

# **Ordering Instructions and Mechanical Data**

# INTEGRATED CIRCUITS MECHANICAL DATA

## ORDERING INSTRUCTIONS

Electrical characteristics presented in this catalog, unless otherwise noted, apply for circuit type(s) listed in the page heading regardless of package. Except for diode arrays, ECL, and MOS devices, the availability of a circuit function in a particular package is denoted by an alphabetical reference above the pin-connection diagram(s). These alphabetical references refer to mechanical outline drawings shown in this section. Other designations and packages are shown on individual data sheets.

Factory orders for circuits described in this catalog should include a four-part type number as explained in the following example.

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EXAMPLE: SN 54H72 N -00

1. Prefix

**MUST CONTAIN TWO OR THREE LETTERS**  
(From Individual Data Sheet)

RSN	Radiation-Hardened Circuit
SN	Standard Prefix
SNM	Mach IV, Level I
SNA	Mach IV, Level II
SNC	Mach IV, Level III
SNH	Mach IV, Level IV
SNX	Experimental Circuit

2. Unique Circuit Description

**MUST CONTAIN THREE TO SIX CHARACTERS**  
(From Individual Data Sheet)

Examples: F50  
G50  
5410  
74H10  
54S112  
54L78  
15830  
75450A

3. Package

**MUST CONTAIN A SINGLE LETTER**

F, H, J, L, N, P, S, T, U, W, or Z

(From Pin-Connection Diagram on Individual Data Sheet)

4. Instructions (Dash No.)

**MUST CONTAIN TWO NUMBERS**  
(From Dash No. Column of Following Table)

PACKAGES	FORMED LEADS	SOLDER-DIPPED LEADS	INSULATOR	CARRIER	ORDER DASH NO.
<b>METAL FLAT PACKAGES</b>					
F, S, T	No	No	No	†	00
F, S, T	Yes	No	Yes	†	01
F, S, T	No	No	No	Mech-Pak	02
F, S, T	No	No	Yes	Mech-Pak	03
F, S, T	Yes	No	No	Mech-Pak	04
F, S, T	Yes	No	Yes	Mech-Pak	05
F, S, T	No	No	Yes	†	06
F, S, T	Yes	No	No	†	07
F, S, T	No	Yes	No	†	10
F, S, T	Yes	Yes	Yes	†	11
F, S, T	No	Yes	No	Mech-Pak	12
F, S, T	No	Yes	Yes	Mech-Pak	13
F, S, T	Yes	Yes	No	Mech-Pak	14
F, S, T	Yes	Yes	Yes	Mech-Pak	15
F, S, T	No	Yes	Yes	†	16
F, S, T	Yes	Yes	No	†	17
<b>CERAMIC FLAT PACKAGES</b>					
H, U, W, Z	No	No	N/A	†	00
H	No	No	N/A	Mech-Pak	02
H, U, W, Z	No	Yes	N/A	†	10
<b>DUAL-IN-LINE PACKAGES</b>					
J, N, P	No	No	N/A	†	00
N	Yes	No	N/A	†	07
J, N, P	No	Yes	N/A	†	10
N	Yes	Yes	N/A	†	17
<b>PLUG-IN PACKAGES</b>					
L	No	No	N/A	†	00
L	No	Yes	N/A	†	10

†These circuits are shipped in one of the carriers shown below. Unless a specific method of shipment is specified by the customer (with possible additional costs), circuits will be shipped in the most practical carrier. Please contact your TI sales representative for the method which will best suit your particular needs.

