

# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

- Compare Two 8-Bit Words
- Choice of Totem-Pole or Open-Collector Outputs
- SN74ALS518 and 'ALS520 Have 20-k $\Omega$  Pullup Resistors on Q Inputs
- Package Options Include Plastic Small-Outline (DW) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

TYPE	INPUT PULLUP RESISTOR	OUTPUT FUNCTION AND CONFIGURATION
SN74ALS518	Yes	P = Q open collector
'ALS520	Yes	$\overline{P = Q}$ totem pole
SN74ALS521 <sup>‡</sup>	No	P = Q totem pole

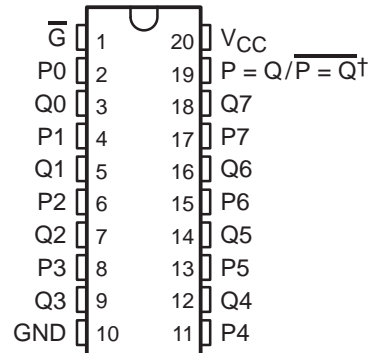
<sup>‡</sup> SN74ALS521 is identical to 'ALS688.

## description

These identity comparators perform comparisons on two 8-bit binary or BCD words. The SN74ALS518 provides P = Q outputs, while the 'ALS520 and SN74ALS521 provide  $\overline{P = Q}$  outputs. The SN74ALS518 has an open-collector output. The SN74ALS518 and 'ALS520 feature 20-k $\Omega$  pullup resistors on the Q inputs for analog or switch data.

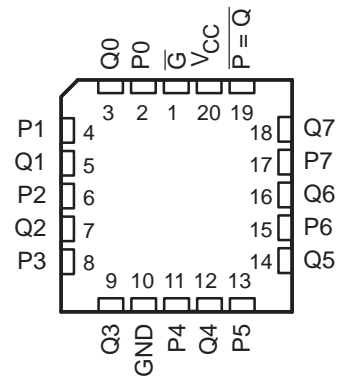
The SN54ALS520 is characterized for operation over the full military temperature range of -55°C to 125°C. The SN74ALS518, SN74ALS520, and SN74ALS521 are characterized for operation from 0°C to 70°C.

SN54ALS520 . . . J PACKAGE  
SN74ALS518, SN74ALS520,  
SN74ALS521 . . . DW OR N PACKAGE  
(TOP VIEW)



<sup>†</sup> P = Q for SN74ALS518  
P = Q for 'ALS520 and SN74ALS521

SN54ALS520 . . . FK PACKAGE  
(TOP VIEW)



