

# SN65LBC174, SN75LBC174 QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

- Meets or Exceeds the Standard EIA-485
- Designed for High-Speed Multipoint Transmission on Long Bus Lines in Noisy Environments
- Supports Data Rates up to and Exceeding Ten Million Transfers Per Second
- Common-Mode Output Voltage Range of –7 V to 12 V
- Positive- and Negative-Current Limiting
- Low Power Consumption . . . 1.5 mA Max (Output Disabled)
- Functionally Interchangeable With SN75174

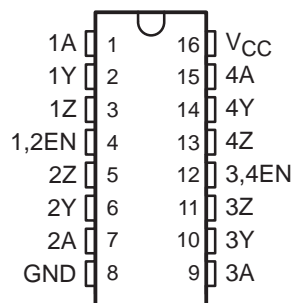
## description

The SN65LBC174 and SN75LBC174 are monolithic, quadruple, differential line drivers with 3-state outputs. Both devices are designed to meet the requirements of the Electronics Industry Association Standard EIA-485. These devices are optimized for balanced multipoint bus transmission at data rates up to and exceeding 10 million bits per second. Each driver features wide positive and negative common-mode output voltage ranges, current limiting, and thermal-shutdown protection, making it suitable for party-line applications in noisy environments. Both devices are designed using LinBiCMOS™, facilitating ultralow power consumption and inherent robustness.

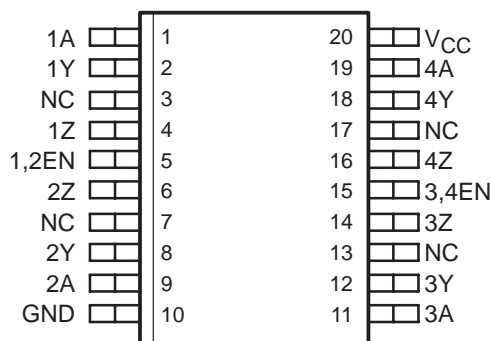
Both the SN65LBC174 and SN75LBC174 provide positive- and negative-current limiting and thermal shutdown for protection from line fault conditions on the transmission bus line. These devices offer optimum performance when used with the SN75LBC173 or SN75LBC175 quadruple line receivers. The SN65LBC174 and SN75LBC174 are available in the 16-terminal DIP package (N) and the 20-terminal wide-body small outline integrated circuit (SOIC) package (DW).

The SN75LBC174 is characterized for operation over the commercial temperature range of 0°C to 70°C. The SN65LBC174 is characterized over the industrial temperature range of –40°C to 85°C.

**N PACKAGE  
(TOP VIEW)**



**DW PACKAGE  
(TOP VIEW)**



NC – No internal connection

**FUNCTION TABLE  
(each driver)**

INPUT	ENABLE	OUTPUTS	
		Y	Z
H	H	H	L
L	H	L	H
X	L	Z	Z

H = high level, L = low level,  
X = irrelevant, Z = high impedance (off)



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.

LinBiCMOS 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.



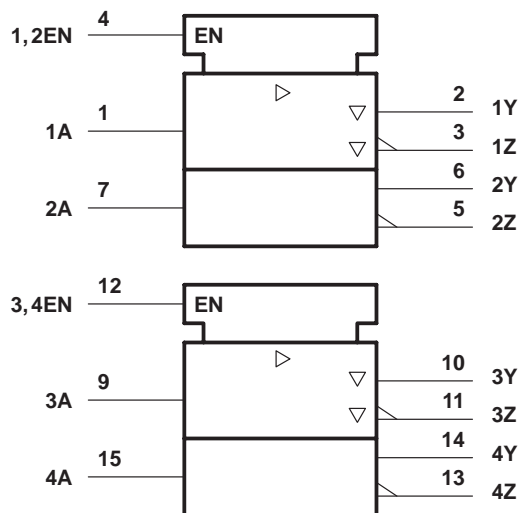
POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

