

**SN5432, SN54LS32, SN54S32,  
SN7432, SN74LS32, SN74S32**  
**QUADRUPLE 2-INPUT POSITIVE-OR GATES**

DECEMBER 1983 - REVISED MARCH 1988

- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers and Flat Packages, and Plastic and Ceramic DIPs
- Dependable Texas Instruments Quality and Reliability

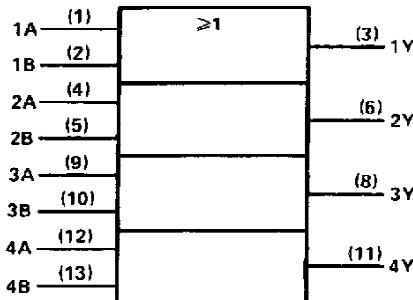
**description**

These devices contain four independent 2-input OR gates.

The SN5432, SN54LS32 and SN54S32 are characterized for operation over the full military range of  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ . The SN7432, SN74LS32 and SN74S32 are characterized for operation from  $0^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .

**FUNCTION TABLE (each gate)**

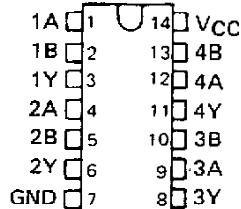
INPUTS		OUTPUT
A	B	Y
H	X	H
X	H	H
L	L	L

**logic symbol†**

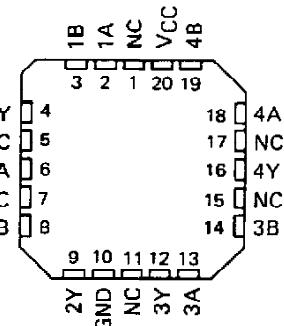
† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12. Pin numbers shown are for D, J, N, or W packages.

SN5432, SN54LS32, SN54S32 . . . J OR W PACKAGE  
SN7432 . . . N PACKAGE  
SN74LS32, SN74S32 . . . D OR N PACKAGE

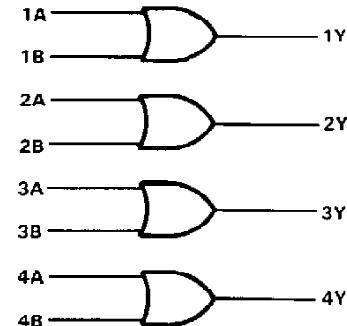
(TOP VIEW)



SN54LS32, SN54S32 . . . FK PACKAGE  
(TOP VIEW)



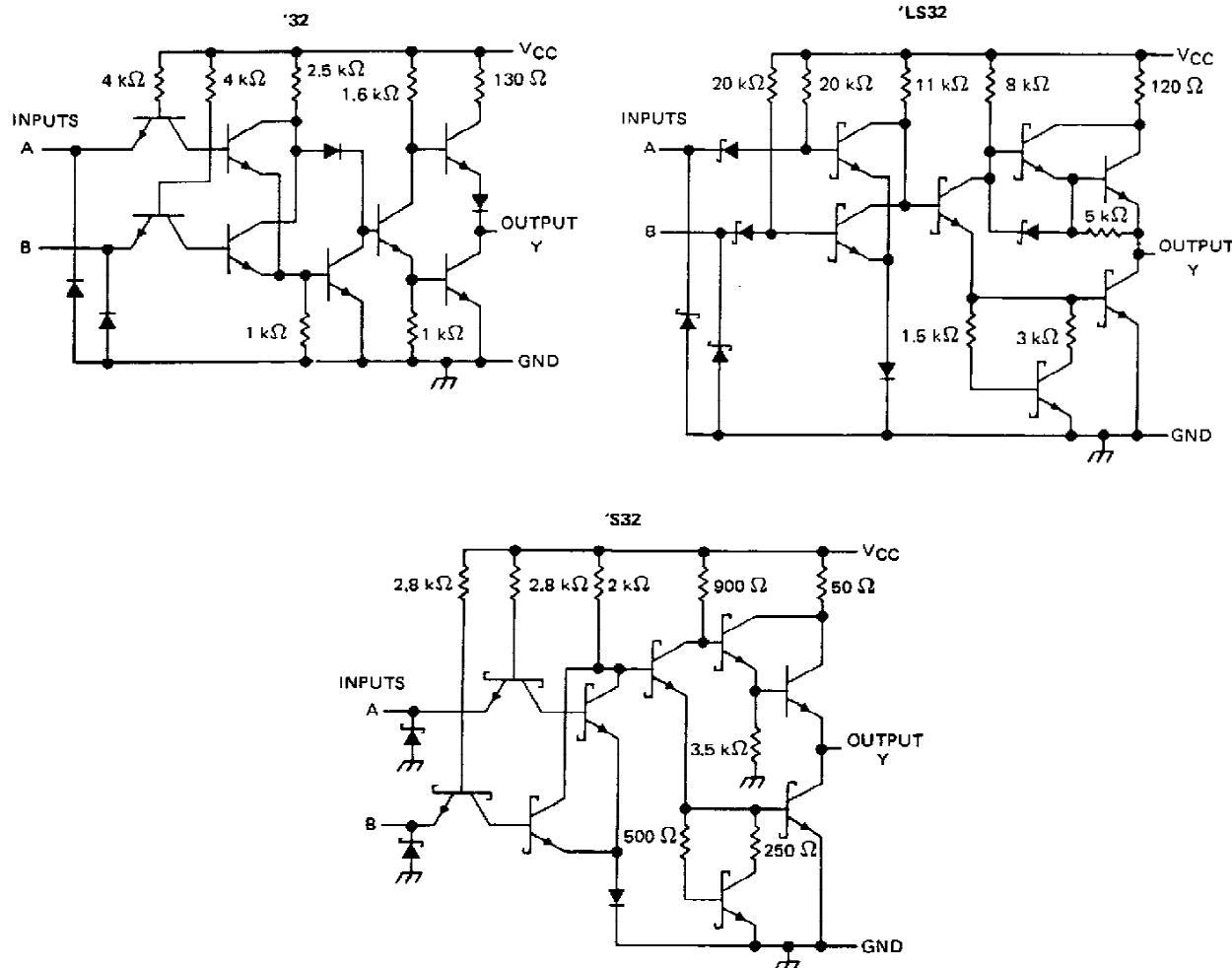
NC - No internal connection

**logic diagram****positive logic**

$$Y = A + B \text{ or } Y = \overline{\overline{A} \cdot \overline{B}}$$

**SN5432, SN54LS32, SN54S32,  
SN7432, SN74LS32, SN74S32  
QUADRUPLE 2-INPUT POSITIVE-OR GATES**

**schematics (each gate)**



Resistor values shown are nominal.

