SCLS130D - DECEMBER 1982 - REVISED AUGUST 2003

#### 询"SN54HC244-SP"供应商

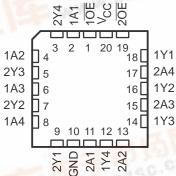
- Wide Operating Voltage Range of 2 V to 6 V
- High-Current Outputs Drive Up To 15 LSTTL Loads
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers

SN54HC244 . . . J OR W PACKAGE SN74HC244 . . . DB, DW, N, NS, OR PW PACKAGE (TOP VIEW)

	_		
10E [	1	$\bigcup_{20}$	] v <sub>cc</sub>
1A1 [	2	19	20E
2Y4 [	3	18	] 1Y1
1A2 [	4	17	2A4
2Y3 [	5	16	] 1Y2
1A3 [	6	15	] 2A3
2Y2 [	7	14	] 1Y3
1A4 [	8	13	] 2A2
2Y1 [	9	12	] 1Y4
GND [	10	11	2A1

- Low Power Consumption, 80-μA Max I<sub>CC</sub>
- Typical t<sub>pd</sub> = 11 ns
- ±6-mA Output Drive at 5 V
- Low Input Current of 1 μA Max





#### description/ordering information

These octal buffers and line drivers are designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. The 'HC244 devices are organized as two 4-bit buffers/drivers with separate output-enable ( $\overline{OE}$ ) inputs. When  $\overline{OE}$  is low, the device passes noninverted data from the A inputs to the Y outputs. When  $\overline{OE}$  is high, the outputs are in the high-impedance state.

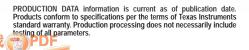
#### **ORDERING INFORMATION**

TA	PACKA	GE†	ORDERABLE PART NUMBER	TOP-SIDE MARKING
	PDIP – N	Tube of 20	SN74HC244N	SN74HC244N
	SOIC - DW	Tube of 25	SN74HC244DW	HC244
-	SOIC - DVV	Reel of 2000	SN74HC244DWR	HC244
-40°C to 85°C	SOP - NS	Reel of 2000	SN74HC244NSR	HC244
-40 C to 65 C	SSOP - DB	Reel of 2000	SN74HC244DBR	HC244
G. F.		Tube of 70	SN74HC244PW	
	TSSOP - PW	Reel of 2000	SN74HC244PWR	HC244
		Reel of 250	SN74HC244PWT	一子市以
	CDIP – J	Tube of 20	SNJ54HC244J	SNJ54HC244J
–55°C to 125°C	CFP – W	Tube of 85	SNJ54HC244W	SNJ54HC244W
	LCCC – FK	Tube of 55	SNJ54HC244FK	SNJ54HC244FK

<sup>†</sup> Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.



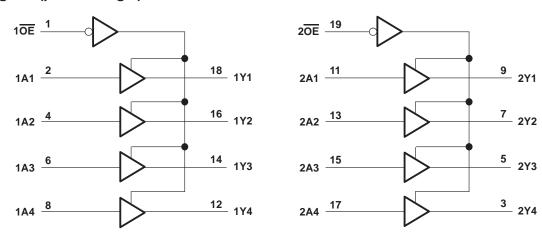


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# FUNCTION TABLE (each buffer/driver)

INPU	JTS	OUTPUT
OE	Α	Υ
L	Н	Н
L	L	L
Н	Χ	Z

#### logic diagram (positive logic)



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

Supply voltage range, V <sub>CC</sub>		0.5 V to 7 V
Input clamp current, IIK (VI < 0 or VI > VCC) (se	e Note 1)	±20 mA
Output clamp current, IOK (VO < 0 or VO > VCO		
Continuous output current, $I_{O}$ ( $V_{O} = 0$ to $V_{CC}$ )		
Continuous current through V <sub>CC</sub> or GND		±70 mA
Package thermal impedance, $\theta_{JA}$ (see Note 2):	DB package	
	DW package	58°C/W
	N package	69°C/W
	NS package	60°C/W
	PW package	
Storage temperature range, T <sub>stq</sub>		–65°C to 150°C

<sup>†</sup> 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.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. The package thermal impedance is calculated in accordance with JESD 51-7.



