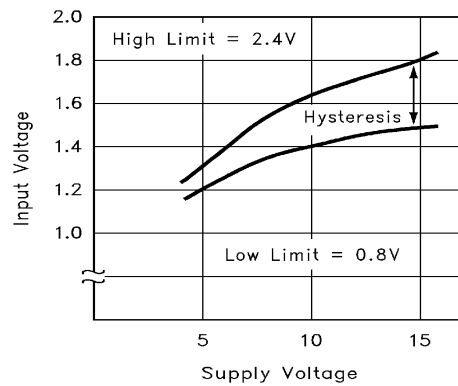


FIGURE 2. SWITCH THRESHOLD vs SUPPLY VOLTAGE

Typical Performance Curves (Continued)

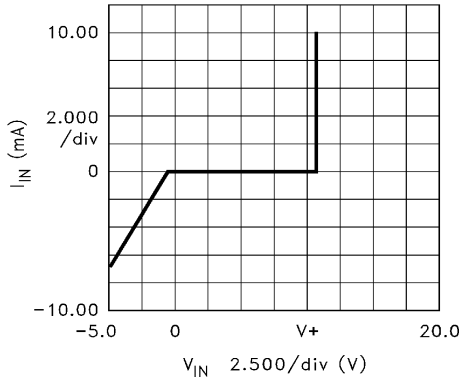


FIGURE 3. INPUT CURRENT vs VOLTAGE

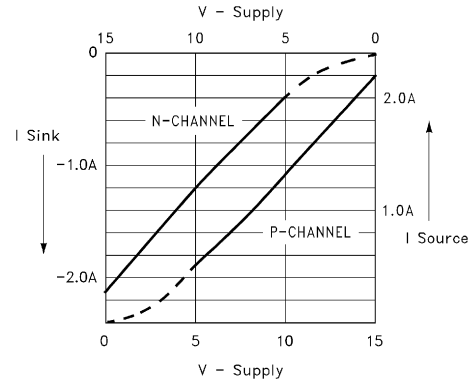


FIGURE 4. PEAK DRIVE vs SUPPLY VOLTAGE

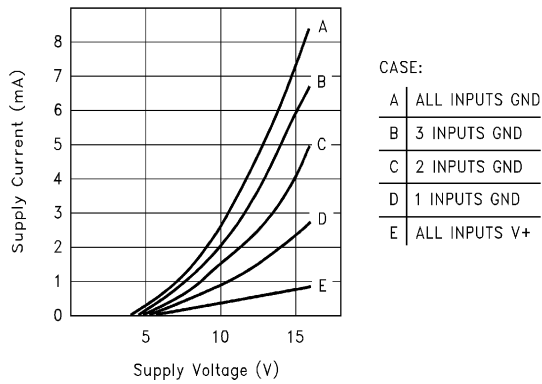


FIGURE 5. QUIESCENT SUPPLY CURRENT

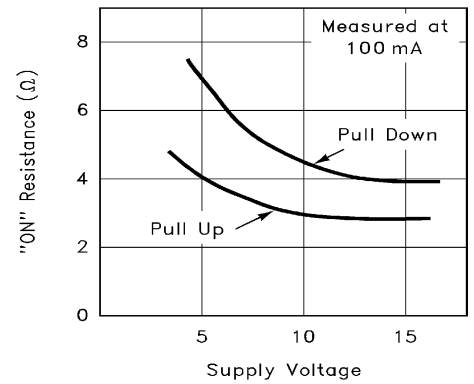


FIGURE 6. ON-RESISTANCE vs SUPPLY VOLTAGE

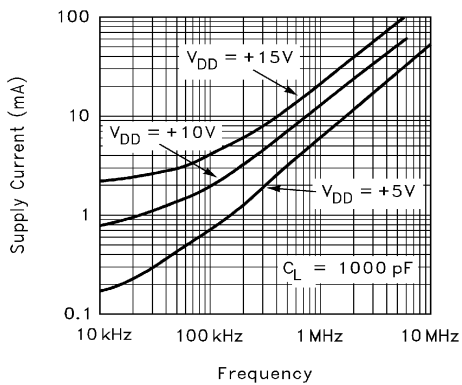


FIGURE 7. AVERAGE SUPPLY CURRENT vs VOLTAGE AND FREQUENCY

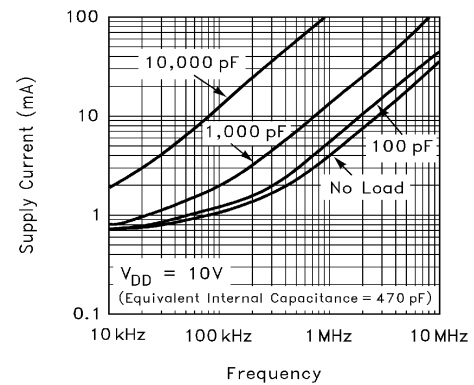


FIGURE 8. AVERAGE SUPPLY CURRENT vs CAPACITIVE LOAD