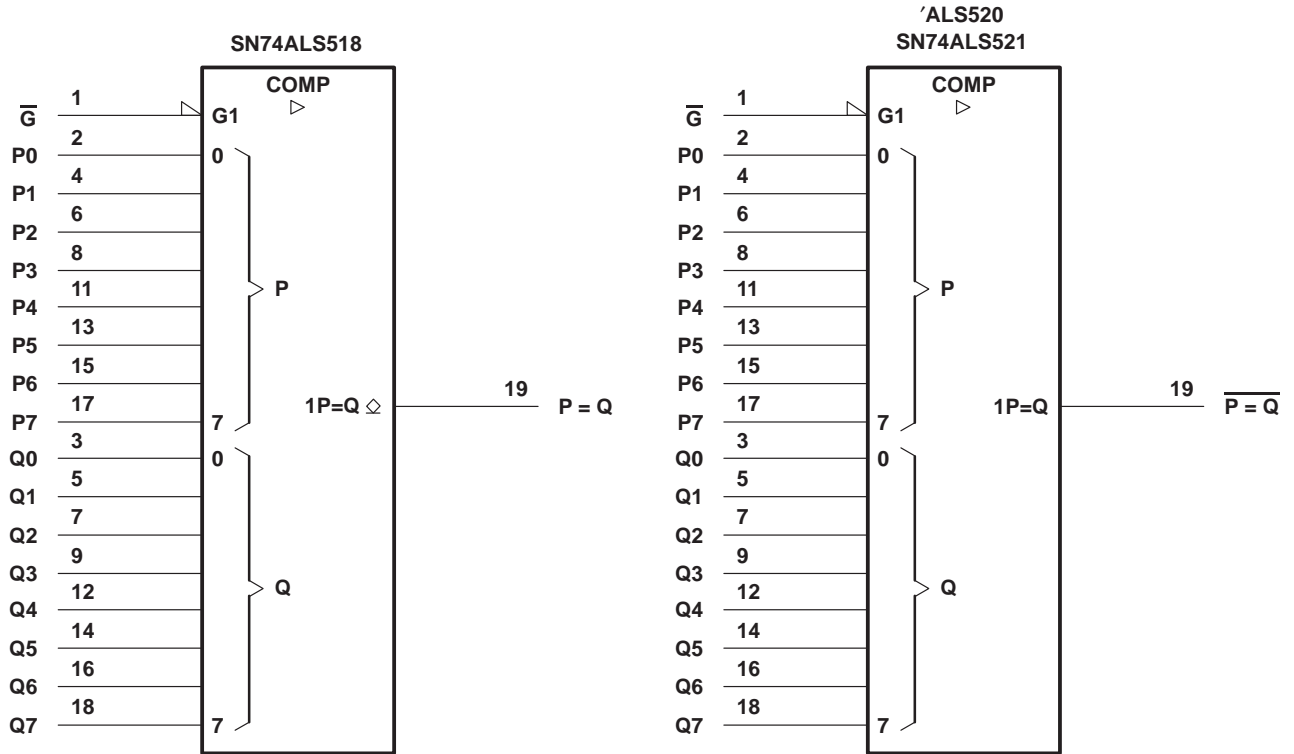
FUNCTION TABLE

INPUTS		OUTPUTS	
DATA P, Q	ENABLE $\overline{G}$	P = Q	$\overline{P = Q}$
P = Q	L	H	L
P > Q	L	L	H
P < Q	L	L	H
X	H	L	H

# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

## logic symbols†

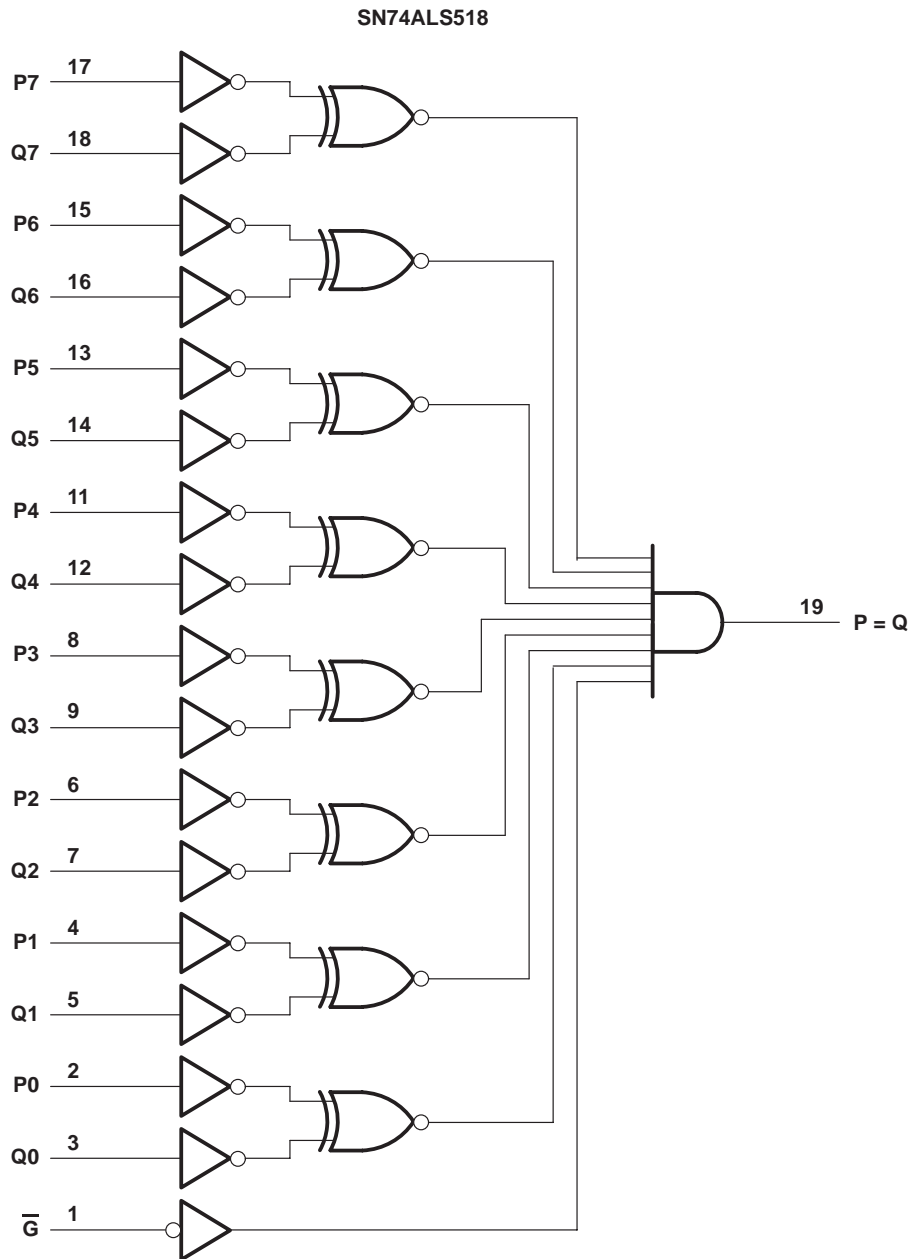


† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

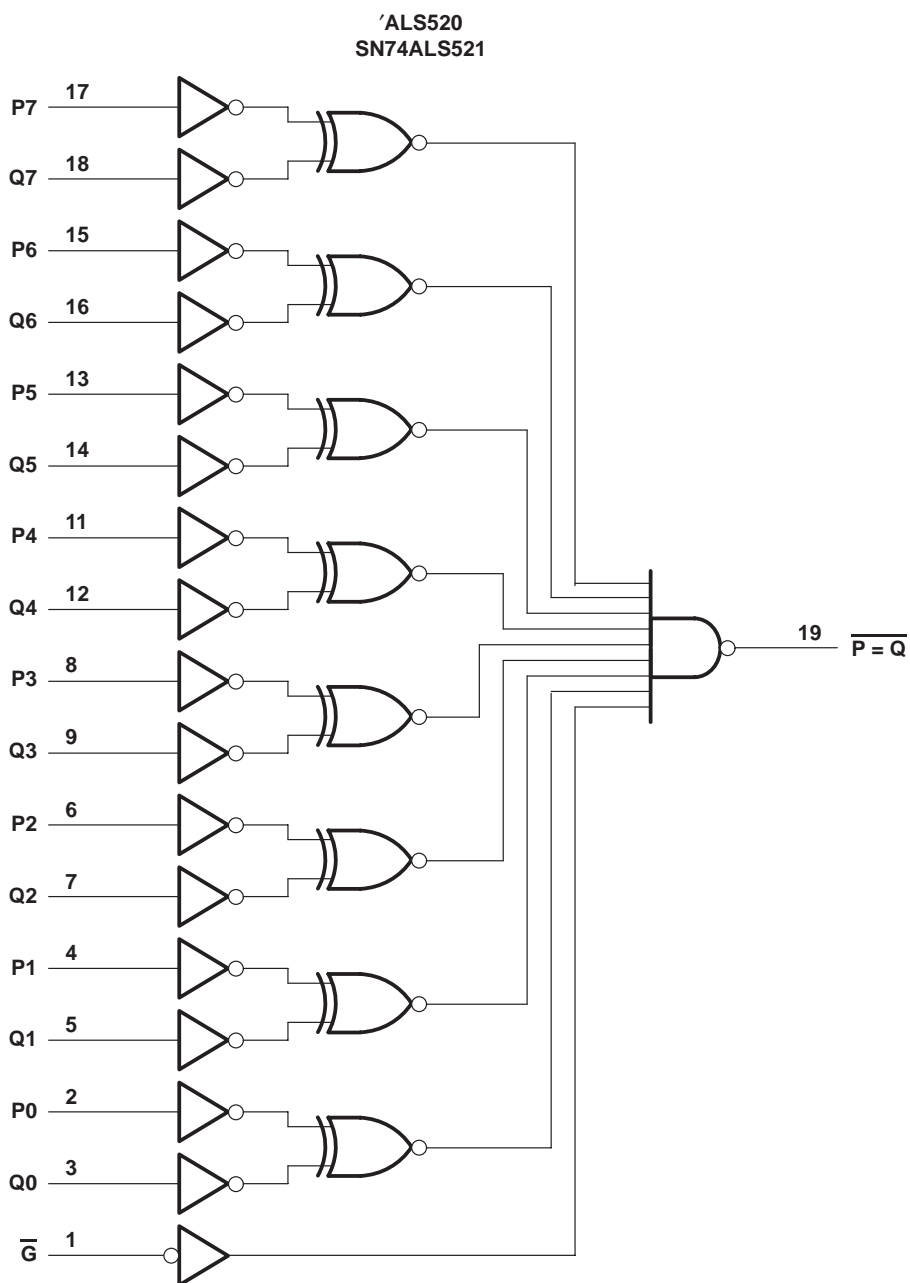
## logic diagrams (positive logic)



# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

## logic diagrams (positive logic) (continued)



# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage, $V_{CC}$ .....	7 V
Input voltage, $V_I$ : Q inputs .....	$V_{CC} + 0.5$ V or 5.5 V, whichever is less
All other inputs .....	7 V
Off-state output voltage .....	7 V
Operating free-air temperature range, $T_A$ : SN74ALS518 .....	0°C to 70°C
Storage temperature range .....	–65°C to 150°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

## recommended operating conditions

		SN74ALS518			UNIT
		MIN	NOM	MAX	
$V_{CC}$	Supply voltage	4.5	5	5.5	V
$V_{IH}$	High-level input voltage	2			V
$V_{IL}$	Low-level input voltage			0.8	V
$V_{OH}$	High-level output voltage			5.5	V
$I_{OL}$	Low-level output current			24	mA
$T_A$	Operating free-air temperature	0		70	°C

## electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS		SN74ALS518		UNIT
				MIN	TYP‡	
$V_{IK}$		$V_{CC} = 4.5$ V,	$I_I = -18$ mA		–1.5	V
$I_{OH}$		$V_{CC} = 5.5$ V,	$V_{OH} = 5.5$ V		0.1	mA
$V_{OL}$		$V_{CC} = 4.5$ V	$I_{OL} = 12$ mA	0.25	0.4	V
			$I_{OL} = 24$ mA	0.35	0.5	
$I_I$	Q inputs	$V_{CC} = 5.5$ V	$V_I = 5.5$ V		0.1	mA
	All other inputs		$V_I = 7$ V		0.1	
$I_{IH}$	Q inputs	$V_{CC} = 5.5$ V,	$V_I = 2.7$ V		–0.2	mA
	All other inputs				20	
$I_{IL}$	Q inputs	$V_{CC} = 5.5$ V,	$V_I = 0.4$ V		–0.6	mA
	All other inputs				–0.1	
$I_{CC}$		$V_{CC} = 5.5$ V,	See Note 1	11	17	mA

‡ All typical values are at  $V_{CC} = 5$  V,  $T_A = 25$ °C.

NOTE 1:  $I_{CC}$  is measured with  $\bar{G}$  grounded, and P and Q at 4.5 V.



# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

## switching characteristics (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V <sub>CC</sub> = 4.5 V to 5.5 V, C <sub>L</sub> = 50 pF, R <sub>L</sub> = 680 Ω, T <sub>A</sub> = MIN to MAX†		UNIT
			SN74ALS518		
			MIN	MAX	
t <sub>PLH</sub>	P or Q	P = Q	15	33	ns
t <sub>PHL</sub>			3	15	
t <sub>PLH</sub>	$\bar{G}$	P = Q	15	33	ns
t <sub>PHL</sub>			3	15	

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)‡

Supply voltage, V <sub>CC</sub>	7 V
Input voltage, V <sub>I</sub> : Q inputs of 'ALS520	V <sub>CC</sub> + 0.5 V or 5.5 V, whichever is less
All other inputs	7 V
Operating free-air temperature range, T <sub>A</sub> : SN54ALS520	–55°C to 125°C
SN74ALS520, SN74ALS521	0°C to 70°C
Storage temperature range	–65°C to 150°C

‡ Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

## recommended operating conditions

	SN54ALS520			SN74ALS520 SN74ALS521			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub> Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V <sub>IH</sub> High-level input voltage	2			2			V
V <sub>IL</sub> Low-level input voltage			0.7			0.8	V
I <sub>OH</sub> High-level output current			–1			–2.6	mA
I <sub>OL</sub> Low-level output current			12			24	mA
T <sub>A</sub> Operating free-air temperature	–55		125	0		70	°C

# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

**electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)**

PARAMETER		TEST CONDITIONS	SN54ALS520			SN74ALS520 SN74ALS521			UNIT
			MIN	TYP†	MAX	MIN	TYP†	MAX	
V <sub>IK</sub>		V <sub>CC</sub> = 4.5 V, I <sub>I</sub> = -18 mA	-1.5			-1.5			V
V <sub>OH</sub>		V <sub>CC</sub> = 4.5 V to 5.5 V, I <sub>OH</sub> = -0.4 mA	V <sub>CC</sub> - 2			V <sub>CC</sub> - 2			V
		V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -1 mA	2.4	3.3					
V <sub>OL</sub>		V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 12 mA	0.25 0.4			0.25 0.4			V
			I <sub>OL</sub> = 24 mA			0.35 0.5			
I <sub>I</sub>	'ALS520 Q inputs	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 5.5 V	0.1			0.1			mA
	All other inputs		0.1			0.1			
I <sub>IH</sub>	'ALS520 Q inputs	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 2.7 V	-0.2			-0.2			mA
	All other inputs		20			20			
I <sub>IL</sub>	'ALS520 Q inputs	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 0.4 V	-0.6			-0.6			mA
	All other inputs		-0.1			-0.1			
I <sub>O</sub> ‡		V <sub>CC</sub> = 5.5 V, V <sub>O</sub> = 2.25 V	-20	-112	-30	-112	mA		
I <sub>CC</sub>	'ALS520	V <sub>CC</sub> = 5.5 V, See Note 1	12	19	12	19	mA		
	SN74ALS521		12	19	12	19			

† All typical values are at V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C.

‡ The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I<sub>O</sub>S.

NOTE 1: I<sub>CC</sub> is measured with  $\bar{G}$  grounded, and P and Q at 4.5 V.

## switching characteristics (see Figure 1)

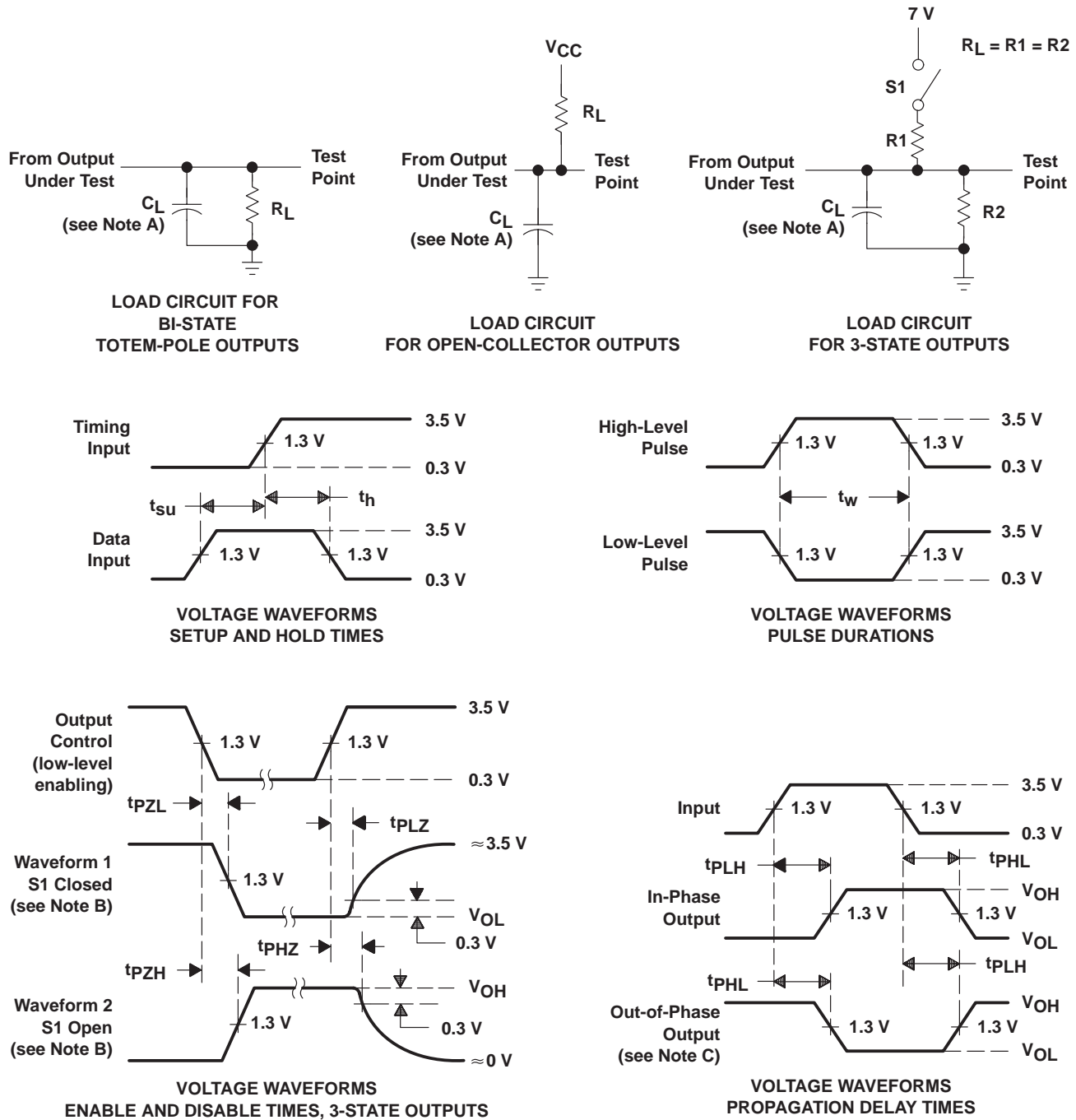
PARAMETER	FROM (INPUT)	TO (OUTPUT)	V <sub>CC</sub> = 4.5 V to 5.5 V, C <sub>L</sub> = 50 pF, R <sub>L</sub> = 500 Ω, T <sub>A</sub> = MIN to MAX§				UNIT
			SN54ALS520		SN74ALS520 SN74ALS521		
			MIN	MAX	MIN	MAX	
t <sub>PLH</sub>	P or Q	$\bar{P} = \bar{Q}$	3	19	3	12	ns
t <sub>PHL</sub>			3	25	5	20	
t <sub>PLH</sub>	G	P = Q	2	18	2	12	ns
t <sub>PHL</sub>			5	23	5	22	