#### recommended operating conditions (see Note 3)

			SI	154HC24	14	SN74HC244		4	UNIT
			MIN	NOM	MAX	MIN	NOM	MAX	UNII
Vcc	Supply voltage		2	5	6	2	5	6	V
		V <sub>CC</sub> = 2 V	1.5			1.5			
VIH	High-level input voltage	V <sub>CC</sub> = 4.5 V	3.15			3.15			V
		VCC = 6 V	4.2			4.2			
		V <sub>CC</sub> = 2 V			0.5			0.5	
VIL	Low-level input voltage	V <sub>CC</sub> = 4.5 V			1.35			1.35	V
		V <sub>CC</sub> = 6 V			1.8			1.8	
VI	Input voltage		0		VCC	0		VCC	V
Vo	Output voltage		0		VCC	0		VCC	V
		V <sub>CC</sub> = 2 V			1000			1000	
Δt/Δν	Input transition rise/fall time	V <sub>CC</sub> = 4.5 V			500			500	ns
		VCC = 6 V			400			400	
TA	Operating free-air temperature		-55	_	125	-40		85	°C

NOTE 3: All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. Refer to the TI application report, Implications of Slow or Floating CMOS Inputs, literature number SCBA004.

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

DADAMETED	TEST CO	TEST CONDITIONS		Т	A = 25°C	;	SN54H	IC244	SN74H	C244	UNIT
PARAMETER	1251 CC	CNDITIONS	VCC	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNII
			2 V	1.9	1.998		1.9		1.9		
		$I_{OH} = -20 \mu A$	4.5 V	4.4	4.499		4.4		4.4		
Voн	VI = VIH or VIL		6 V	5.9	5.999		5.9		5.9		V
		$I_{OH} = -6 \text{ mA}$	4.5 V	3.98	4.3		3.7		3.84		
		$I_{OH} = -7.8 \text{ mA}$	6 V	5.48	5.8		5.2		5.34		
		I <sub>OL</sub> = 20 μA	2 V		0.002	0.1		0.1		0.1	
			4.5 V		0.001	0.1		0.1		0.1	
VOL	$V_I = V_{IH}$ or $V_{IL}$		6 V		0.001	0.1		0.1		0.1	V
		$I_{OL} = 6 \text{ mA}$	4.5 V		0.17	0.26		0.4		0.33	
		$I_{OL} = 7.8 \text{ mA}$	6 V		0.15	0.26		0.4		0.33	
lį	$V_I = V_{CC}$ or 0		6 V		±0.1	±100		±1000		±1000	nA
loz	$V_O = V_{CC}$ or 0,	$V_I = V_{IH}$ or $V_{IL}$	6 V		±0.01	±0.5		±10		±5	μΑ
Icc	$V_I = V_{CC}$ or 0,	IO = 0	6 V			8		160		80	μΑ
Ci			2 V to 6 V		3	10		10		10	pF

## SN54HC244, SN74HC244 OCTAL BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

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# switching characteristics over recommended operating free-air temperature range, $C_L$ = 50 pF (unless otherwise noted) (see Figure 1)

PARAMETER	FROM	то	Vaa	T	λ = 25°C	;	SN54H	C244	SN74H	IC244	UNIT
PARAMETER	(INPUT)	(OUTPUT)	VCC	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNII
		Y	2 V		40	115		170		145	
<sup>t</sup> pd	Α		4.5 V		13	23		34		29	ns
·			6 V		11	20		29		25	
		2 V		75	150		225		190		
<sup>t</sup> en	ŌĒ	Y	4.5 V		15	30		45		38	ns
			6 V		13	26		38		32	
			2 V		75	150		225		190	
<sup>t</sup> dis	ŌĒ	Υ	4.5 V		15	30		45		38	ns
			6 V		13	26		38		32	
		Y	2 V		28	60		90		75	ns
t <sub>t</sub>			4.5 V		8	12		18		15	
			6 V		6	10		15		13	

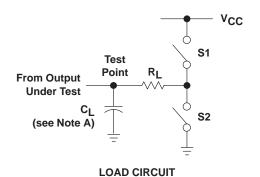
# switching characteristics over recommended operating free-air temperature range, $C_L$ = 150 pF (unless otherwise noted) (see Figure 1)

