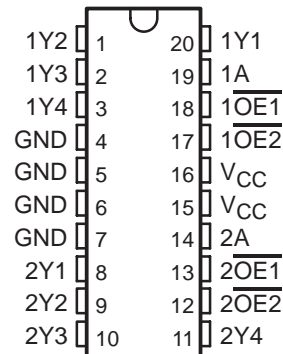


# CDC208 DUAL 1-LINE TO 4-LINE CLOCK DRIVER WITH 3-STATE OUTPUTS

SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

- Low-Skew Propagation Delay Specifications for Clock-Driver Applications
- TTL-Compatible Inputs and CMOS-Compatible Outputs
- Flow-Through Architecture Optimizes PCB Layout
- Center-Pin  $V_{CC}$  and GND Pin Configurations Minimize High-Speed Switching Noise
- EPIC™ (Enhanced-Performance Implanted CMOS) 1- $\mu$ m Process
- 500-mA Typical Latch-Up Immunity at 125°C
- Package Options Include Plastic Small-Outline (DW)

DW PACKAGE  
(TOP VIEW)



## description

The CDC208 contains dual clock-driver circuits that fanout one input signal to four outputs with minimum skew for clock distribution (see Figure 2). The device also offers two output-enable ( $\overline{OE1}$  and  $\overline{OE2}$ ) inputs for each circuit that can force the outputs to be disabled to a high-impedance state or to a high- or low-logic level independent of the signal on the respective A input.

Skew parameters are specified for a reduced temperature and voltage range common to many applications.

The CDC208 is characterized for operation from  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .

FUNCTION TABLES

INPUTS			OUTPUTS			
$\overline{1OE1}$	$\overline{1OE2}$	1A	1Y1	1Y2	1Y3	1Y4
L	L	L	L	L	L	L
L	L	H	H	H	H	H
L	H	X	L	L	L	L
H	L	X	H	H	H	H
H	H	X	Z	Z	Z	Z

INPUTS			OUTPUTS			
$\overline{2OE1}$	$\overline{2OE2}$	2A	2Y1	2Y2	2Y3	2Y4
L	L	L	L	L	L	L
L	L	H	H	H	H	H
L	H	X	L	L	L	L
H	L	X	H	H	H	H
H	H	X	Z	Z	Z	Z



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.

EPIC is a trademark of Texas Instruments Incorporated.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



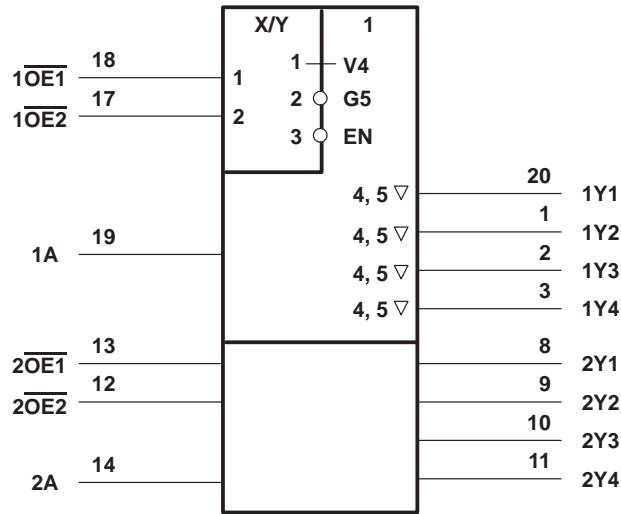
POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