Copyright © 2001–2003, Texas Instruments Incorporated

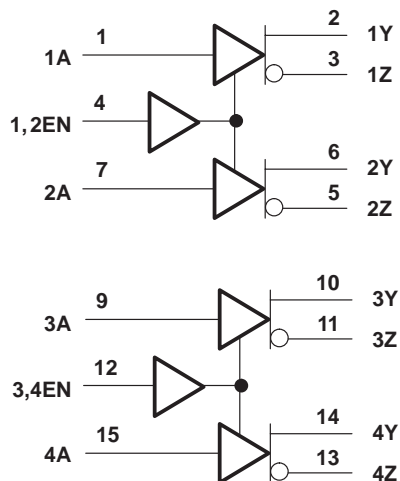
# SN65LBC174, SN75LBC174 QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

## logic symbol†



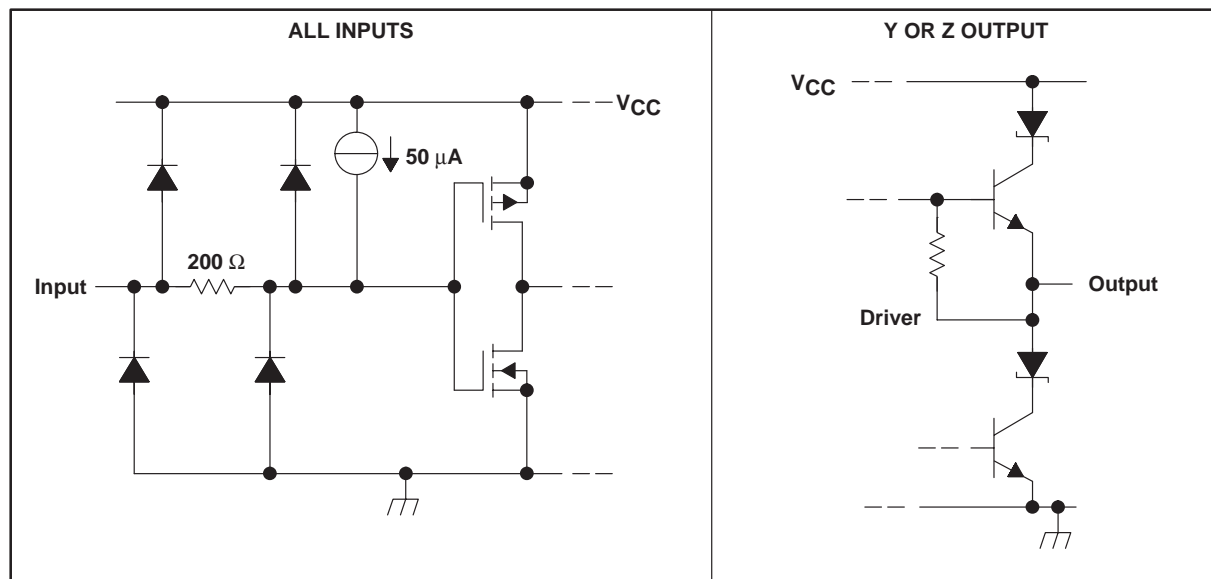
## logic diagram (positive logic)



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

Terminal numbers shown are for the N package.

## schematic of inputs and outputs



# SN65LBC174, SN75LBC174

## QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

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

Supply voltage range, $V_{CC}$ (see Note 1)	–0.3 V to 7 V
Output voltage range, $V_O$	–10 V to 15 V
Voltage range at A, 1/2EN, 3/4EN	–0.3 V to $V_{CC} + 0.5$ V
Continuous total power dissipation	Internally limited <sup>‡</sup>
Operating free-air temperature range, $T_A$ : SN65LBC174	–40°C to 85°C
SN75LBC174	0°C to 70°C
Storage temperature range, $T_{stg}$	–65°C to 150°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds	260°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.

<sup>‡</sup> The maximum operating junction temperature is internally limited. Use the Dissipation Rating Table to operate below this temperature.

NOTE 1: All voltage values are with respect to GND.