§ For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

# SN54ALS520, SN74ALS518, SN74ALS520, SN74ALS521 8-BIT IDENTITY COMPARATORS

SDAS224B – JUNE 1982 – REVISED NOVEMBER 1995

## PARAMETER MEASUREMENT INFORMATION SERIES 54ALS/74ALS AND 54AS/74AS DEVICES



- NOTES: A.  $C_L$  includes probe and jig capacitance.  
 B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.  
 C. When measuring propagation delay items of 3-state outputs, switch S1 is open.  
 D. All input pulses have the following characteristics:  $PRR \leq 1$  MHz,  $t_r = t_f = 2$  ns, duty cycle = 50%.  
 E. The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuits and Voltage Waveforms



**PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>
5962-88691012A	ACTIVE	LCCC	FK	20	1	TBD	Call TI	Level-NC-NC-NC
5962-8869101RA	ACTIVE	CDIP	J	20	1	TBD	Call TI	Level-NC-NC-NC
SN54ALS520J	ACTIVE	CDIP	J	20	1	TBD	Call TI	Level-NC-NC-NC
SN74ALS518DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS518DWE4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS518N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS518NE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS518NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS518NSRE4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520DWE4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520DWRE4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS520NE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS520NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS520NSRE4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521DWE4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521DWRE4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS521NE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
SN74ALS521NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74ALS521NSRE4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SNJ54ALS520FK	ACTIVE	LCCC	FK	20	1	TBD	Call TI	Level-NC-NC-NC
SNJ54ALS520J	ACTIVE	CDIP	J	20	1	TBD	Call TI	Level-NC-NC-NC

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

**Important Information and Disclaimer:**The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

J (R-GDIP-T\*\*)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



DIM \ PINS **	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)