PARAMETER	FROM	то	Vaa	T,	λ = 25°C	;	SN54F	IC244	SN74HC244		UNIT						
PARAMETER	(INPUT)	(OUTPUT)	VCC	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNII						
			2 V		56	165		245		210							
<sup>t</sup> pd	A	A Y	Y	4.5 V		18	33		49		42	ns					
·			6 V		15	28		42		35							
		Y	2 V		100	200		300		250	ns						
t <sub>en</sub>	ŌĒ		4.5 V		20	40		60		50							
			6 V		17	34		51		43							
			2 V		45	210		315		265							
t <sub>t</sub>	Υ	Y	Y	Y	Y	Y	Y	Υ	4.5 V		17	42		63		53	ns
			6 V		13	36		53		45							

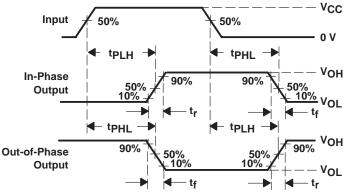
# operating characteristics, $T_A = 25^{\circ}C$

	PARAMETER	TEST CONDITIONS	TYP	UNIT
C <sub>pd</sub>	Power dissipation capacitance per buffer/driver	No load	35	pF

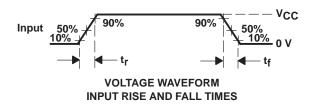
#### PARAMETER MEASUREMENT INFORMATION

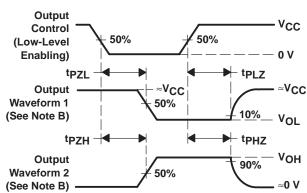


PARAI	PARAMETER		CL	S1	S2	
	tPZH	<b>1 k</b> Ω	50 pF or	Open	Closed	
ten	tPZL	1 K22	150 pF	Closed	Open	
4	t <sub>PHZ</sub>		50 pF	Open	Closed	
<sup>t</sup> dis	tPLZ	<b>1 k</b> Ω	30 pr	Closed	Open	
t <sub>pd</sub> or t <sub>t</sub>		-	50 pF or 150 pF	Open	Open	



VOLTAGE WAVEFORMS
PROPAGATION DELAY AND OUTPUT TRANSITION TIMES





VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES FOR 3-STATE OUTPUTS

- NOTES: A. C<sub>L</sub> includes probe and test-fixture 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. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR  $\leq$  1 MHz,  $Z_O = 50 \Omega$ ,  $t_r = 6$  ns.
  - D. The outputs are measured one at a time with one input transition per measurement.
  - E. tpLZ and tpHZ are the same as tdis.
  - F. tpzL and tpzH are the same as ten.
  - G. tpLH and tpHL are the same as tpd.

Figure 1. Load Circuit and Voltage Waveforms

15-Oct-2009

#### **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>
5962-8409601VRA	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
5962-8409601VSA	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type
84096012A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
8409601RA	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
8409601SA	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type
JM38510/65705B2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
JM38510/65705BRA	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
JM38510/65705BSA	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type
SN54HC244J	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
SN74HC244ADBLE	OBSOLETE	SSOP	DB	20		TBD	Call TI	Call TI
SN74HC244APWLE	OBSOLETE	TSSOP	PW	20		TBD	Call TI	Call TI
SN74HC244DBLE	OBSOLETE	SSOP	DB	20		TBD	Call TI	Call TI
SN74HC244DBR	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DBRE4	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DBRG4	ACTIVE	SSOP	DB	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DWE4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DWG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DWRE4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
SN74HC244N3	OBSOLETE	PDIP	N	20		TBD	Call TI	Call TI
SN74HC244NE4	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
SN74HC244NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244NSRE4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244NSRG4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PW	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWE4	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWG4	ACTIVE	TSSOP	PW	20	70	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM





## 查询"\$N54HC244-SP"供应商

15-Oct-2009

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	e Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>
SN74HC244PWLE	OBSOLETE	TSSOP	PW	20		TBD	Call TI	Call TI
SN74HC244PWR	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWRE4	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWRG4	ACTIVE	TSSOP	PW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWT	ACTIVE	TSSOP	PW	20	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWTE4	ACTIVE	TSSOP	PW	20	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244PWTG4	ACTIVE	TSSOP	PW	20	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74HC244QDWRG4Q1	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SNJ54HC244FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
SNJ54HC244J	ACTIVE	CDIP	J	20	1	TBD	A42	N / A for Pkg Type
SNJ54HC244W	ACTIVE	CFP	W	20	1	TBD	Call TI	N / A for Pkg Type

<sup>(1)</sup> 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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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 SN54HC244, SN54HC244-SP, SN74HC244:

Automotive: SN74HC244-Q1

• Enhanced Product: SN74HC244-EP



## **PACKAGE OPTION ADDENDUM**

查询"\$N54HC244-SP"供应商

15-Oct-2009

NOTE: Qualified Version Definitions:

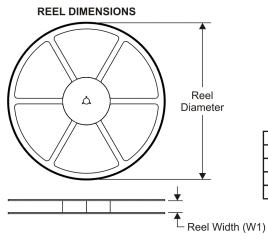
- Automotive Q100 devices qualified for high-reliability automotive applications targeting zero defects
   Enhanced Product Supports Defense, Aerospace and Medical Applications



查询"\$N54HC244-SP"供应商

6-Aug-2010

#### TAPE AND REEL INFORMATION





	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

All dimensions are nominal												
Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74HC244DBR	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	16.0	Q1
SN74HC244DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.0	2.7	12.0	24.0	Q1
SN74HC244NSR	SO	NS	20	2000	330.0	24.4	8.2	13.0	2.5	12.0	24.0	Q1
SN74HC244PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1
SN74HC244PWT	TSSOP	PW	20	250	330.0	16.4	6.95	7.1	1.6	8.0	16.0	Q1

查询"\$N54HC244-\$P"供应商

6-Aug-2010



\*All dimensions are nominal

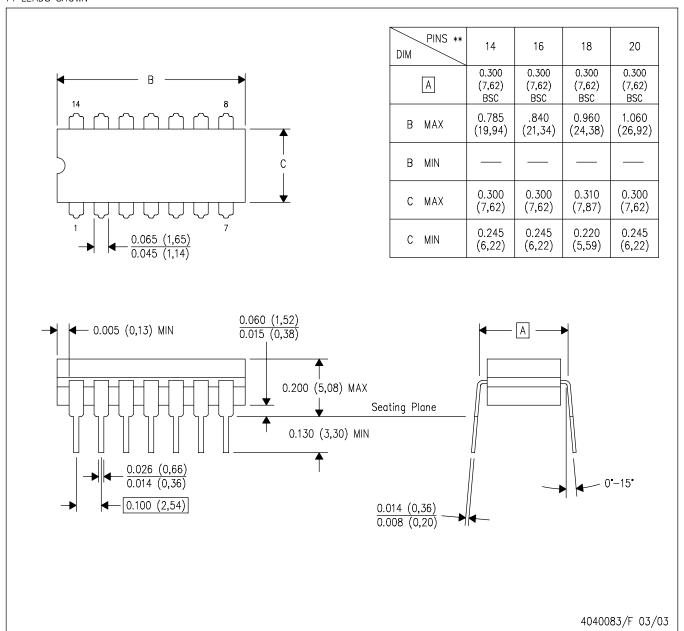
7 til diffictioiono are nominal							
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74HC244DBR	SSOP	DB	20	2000	346.0	346.0	33.0
SN74HC244DWR	SOIC	DW	20	2000	346.0	346.0	41.0
SN74HC244NSR	SO	NS	20	2000	346.0	346.0	41.0
SN74HC244PWR	TSSOP	PW	20	2000	346.0	346.0	33.0
SN74HC244PWT	TSSOP	PW	20	250	346.0	346.0	33.0