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

Supply voltage, V <sub>CC</sub> (see Note 1) . . . . .	7 V
Input voltage: '32, 'S32 . . . . .	5.5 V
'LS32 . . . . .	7 V
Operating free-air temperature: SN54' . . . . .	-55°C to 125°C
SN74' . . . . .	0°C to 70°C
Storage temperature range . . . . .	-65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

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SN5432, SN7432  
QUADRUPLE 2-INPUT POSITIVE-OR GATES

recommended operating conditions

	SN5432			SN7432			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub> Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V <sub>IH</sub> High-level input voltage	2			2			V
V <sub>IL</sub> Low-level input voltage			0.8			0.8	V
I <sub>OH</sub> High-level output current			-0.8			-0.8	mA
I <sub>OL</sub> Low-level output current			16			16	mA
T <sub>A</sub> Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS <sup>†</sup>	SN5432			SN7432			UNIT
		MIN	TYP <sup>‡</sup>	MAX	MIN	TYP <sup>‡</sup>	MAX	
V <sub>IK</sub>	V <sub>CC</sub> = MIN, I <sub>I</sub> = -12 mA			-1.5			-1.5	V
V <sub>QH</sub>	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, I <sub>OH</sub> = -0.8 mA	2.4	3.4		2.4	3.4		V
V <sub>QL</sub>	V <sub>CC</sub> = MIN, V <sub>IL</sub> = 0.8 V, I <sub>OL</sub> = 16 mA		0.2	0.4	0.2	0.4		V
I <sub>I</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 5.5 V			1			1	mA
I <sub>IH</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 2.4 V			40			40	μA
I <sub>IL</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 0.4 V			1.6			-1.6	mA
I <sub>OS\$</sub>	V <sub>CC</sub> = MAX	-20	-55		-18	-55		mA
I <sub>CCH</sub>	V <sub>CC</sub> = MAX, See Note 2		15	22	15	22		mA
I <sub>CCL</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 0 V	23	38		23	38		mA

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

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

\$ Not more than one output should be shorted at a time.

NOTE 2: One input at 4.5 V, all others at GND.

switching characteristics, V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C (see note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t <sub>PLH</sub>	A or B	Y	R <sub>L</sub> = 400 Ω, C <sub>L</sub> = 15 pF	10	15		ns
t <sub>PHL</sub>				14	22		ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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# SN54LS32, SN74LS32 QUADRUPLE 2-INPUT POSITIVE-OR GATES

## recommended operating conditions

	SN54LS32			SN74LS32			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub> Supply voltage	4.5	5	5.5	4.75	5	5.25	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			-0.4			-0.4	mA
I <sub>OL</sub> Low-level output current			4			8	mA
T <sub>A</sub> Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS <sup>†</sup>	SN54LS32			SN74LS32			UNIT
		MIN	TYP <sup>‡</sup>	MAX	MIN	TYP <sup>‡</sup>	MAX	
V <sub>IK</sub>	V <sub>CC</sub> = MIN, I <sub>I</sub> = -18 mA			-1.5			-1.5	V
V <sub>OH</sub>	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, I <sub>OH</sub> = -0.4 mA	2.5	3.4		2.7	3.4		V
V <sub>OL</sub>	V <sub>CC</sub> = MIN, V <sub>IL</sub> = MAX, I <sub>OL</sub> = 4 mA	0.25	0.4		0.25	0.4		V
	V <sub>CC</sub> = MIN, V <sub>IL</sub> = MAX, I <sub>OL</sub> = 8 mA				0.35	0.5		
I <sub>I</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 7 V			0.1			0.1	mA
I <sub>IH</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 2.7 V			20			20	μA
I <sub>IL</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 0.4 V			-0.4			-0.4	mA
I <sub>OS\$</sub>	V <sub>CC</sub> = MAX	-20		-100	-20		-100	mA
I <sub>CCH</sub>	V <sub>CC</sub> = MAX, See Note 2	3.1	6.2		3.1	6.2		mA
I <sub>CCL</sub>	V <sub>CC</sub> = MAX, V <sub>I</sub> = 0 V	4.9	9.8		4.9	9.8		mA

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

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

\$ Not more than one output should be shorted at a time and the duration of the short-circuit should not exceed one second.

NOTE 2: One input at 4.5 V, all others at GND.

## switching characteristics, V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C (see note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t <sub>PLH</sub> t <sub>PHL</sub>	A or B	Y	R <sub>L</sub> = 2 kΩ, C <sub>L</sub> = 15 pF	14	22		ns
				14	22		ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

SN54S32, SN74S32  
QUADRUPLE 2-INPUT POSITIVE-OR GATES

**recommended operating conditions**

	SN54S32			SN74S32			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
$V_{CC}$ Supply voltage	4.5	5	5.5	4.75	5	5.25	V
$V_{IH}$ High-level input voltage	2			2			V
$V_{IL}$ Low-level input voltage				0.8		0.8	V
$I_{OH}$ High-level output current				-1		-1	mA
$I_{OL}$ Low-level output current				20		20	mA
$T_A$ Operating free-air temperature	-55	125	0	0	70	70	$^{\circ}\text{C}$

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

PARAMETER	TEST CONDITIONS <sup>†</sup>	SN54S32			SN74S32			UNIT
		MIN	TYP <sup>‡</sup>	MAX	MIN	TYP <sup>‡</sup>	MAX	
$V_{IK}$	$V_{CC} = \text{MIN}$ , $I_I = -18 \text{ mA}$				-1.2		-1.2	V
$V_{OH}$	$V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ , $I_{OH} = -1 \text{ mA}$	2.5	3.4		2.7	3.4		V
$V_{OL}$	$V_{CC} = \text{MIN}$ , $V_{IL} = 0.8 \text{ V}$ , $I_{OL} = 20 \text{ mA}$				0.5		0.5	V
$I_I$	$V_{CC} = \text{MAX}$ , $V_I = 5.5 \text{ V}$				1		1	mA
$I_{IH}$	$V_{CC} = \text{MAX}$ , $V_I = 2.7 \text{ V}$				50		50	$\mu\text{A}$
$I_{IL}$	$V_{CC} = \text{MAX}$ , $V_I = 0.5 \text{ V}$				-2		-2	mA
$I_{OS\$}$	$V_{CC} = \text{MAX}$	-40	-100	-40	-40	-100	-100	mA
$I_{CCH}$	$V_{CC} = \text{MAX}$ , See Note 2		18	32		18	32	mA
$I_{CCL}$	$V_{CC} = \text{MAX}$ , $V_I = 0 \text{ V}$		38	68		38	68	mA

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

<sup>‡</sup> All typical values are at  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^{\circ}\text{C}$ .

§ Not more than one output should be shorted at a time and the duration of the short-circuit should not exceed one second.

NOTE 2: One input at 4.5 V, all others at GND.

