

# SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258 QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES WITH 3-STATE OUTPUTS

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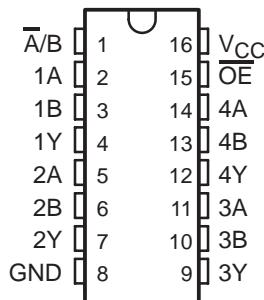
- 3-State Outputs Interface Directly With System Bus
- Provide Bus Interface From Multiple Sources in High-Performance Systems
- Package Options Include Plastic Small-Outline (D) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs

## description

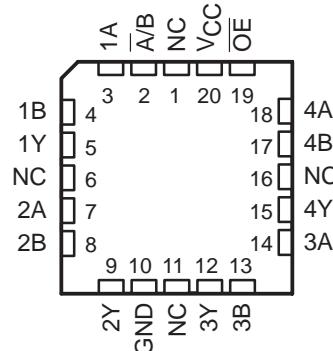
These data selectors/multiplexers are designed to multiplex signals from 4-bit data sources to 4-output data lines in bus-organized systems. The 3-state outputs do not load the data lines when the output-enable ( $\overline{OE}$ ) input is at a high logic level.

The SN54ALS257A and SN54ALS258A are characterized for operation over the full military temperature range of  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ . The SN74ALS257A, SN74ALS258A, SN74AS257, and SN74AS258 are characterized for operation from  $0^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .

SN54ALS257A, SN54ALS258A . . . J PACKAGE  
SN74ALS257A, SN74ALS258A, SN74AS257,  
SN74AS258 . . . D OR N PACKAGE  
(TOP VIEW)



SN54ALS257A, SN54ALS258A . . . FK PACKAGE  
(TOP VIEW)



NC – No internal connection

FUNCTION TABLE

INPUTS			OUTPUT Y		
$\overline{OE}$	$\overline{A/B}$	DATA		SN54ALS257A	SN54ALS258A
		A	B	SN74ALS257A	SN74ALS258A
H	X	X	X	Z	Z
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L



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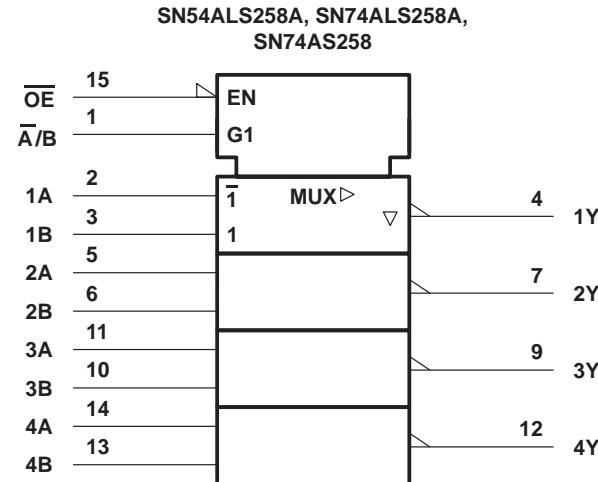
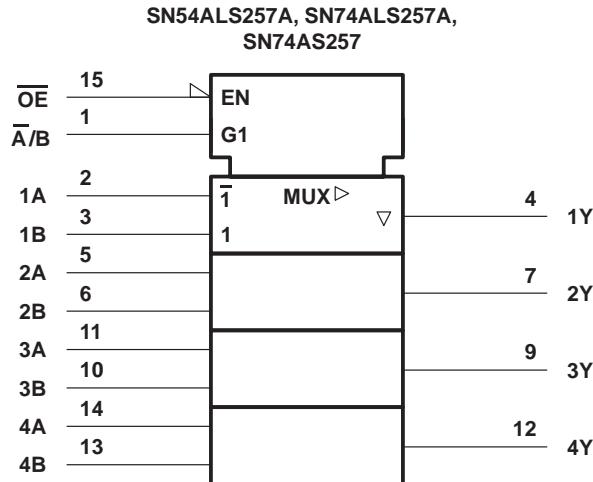


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**SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258**  
**QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES**  
**WITH 3-STATE OUTPUTS**