**Flat (F, H, S, T, U, W, Z)**

- Mech-Pakette
- Barnes Carrier
- Milton Ross Carrier

**Dual-in-line (J, N, P)**

- Slide Magazines
- A-Channel Plastic Tubing
- Barnes Carrier
- Sectioned Cardboard Box
- Individual Plastic Box

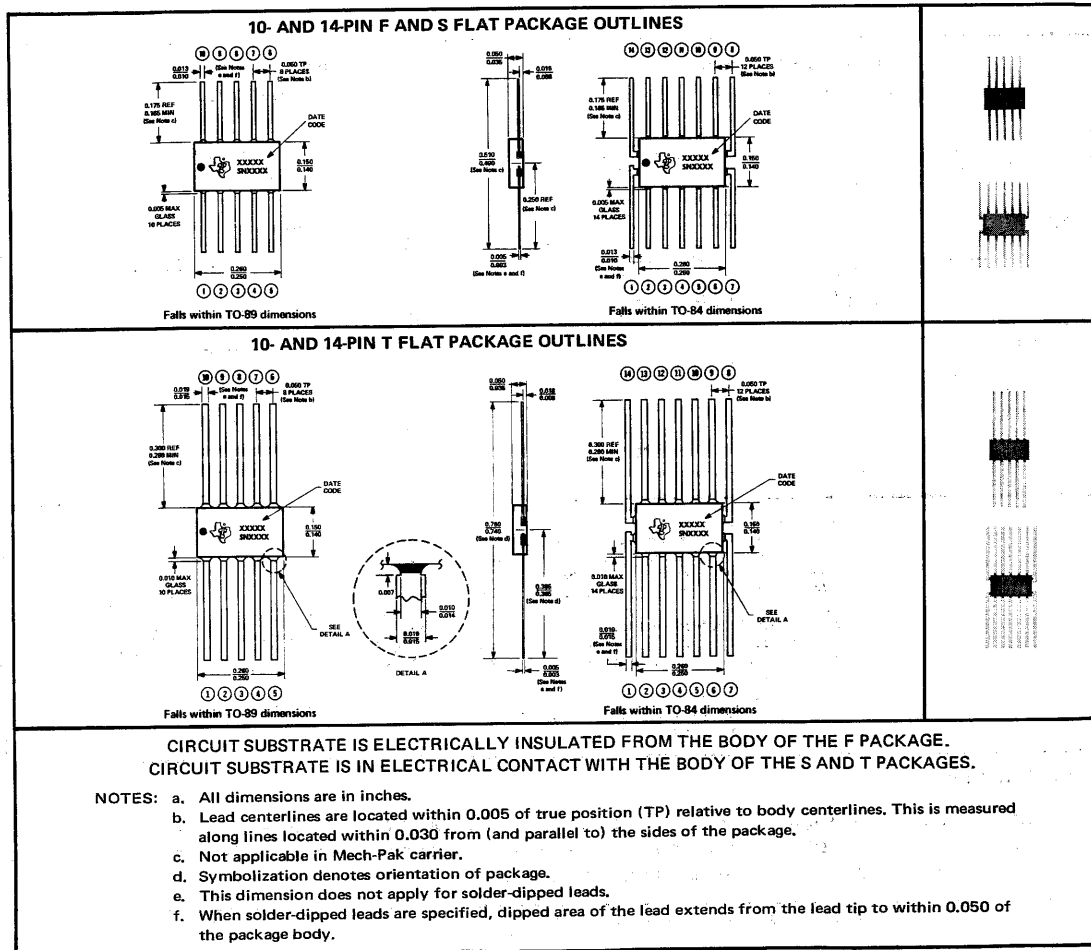
**Plug-in (L)**

- Barnes Carrier
- Sectioned Cardboard Box
- Individual Plastic Box

# INTEGRATED CIRCUITS MECHANICAL DATA

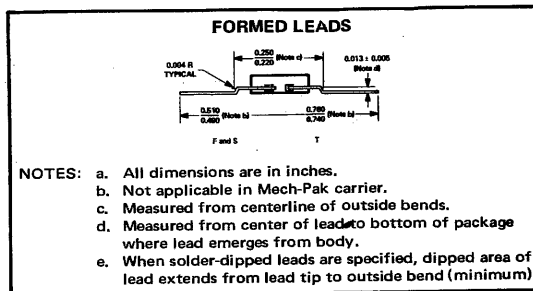
## F, S, and T flat packages

These hermetic packages feature glass-to-metal seals and welded construction. Package body and leads are gold-plated F-15 $\ddagger$  glass-sealing alloy. Approximate weight is 0.1 gram.