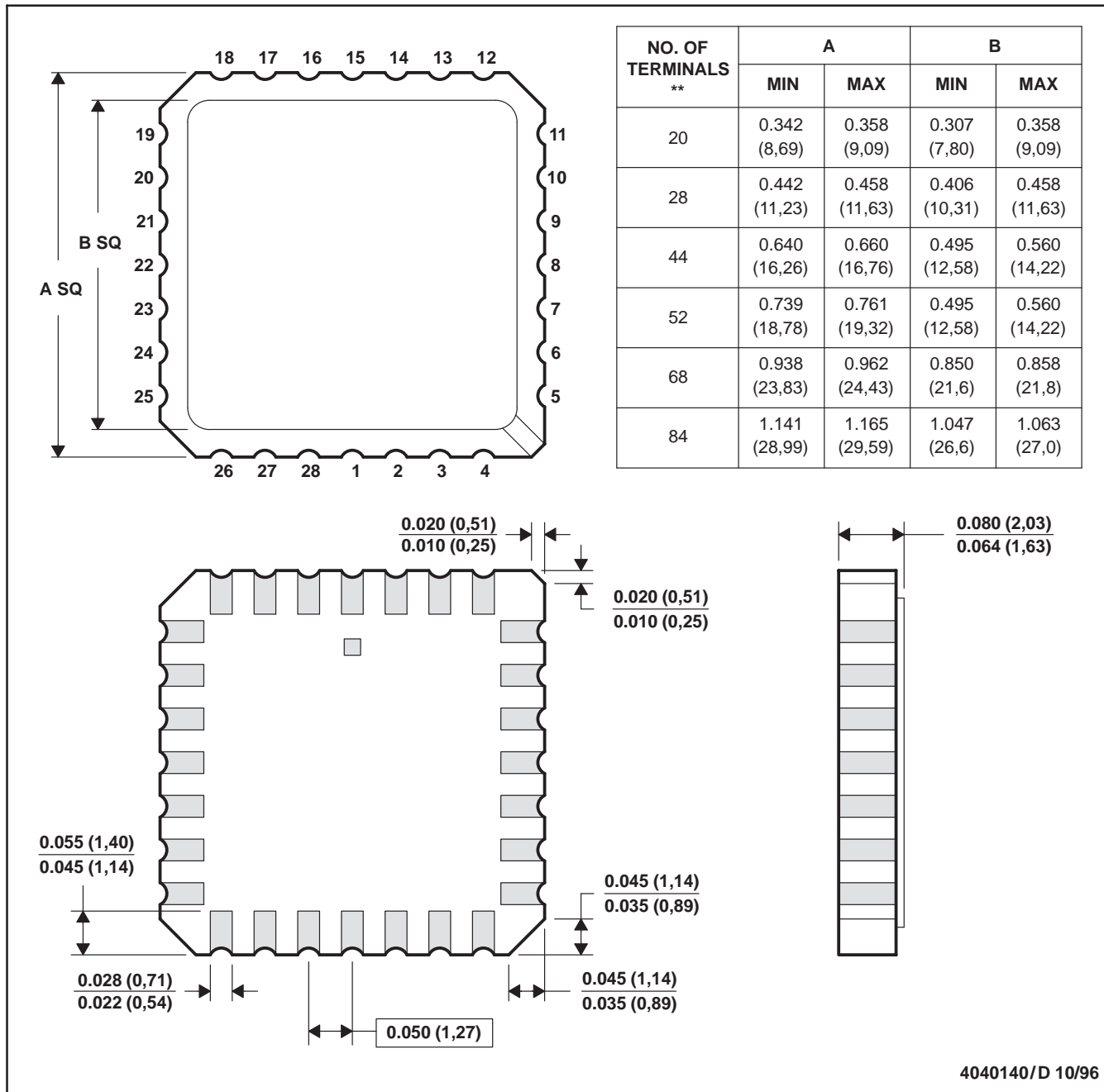
4040083/F 03/03

- NOTES:
- All linear dimensions are in inches (millimeters).
  - This drawing is subject to change without notice.
  - This package is hermetically sealed with a ceramic lid using glass frit.
  - Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
  - Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

FK (S-CQCC-N\*\*)

LEADLESS CERAMIC CHIP CARRIER

28 TERMINAL SHOWN



- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - C. This package can be hermetically sealed with a metal lid.
  - D. The terminals are gold plated.
  - E. Falls within JEDEC MS-004

N (R-PDIP-T\*\*)