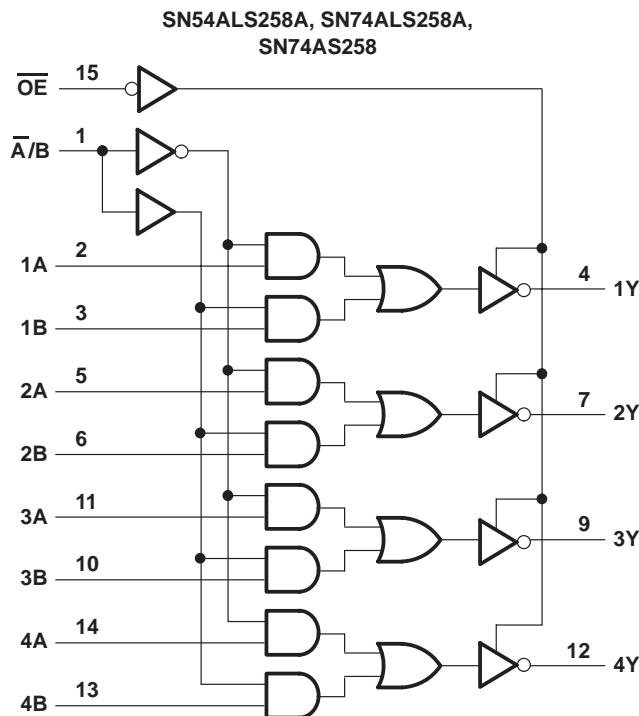
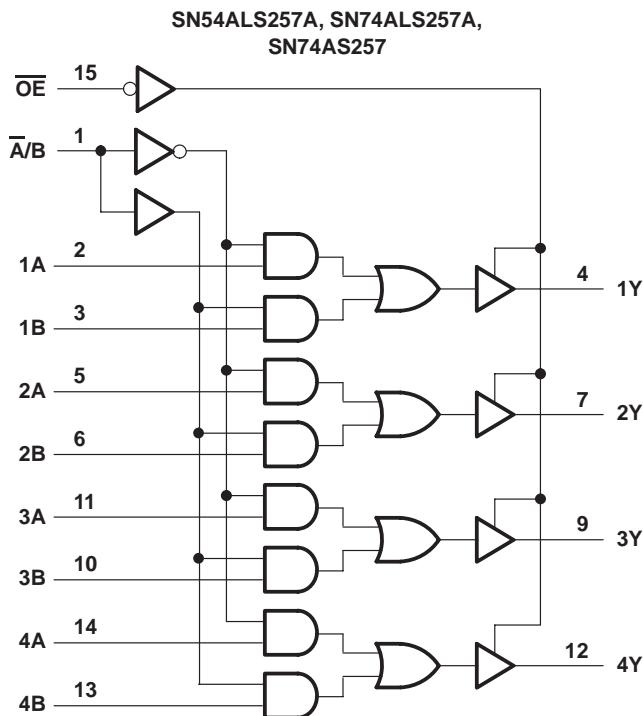
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**logic symbols<sup>†</sup>**



<sup>†</sup> These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.  
Pin numbers shown are for the D, J, and N packages.

**logic diagrams (positive logic)**



Pin numbers shown are for the D, J, and N packages.

**SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258  
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS  
WITH 3-STATE OUTPUTS**

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absolute maximum ratings over operating free-air temperature range (unless otherwise noted)<sup>†</sup>

Supply voltage, $V_{CC}$	7 V
Input voltage, $V_I$	7 V
Voltage applied to a disabled 3-state output	5.5 V
Maximum power dissipation at $T_A = 55^\circ\text{C}$ (in still air) (see Note 1):	
D package	1.3 W
N package	1.1 W
Operating free-air temperature range, $T_A$ :	
SN54ALS257A, SN54ALS258A	-55°C to 125°C
SN74ALS257A, SN74ALS258A	0°C to 70°C
Storage temperature range, $T_{Stg}$	-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.

NOTE 1: The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils, except for the N package, which has a trace length of zero.

### **recommended operating conditions**

		SN54ALS257A SN54ALS258A			SN74ALS257A SN74ALS258A			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

**SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258  
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES  
WITH 3-STATE OUTPUTS**

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

PARAMETER	TEST CONDITIONS	SN54ALS257A SN54ALS258A			SN74ALS257A SN74ALS258A			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				
		I <sub>OH</sub> = -2.6 mA			2.4	3.2		
V <sub>OH</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>OZH</sub>	V <sub>CC</sub> = 5.5 V, V <sub>O</sub> = 2.7 V		20			20		µA
I <sub>OZL</sub>	V <sub>CC</sub> = 5.5 V, V <sub>O</sub> = 0.4 V		-20			-20		µA
I <sub>I</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 7 V		0.1			0.1		mA
I <sub>IH</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 2.7 V		20			20		µA
I <sub>IL</sub>	V <sub>CC</sub> = 5.5 V, V <sub>I</sub> = 0.4 V		-0.1			-0.1		mA
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>	SN54ALS257A, SN74ALS257A	Outputs high	3	8	3	6		mA
		Outputs low	8	12	8	12		
		Outputs disabled	9	14	9	14		
	SN54ALS258A, SN74ALS258A	Outputs high	2.5	5	2.5	4		
		Outputs low	7	11	7	11		
		Outputs disabled	8	13	8	13		

† 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>OS</sub>.

**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>1</sub> = 500 Ω, R <sub>2</sub> = 500 Ω, T <sub>A</sub> = MIN to MAX§				UNIT	
			SN54ALS257A		SN74ALS257A			
			MIN	MAX	MIN	MAX		
t <sub>PLH</sub>	A or B	Any Y	2	12	2	10	ns	
t <sub>PHL</sub>			2	14	2	12		
t <sub>PLH</sub>	A/B	Any Y	4	21	6	18	ns	
t <sub>PHL</sub>			6	25	6	22		
t <sub>PZH</sub>	OE	Any Y	3	20	4	16	ns	
t <sub>PZL</sub>			4	22	5	18		
t <sub>PHZ</sub>	OE	Any Y	2	12	2	10	ns	
t <sub>PLZ</sub>			2	35	4	15		

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



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**QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES**  
**WITH 3-STATE OUTPUTS**

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**switching characteristics (see Figure 1)**

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V}$ , $C_L = 50\text{ pF}$ , $R1 = 500\text{ }\Omega$ , $R2 = 500\text{ }\Omega$ , $T_A = \text{MIN to MAX}^{\dagger}$				UNIT	
			SN54ALS258A		SN74ALS258A			
			MIN	MAX	MIN	MAX		
$t_{PLH}$	A or B	Any Y	1	12	2	8	ns	
$t_{PHL}$			2	9	2	7		
$t_{PLH}$	A/B	Any Y	4	28	5	25	ns	
$t_{PHL}$			5	25	6	20		
$t_{PZH}$	$\overline{OE}$	Any Y	3	20	4	18	ns	
$t_{PZL}$			5	21	5	18		
$t_{PHZ}$	$\overline{OE}$	Any Y	2	12	2	10	ns	
$t_{PLZ}$			3	37	4	18		

<sup>†</sup> For conditions shown 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, $V_{CC}$ .....	7 V
Input voltage, $V_I$ .....	7 V
Voltage applied to a disabled 3-state output .....	5.5 V
Maximum power dissipation at $T_A = 55^\circ\text{C}$ (in still air) (see Note 1): D package .....	1.3 W
N package .....	1.1 W
Operating free-air temperature range, $T_A$ : SN74AS257, SN74AS258 .....	0°C to 70°C
Storage temperature range, $T_{stg}$ .....	-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.