## 查询"SN54HC244-SP"供应商

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

### CERAMIC DUAL IN-LINE PACKAGE

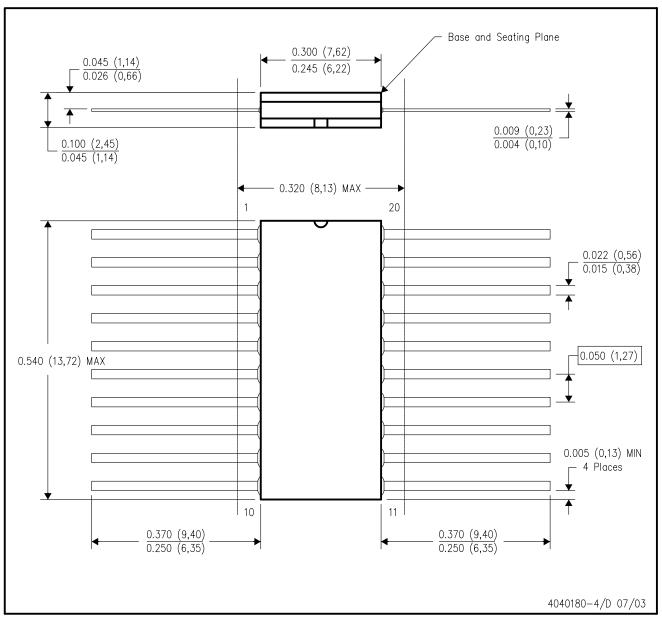
14 LEADS SHOWN



- 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-F20)

# CERAMIC DUAL FLATPACK



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

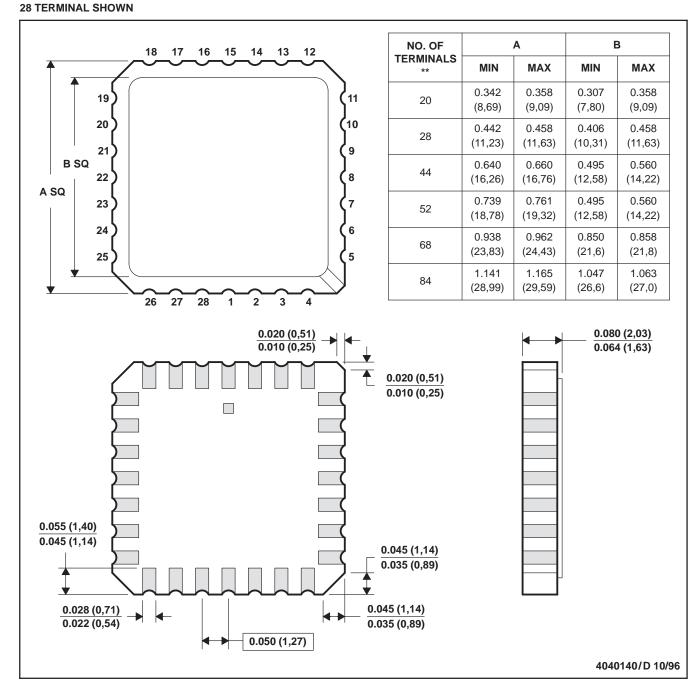
- B. This drawing is subject to change without notice.
- C. This package can be hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only.
- E. Falls within Mil-Std 1835 GDFP2-F20



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

#### ,

#### LEADLESS CERAMIC CHIP CARRIER



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

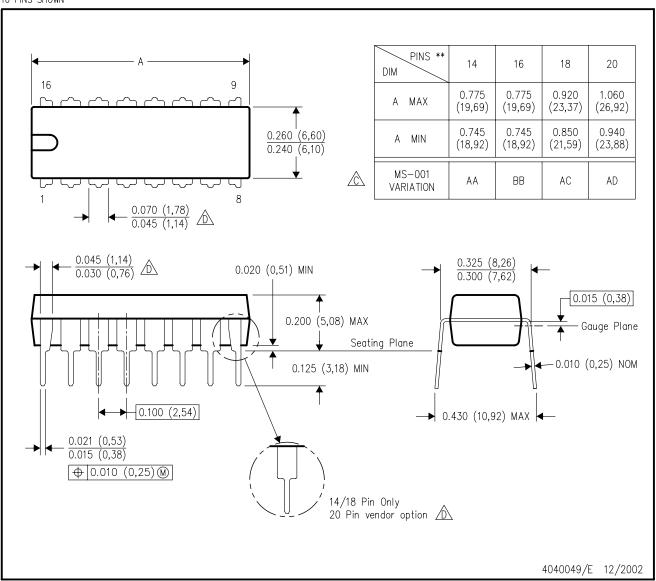
- B. This drawing is subject to change without notice.
- C. This package can be hermetically sealed with a metal lid.
- D. The terminals are gold plated.
- E. Falls within JEDEC MS-004