Copyright © 1998, Texas Instruments Incorporated

# CDC208 DUAL 1-LINE TO 4-LINE CLOCK DRIVER WITH 3-STATE OUTPUTS

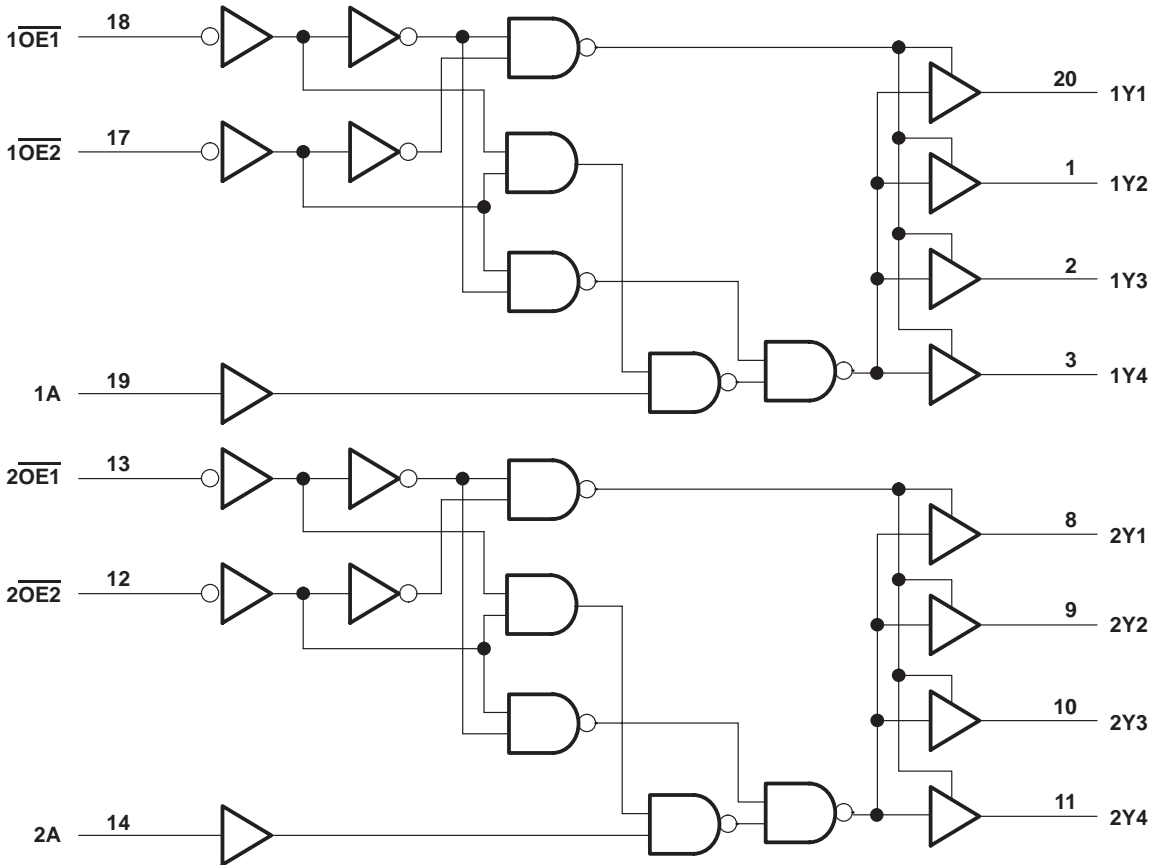
SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

## logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

## logic diagram (positive logic)



# CDC208 DUAL 1-LINE TO 4-LINE CLOCK DRIVER WITH 3-STATE OUTPUTS

SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

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

Supply voltage range, $V_{CC}$ .....	–0.5 V to 7 V
Input voltage range, $V_I$ (see Note 1) .....	–0.5 V to $V_{CC} + 0.5$ V
Output voltage range, $V_O$ (see Note 1) .....	–0.5 V to $V_{CC} + 0.5$ V
Input clamp current, $I_{IK}$ ( $V_I < 0$ or $V_I > V_{CC}$ ) .....	±20 mA
Output clamp current, $I_{OK}$ ( $V_O < 0$ or $V_O > V_{CC}$ ) .....	±50 mA
Continuous output current, $I_O$ ( $V_O = 0$ to $V_{CC}$ ) .....	±50 mA
Continuous current through $V_{CC}$ or GND .....	±200 mA
Maximum power dissipation at $T_A = 55^\circ\text{C}$ (in still air) (see Note 2) .....	1.6 W
Storage temperature range .....	–65°C to 150°C

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

- NOTES: 1. The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.  
 2. The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils. For more information, refer to the *Package Thermal Considerations* application note in the 1994 *ABT Advanced BiCMOS Technology Data Book*, literature number SCBD002B.