NOTE 1: The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils, except for the N package, which has a trace length of zero.

**recommended operating conditions**

		SN74AS257 SN74AS258			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
$I_{OH}$	High-level output current			-15	mA
$I_{OL}$	Low-level output current			48	mA
$T_A$	Operating free-air temperature	0	70		°C



**SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258**  
**QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES**  
**WITH 3-STATE OUTPUTS**

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

PARAMETER	TEST CONDITIONS	SN74AS257 SN74AS258			UNIT
		MIN	TYP†	MAX	
$V_{IK}$	$V_{CC} = 4.5 \text{ V}$ , $I_I = -18 \text{ mA}$			-1.2	V
$V_{OH}$	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$ , $I_{OH} = -2 \text{ mA}$	$V_{CC} - 2$			V
	$V_{CC} = 4.5 \text{ V}$ , $I_{OH} = -15 \text{ mA}$	2.4	3.2		
$V_{OL}$	$V_{CC} = 4.5 \text{ V}$ , $I_{OL} = 48 \text{ mA}$		0.35	0.5	V
$I_{OZH}$	$V_{CC} = 5.5 \text{ V}$ , $V_O = 2.7 \text{ V}$			50	$\mu\text{A}$
$I_{OZL}$	$V_{CC} = 5.5 \text{ V}$ , $V_O = 0.4 \text{ V}$			-50	$\mu\text{A}$
$I_I$	$A, B, \text{ or } \overline{OE}$ $\overline{A}/B$	$V_{CC} = 5.5 \text{ V}$ , $V_I = 7 \text{ V}$		0.1	mA
				0.2	
$I_{IH}$	$A, B, \text{ or } \overline{OE}$ $\overline{A}/B$	$V_{CC} = 5.5 \text{ V}$ , $V_I = 2.7 \text{ V}$		20	$\mu\text{A}$
				40	
$I_{IL}$	$A, B, \text{ or } \overline{OE}$ $\overline{A}/B$	$V_{CC} = 5.5 \text{ V}$ , $V_I = 0.4 \text{ V}$		-0.5	mA
				-1	
$I_O^{\ddagger}$	$V_{CC} = 5.5 \text{ V}$ , $V_O = 2.25 \text{ V}$		-30	-112	mA
$I_{CC}$	SN74AS257	$V_{CC} = 5.5 \text{ V}$	Outputs high	12.1	mA
			Outputs low	19	
			Outputs disabled	19.7	
	SN74AS258	$V_{CC} = 5.5 \text{ V}$	Outputs high	8.4	mA
			Outputs low	15.2	
			Outputs disabled	15.5	

† All typical values are at  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^\circ\text{C}$ .

‡ The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current,  $I_{OS}$ .

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**QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES**  
**WITH 3-STATE OUTPUTS**

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**switching characteristics (see Figure 1)**

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V},$ $C_L = 50\text{ pF},$ $R1 = 500\text{ }\Omega,$ $R2 = 500\text{ }\Omega,$ $T_A = \text{MIN to MAX}^\dagger$	UNIT	
			SN74AS257		
			MIN	MAX	
$t_{PLH}$	A or B	Any Y	1	5.5	ns
$t_{PHL}$			1	6	
$t_{PLH}$	$\overline{A/B}$	Any Y	2	11	ns
$t_{PHL}$			2	10	
$t_{PZH}$	$\overline{OE}$	Any Y	2	7.5	ns
$t_{PZL}$			2	9.5	
$t_{PHZ}$	$\overline{OE}$	Any Y	1.5	6.5	ns
$t_{PLZ}$			2	7	