PLASTIC DUAL-IN-LINE PACKAGE

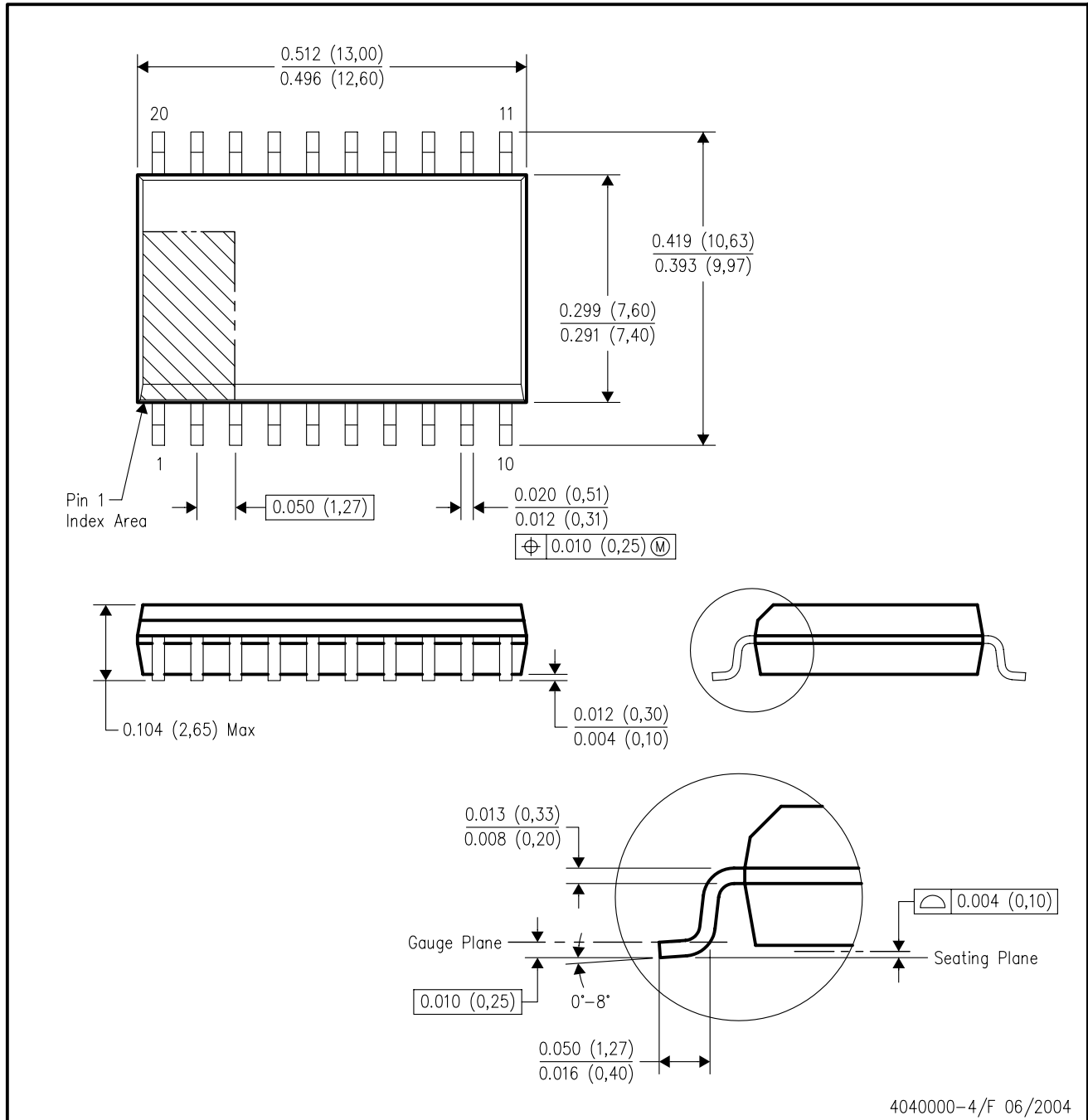
16 PINS SHOWN



- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
  - The 20 pin end lead shoulder width is a vendor option, either half or full width.

DW (R-PDSO-G20)

PLASTIC SMALL-OUTLINE PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
  - D. Falls within JEDEC MS-013 variation AC.

# MECHANICAL DATA

NS (R-PDSO-G\*\*)

PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN



- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

## IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

<b>Products</b>		<b>Applications</b>	
Amplifiers	<a href="http://amplifier.ti.com">amplifier.ti.com</a>	Audio	<a href="http://www.ti.com/audio">www.ti.com/audio</a>
Data Converters	<a href="http://dataconverter.ti.com">dataconverter.ti.com</a>	Automotive	<a href="http://www.ti.com/automotive">www.ti.com/automotive</a>
DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>	Broadband	<a href="http://www.ti.com/broadband">www.ti.com/broadband</a>
Interface	<a href="http://interface.ti.com">interface.ti.com</a>	Digital Control	<a href="http://www.ti.com/digitalcontrol">www.ti.com/digitalcontrol</a>
Logic	<a href="http://logic.ti.com">logic.ti.com</a>	Military	<a href="http://www.ti.com/military">www.ti.com/military</a>
Power Mgmt	<a href="http://power.ti.com">power.ti.com</a>	Optical Networking	<a href="http://www.ti.com/opticalnetwork">www.ti.com/opticalnetwork</a>
Microcontrollers	<a href="http://microcontroller.ti.com">microcontroller.ti.com</a>	Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
		Telephony	<a href="http://www.ti.com/telephony">www.ti.com/telephony</a>
		Video & Imaging	<a href="http://www.ti.com/video">www.ti.com/video</a>
		Wireless	<a href="http://www.ti.com/wireless">www.ti.com/wireless</a>

Mailing Address: Texas Instruments  
Post Office Box 655303 Dallas, Texas 75265