SN5430, SN54LS30, SN54S30
SN7430, SN74LS30, SN74S30
8-INPUT POSITIVE-NAND GATES

SDLS099 – 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
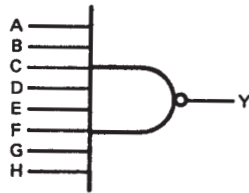
description

These devices contain a single 8-input NAND gate.

The SN5430, SN54LS30, and SN54S30 are characterized for operation over the full military range of −55 °C to 125 °C. The SN7430, SN74LS30, and SN74S30 are characterized for operation from 0 °C to 70 °C.

FUNCTION TABLE

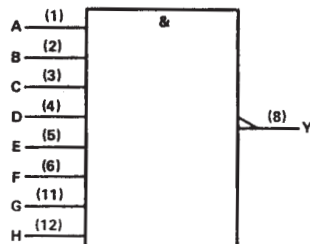| INPUTS A THRU H	OUTPUT Y
All inputs H	L
One or more inputs L	H

logic diagram

positive logic

$$Y = \overline{A \cdot B \cdot C \cdot D \cdot E \cdot F \cdot G \cdot H} \quad \text{or}$$
$$Y = \overline{A} + \overline{B} + \overline{C} + \overline{D} + \overline{E} + \overline{F} + \overline{G} + \overline{H}$$

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, and W packages.

SN5430 . . . J PACKAGE
SN54LS30, SN54S30 . . . J OR W PACKAGE
SN7430 . . . N PACKAGE
SN74LS30, SN74S30 . . . D OR N PACKAGE
(TOP VIEW)
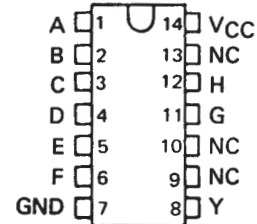
SN5430 . . . W PACKAGE
(TOP VIEW)
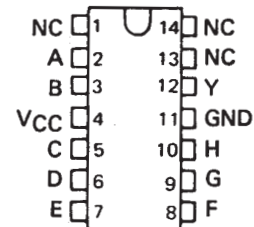
SN54LS30, SN54S30 . . . FK PACKAGE
(TOP VIEW)

NC - No internal connection

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TEXAS INSTRUMENTS

POST OFFICE BOX 655303 ● DALLAS, TEXAS 75265

1

schematics (each gate)

'30

'LS30

'S30
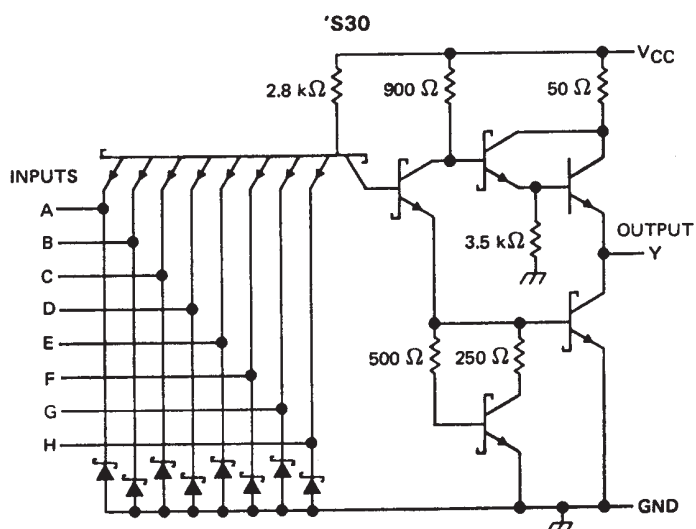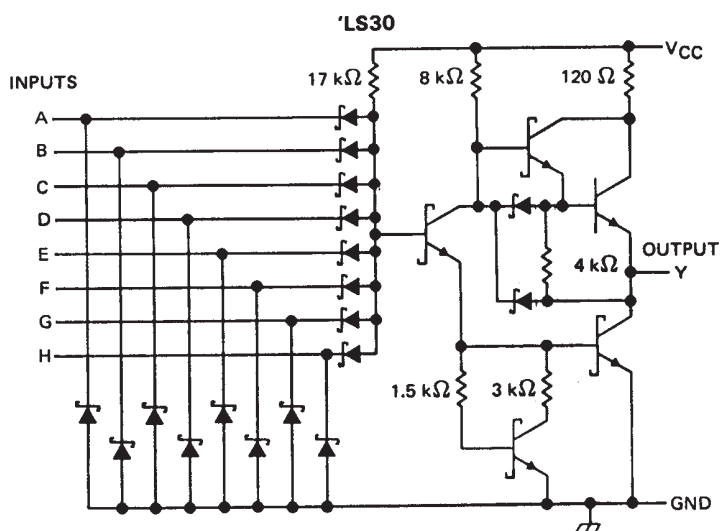
Resistor values shown are nominal.