**switching characteristics,  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^{\circ}\text{C}$  (see note 3)**

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}$	A or B	Y	$R_L = 280 \Omega$ , $C_L = 15 \text{ pF}$	4	7	ns	
				4	7	ns	
$t_{PHL}$	A or B	Y	$R_L = 280 \Omega$ , $C_L = 50 \text{ pF}$	5		ns	
				5		ns	

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
5962-9557401QCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QC A SNJ5432J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
5962-9557401QDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QD A SNJ5432W	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
5962-9557401QDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QD A SNJ5432W	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501B2A	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501B2A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501B2A	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501B2A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501BCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501BCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501BCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501BCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501BDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501BDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501BDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501BDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501SCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501SCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501SCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501SCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501SDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501SDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
JM38510/30501SDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501SDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501B2A	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501B2A	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501B2A	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/ 30501B2A	<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 finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
M38510/30501BCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501BCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501BCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501BCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501BDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501BDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501BDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501BDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501SCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501SCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501SCA	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501SCA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501SDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501SDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
M38510/30501SDA	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	JM38510/30501SDA	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN5432J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN5432J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN5432J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN5432J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN54LS32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN54LS32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN54LS32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN54LS32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN54S32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN54S32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN54S32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SN54S32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN7432N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN7432N	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN7432N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN7432N	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN7432NE4	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN7432N	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SN7432NE4	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN7432N	<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 finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SN74LS32D	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32D	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DBR	ACTIVE	SSOP	DB	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DBR	ACTIVE	SSOP	DB	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DE4	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DE4	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DG4	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DG4	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DRE4	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DRE4	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DRG4	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32DRG4	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS32	<a href="#">Samples</a>
SN74LS32N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74LS32N	<a href="#">Samples</a>
SN74LS32N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74LS32N	<a href="#">Samples</a>
SN74LS32NE4	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74LS32N	<a href="#">Samples</a>
SN74LS32NE4	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74LS32N	<a href="#">Samples</a>
SN74LS32NSR	ACTIVE	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS32	<a href="#">Samples</a>
SN74LS32NSR	ACTIVE	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS32	<a href="#">Samples</a>
SN74LS32NSRG4	ACTIVE	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS32	<a href="#">Samples</a>

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SN74LS32NSRG4	ACTIVE	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS32	<a href="#">Samples</a>
SN74S32D	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	S32	<a href="#">Samples</a>
SN74S32D	ACTIVE	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	S32	<a href="#">Samples</a>
SN74S32DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	S32	<a href="#">Samples</a>
SN74S32DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	0 to 70	S32	<a href="#">Samples</a>
SN74S32N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74S32N	<a href="#">Samples</a>
SN74S32N	ACTIVE	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	0 to 70	SN74S32N	<a href="#">Samples</a>
SNJ5432J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QC A SNJ5432J	<a href="#">Samples</a>
SNJ5432J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QC A SNJ5432J	<a href="#">Samples</a>
SNJ5432W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QD A SNJ5432W	<a href="#">Samples</a>
SNJ5432W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	5962-9557401QD A SNJ5432W	<a href="#">Samples</a>
SNJ54LS32FK	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS 32FK	<a href="#">Samples</a>
SNJ54LS32FK	ACTIVE	LCCC	FK	20	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS 32FK	<a href="#">Samples</a>
SNJ54LS32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS32J	<a href="#">Samples</a>
SNJ54LS32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS32J	<a href="#">Samples</a>
SNJ54LS32W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS32W	<a href="#">Samples</a>
SNJ54LS32W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54LS32W	<a href="#">Samples</a>

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SNJ54S32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54S32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SNJ54S32J	ACTIVE	CDIP	J	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54S32J	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SNJ54S32W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54S32W	<span style="background-color: red; color: white; padding: 2px;">Samples</span>
SNJ54S32W	ACTIVE	CFP	W	14	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	SNJ54S32W	<span style="background-color: red; color: white; padding: 2px;">Samples</span>

(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) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

**RoHS Exempt:** TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

**Green:** TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

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

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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.

**OTHER QUALIFIED VERSIONS OF SN5432, SN54LS32, SN54LS32-SP, SN54S32, SN7432, SN74LS32, SN74S32 :**

- Catalog : [SN7432](#), [SN74LS32](#), [SN54LS32](#), [SN74S32](#)

- Military : [SN5432](#), [SN54LS32](#), [SN54S32](#)

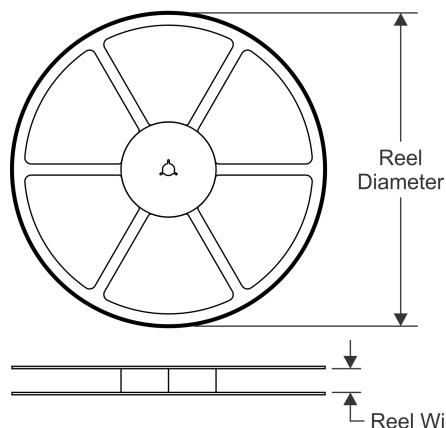
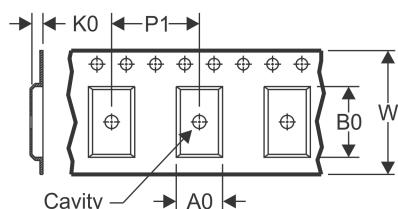
- Space : [SN54LS32-SP](#)

**NOTE: Qualified Version Definitions:**

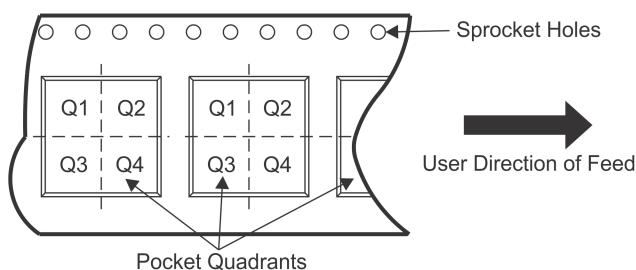
- Catalog - TI's standard catalog product

- Military - QML certified for Military and Defense Applications

- Space - Radiation tolerant, ceramic packaging and qualified for use in Space-based application

**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**


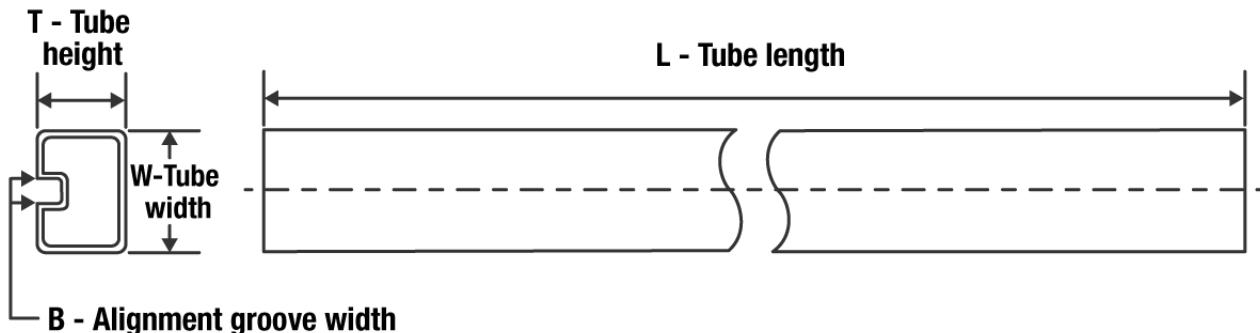
\*All dimensions are nominal

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
SN74LS32DBR	SSOP	DB	14	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74LS32DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74LS32NSR	SO	NS	14	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN74S32DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	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)
SN74LS32DBR	SSOP	DB	14	2000	853.0	449.0	35.0
SN74LS32DR	SOIC	D	14	2500	853.0	449.0	35.0
SN74LS32NSR	SO	NS	14	2000	853.0	449.0	35.0
SN74S32DR	SOIC	D	14	2500	853.0	449.0	35.0