### recommended operating conditions

		MIN	NOM	MAX	UNIT
Supply voltage, $V_{CC}$		4.75	5	5.25	V
High-level input voltage, $V_{IH}$		2			V
Low-level input voltage, $V_{IL}$				0.8	V
Voltage at any bus terminal (separately or common-mode), $V_O$	Y or Z			12	V
				–7	
High-level output current, $I_{OH}$	Y or Z			–60	mA
Low-level output current, $I_{OL}$	Y or Z			60	mA
Continuous total power dissipation		See Dissipation Rating Table			
Operating free-air temperature, $T_A$	SN65LBC174	–40		85	°C
	SN75LBC174	0		70	

DISSIPATION RATING TABLE

PACKAGE	$T_A \leq 25^\circ\text{C}$ POWER RATING	DERATING FACTOR ABOVE $T_A = 25^\circ\text{C}$	$T_A = 70^\circ\text{C}$ POWER RATING	$T_A = 85^\circ\text{C}$ POWER RATING
DW	1125 mW	9.0 mW/°C	720 mW	585 mW
N	1150 mW	9.2 mW/°C	736 mW	598 mW



# SN65LBC174, SN75LBC174

## QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

**electrical characteristics over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)**

PARAMETER		TEST CONDITIONS		MIN	TYP†	MAX	UNIT	
V <sub>IK</sub>	Input clamp voltage	I <sub>I</sub> = −18 mA		−1.5			V	
V <sub>OD</sub>	Differential output voltage‡	R <sub>L</sub> = 54 Ω, See Figure 1	SN65LBC174	1.1	1.8	5	V	
			SN75LBC174	1.5	1.8	5		
		R <sub>L</sub> = 60 Ω, See Figure 2	SN65LBC174	1.1	1.7	5		
			SN75LBC174	1.5	1.7	5		
Δ V <sub>OD</sub>	Change in magnitude of common-mode output voltage§	R <sub>L</sub> = 54 Ω,      See Figure 1		±0.2			V	
V <sub>OC</sub>	Common-mode output voltage			3 −1			V	
Δ V <sub>OC</sub>	Change in magnitude of common-mode output voltage§			±0.2			V	
I <sub>O</sub>	Output current with power off	V <sub>CC</sub> = 0,      V <sub>O</sub> = −7 V to 12 V			±100			μA
I <sub>OZ</sub>	High-impedance-state output current	V <sub>O</sub> = −7 V to 12 V			±100			μA
I <sub>IH</sub>	High-level input current	V <sub>I</sub> = 2.4 V			−100			μA
I <sub>IL</sub>	Low-level input current	V <sub>I</sub> = 0.4 V			−100			μA
I <sub>OS</sub>	Short-circuit output current	V <sub>O</sub> = −7 V to 12 V			±250			mA
I <sub>CC</sub>	Supply current (all drivers)	No load	Outputs enabled	7			mA	
			Outputs disabled	1.5				

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

‡ The minimum  $V_{OD}$  specification does not fully comply with EIA-485 at operating temperatures below  $0^\circ\text{C}$ . The lower output signal should be used to determine the maximum signal transmission distance.

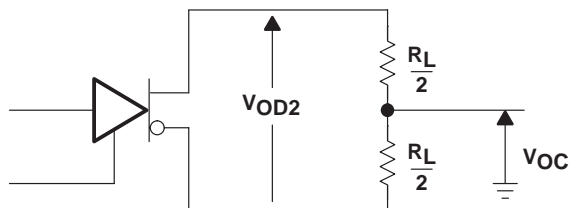
§  $\Delta|V_{OD}|$  and  $\Delta|V_{OC}|$  are the changes in magnitude of  $V_{OD}$  and  $V_{OC}$ , respectively, that occur when the input is changed from a high level to a low level.