TEXAS
INSTRUMENTS

POST OFFICE BOX 655303 ● DALLAS, TEXAS 75265

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

Supply voltage, V_{CC} (see Note 1) . . . . 7 V
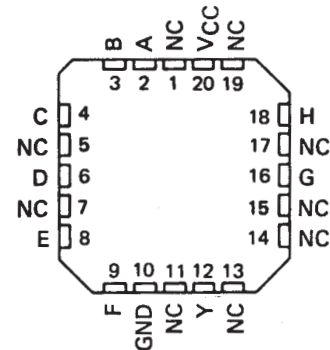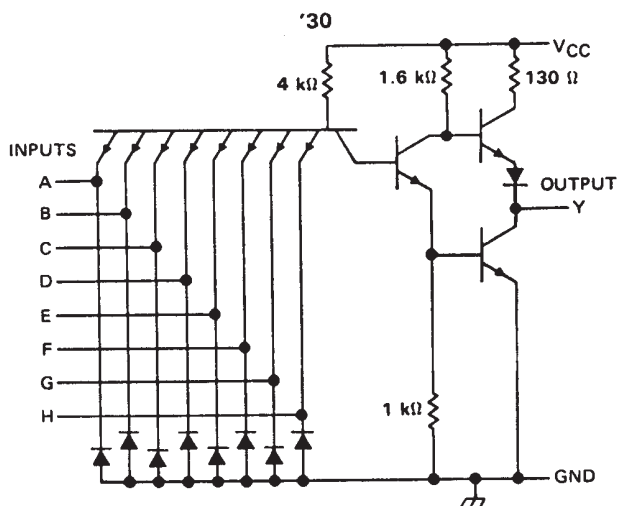Input voltage . . . . 5.5 V
Operating free-air temperature range: SN5430 . . . . −55 °C to 125 °C
SN7430 . . . . 0 °C to 70 °C
Storage temperature range . . . . −65 °C to 150 °C

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

recommended operating conditions

		SN5430			SN7430			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			−0.4			−0.4	mA
I_{OL}	Low-level output current			16			16	mA
T_A	Operating free-air temperature	−55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS†			SN5430			SN7430			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −12 mA			−1.5			−1.5	V
V_{OH}	V_{CC} = MIN,	V_{IL} = 0.8 V, I_{OH} = −0.4 mA	2.4	3.4		2.4	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IH} = 2 V, I_{OL} = 16 mA		0.2	0.4		0.2	0.4	V
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.4 V			40			40	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V			−1.6			−1.6	mA
I_{OS}§	V_{CC} = MAX		−20		−55	−18		−55	mA
I_{CCH}	V_{CC} = MAX,	V_I = 0		1	2		1	2	mA
I_{CCL}	V_{CC} = MAX,	V_I = 4.5 V		3	6		3	6	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.
§ Not more than one output should be shorted at a time.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	Any	Y	R_L = 400 Ω,	C_L = 15 pF		13	22	ns
t_{PHL}						8	15	ns

NOTE 2: Load circuits and voltage waveforms are shown in Section 1.