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

### PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN

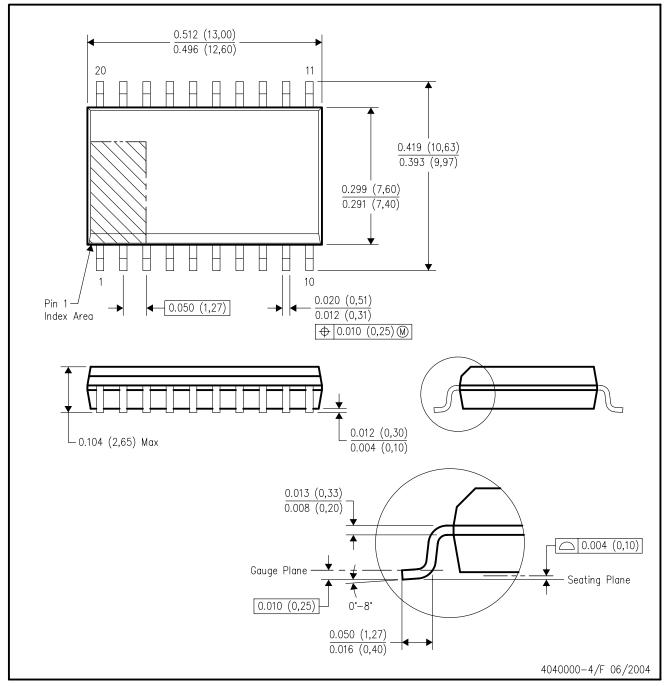


- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
- The 20 pin end lead shoulder width is a vendor option, either half or full width.



# DW (R-PDSO-G20)

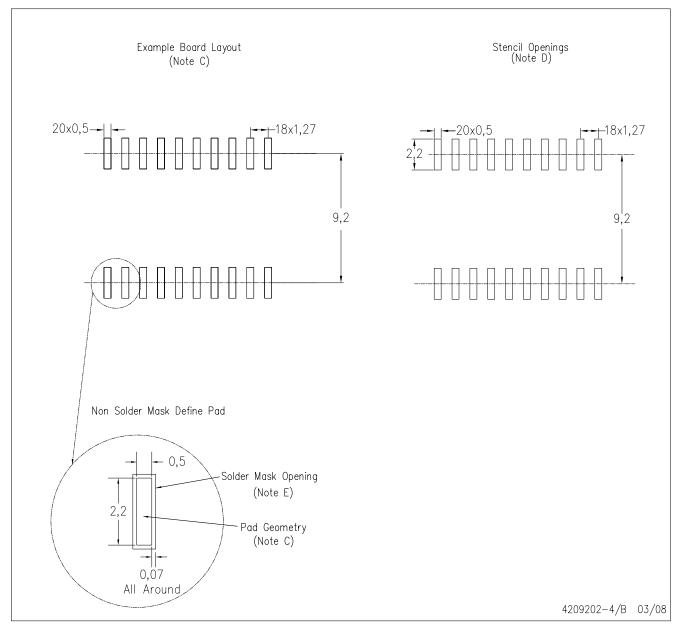
# PLASTIC SMALL-OUTLINE PACKAGE



- 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.