## F, S, and T package leads

Gold-plated F-15 $\ddagger$  leads require no additional cleaning or processing when used in soldered or welded assembly. Solder-dipped leads are also available. Formed leads are available to facilitate planar mounting of networks on flat circuit boards. Circuits can be removed from Mech-Pak carriers with lead lengths up to 0.175 inch for the F and S packages and up to 0.300 inch for the T package.

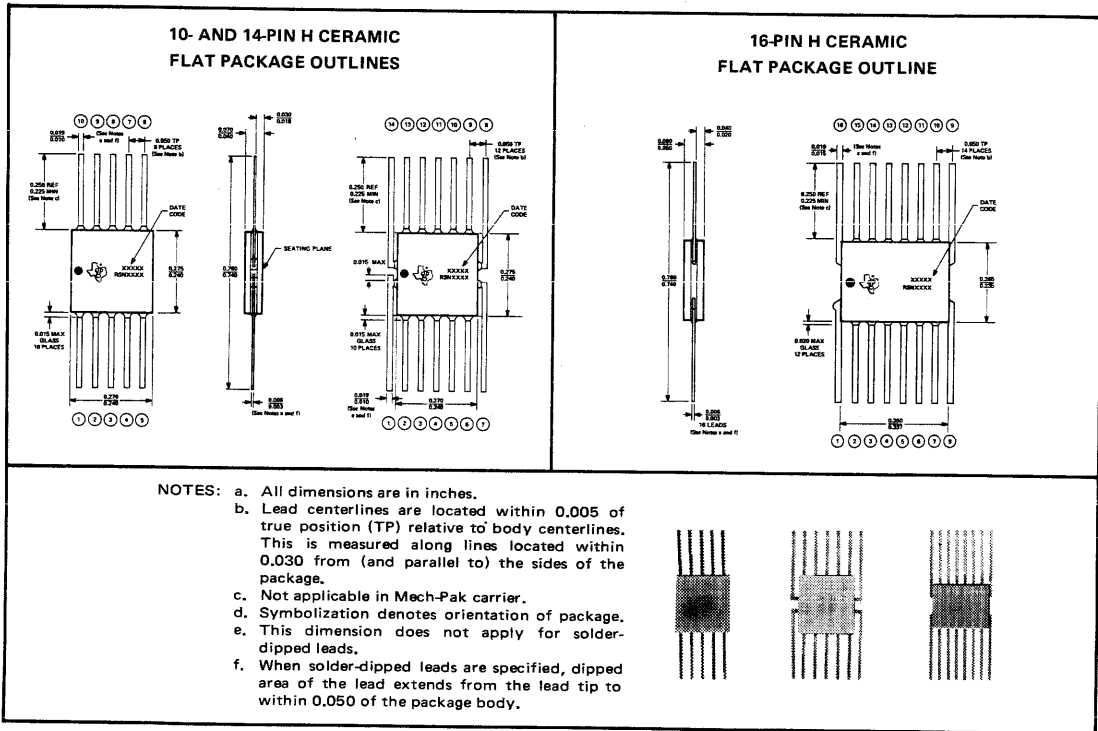


$\ddagger$ F-15 is the ASTM designation for an iron-nickel-cobalt alloy containing nominally 53% iron, 29% nickel, and 17% cobalt.