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

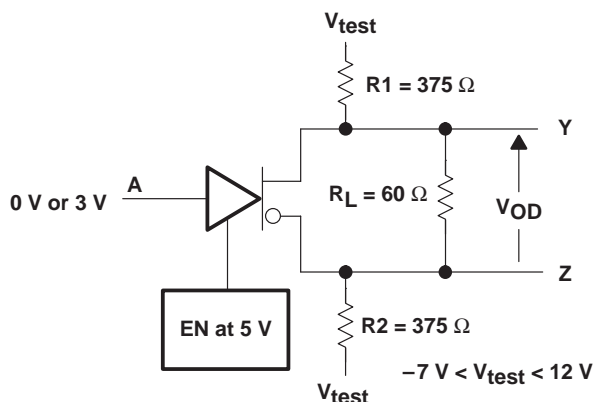
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{d(OD)}$ Differential output delay time	$R_L = 54\ \Omega$ , See Figure 3	2	11	20	ns
$t_{t(OD)}$ Differential output transition time		10	15	25	ns
$t_{PZH}$ Output enable time to high level	$R_L = 110\ \Omega$ , See Figure 3		20	30	ns
$t_{PZL}$ Output enable time to low level	$R_L = 110\ \Omega$ , See Figure 5		21	30	ns
$t_{PHZ}$ Output disable time from high level	$R_L = 110\ \Omega$ , See Figure 4		48	70	ns
$t_{PLZ}$ Output disable time from low level	$R_L = 110\ \Omega$ , See Figure 5		21	30	ns



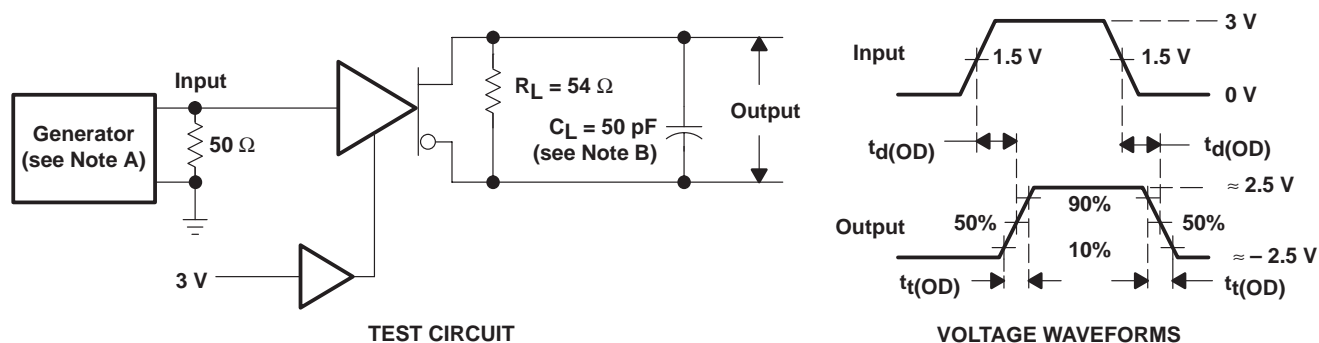
### PARAMETER MEASUREMENT INFORMATION



**Figure 1. Differential and Common-Mode Output Voltages**



**Figure 2. Driver  $V_{OD}$  Test Circuit**



- NOTES: A. The input pulse is supplied by a generator having the following characteristics:  $PRR \leq 1$  MHz, duty cycle = 50%,  $t_r \leq 5$  ns,  $t_f \leq 5$  ns,  $Z_O = 50 \Omega$ .  
 B.  $C_L$  includes probe and stray capacitance.