Typical Performance Curves (Continued)

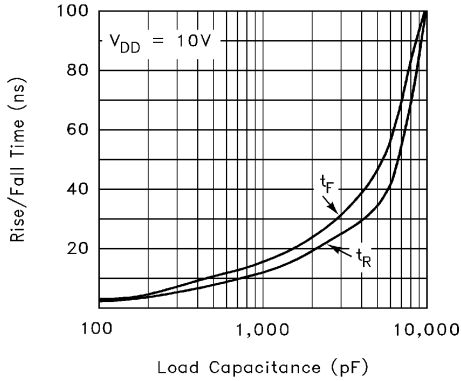


FIGURE 9. RISE/FALL TIME vs LOAD

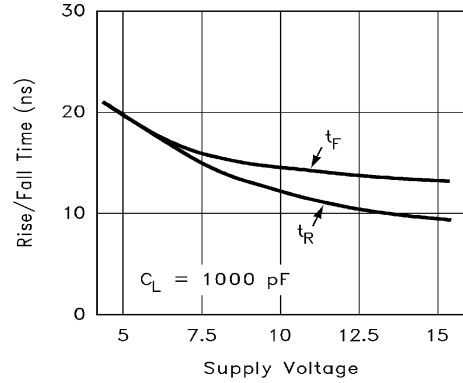


FIGURE 10. RISE/FALL TIME vs SUPPLY VOLTAGE

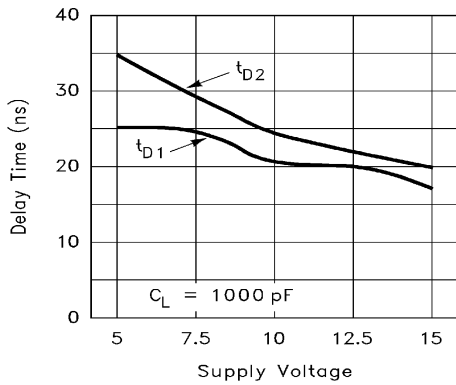


FIGURE 11. PROPAGATION DELAY vs SUPPLY VOLTAGE

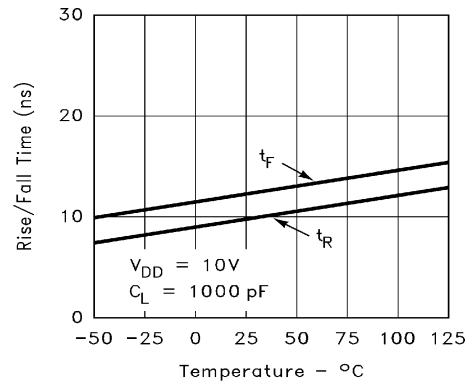


FIGURE 12. RISE/FALL TIME vs TEMPERATURE

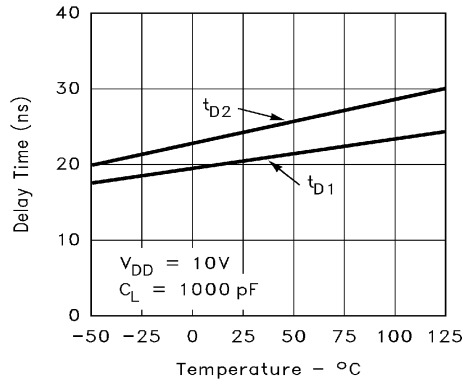


FIGURE 13. PROPAGATION DELAY vs TEMPERATURE

---

## Revision History

The revision history provided is for informational purposes only and is believed to be accurate, but not warranted. Please go to the web to make sure that you have the latest revision.