# INTEGRATED CIRCUITS MECHANICAL DATA

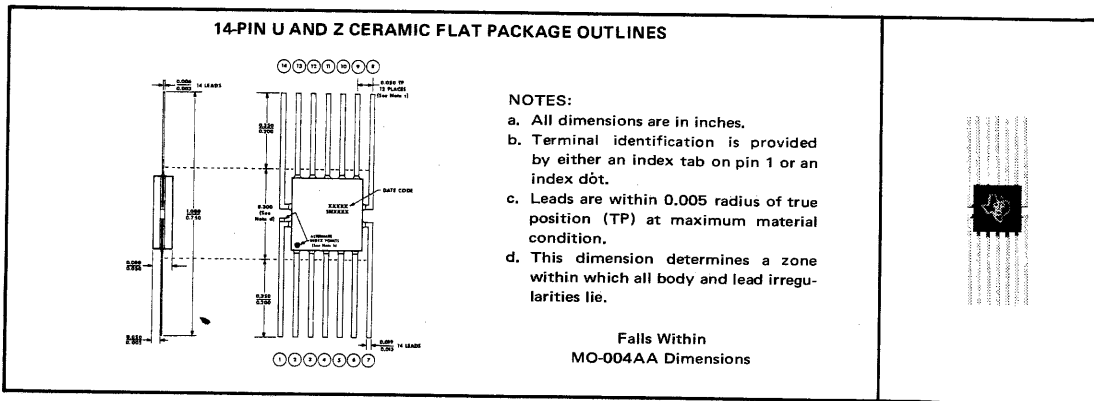
## H flat packages

These packages each consist of a ceramic base, ceramic cap, and a 10- or 14-lead frame. Hermetic sealing is accomplished with glass. Gold-plated leads (-00) require no additional cleaning or processing when used in welded or soldered assembly.



## U and Z flat packages

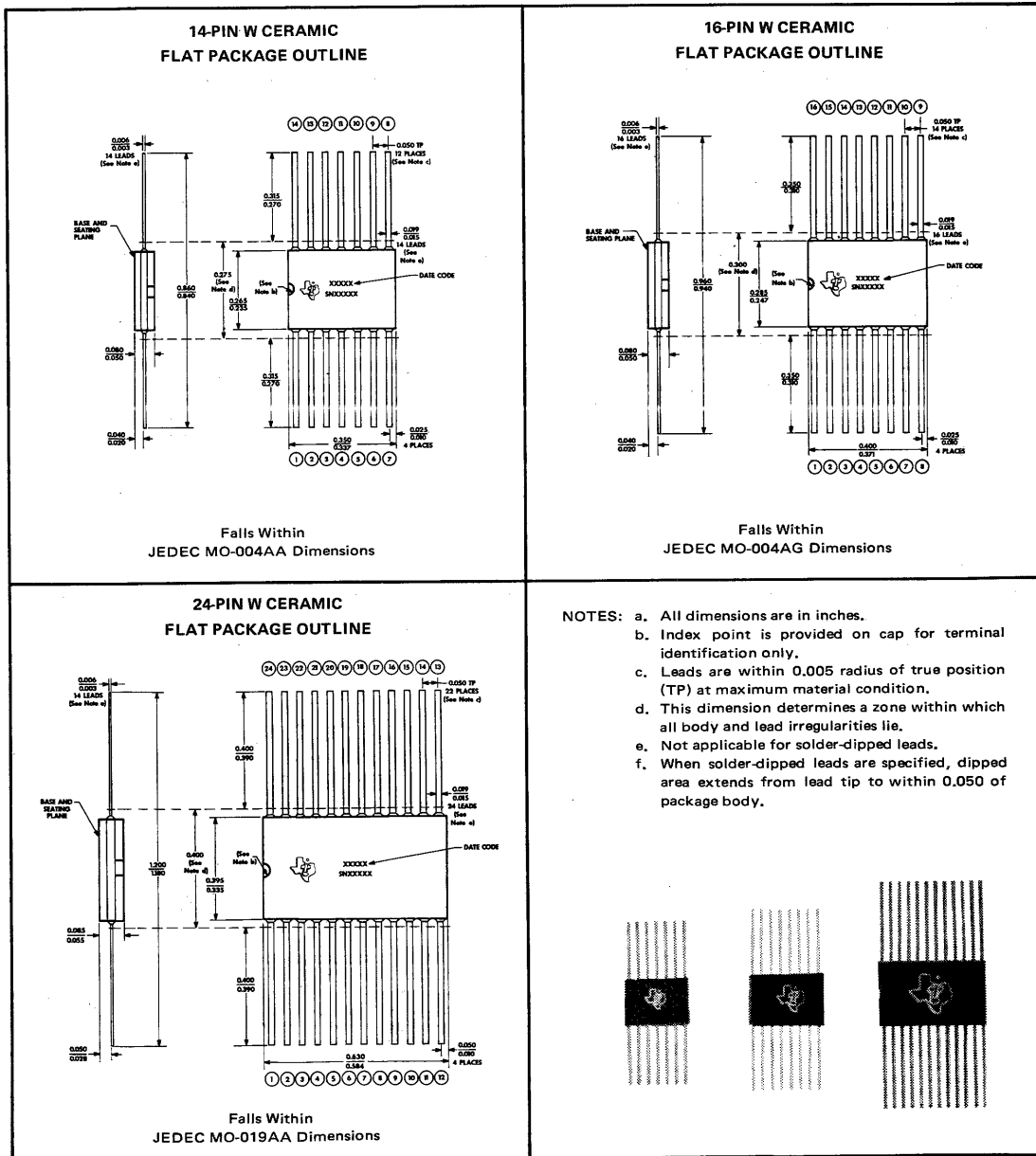
These flat packages consist of a ceramic base, ceramic cap, and 14-lead frame. Circuit bars are alloy-mounted in the U package and glass-mounted in the Z package. Hermetic sealing is accomplished with glass. Tin-plated leads require no additional cleaning or processing when used in soldered assembly.