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

Supply voltage, V_{CC} (see Note 1) .... 7 V
Input voltage .... 7 V
Operating free-air temperature range: SN54LS30 .... −55°C to 125°C
 SN74LS30 .... 0°C to 70°C
Storage temperature range .... −65°C to 150°C

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

recommended operating conditions

		SN54LS30			SN74LS30			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			0.7			0.8	V
I_{OH}	High-level output current			− 0.4			− 0.4	mA
I_{OL}	Low-level output current			4			8	mA
T_A	Operating free-air temperature	− 55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS †			SN54LS30			SN74LS30			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = − 18 mA				− 1.5			− 1.5	V
V_{OH}	V_{CC} = MIN,	V_{IL} = MAX,	I_{OH} = − 0.4 mA	2.5	3.4		2.7	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IH} = 2 V,	I_{OL} = 4 mA		0.25	0.4			0.4	V
	V_{CC} = MIN,	V_{IH} = 2 V,	I_{OL} = 8 mA					0.25	0.5	
I_I	V_{CC} = MAX,	V_I = 7 V				0.1			0.1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V				20			20	µA
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V				− 0.4			− 0.4	mA
I_{OS}§	V_{CC} = MAX			− 20		− 100	− 20		− 100	mA
I_{CCH}	V_{CC} = MAX,	V_I = 0			0.35	0.5		0.35	0.5	mA
I_{CCL}	V_{CC} = MAX,	V_I = 4.5 V			0.6	1.1		0.6	1.1	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5 V, T_A = 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.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	Any	Y	R_L = 2 kΩ, C_L = 15 pF		8	15	ns
t_{PHL}					13	20	ns

NOTE 2: Load circuits and voltage waveforms are shown in Section 1.

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

Supply voltage, V_{CC} (see Note 1) . . . . 7 V
Input voltage . . . . 5.5 V
Operating free-air temperature range: SN54S30 . . . . −55°C to 125°C
SN74S30 . . . . 0°C to 70°C
Storage temperature range . . . . −65°C to 150°C

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

recommended operating conditions

		SN54S30			SN74S30			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		70	°C

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

PARAMETER	TEST CONDITIONS †		SN54S30			SN74S30			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	V_{CC} = MIN,	V_{IL} = 0.8 V, I_{OH} = −1 mA	2.5	3.4		2.7	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IH} = 2 V, I_{OL} = 20 mA			0.5			0.5	V
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V			50			50	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.5 V			−2			−2	mA
I_{OS}§	V_{CC} = MAX		−40		−100	−40		−100	mA
I_{CCH}	V_{CC} = MAX,	V_I = 0		3	5		3	5	mA
I_{CCL}	V_{CC} = MAX,	V_I = 4.5 V		5.5	10		5.5	10	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5 V, T_A = 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.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}			R_L = 280 Ω,	C_L = 15 pF		4	6	ns
t_{PHL}						4.5	7	ns
t_{PLH}	Any	Y	R_L = 280 Ω,	C_L = 50 pF		5.5		ns
t_{PHL}						6.5		ns

NOTE 2: Load circuits and voltage waveforms are shown in Section 1.