## recommended operating conditions

		MIN	NOM	MAX	UNIT
$V_{CC}$	Supply voltage	4.5	5	5.5	V
$V_{IH}$	High-level input voltage	2			V
$V_{IL}$	Low-level input voltage			0.8	V
$V_I$	Input voltage	0	$V_{CC}$		V
$I_{OH}$	High-level output current			–24	mA
$I_{OL}$	Low-level output current			24	mA
$\Delta t / \Delta v$	Input transition rise or fall rate	0		10	ns/V
$f_{\text{clock}}$	Input clock frequency			60	MHz
$T_A$	Operating free-air temperature	–40		85	°C



**CDC208**  
**DUAL 1-LINE TO 4-LINE CLOCK DRIVER**  
**WITH 3-STATE OUTPUTS**

SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

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

PARAMETER	TEST CONDITIONS	V <sub>CC</sub>	T <sub>A</sub> = 25°C			MIN	MAX	UNIT
			MIN	TYP	MAX			
V <sub>OH</sub>	I <sub>OH</sub> = -50 μA	4.5 V	4.4			4.4		V
		5.5 V	5.4			5.4		
	I <sub>OH</sub> = -24 mA	4.5 V	3.94			3.8		
		5.5 V	4.94			4.8		
	I <sub>OH</sub> = -75 mA†	5.5 V				3.85		
	V <sub>OL</sub>	I <sub>OL</sub> = 50 μA	4.5 V				0.1	
5.5 V						0.1		
I <sub>OL</sub> = 24 mA		4.5 V				0.36		
		5.5 V				0.36		
I <sub>OL</sub> = 75 mA†		5.5 V				1.65		
I <sub>I</sub>		V <sub>I</sub> = V <sub>CC</sub> or GND	5.5 V				±0.1	
I <sub>OZ</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5.5 V				±0.5		μA
I <sub>CC</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND, I <sub>O</sub> = 0	5.5 V				8		μA
ΔI <sub>CC</sub> ‡	One input at 3.4 V, Other inputs at V <sub>CC</sub> or GND	5.5 V				0.9		mA
C <sub>i</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND	5 V				4		pF
C <sub>o</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5 V				10		pF

† Not more than one output should be tested at a time, and the duration of the test should not exceed 10 ms.

‡ This is the increase in supply current for each input that is at one of the specified TTL voltage levels rather than 0 V or V<sub>CC</sub>.



# CDC208 DUAL 1-LINE TO 4-LINE CLOCK DRIVER WITH 3-STATE OUTPUTS

SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

switching characteristics over recommended operating free-air temperature range,  
 $V_{CC} = 5\text{ V} \pm 0.5\text{ V}$  (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
$t_{PLH}$	1A and 2A	Any Y	5.3	8.5	10.9	5.3	11.7	ns
$t_{PHL}$			3.6	7.7	11	3.6	11.5	
$t_{PLH}$	$\overline{1OE1}$ , $\overline{1OE2}$ , and $\overline{2OE1}$ , $\overline{2OE2}$	Any Y	4.7	8.5	11.7	4.7	12.8	ns
$t_{PHL}$			4.4	8.4	11.3	4.4	12.4	
$t_{PZH}$	$\overline{1OE2}$ or $\overline{2OE2}$	Any Y	4.4	8.1	11.3	4.4	12.4	ns
$t_{PZL}$	$\overline{1OE1}$ or $\overline{2OE1}$		5	9.6	13.3	5	14.9	
$t_{PHZ}$	$\overline{1OE2}$ or $\overline{2OE2}$	Any Y	4.2	7.4	9.3	4.2	10.2	ns
$t_{PLZ}$	$\overline{1OE1}$ or $\overline{2OE1}$		5.4	7.5	9.2	5.4	9.9	

switching characteristics,  $V_{CC} = 5\text{ V} \pm 0.25\text{ V}$ ,  $T_A = 25^\circ\text{C}$  to  $70^\circ\text{C}$  (see Note 3 and Figures 1 and 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	MIN	MAX	UNIT
$t_{PLH}$	1A and 2A	Any Y	6.6	10.2	ns
$t_{PHL}$			6.6	9.8	
$t_{sk(o)}$	1A and 2A	Any Y		1	ns

NOTE 3: All specifications are valid only for all outputs switching simultaneously and in phase.