# INTEGRATED CIRCUITS MECHANICAL DATA

## W ceramic flat packages

These hermetically sealed flat packages consist of an electrically nonconductive ceramic base and cap, and a 14-, 16- or 24-lead frame. Hermetic sealing is accomplished with glass. Tin-plated ("bright-dipped") leads (-00) require no additional cleaning or processing when used in soldered assembly.



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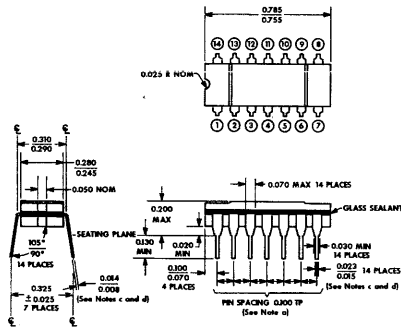
# INTEGRATED CIRCUITS MECHANICAL DATA

## J ceramic dual-in-line packages

These hermetically-sealed, dual-in line packages consist of a ceramic base, ceramic cap, and a 14-, 16-, or 24-lead frame. The circuit bar is alloy-mounted to the base and hermetic sealing is accomplished with glass. This package is intended for insertion in mounting-hole rows on 0.300-inch centers. Once the leads are compressed to 0.300-inch separation and inserted, sufficient tension is provided to secure the package in the board during soldering. Tin-plated ("bright-dipped") leads (-00) require no additional cleaning or processing when used in soldered assembly.

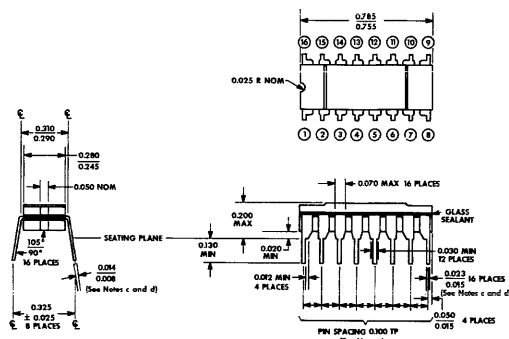
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**14-PIN J CERAMIC  
DUAL-IN-LINE PACKAGE OUTLINE**



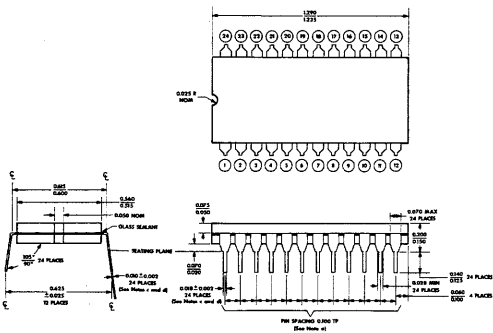
Falls Within JEDEC TO-116 and  
MO-001AA Dimensions