# DW (R-PDSO-G20)



- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Customers should place a note on the circuit board fabrication drawing not to alter the center solder mask defined pad.
- 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
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

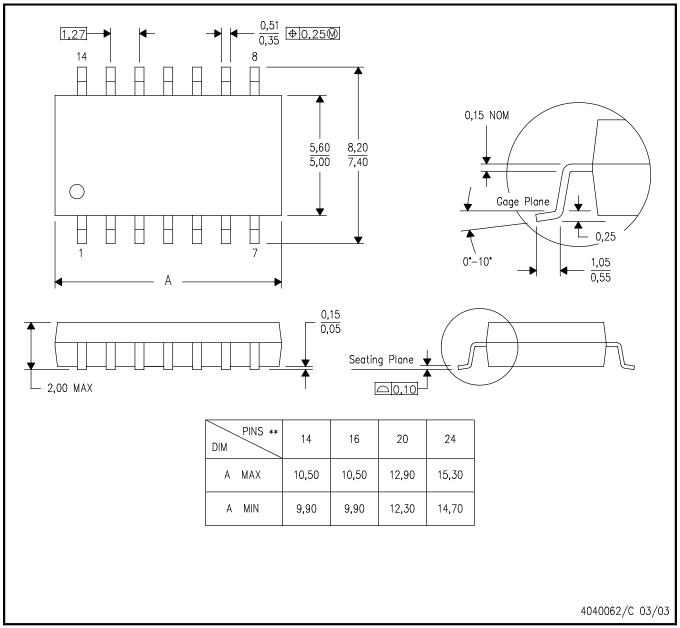


#### **MECHANICAL DATA**

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

# 14-PINS SHOWN

#### PLASTIC SMALL-OUTLINE PACKAGE



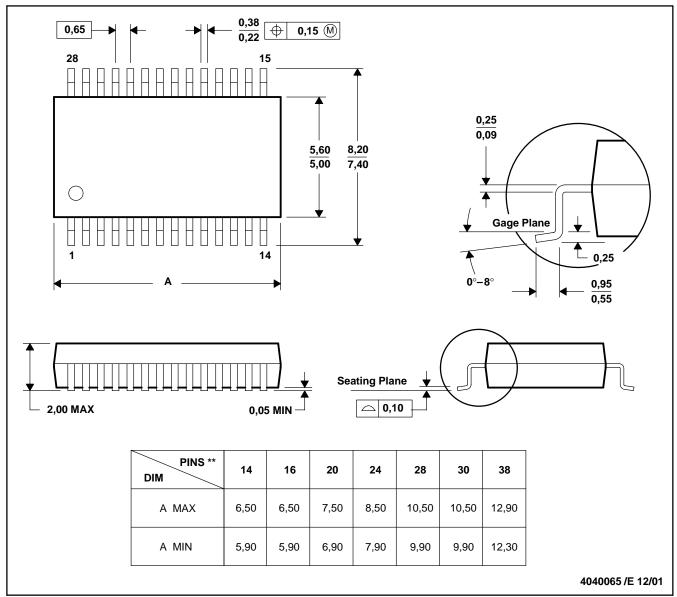
- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



## 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.

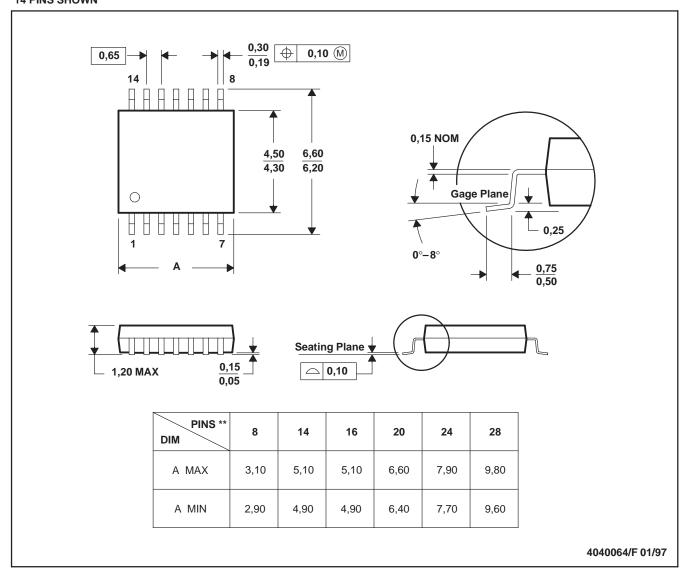
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.

D. Falls within JEDEC MO-150

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

#### 14 PINS SHOWN

#### PLASTIC SMALL-OUTLINE PACKAGE



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-153

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