PACKAGING INFORMATION

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/Ball Finish	MSL Peak Temp [3]	Samples (Requires Login)
5962-9679201Q2A	ACTIVE	LCCC	FK	20	1	TBD	Call TI	Call TI	
5962-9679201QCA	ACTIVE	CDIP	J	14	1	TBD	Call TI	Call TI	
5962-9679201QCA	ACTIVE	CDIP	J	14	1	TBD	Call TI	Call TI	
5962-9679201QDA	ACTIVE	CFP	W	14	1	TBD	Call TI	Call TI	
5962-9679201QDA	ACTIVE	CFP	W	14	1	TBD	Call TI	Call TI	
JM38510/30009B2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
JM38510/30009B2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
JM38510/30009BCA	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
JM38510/30009BCA	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
JM38510/30009BDA	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
JM38510/30009BDA	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
JM38510/30009SCA	ACTIVE	CDIP	J	14	25	TBD	A42	N / A for Pkg Type	
JM38510/30009SCA	ACTIVE	CDIP	J	14	25	TBD	A42	N / A for Pkg Type	
JM38510/30009SDA	ACTIVE	CFP	W	14	25	TBD	A42	N / A for Pkg Type	
JM38510/30009SDA	ACTIVE	CFP	W	14	25	TBD	A42	N / A for Pkg Type	
M38510/30009B2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
M38510/30009B2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
M38510/30009BCA	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
M38510/30009BCA	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
M38510/30009BDA	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
M38510/30009BDA	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
M38510/30009SCA	ACTIVE	CDIP	J	14	25	TBD	A42	N / A for Pkg Type	
M38510/30009SCA	ACTIVE	CDIP	J	14	25	TBD	A42	N / A for Pkg Type	
M38510/30009SDA	ACTIVE	CFP	W	14	25	TBD	A42	N / A for Pkg Type	
M38510/30009SDA	ACTIVE	CFP	W	14	25	TBD	A42	N / A for Pkg Type	
SN5430J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SN5430J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SN54LS30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SN54LS30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SN54S30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/ Ball Finish	MSL Peak Temp [3]	Samples (Requires Login)
SN54S30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SN7430N	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SN7430N	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SN74LS30D	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30D	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DE4	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DE4	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DG4	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DG4	ACTIVE	SOIC	D	14	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DR	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DR	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DRE4	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DRE4	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DRG4	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30DRG4	ACTIVE	SOIC	D	14	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30J	OBSOLETE	CDIP	J	14		TBD	Call TI	Call TI	
SN74LS30J	OBSOLETE	CDIP	J	14		TBD	Call TI	Call TI	
SN74LS30N	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	
SN74LS30N	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	
SN74LS30N3	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SN74LS30N3	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SN74LS30NE4	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/ Ball Finish	MSL Peak Temp [3]	Samples (Requires Login)
SN74LS30NE4	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	
SN74LS30NSR	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30NSR	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30NSRE4	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30NSRE4	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30NSRG4	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74LS30NSRG4	ACTIVE	SO	NS	14	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74S30D	OBSOLETE	SOIC	D	14		TBD	Call TI	Call TI	
SN74S30D	OBSOLETE	SOIC	D	14		TBD	Call TI	Call TI	
SN74S30DR	OBSOLETE	SOIC	D	14		TBD	Call TI	Call TI	
SN74S30DR	OBSOLETE	SOIC	D	14		TBD	Call TI	Call TI	
SN74S30J	OBSOLETE	CDIP	J	14		TBD	Call TI	Call TI	
SN74S30J	OBSOLETE	CDIP	J	14		TBD	Call TI	Call TI	
SN74S30N	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SN74S30N	OBSOLETE	PDIP	N	14		TBD	Call TI	Call TI	
SNJ5430J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ5430J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ5430W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
SNJ5430W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
SNJ54LS30FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
SNJ54LS30FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
SNJ54LS30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ54LS30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ54LS30W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
SNJ54LS30W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
SNJ54S30FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
SNJ54S30FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/ Ball Finish	MSL Peak Temp [3]	Samples (Requires Login)
SNJ54S30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ54S30J	ACTIVE	CDIP	J	14	1	TBD	A42	N / A for Pkg Type	
SNJ54S30W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	
SNJ54S30W	ACTIVE	CFP	W	14	1	TBD	A42	N / A for Pkg Type	

[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.

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OTHER QUALIFIED VERSIONS OF SN5430, SN54LS30, SN54LS30-SP, SN54S30, SN7430, SN74LS30, SN74S30 :

● Catalog: SN7430, SN74LS30, SN54LS30, SN74S30

● Military: SN5430, SN54LS30, SN54S30

● Space: SN54LS30-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

![TEXAS INSTRUMENTS logo]

PACKAGE MATERIALS INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS
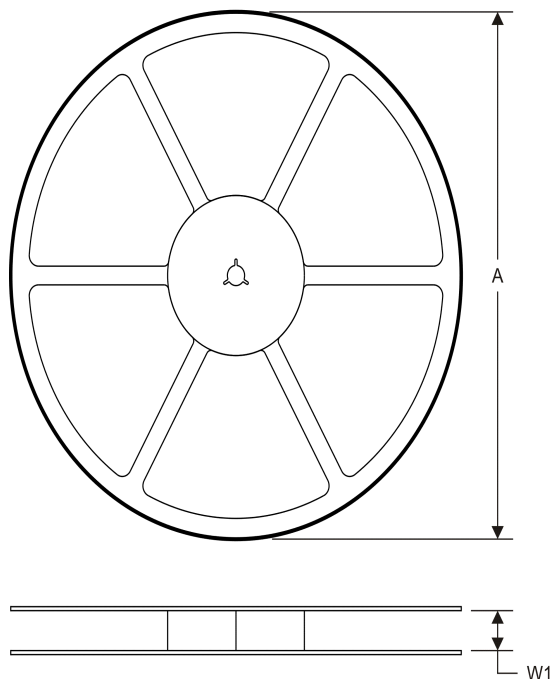
TAPE DIMENSIONS