**16-PIN J CERAMIC  
DUAL-IN-LINE PACKAGE OUTLINE**

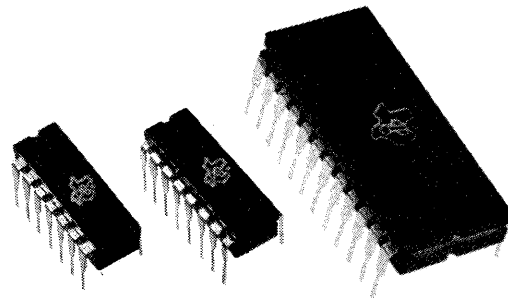


- NOTES: a. Each pin centerline is located within 0.010 of its true longitudinal position.  
b. All dimensions are in inches unless otherwise noted.  
c. This dimension does not apply for solder-dipped leads.  
d. When solder-dipped leads are specified, dipped area of the lead extends from the lead tip to at least 0.020 above the seating plane.

**24-PIN J CERAMIC  
DUAL-IN-LINE PACKAGE OUTLINE**



Falls Within  
JEDEC MO-015AA Dimensions

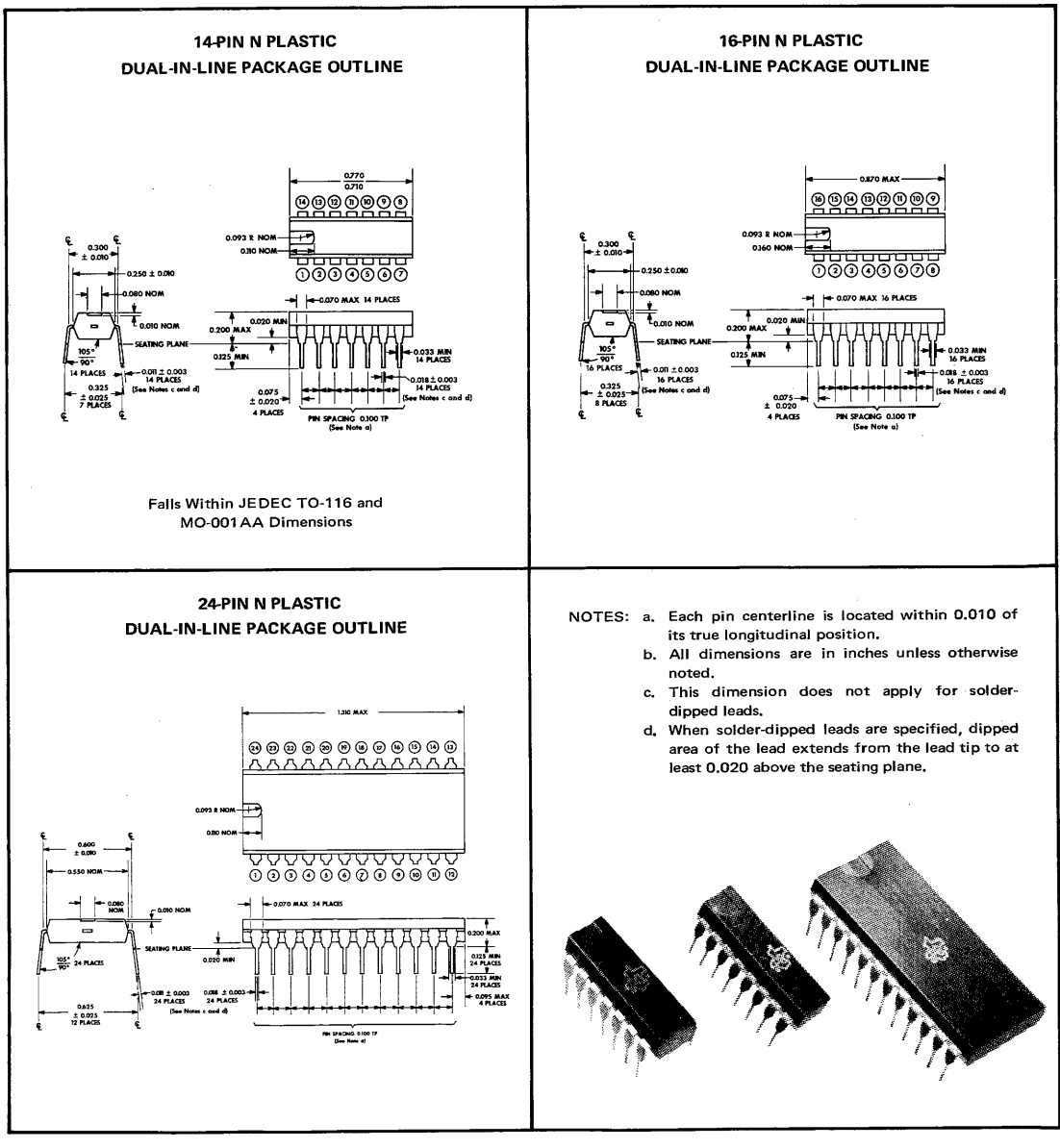


# INTEGRATED CIRCUITS MECHANICAL DATA

## N plastic dual-in-line packages

These dual-in-line packages consist of a circuit mounted on a 14-, 16-, or 24-lead frame and encapsulated within an electrically nonconductive, plastic compound. The compound will withstand soldering temperature with no deformation and circuit performance characteristics remain stable when operated in high-humidity conditions. These packages are intended for insertion in mounting-hole rows on 0.300-inch (or 0.600-inch) centers. Once the leads are compressed and inserted, sufficient tension is provided to secure the package in the board during soldering. Silver-plated leads (-00) require no additional cleaning or processing when used in soldered assembly.