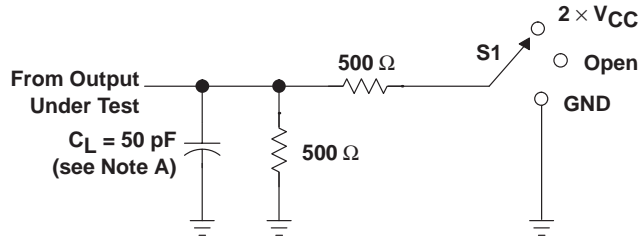
operating characteristics,  $V_{CC} = 5\text{ V}$ ,  $T_A = 25^\circ\text{C}$

PARAMETER		TEST CONDITIONS	TYP	UNIT
$C_{pd}$	Power dissipation capacitance per bank	Outputs enabled	96	pF
		Outputs disabled	12	

# CDC208 DUAL 1-LINE TO 4-LINE CLOCK DRIVER WITH 3-STATE OUTPUTS

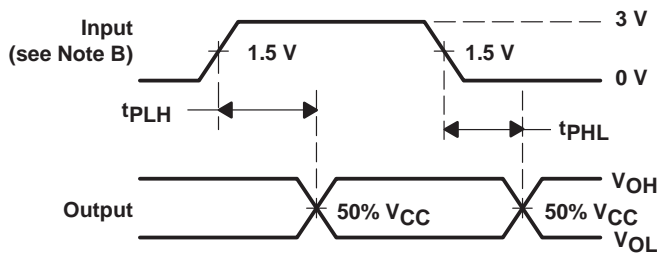
SCAS109F – APRIL 1990 – REVISED OCTOBER 1998

## PARAMETER MEASUREMENT INFORMATION

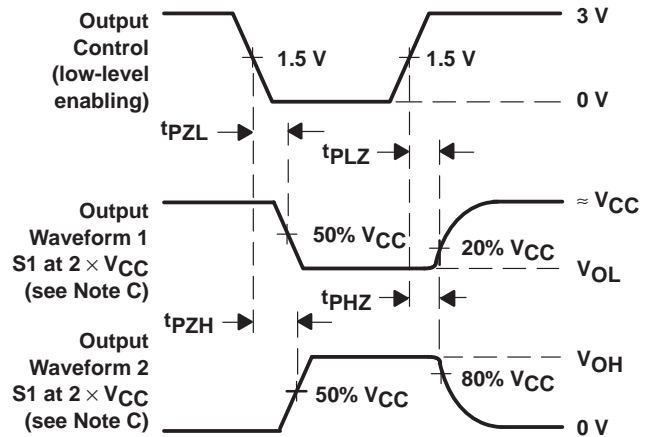


(see Note A) LOAD CIRCUIT FOR OUTPUTS

TEST	S1
$t_{PLH}/t_{PHL}$	Open
$t_{PLZ}/t_{PZL}$	$2 \times V_{CC}$
$t_{PHZ}/t_{PZH}$	GND