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

TAPE AND REEL INFORMATION

*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
SN74LS30DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74LS30NSR	SO	NS	14	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)
SN74LS30DR	SOIC	D	14	2500	367.0	367.0	38.0
SN74LS30NSR	SO	NS	14	2000	367.0	367.0	38.0
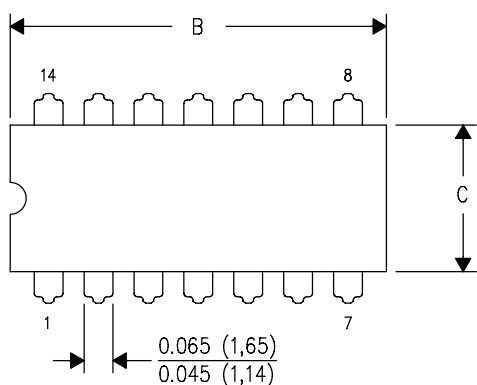
DIM \ PINS **	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)

B

14   8

C

1   7

0.065 (1,65)
0.045 (1,14)

0.005 (0,13) MIN

0.060 (1,52)
0.015 (0,38)

0.200 (5,08) MAX

Seating Plane

0.130 (3,30) MIN

0.026 (0,66)
0.014 (0,36)

0.100 (2,54)

A

0°−15°

0.014 (0,36)
0.008 (0,20)
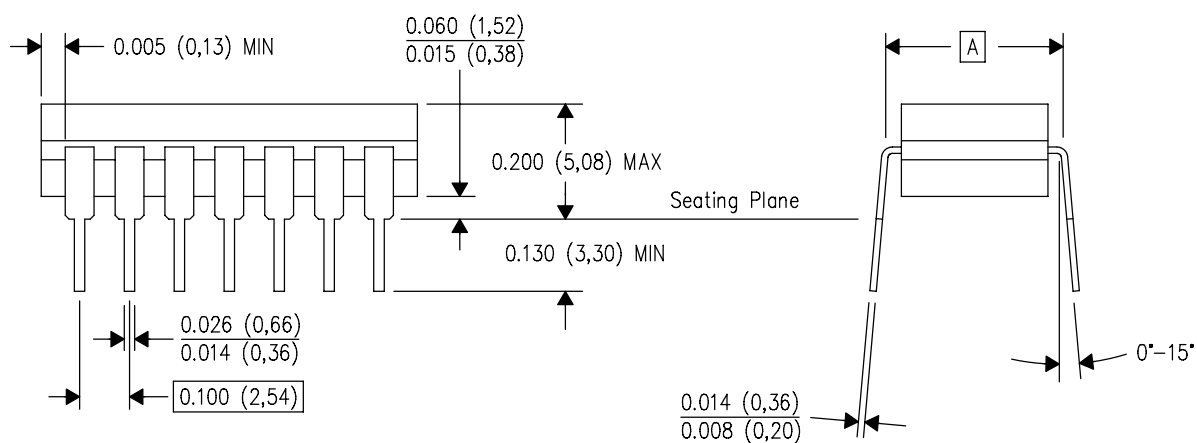
4040083/F 03/03

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–F14)   CERAMIC DUAL FLATPACK

Base and Seating Plane

$\dfrac{0.045\ (1,14)}{0.026\ (0,66)}$

$\dfrac{0.260\ (6,60)}{0.235\ (5,97)}$

$\dfrac{0.080\ (2,03)}{0.045\ (1,14)}$

$\dfrac{0.006\ (0,15)}{0.004\ (0,10)}$

0.280 (7,11) MAX

$\dfrac{0.019\ (0,48)}{0.015\ (0,38)}$

1   14

0.050 (1,27)