**switching characteristics (see Figure 1)**

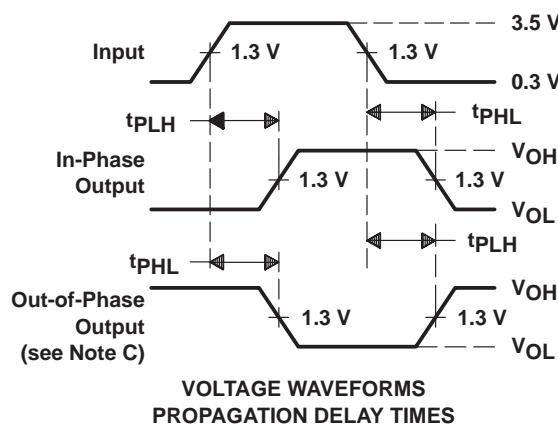
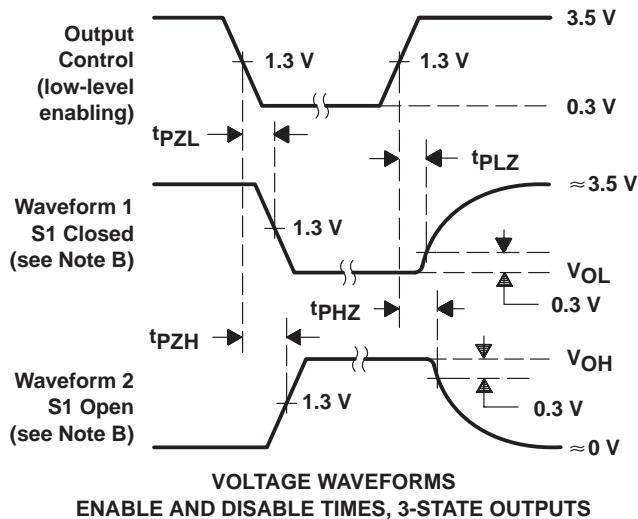
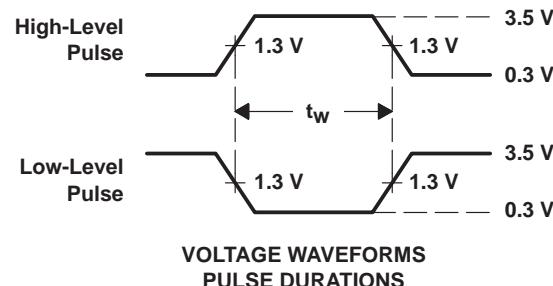
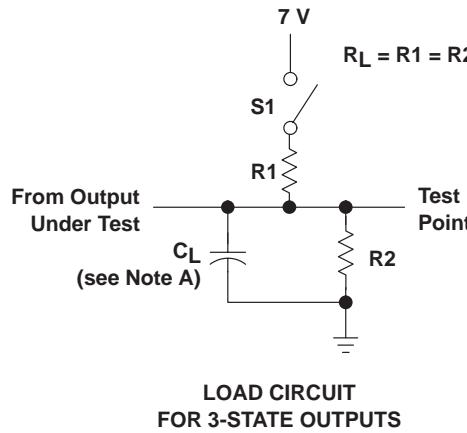
PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V},$ $C_L = 50\text{ pF},$ $R1 = 500\text{ }\Omega,$ $R2 = 500\text{ }\Omega,$ $T_A = \text{MIN to MAX}^\dagger$	UNIT	
			SN74AS258		
			MIN	MAX	
$t_{PLH}$	A or B	Any Y	1	5	ns
$t_{PHL}$			1	4	
$t_{PLH}$	$\overline{A/B}$	Any Y	2	9.5	ns
$t_{PHL}$			2	10	
$t_{PZH}$	$\overline{OE}$	Any Y	2	8	ns
$t_{PZL}$			2	10	
$t_{PHZ}$	$\overline{OE}$	Any Y	1.5	6	ns
$t_{PLZ}$			2	6.5	

<sup>†</sup> For conditions shown MIN or MAX, use the appropriate value specified under recommended operating conditions.

**SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A, SN74AS257, SN74AS258  
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MUXES  
WITH 3-STATE OUTPUTS**

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**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.  
 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 (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
5962-88626012A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	5962-88626012A SNJ54ALS258AFK	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
5962-8862601EA	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	5962-8862601EA SNJ54ALS258AJ	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
5962-8862601FA	ACTIVE	CFP	W	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	5962-8862601FA SNJ54ALS258AW	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
85097012A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	85097012A SNJ54ALS257AFK	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
8509701EA	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	8509701EA SNJ54ALS257AJ	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
8509701FA	ACTIVE	CFP	W	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	8509701FA SNJ54ALS257AW	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN54ALS257AJ	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	SN54ALS257AJ	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257AD	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS257A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257ADG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS257A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257ADR	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS257A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257AN	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74ALS257AN	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257ANE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74ALS257AN	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS257ANSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS257A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS258AD	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS258A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS258ADR	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	ALS258A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN74ALS258AN	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74ALS258AN	<span style="background-color: red; color: white; padding: 2px;">Samples</span>

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SN74ALS258ANE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74ALS258AN	<a href="#">Samples</a>
SN74AS257D	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	AS257	<a href="#">Samples</a>
SN74AS257N	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74AS257N	<a href="#">Samples</a>
SN74AS257NSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	74AS257	<a href="#">Samples</a>
SN74AS258N	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN74AS258N	<a href="#">Samples</a>
SNJ54ALS257AFK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	85097012A SNJ54ALS 257AFK	<a href="#">Samples</a>
SNJ54ALS257AJ	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	8509701EA SNJ54ALS257AJ	<a href="#">Samples</a>
SNJ54ALS257AW	ACTIVE	CFP	W	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	8509701FA SNJ54ALS257AW	<a href="#">Samples</a>
SNJ54ALS258AFK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	-55 to 125	5962- 88626012A SNJ54ALS 258AFK	<a href="#">Samples</a>
SNJ54ALS258AJ	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	5962-8862601EA SNJ54ALS258AJ	<a href="#">Samples</a>
SNJ54ALS258AW	ACTIVE	CFP	W	16	1	TBD	A42	N / A for Pkg Type	-55 to 125	5962-8862601FA SNJ54ALS258AW	<a href="#">Samples</a>

(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), Pb-Free (RoHS Exempt), 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.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**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.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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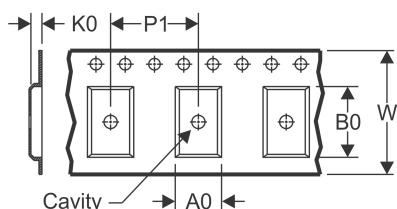
**OTHER QUALIFIED VERSIONS OF SN54ALS257A, SN54ALS258A, SN74ALS257A, SN74ALS258A :**

- Catalog: [SN74ALS257A](#), [SN74ALS258A](#)
- Military: [SN54ALS257A](#), [SN54ALS258A](#)