VOLTAGE WAVEFORMS  
PROPAGATION DELAY TIMES

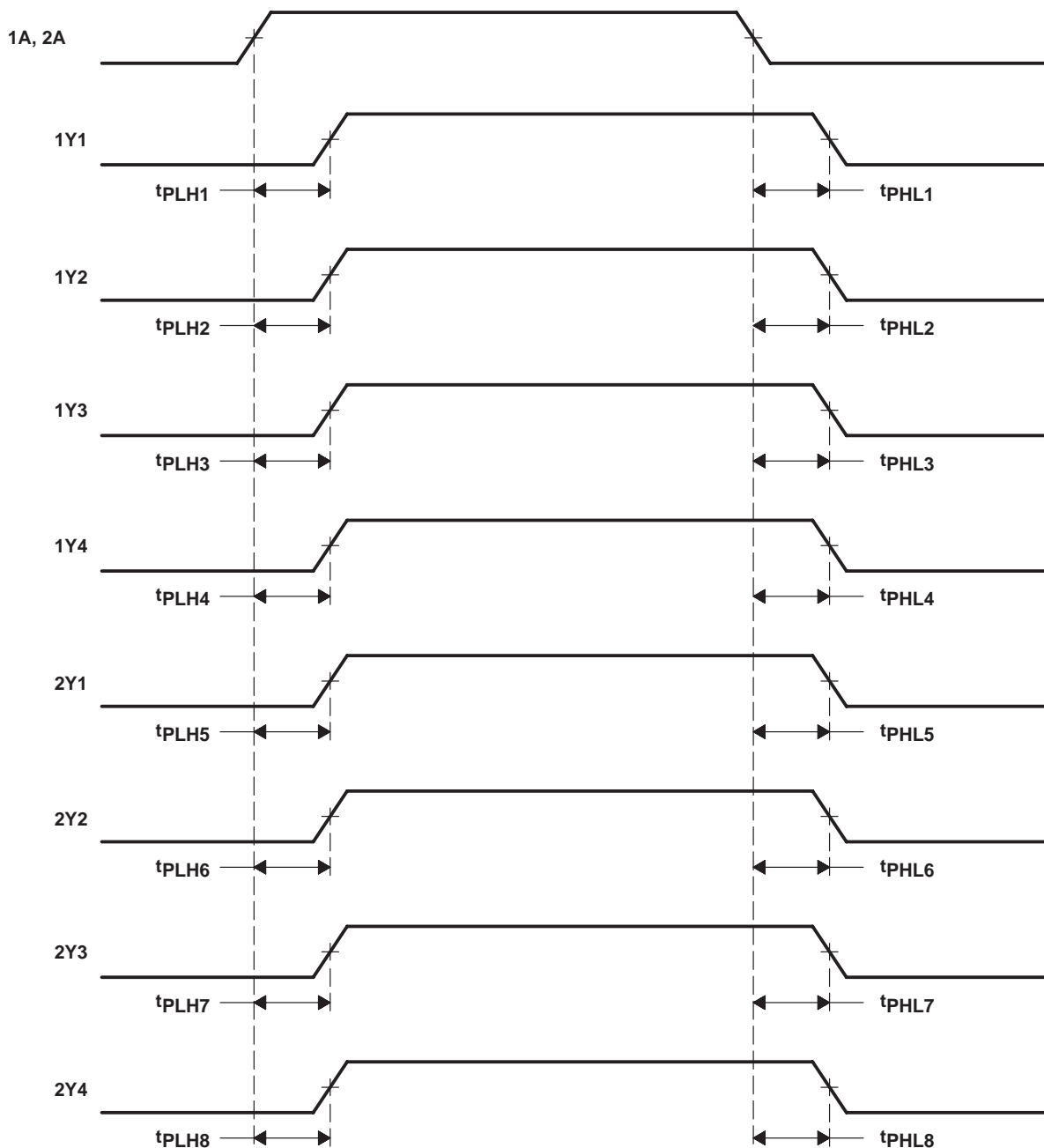


VOLTAGE WAVEFORMS  
ENABLE AND DISABLE TIMES

- NOTES: A.  $C_L$  includes probe and jig capacitance.  
 B. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 10$  MHz,  $Z_O = 50 \Omega$ ,  $t_r \leq 3$  ns,  $t_f \leq 3$  ns. For testing pulse duration:  $t_r = t_f = 1$  to 3 ns. Pulse polarity can be either high-to-low-to-high or low-to-high-to-low.  
 C. 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.

Figure 1. Load Circuit and Voltage Waveforms

**PARAMETER MEASUREMENT INFORMATION**



NOTE A: Output skew,  $t_{sk(o)}$ , is calculated as the greater of:

- The difference between the fastest and slowest of  $t_{PLHn}$  ( $n = 1, 2, \dots, 8$ )
- The difference between the fastest and slowest of  $t_{PHLn}$  ( $n = 1, 2, \dots, 8$ )

**Figure 2. Waveforms for Calculation of  $t_{sk(o)}$**

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
CDC208DBLE	OBSOLETE	SSOP	DB	20		TBD	Call TI	Call TI			
CDC208DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM		CDC208	<a href="#">Samples</a>
CDC208DWG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM		CDC208	<a href="#">Samples</a>
CDC208DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM		CDC208	<a href="#">Samples</a>
CDC208DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM		CDC208	<a href="#">Samples</a>
CDC208N	OBSOLETE	PDIP	N	20		TBD	Call TI	Call TI			
CDC208NS	ACTIVE	SO	NS	20	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	CDC208	<a href="#">Samples</a>
CDC208NSG4	ACTIVE	SO	NS	20	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	CDC208	<a href="#">Samples</a>
CDC208NSR	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	CDC208	<a href="#">Samples</a>
CDC208NSRG4	ACTIVE	SO	NS	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	CDC208	<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)