$\dfrac{0.390\ (9,91)}{0.335\ (8,51)}$

0.005 (0,13) MIN
4 Places

7   8

$\dfrac{0.360\ (9,14)}{0.250\ (6,35)}$ $\dfrac{0.360\ (9,14)}{0.250\ (6,35)}$

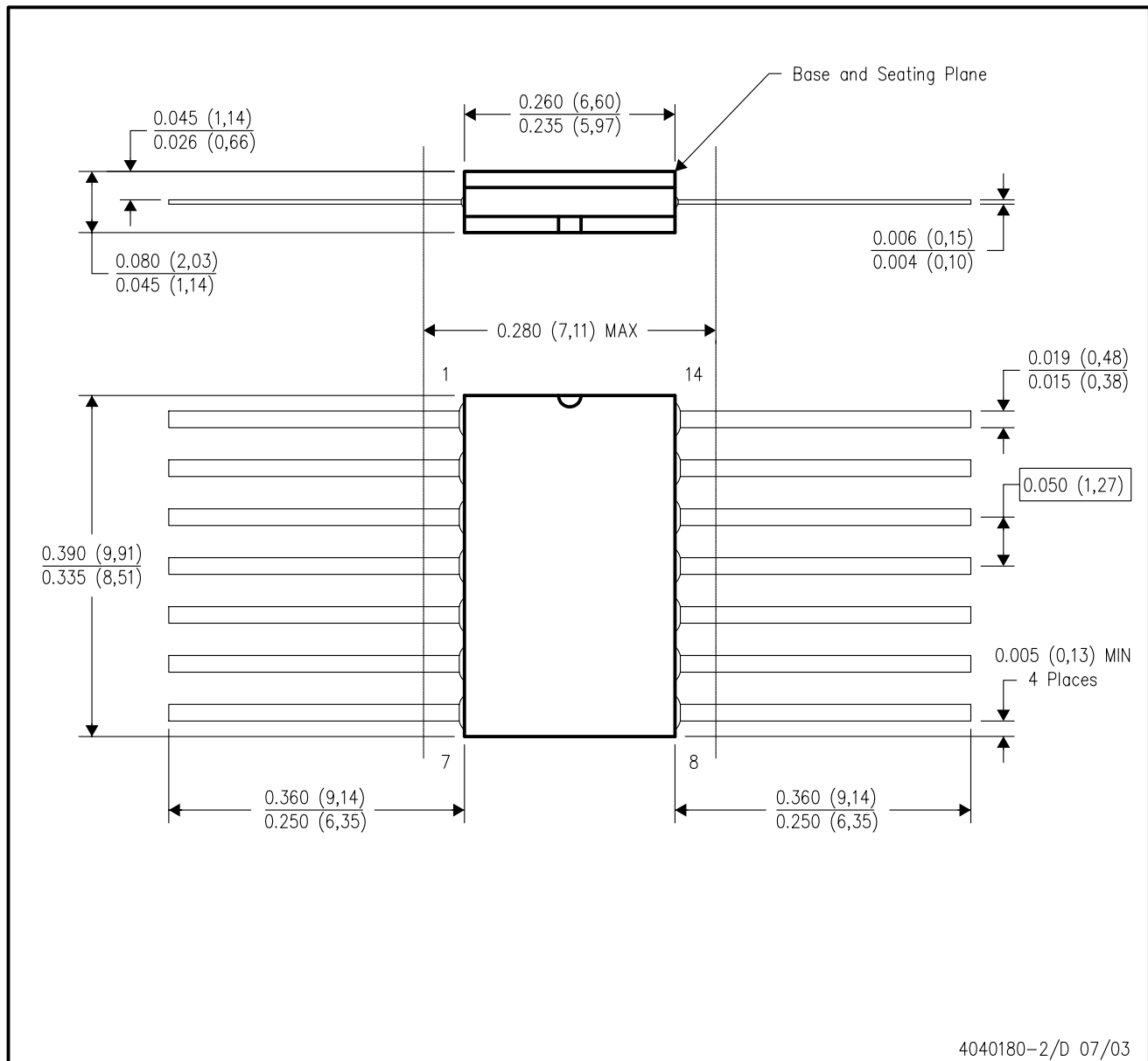4040180–2/D 07/03

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 and JEDEC MO–092AB

FK (S−CQCC−N**)   LEADLESS CERAMIC CHIP CARRIER
28 TERMINAL SHOWN

NO. OF TERMINALS **	A		B	
	MIN	MAX	MIN	MAX
20	0.342 (8,69)	0.358 (9,09)	0.307 (7,80)	0.358 (9,09)
28	0.442 (11,23)	0.458 (11,63)	0.406 (10,31)	0.458 (11,63)
44	0.640 (16,26)	0.660 (16,76)	0.495 (12,58)	0.560 (14,22)
52	0.740 (18,78)	0.761 (19,32)	0.495 (12,58)	0.560 (14,22)
68	0.938 (23,83)	0.962 (24,43)	0.850 (21,6)	0.858 (21,8)
84	1.141 (28,99)	1.165 (29,59)	1.047 (26,6)	1.063 (27,0)

$\frac{0.020\ (0,51)}{0.010\ (0,25)}$

$\frac{0.020\ (0,51)}{0.010\ (0,25)}$

$\frac{0.080\ (2,03)}{0.064\ (1,63)}$

$\frac{0.055\ (1,40)}{0.045\ (1,14)}$

$\frac{0.045\ (1,14)}{0.035\ (0,89)}$

$\frac{0.028\ (0,71)}{0.022\ (0,54)}$ 0.050 (1,27) $\frac{0.045\ (1,14)}{0.035\ (0,89)}$

4040140/D 01/11

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

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N (R−PDIP−T**)   PLASTIC DUAL−IN−LINE PACKAGE
16 PINS SHOWN

PINS ** DIM	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS−001 VARIATION	AA	BB	AC	AD

0.260 (6,60)
0.240 (6,10)

0.070 (1,78)
0.045 (1,14)

0.045 (1,14)
0.030 (0,76)

0.020 (0,51) MIN

0.200 (5,08) MAX

Seating Plane

0.125 (3,18) MIN

0.100 (2,54)

0.021 (0,53)
0.015 (0,38)

⊕ 0.010 (0,25) Ⓜ

0.325 (8,26)
0.300 (7,62)

0.015 (0,38)