DATE	REVISION	CHANGE
November 12, 2015	FN7283.4	Added Rev History and About Intersil Verbiage. Updated Ordering Information on page 1 Updated POD MDP0031 to E8.3 Updated POD MDP0027 to M8.15E

---

## About Intersil

Intersil Corporation is a leading provider of innovative power management and precision analog solutions. The company's products address some of the largest markets within the industrial and infrastructure, mobile computing and high-end consumer markets.

For the most updated datasheet, application notes, related documentation and related parts, please see the respective product information page found at [www.intersil.com](http://www.intersil.com).

You may report errors or suggestions for improving this datasheet by visiting [www.intersil.com/ask](http://www.intersil.com/ask).

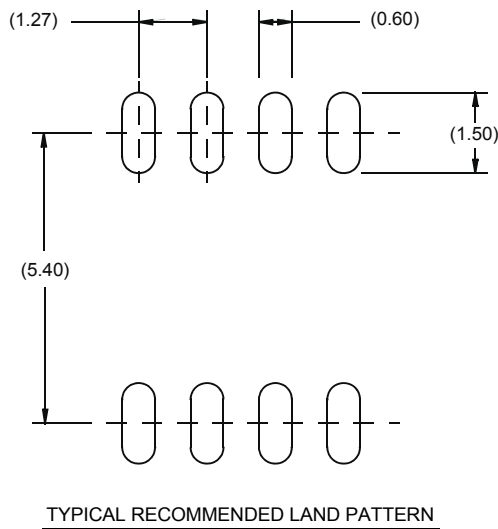
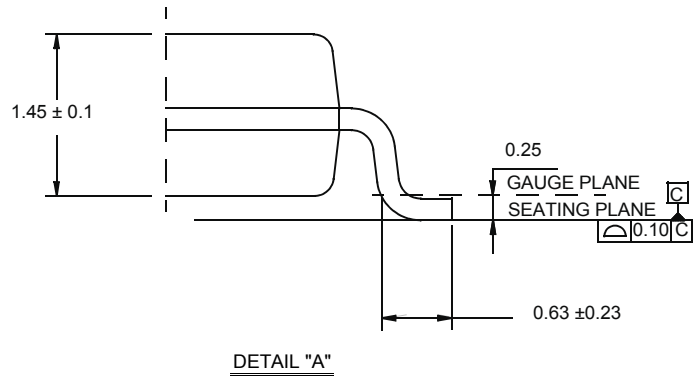
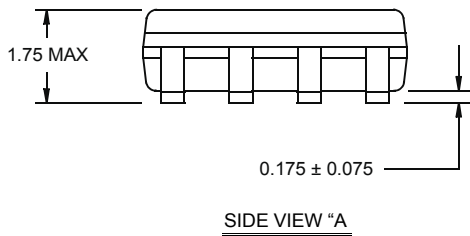
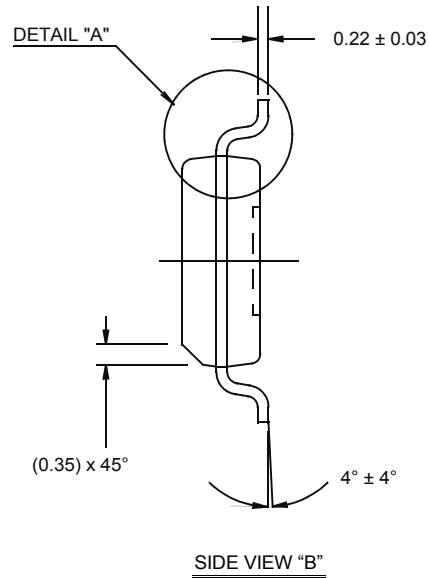
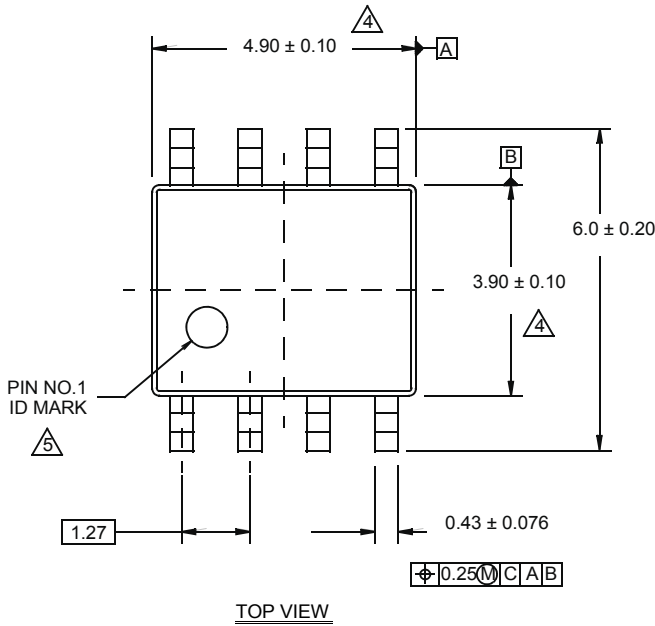
Reliability reports are also available from our website at [www.intersil.com/support](http://www.intersil.com/support)