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

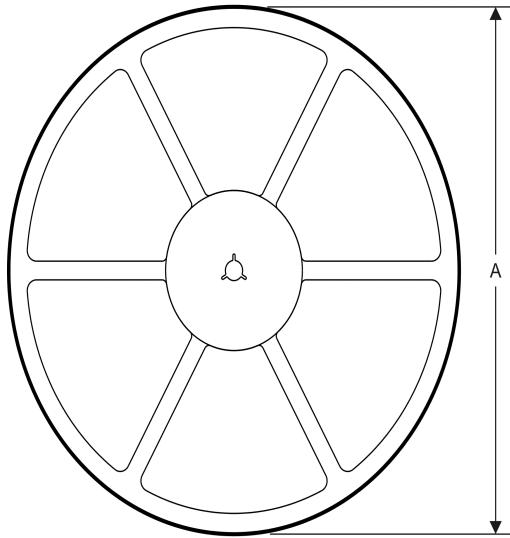
<sup>(4)</sup> Multiple Top-Side Markings will be inside parentheses. Only one Top-Side Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Top-Side Marking for that device.

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

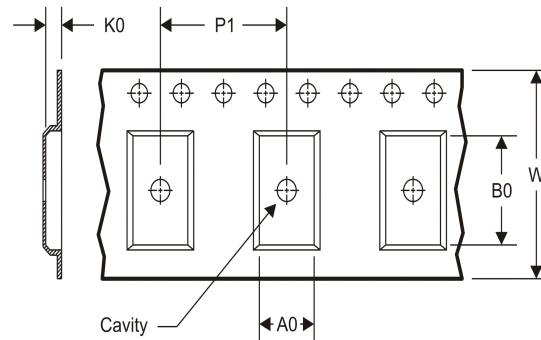
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

**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
CDC208DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.0	2.7	12.0	24.0	Q1
CDC208NSR	SO	NS	20	2000	330.0	24.4	8.2	13.0	2.5	12.0	24.0	Q1