**TUBE**


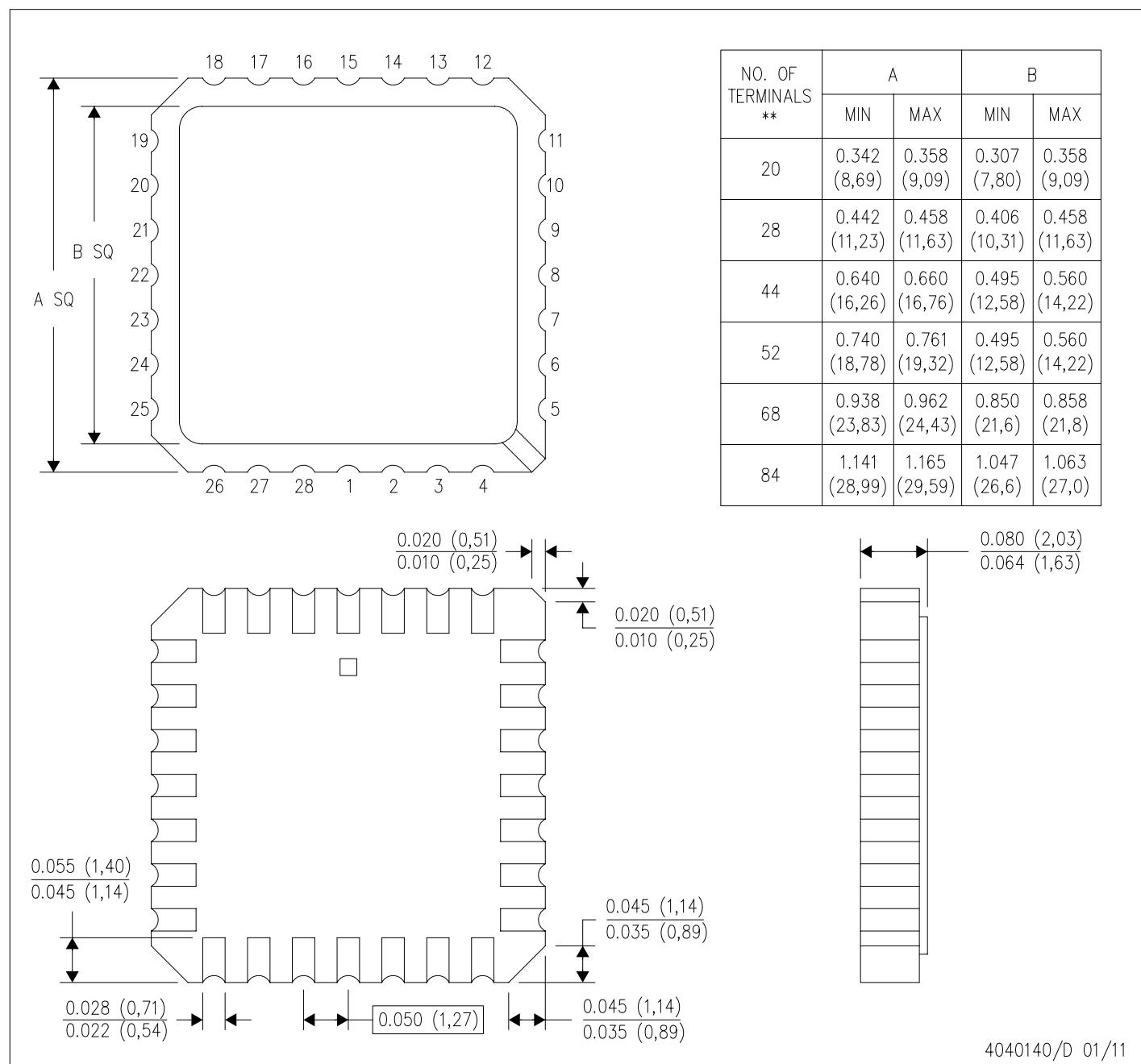
\*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T ( $\mu$ m)	B (mm)
JM38510/30501B2A	FK	LCCC	20	1	506.98	12.06	2030	NA
JM38510/30501BDA	W	CFP	14	1	506.98	26.16	6220	NA
JM38510/30501SDA	W	CFP	14	1	506.98	26.16	6220	NA
M38510/30501B2A	FK	LCCC	20	1	506.98	12.06	2030	NA
M38510/30501BDA	W	CFP	14	1	506.98	26.16	6220	NA
M38510/30501SDA	W	CFP	14	1	506.98	26.16	6220	NA
SN7432N	N	PDIP	14	25	506	13.97	11230	4.32
SN7432N	N	PDIP	14	25	506	13.97	11230	4.32
SN7432NE4	N	PDIP	14	25	506	13.97	11230	4.32
SN7432NE4	N	PDIP	14	25	506	13.97	11230	4.32
SN74LS32D	D	SOIC	14	50	506.6	8	3940	4.32
SN74LS32DE4	D	SOIC	14	50	506.6	8	3940	4.32
SN74LS32DG4	D	SOIC	14	50	506.6	8	3940	4.32
SN74LS32N	N	PDIP	14	25	506	13.97	11230	4.32
SN74LS32N	N	PDIP	14	25	506	13.97	11230	4.32
SN74LS32NE4	N	PDIP	14	25	506	13.97	11230	4.32
SN74LS32NE4	N	PDIP	14	25	506	13.97	11230	4.32
SN74S32D	D	SOIC	14	50	506.6	8	3940	4.32
SN74S32N	N	PDIP	14	25	506	13.97	11230	4.32
SN74S32N	N	PDIP	14	25	506	13.97	11230	4.32
SNJ54LS32FK	FK	LCCC	20	1	506.98	12.06	2030	NA