# Package Outline Drawing

## M8.15E

8 LEAD NARROW BODY SMALL OUTLINE PLASTIC PACKAGE

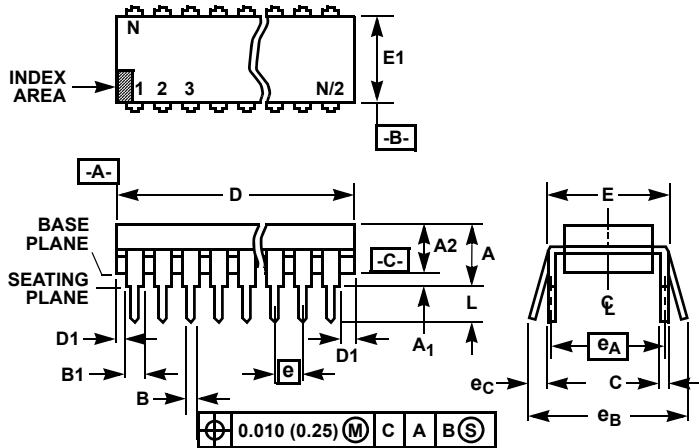
Rev 0, 08/09



**NOTES:**

1. Dimensions are in millimeters.  
Dimensions in ( ) for Reference Only.
2. Dimensioning and tolerancing conform to AMSE Y14.5m-1994.
3. Unless otherwise specified, tolerance : Decimal ± 0.05
4. Dimension does not include interlead flash or protrusions.  
Interlead flash or protrusions shall not exceed 0.25mm per side.
5. The pin #1 identifier may be either a mold or mark feature.
6. Reference to JEDEC MS-012.

Dual-In-Line Plastic Packages (PDIP)



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		-
eA	0.300 BSC		7.62 BSC		6
eB	-	0.430	-	10.92	7
L	0.115	0.150	2.93	3.81	4
N	8		8		9

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<sub>A</sub> are measured with the leads constrained to be perpendicular to datum -C-.
- e<sub>B</sub> and e<sub>C</sub> are measured at the lead tips with the leads unconstrained. e<sub>C</sub> 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).

Rev. 0 12/93

All Intersil U.S. products are manufactured, assembled and tested utilizing ISO9001 quality systems.  
Intersil Corporation's quality certifications can be viewed at [www.intersil.com/design/quality](http://www.intersil.com/design/quality)

*Intersil products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.*

For information regarding Intersil Corporation and its products, see [www.intersil.com](http://www.intersil.com)



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Intersil:](#)

[EL7232CNZ](#) [EL7232CSZ](#) [EL7232CSZ-T13](#) [EL7232CSZ-T7](#)