## TAPE AND REEL BOX DIMENSIONS

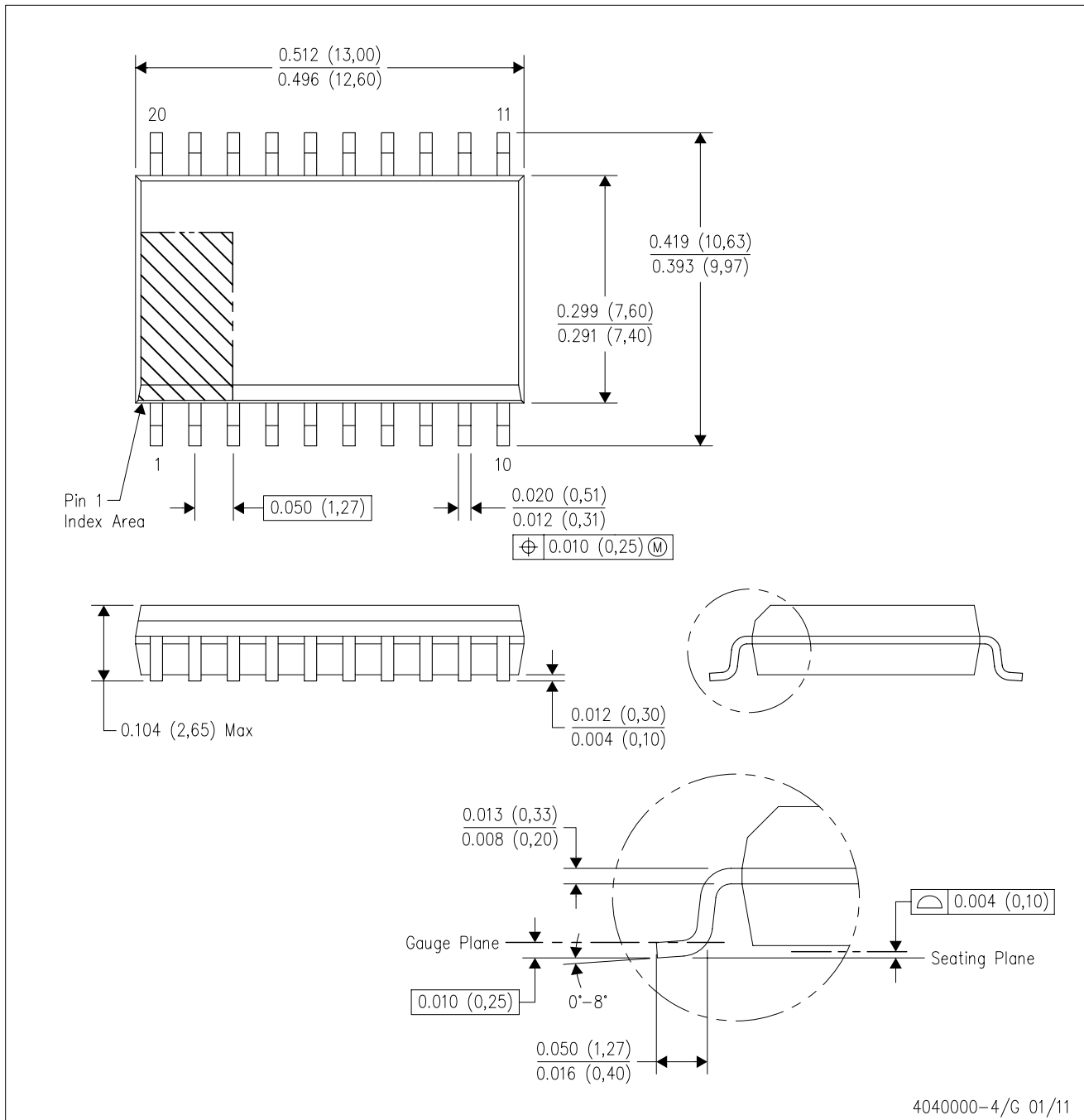


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CDC208DWR	SOIC	DW	20	2000	367.0	367.0	45.0
CDC208NSR	SO	NS	20	2000	367.0	367.0	45.0

DW (R-PDSO-G20)