**Figure 3. Time Waveforms for Driver Differential Output Test Circuit Delay and Transition**

# SN65LBC174, SN75LBC174 QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

## PARAMETER MEASUREMENT INFORMATION

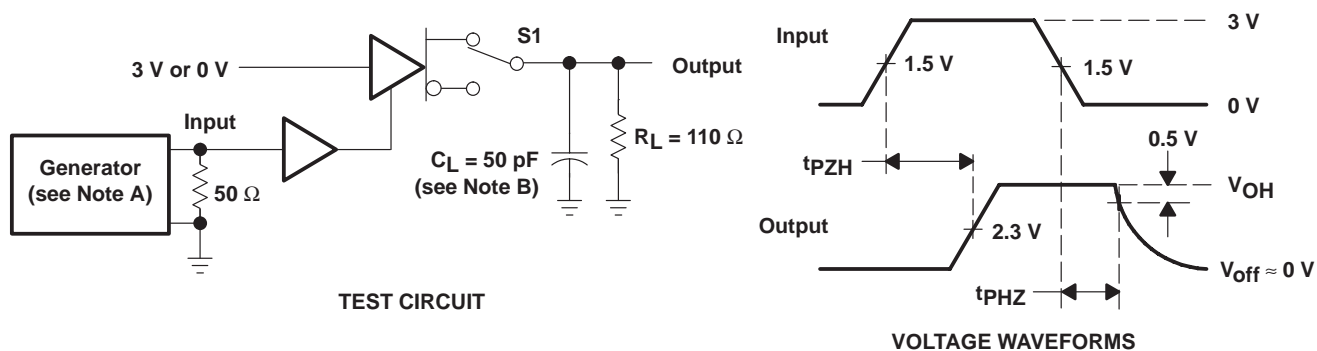
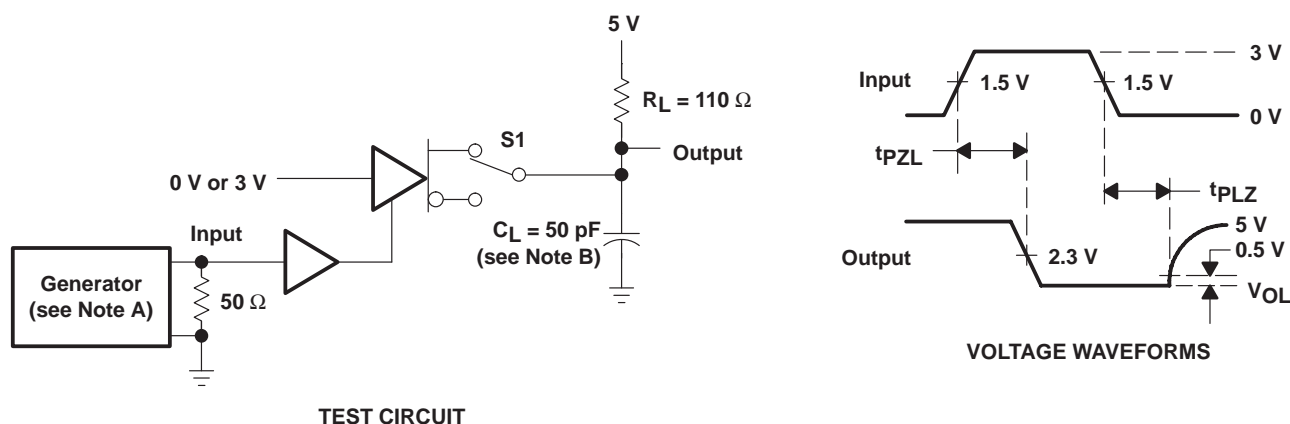


Figure 4.  $t_{pZH}$  and  $t_{pHZ}$  Test Circuit and Waveforms



- NOTES: A. The input pulse is supplied by a generator having the following characteristics:  $PRR \leq 1 \text{ MHz}$ , duty cycle = 50%,  $t_r \leq 5 \text{ ns}$ ,  $t_f \leq 5 \text{ ns}$ ,  $Z_O = 50 \Omega$ .  
B.  $C_L$  includes probe and stray capacitance.