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

## MECHANICAL DATA

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

## PLASTIC SMALL-OUTLINE PACKAGE

**14-PINS SHOWN**

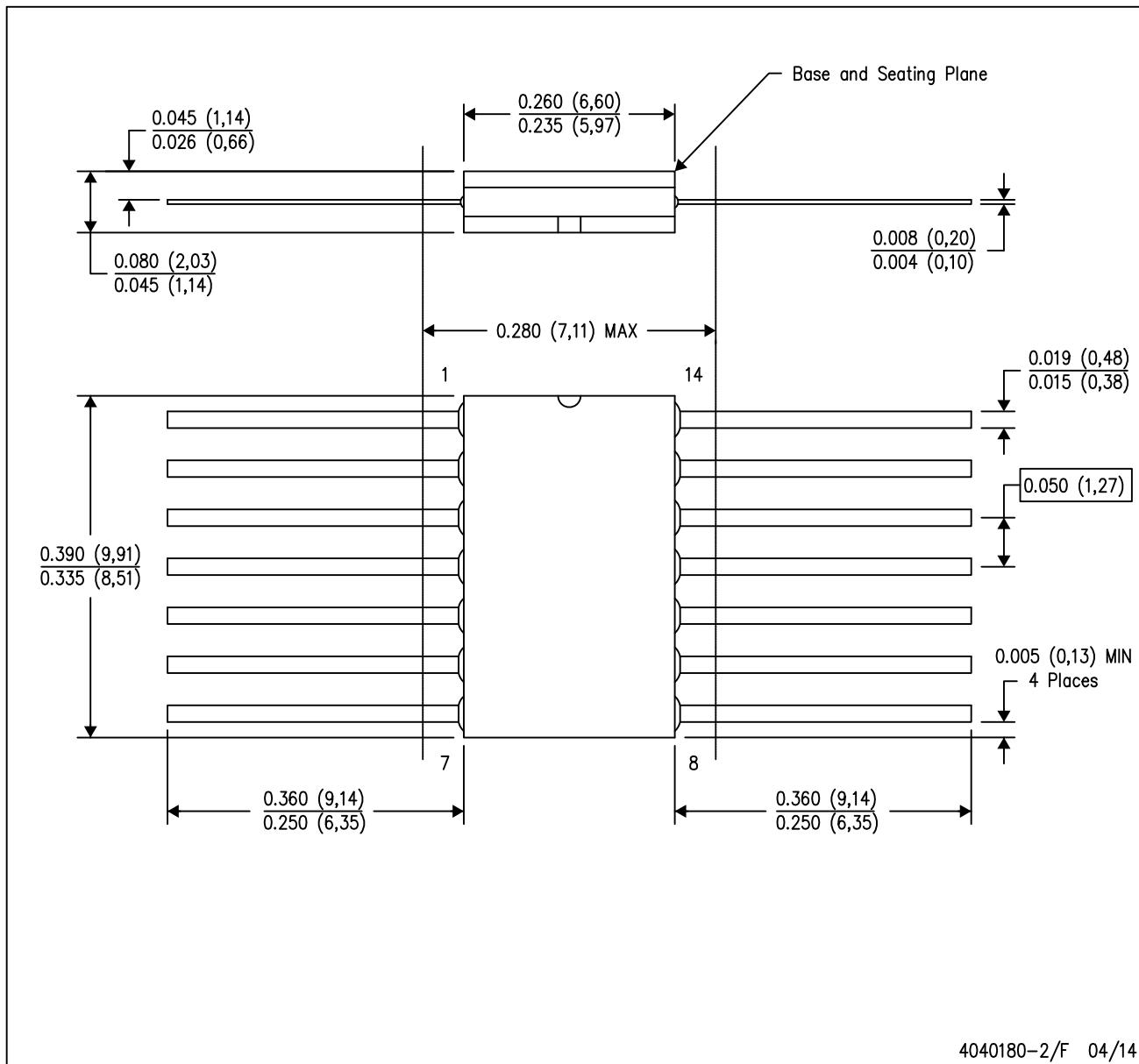


NOTES:

- 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.

W (R-GDFP-F14)

CERAMIC DUAL FLATPACK



NOTES:

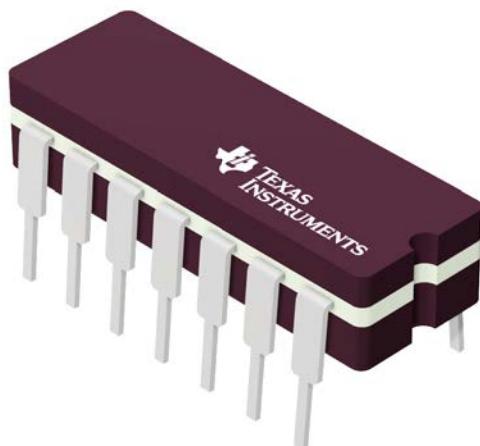
- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. This package can be hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only.
- E. Falls within MIL-STD 1835 GDFP1-F14

# GENERIC PACKAGE VIEW

**J 14**

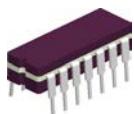
**CDIP - 5.08 mm max height**

CERAMIC DUAL IN LINE PACKAGE



Images above are just a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.

4040083-5/G

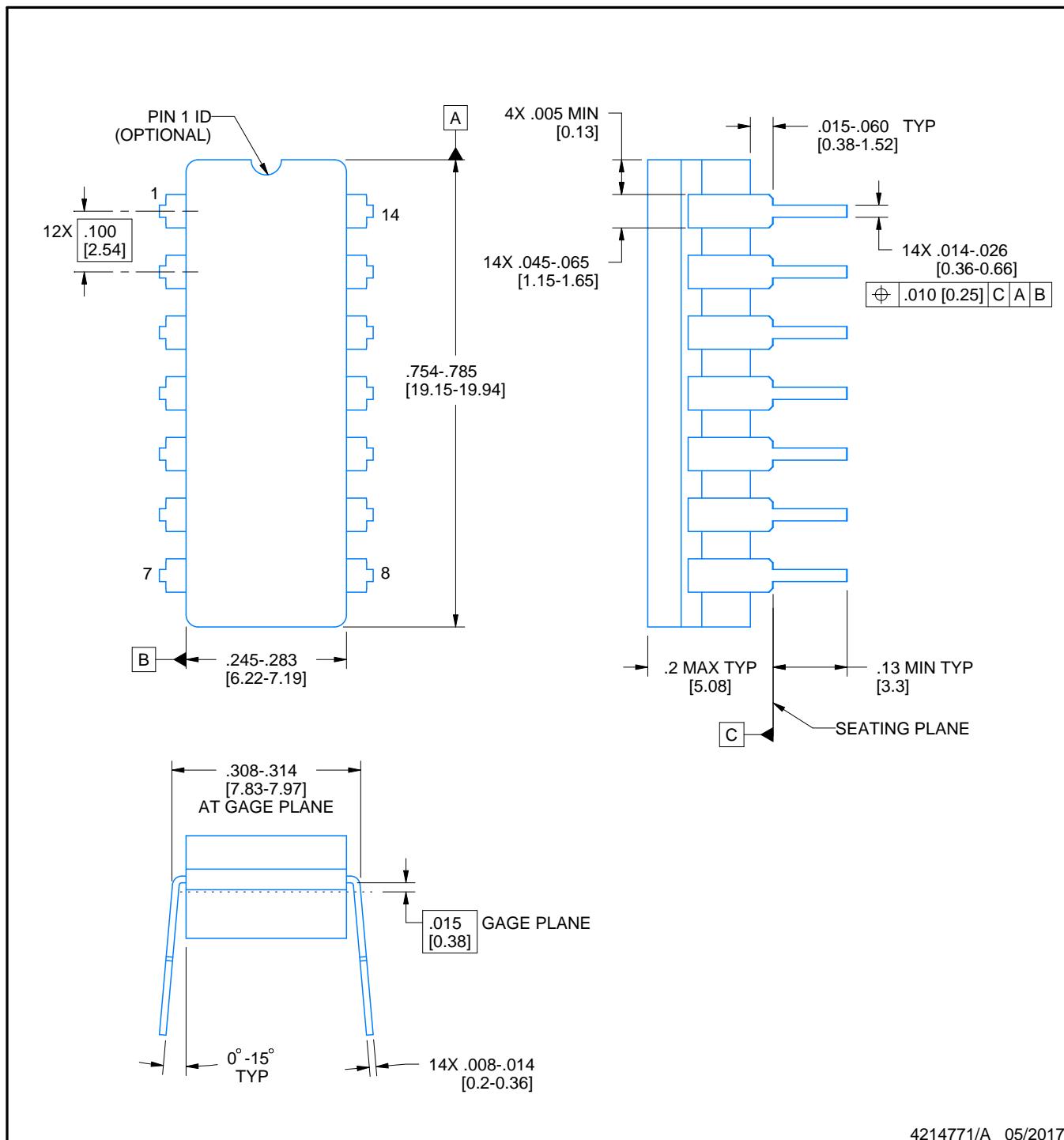


# PACKAGE OUTLINE

J0014A

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



4214771/A 05/2017

NOTES:

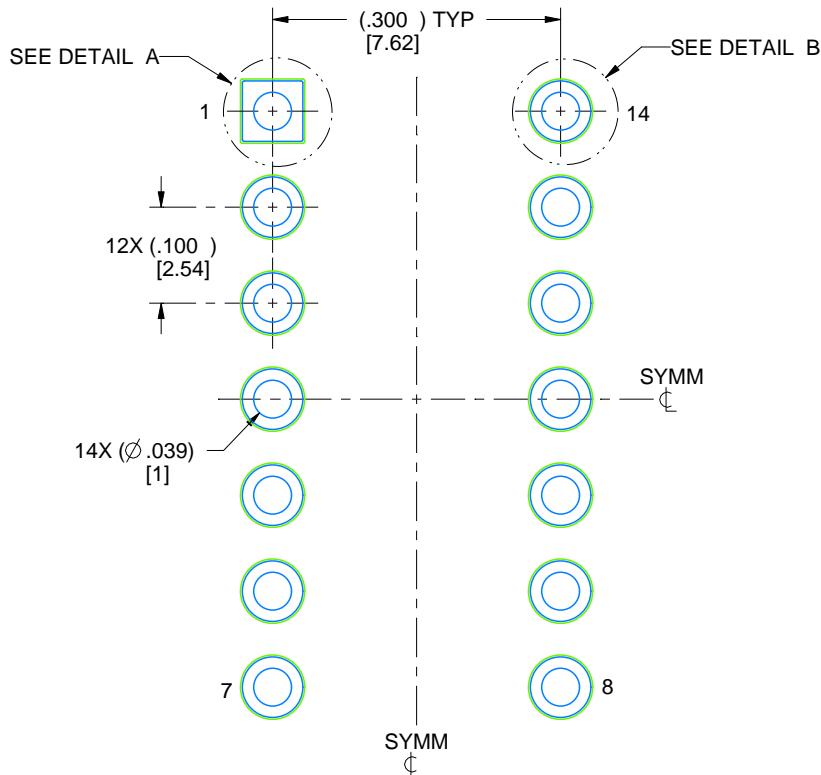
1. All controlling linear dimensions are in inches. Dimensions in brackets are in millimeters. Any dimension in brackets or parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This package is hermetically sealed with a ceramic lid using glass frit.
4. Index point is provided on cap for terminal identification only and on press ceramic glass frit seal only.
5. Falls within MIL-STD-1835 and GDIP1-T14.