Gauge Plane

0.010 (0,25) NOM

0.430 (10,92) MAX

14/18 Pin Only
20 Pin vendor option

4040049/E 12/2002

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

D (R−PDSO−G14)   PLASTIC SMALL OUTLINE

0.344 (8,75)
0.337 (8,55)
△C

14   8

0.244 (6,20)
0.228 (5,80)

0.157 (4,00)
0.150 (3,80)   △D

1   7

Pin 1
Index Area

0.050 (1,27)   0.020 (0,51)
                     0.012 (0,31)
                     ⊕ 0.010 (0,25) Ⓜ

0.069 (1,75) Max   0.010 (0,25)
                                             0.004 (0,10)

0.010 (0,25)
0.005 (0,13)

Gauge Plane   0.004 (0,10)

                                             Seating Plane

0.010 (0,25)   0°−8°

0.050 (1,27)
0.016 (0,40)

4040047−5/M   06/11

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

Example Board Layout
(Note C)

Stencil Openings
(Note D)

←─12x1,27

←14x0,55

←─12x1,27

14x1,50

5,40

5,40

Example
Non Soldermask Defined Pad

Example
Pad Geometry
(See Note C)

─0,60

Example
Solder Mask Opening
(See Note E)

1,55

─0.07
All Around

4211283−3/E 08/12

NOTES: A. All linear dimensions are in millimeters.
          B. This drawing is subject to change without notice.
          C. Publication IPC−7351 is recommended for alternate designs.
          D. 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.
          E. 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

DIM \ PINS **	14	16	20	24
A MAX	10,50	10,50	12,90	15,30
A MIN	9,90	9,90	12,30	14,70

4040062/C 03/03

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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