Figure 5.  $t_{pZL}$  and  $t_{pLZ}$  Test Circuit and Waveforms

# TYPICAL CHARACTERISTICS

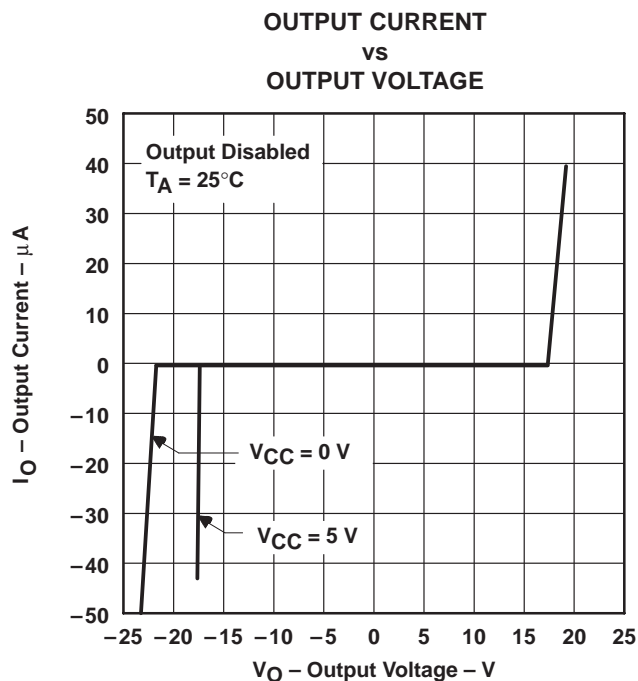


Figure 6

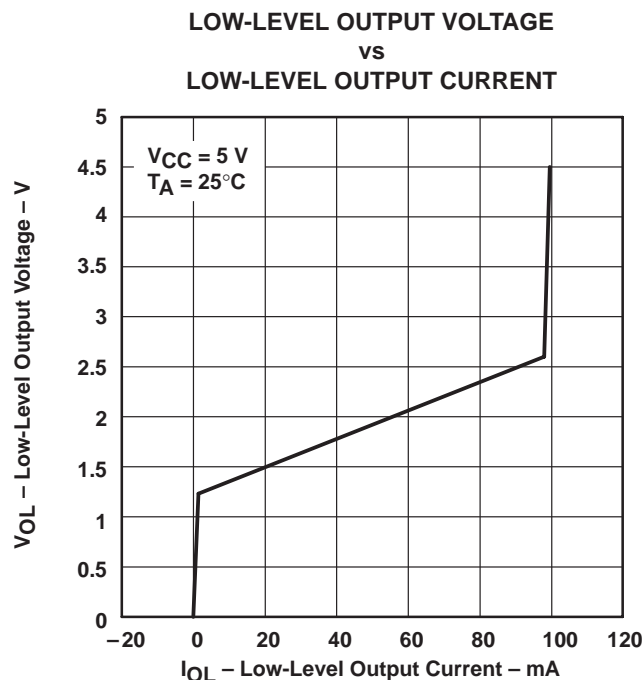


Figure 7

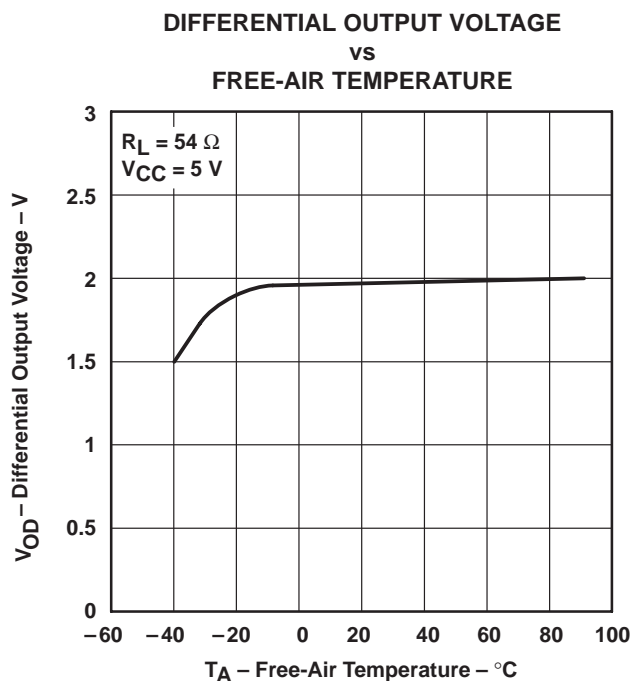


Figure 8

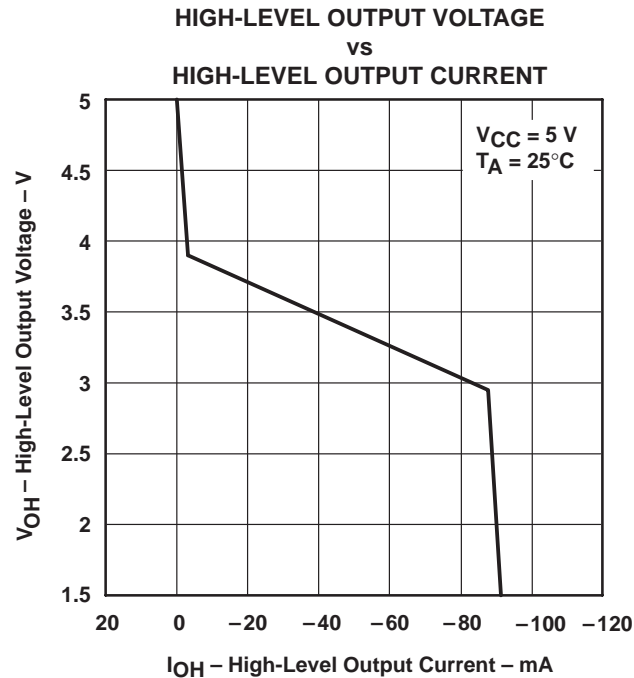


Figure 9

SN65LBC174, SN75LBC174  
QUADRUPLE LOW-POWER DIFFERENTIAL LINE DRIVERS

SLLS162D – JULY 1993 – REVISED SEPTEMBER 2003

TYPICAL CHARACTERISTICS

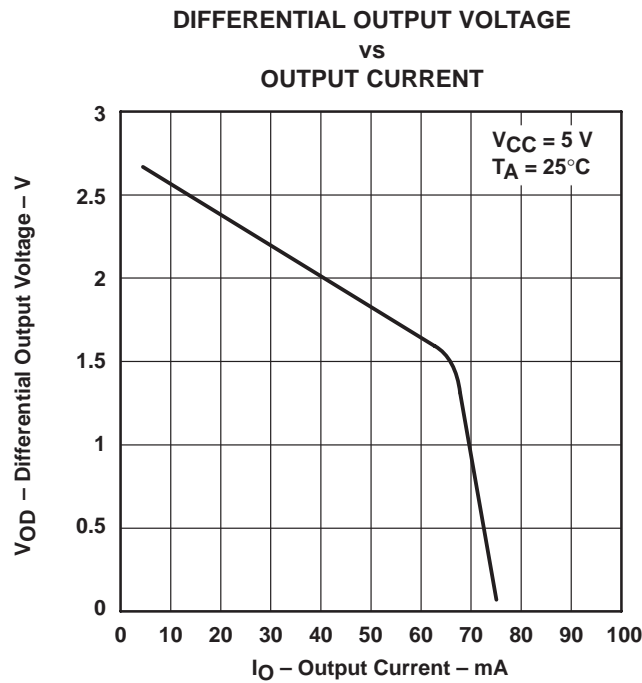


Figure 10

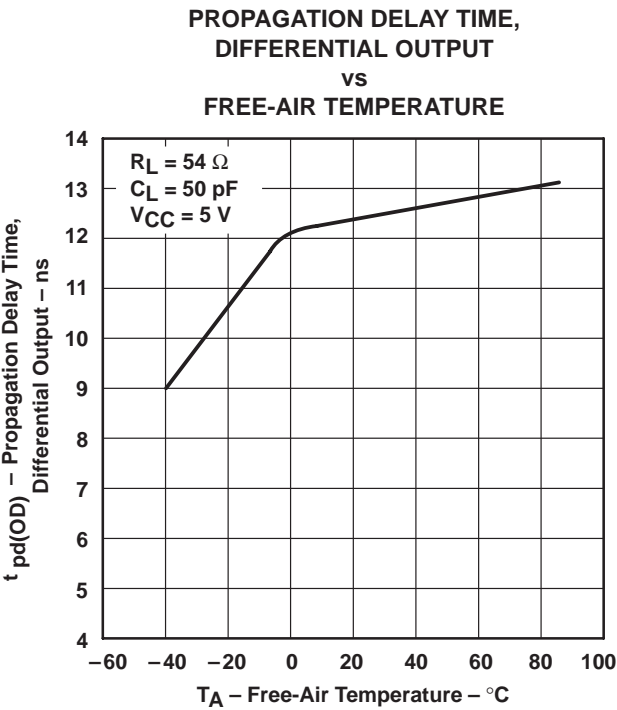


Figure 11



## 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
SN65LBC174DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	SN65LBC174	<a href="#">Samples</a>
SN65LBC174DWG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	SN65LBC174	<a href="#">Samples</a>
SN65LBC174DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	SN65LBC174	<a href="#">Samples</a>
SN65LBC174DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	SN65LBC174	<a href="#">Samples</a>
SN65LBC174N	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-40 to 85	SN65LBC174N	<a href="#">Samples</a>
SN65LBC174NE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	-40 to 85	SN65LBC174N	<a href="#">Samples</a>
SN75LBC174DW	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	SN75LBC174	<a href="#">Samples</a>
SN75LBC174DWG4	ACTIVE	SOIC	DW	20	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	SN75LBC174	<a href="#">Samples</a>
SN75LBC174DWR	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	SN75LBC174	<a href="#">Samples</a>
SN75LBC174DWRG4	ACTIVE	SOIC	DW	20	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	SN75LBC174	<a href="#">Samples</a>
SN75LBC174N	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN75LBC174N	<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.