# EXAMPLE BOARD LAYOUT

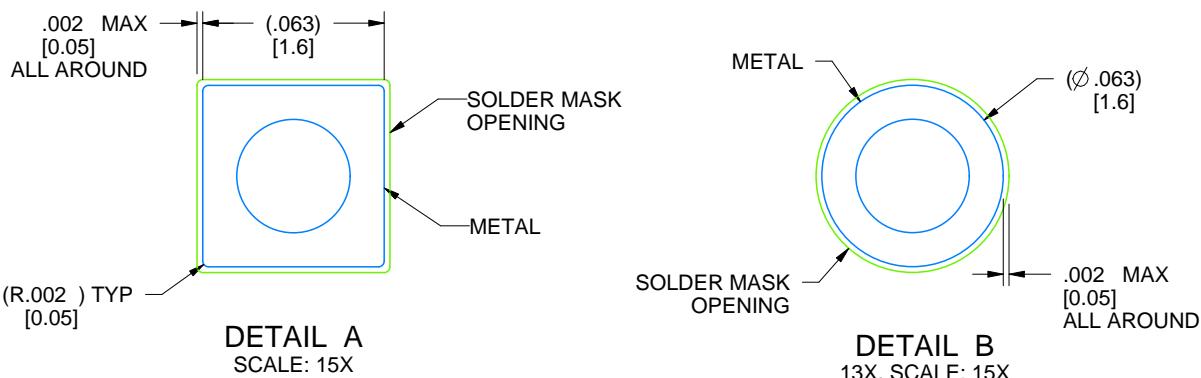
J0014A

CDIP - 5.08 mm max height

CERAMIC DUAL IN LINE PACKAGE



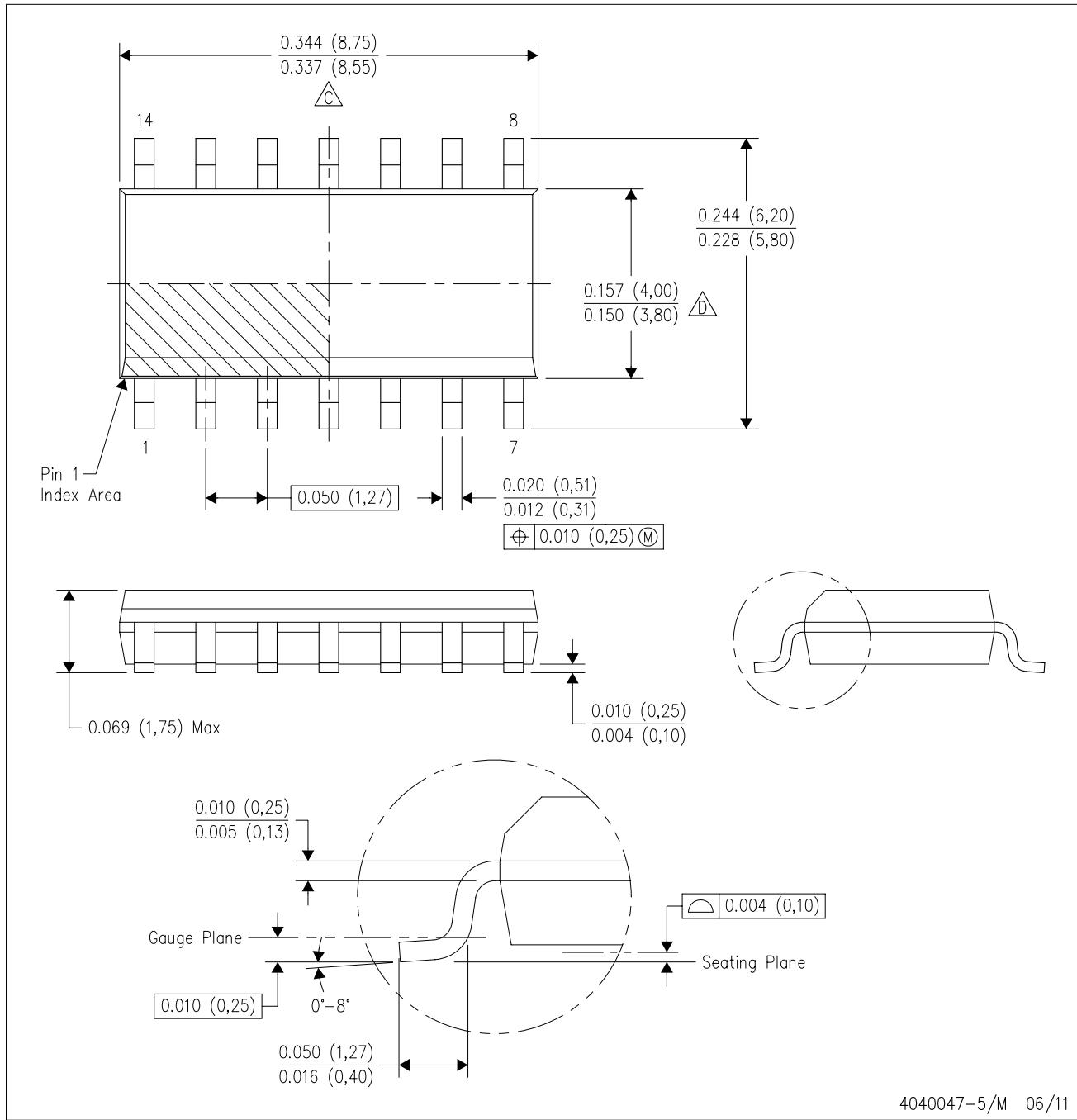
LAND PATTERN EXAMPLE  
NON-SOLDER MASK DEFINED  
SCALE: 5X



4214771/A 05/2017

D (R-PDSO-G14)

PLASTIC SMALL OUTLINE



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

B. This drawing is subject to change without notice.

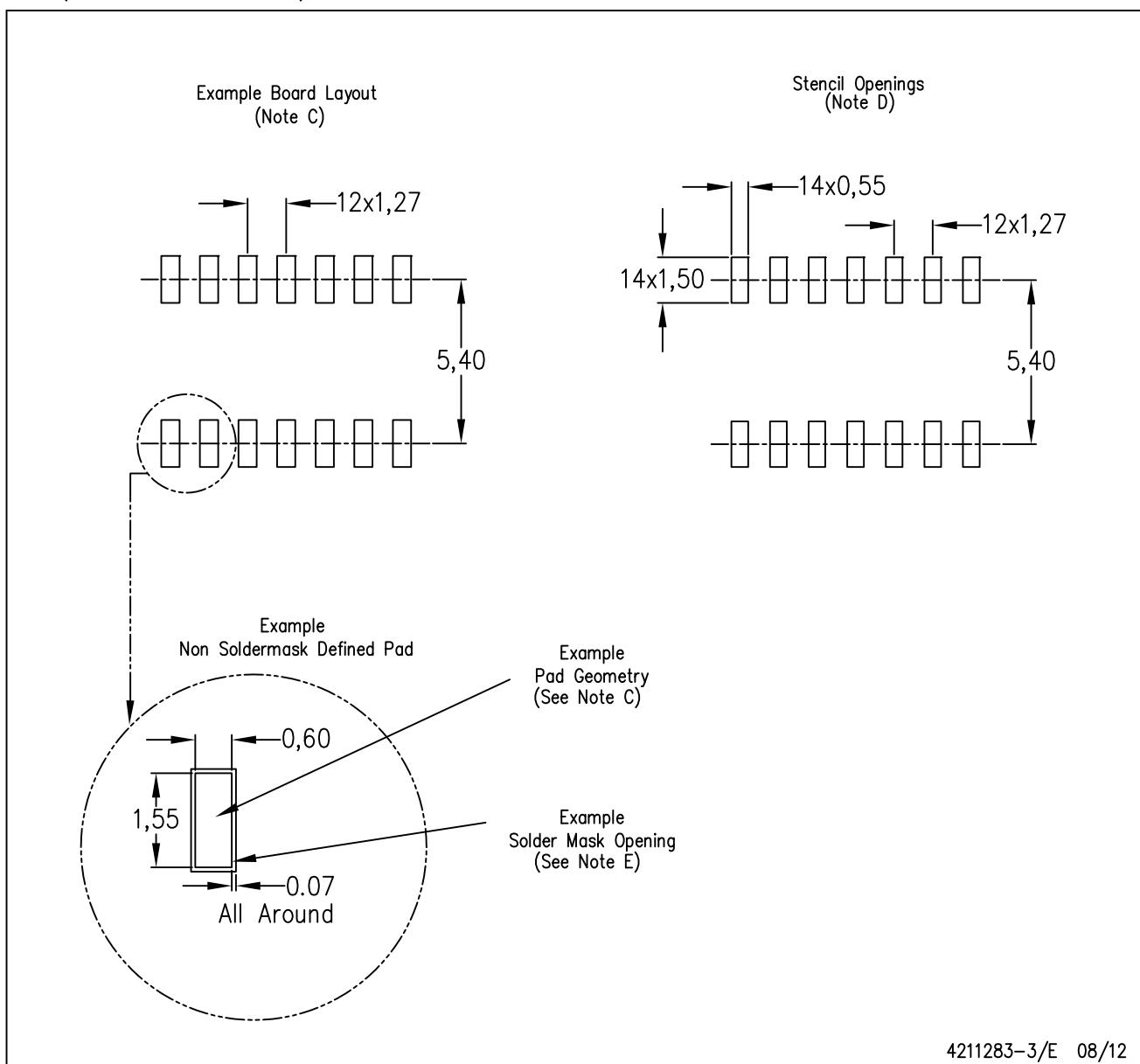
C Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0.15) each side.

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 AB.