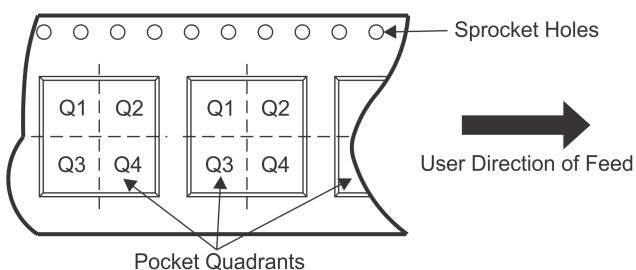
NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

**TAPE AND REEL INFORMATION**
**REEL DIMENSIONS**

**TAPE DIMENSIONS**


A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74ALS257ADR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74ALS257ANSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN74ALS258ADR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74AS257NSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1

**TAPE AND REEL BOX DIMENSIONS**

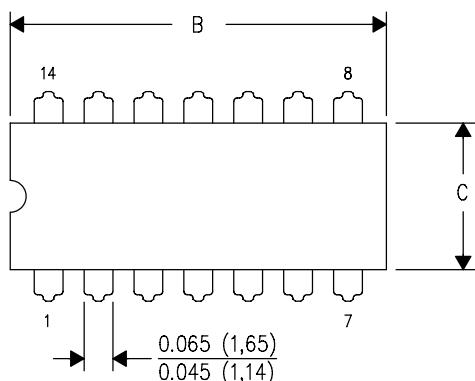

\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74ALS257ADR	SOIC	D	16	2500	333.2	345.9	28.6
SN74ALS257ANSR	SO	NS	16	2000	367.0	367.0	38.0
SN74ALS258ADR	SOIC	D	16	2500	333.2	345.9	28.6
SN74AS257NSR	SO	NS	16	2000	367.0	367.0	38.0

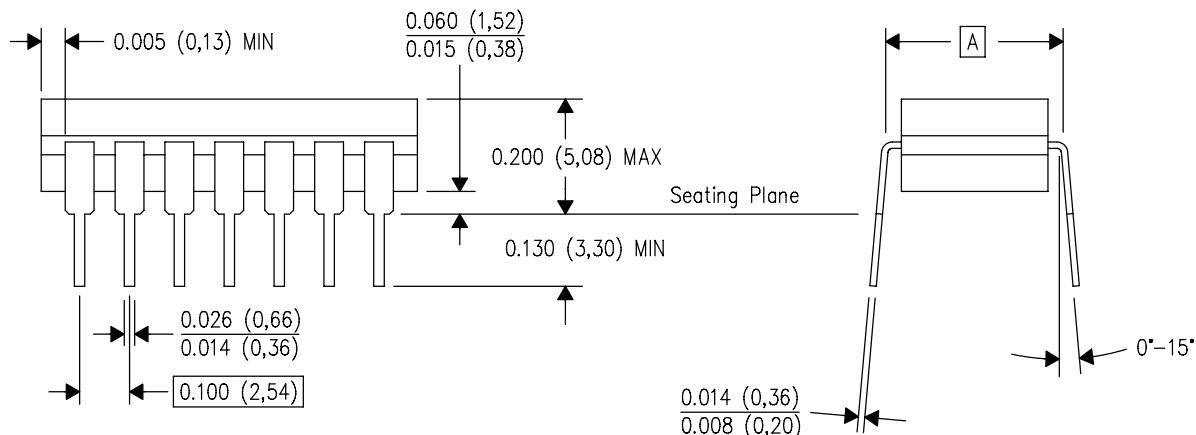
J (R-GDIP-T\*\*)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



PINS ** DIM	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)