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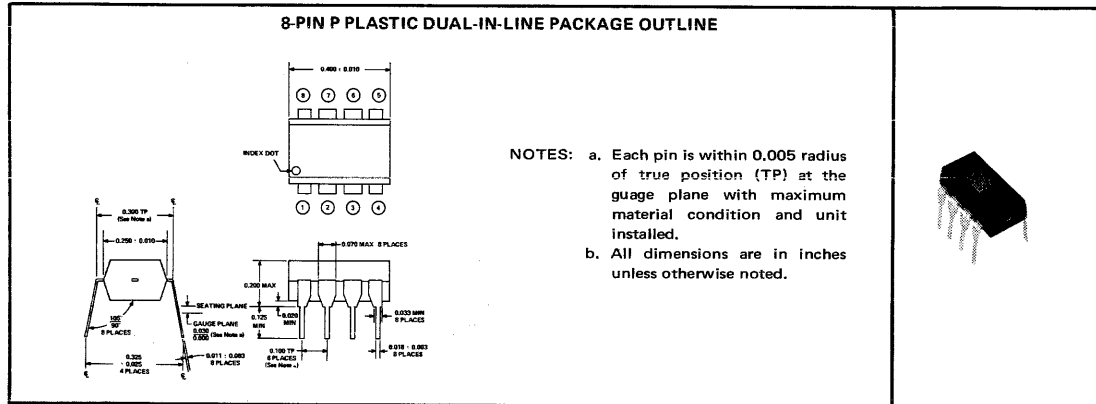


# INTEGRATED CIRCUITS MECHANICAL DATA

## P plastic dual-in-line package

This dual-in-line package consists of a circuit mounted on a 8-lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation and circuit performance characteristics remain stable when operated in high-humidity conditions. This package is intended for insertion in mounting-hole rows on 0.300-inch centers. Once the leads are compressed to 0.300-inch separation and inserted, sufficient tension is provided to secure the package in the board during soldering. Silver-plated leads require no additional cleaning or processing when used in soldered assembly.

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## L plug-in packages

These hermetically sealed, plug-in packages each consist of a welded metal base and cap with individual leads secured by an insulating glass sealant. The gold-plated leads (-00) require no additional cleaning or processing when used in soldered assembly.