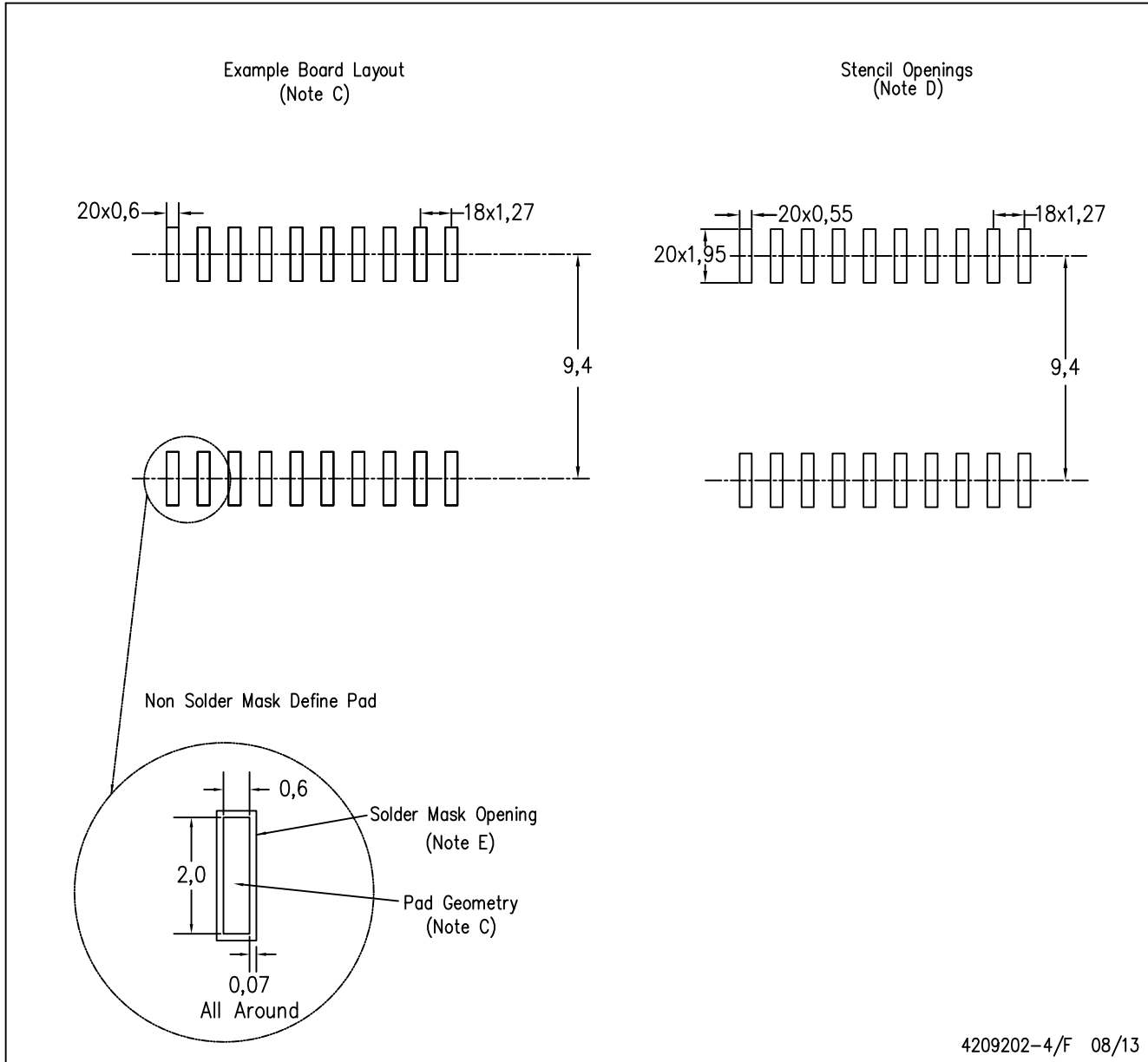
PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.
  - 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)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. Refer to IPC7351 for alternate board design.
  - 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.

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

# MECHANICAL DATA

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

PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN



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

## IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

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

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

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

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

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

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have **not** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

### Products

Audio	<a href="http://www.ti.com/audio">www.ti.com/audio</a>
Amplifiers	<a href="http://amplifier.ti.com">amplifier.ti.com</a>
Data Converters	<a href="http://dataconverter.ti.com">dataconverter.ti.com</a>
DLP® Products	<a href="http://www.dlp.com">www.dlp.com</a>
DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>
Clocks and Timers	<a href="http://www.ti.com/clocks">www.ti.com/clocks</a>
Interface	<a href="http://interface.ti.com">interface.ti.com</a>
Logic	<a href="http://logic.ti.com">logic.ti.com</a>
Power Mgmt	<a href="http://power.ti.com">power.ti.com</a>
Microcontrollers	<a href="http://microcontroller.ti.com">microcontroller.ti.com</a>
RFID	<a href="http://www.ti-rfid.com">www.ti-rfid.com</a>
OMAP Applications Processors	<a href="http://www.ti.com/omap">www.ti.com/omap</a>
Wireless Connectivity	<a href="http://www.ti.com/wirelessconnectivity">www.ti.com/wirelessconnectivity</a>

### Applications

Automotive and Transportation	<a href="http://www.ti.com/automotive">www.ti.com/automotive</a>
Communications and Telecom	<a href="http://www.ti.com/communications">www.ti.com/communications</a>
Computers and Peripherals	<a href="http://www.ti.com/computers">www.ti.com/computers</a>
Consumer Electronics	<a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>
Energy and Lighting	<a href="http://www.ti.com/energy">www.ti.com/energy</a>
Industrial	<a href="http://www.ti.com/industrial">www.ti.com/industrial</a>
Medical	<a href="http://www.ti.com/medical">www.ti.com/medical</a>
Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
Space, Avionics and Defense	<a href="http://www.ti.com/space-avionics-defense">www.ti.com/space-avionics-defense</a>
Video and Imaging	<a href="http://www.ti.com/video">www.ti.com/video</a>

### TI E2E Community

[e2e.ti.com](http://e2e.ti.com)