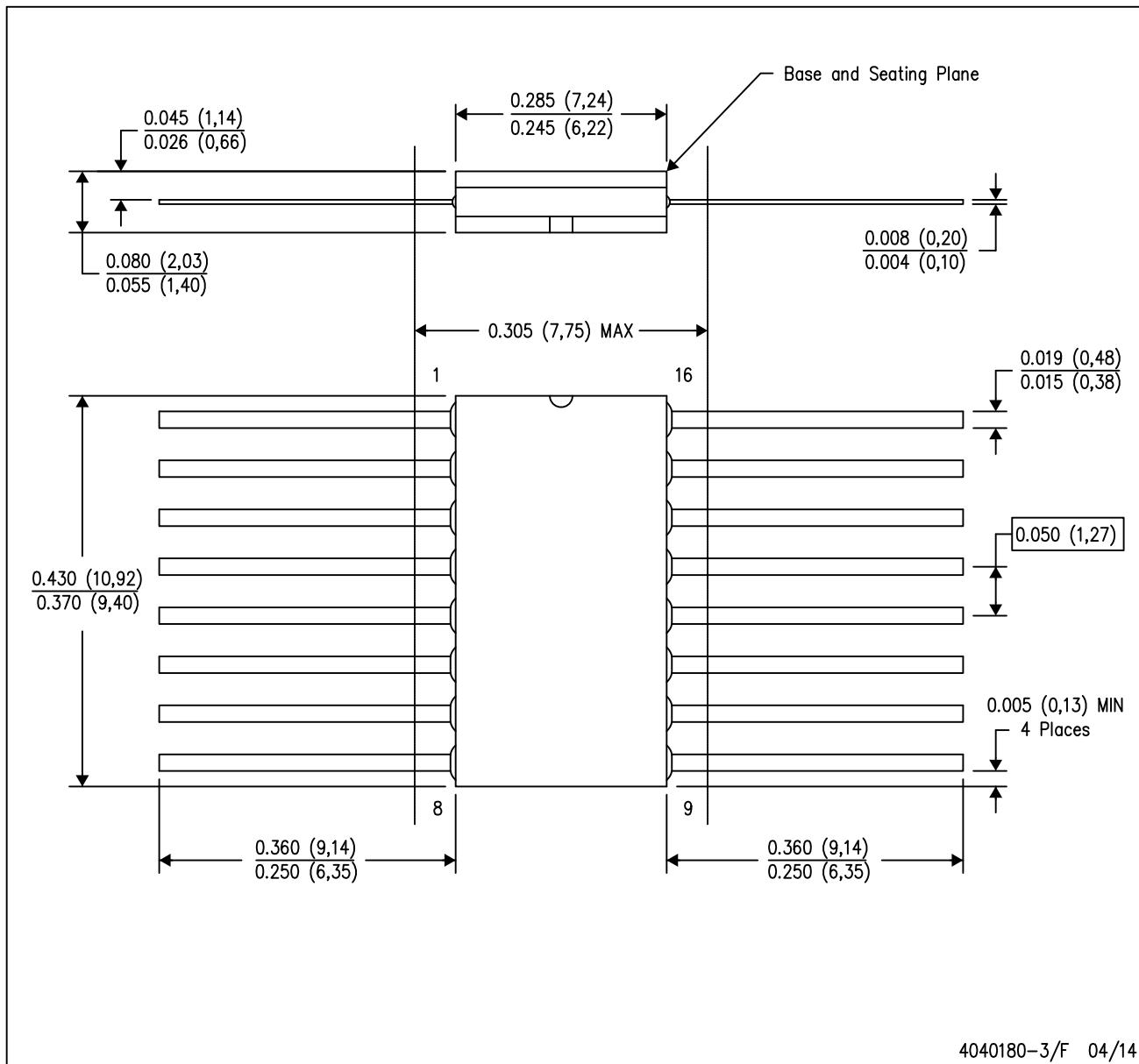


4040083/F 03/03

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

W (R-GDFP-F16)

CERAMIC DUAL FLATPACK



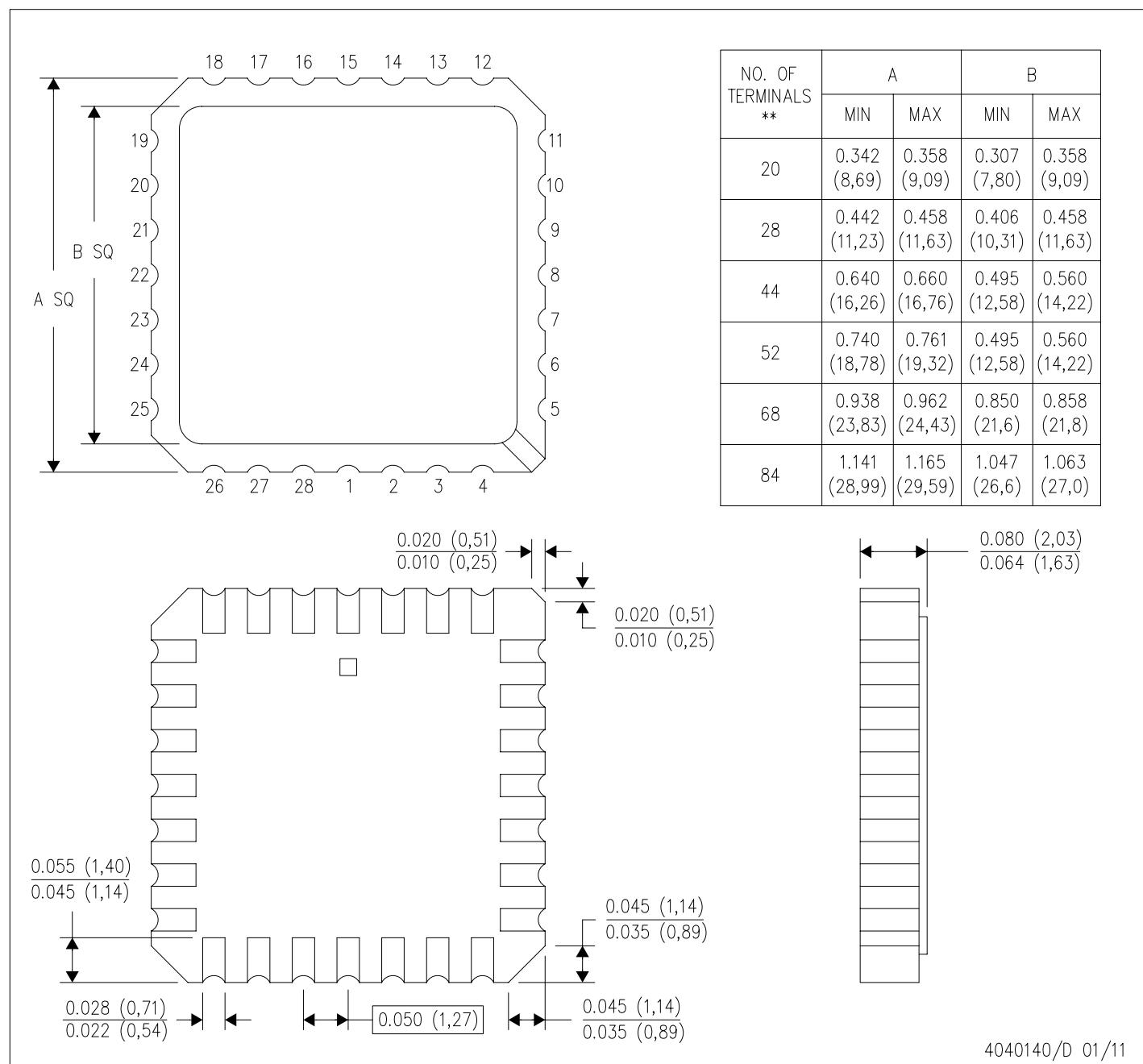
NOTES:

- All linear dimensions are in inches (millimeters).
- This drawing is subject to change without notice.
- This package can be hermetically sealed with a ceramic lid using glass frit.
- Index point is provided on cap for terminal identification only.
- Falls within MIL-STD 1835 GDFP2-F16

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

28 TERMINAL SHOWN

LEADLESS CERAMIC CHIP CARRIER



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. Falls within JEDEC MS-004

4040140/D 01/11

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

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



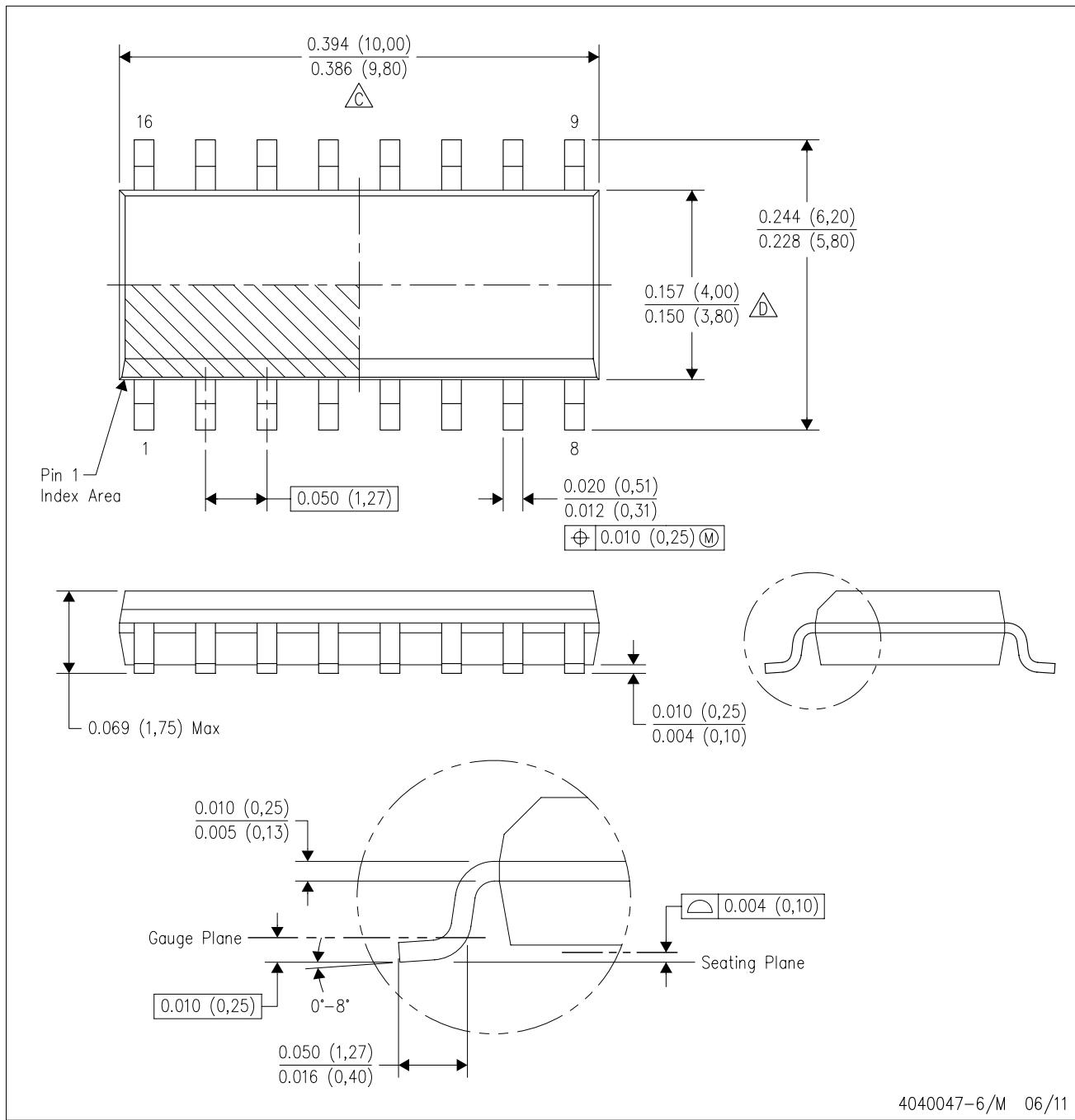
NOTES: A. All linear dimensions are in inches (millimeters).  
B. This drawing is subject to change without notice.

△ 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.

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



NOTES: A. All linear dimensions are in inches (millimeters).