D (R-PDSO-G14)

PLASTIC SMALL OUTLINE



4211283-3/E 08/12

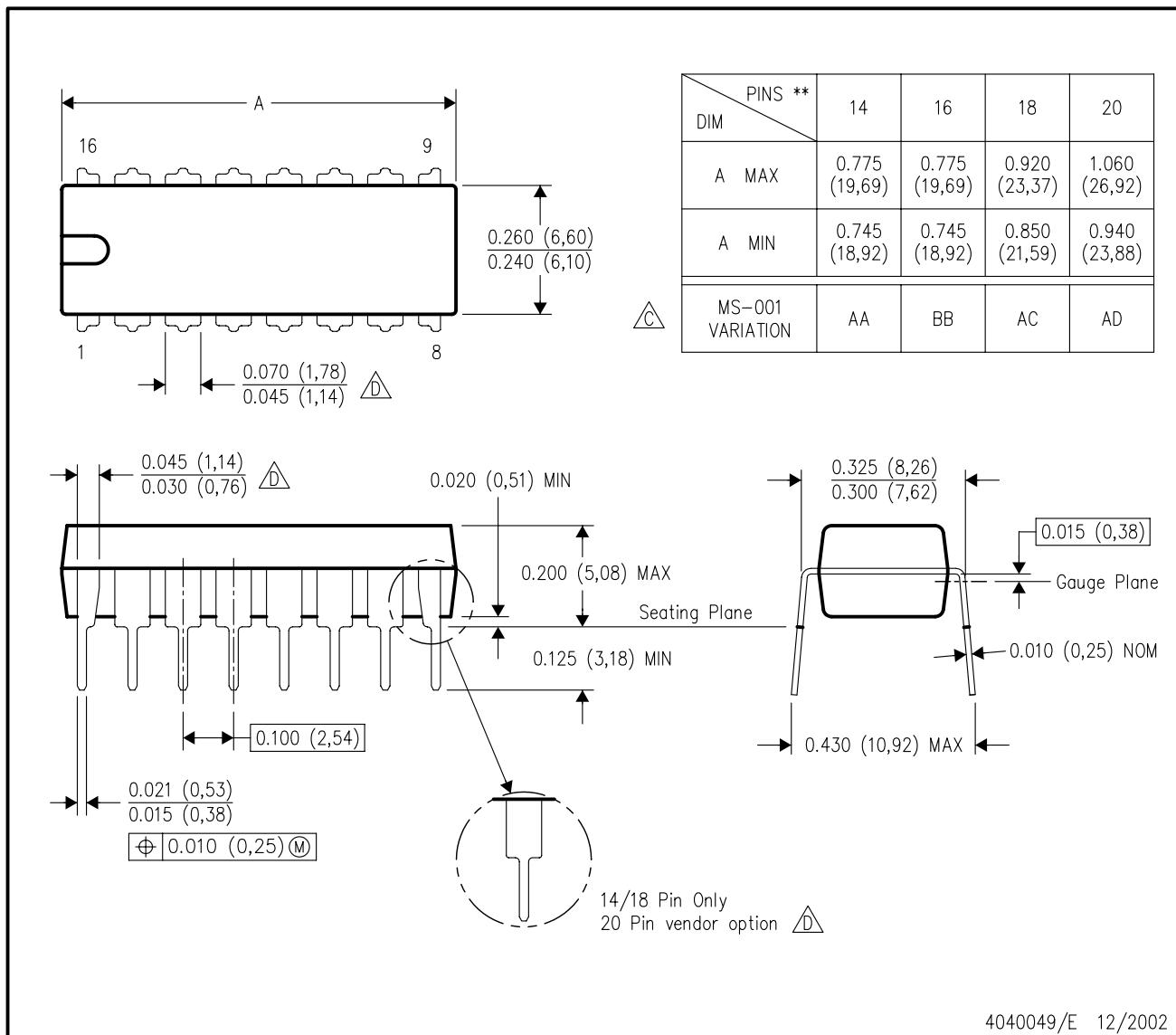
NOTES:

- 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.

## 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.

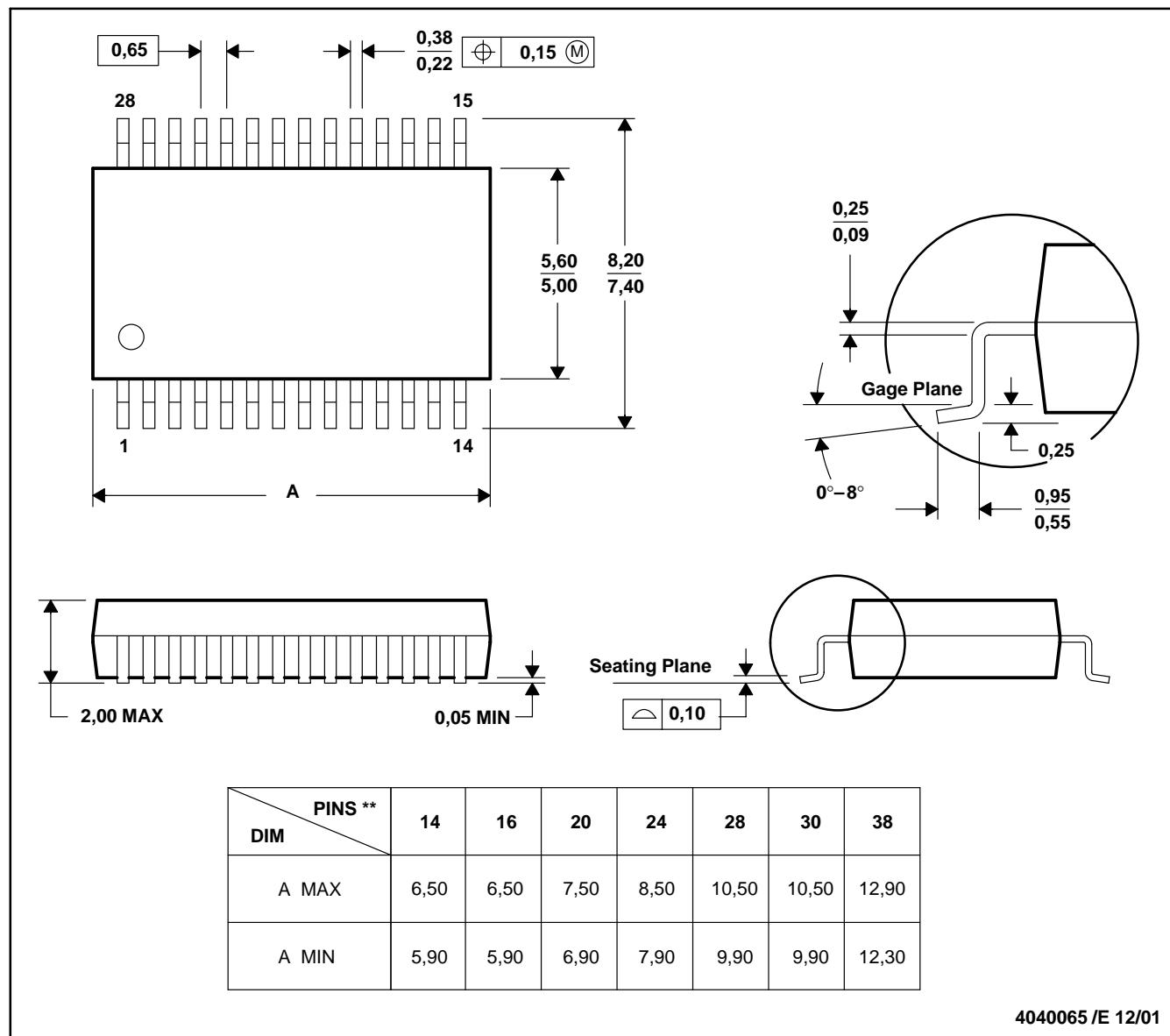
△ Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).

△ The 20 pin end lead shoulder width is a vendor option, either half or full width.

## DB (R-PDSO-G\*\*)

## PLASTIC SMALL-OUTLINE

28 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.  
 D. Falls within JEDEC MO-150

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