B. This drawing is subject to change without notice.

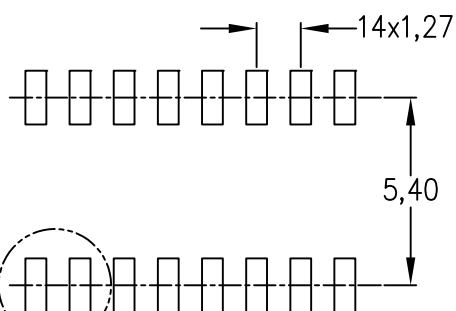
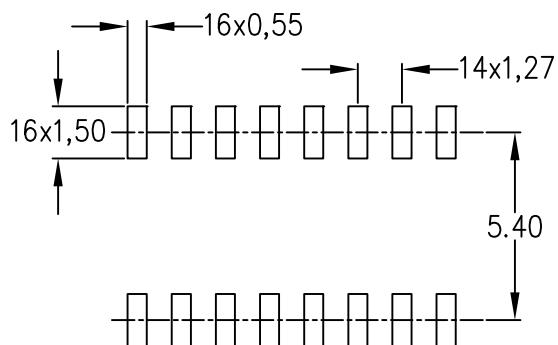
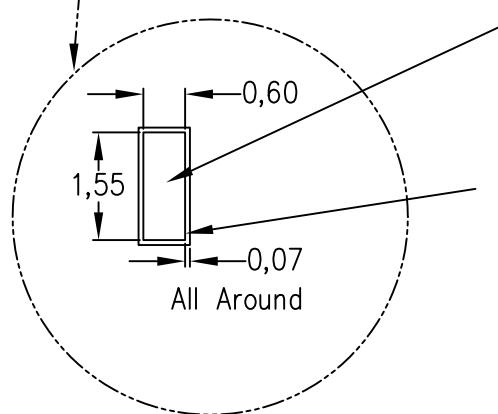
C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.

D. Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.

E. Reference JEDEC MS-012 variation AC.

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE

Example Board Layout  
(Note C)Stencil Openings  
(Note D)Example  
Non Soldermask Defined PadExample  
Pad Geometry  
(See Note C)Example  
Solder Mask Opening  
(See Note E)

4211283-4/E 08/12

NOTES:

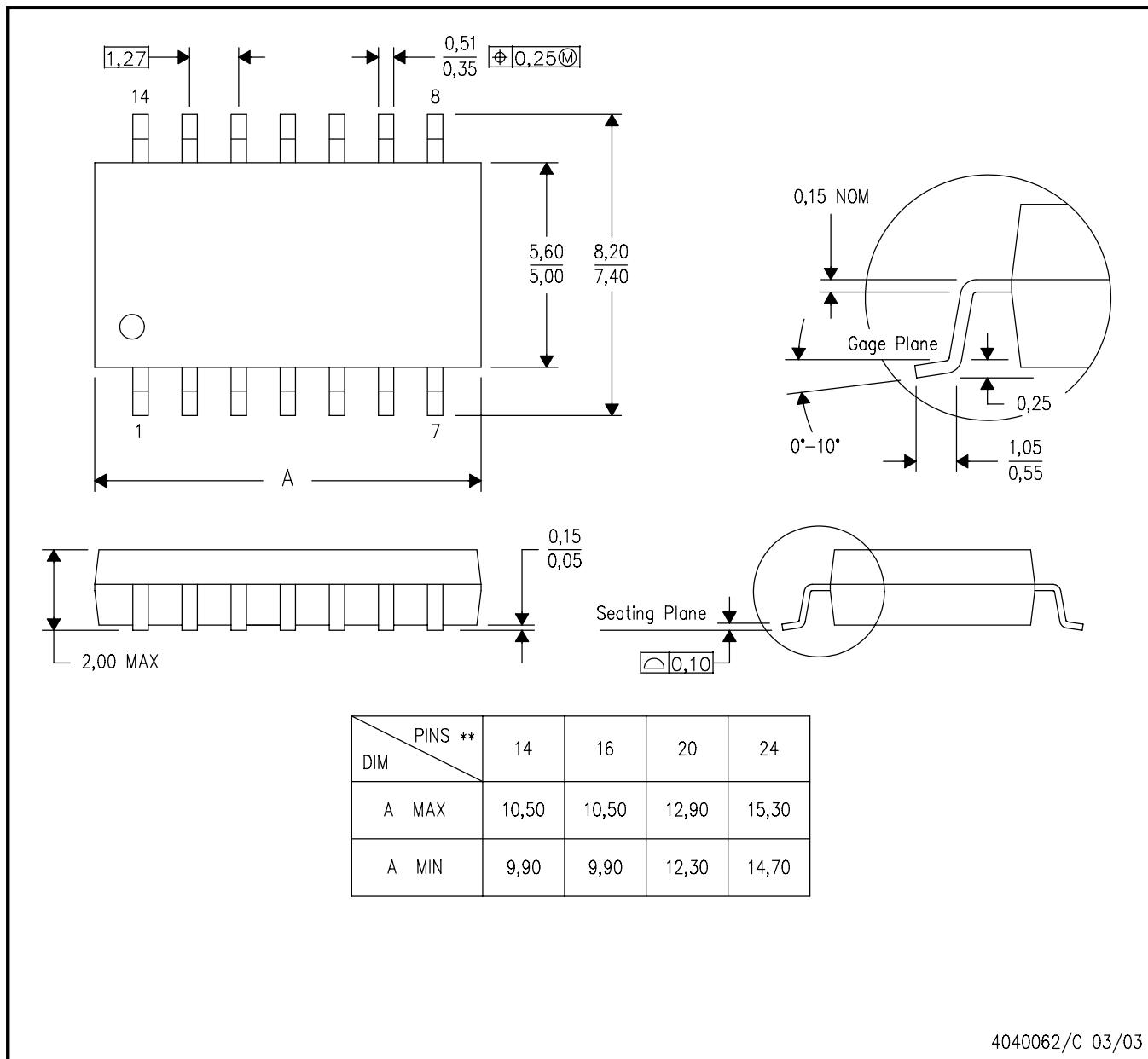
- All linear dimensions are in millimeters.
- This drawing is subject to change without notice.
- Publication IPC-7351 is recommended for alternate designs.
- Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
- Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

## 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.

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