**OTHER QUALIFIED VERSIONS OF SN75LBC174 :**

- Military: [SN55LBC174](#)

NOTE: Qualified Version Definitions:

- Military - QML certified for Military and Defense Applications

**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
SN65LBC174DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
SN75LBC174DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1

## TAPE AND REEL BOX DIMENSIONS



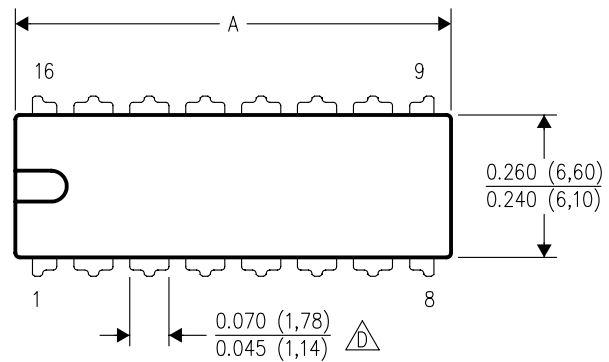
\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN65LBC174DWR	SOIC	DW	20	2000	367.0	367.0	45.0
SN75LBC174DWR	SOIC	DW	20	2000	367.0	367.0	45.0

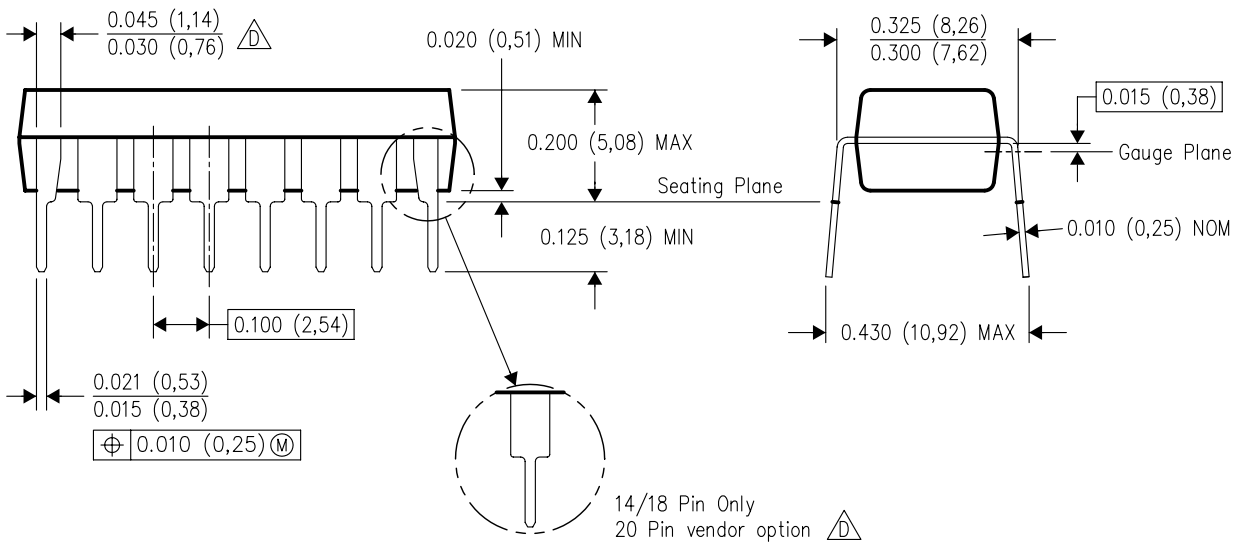
## N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



PINS **	14	16	18	20
DIM				
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



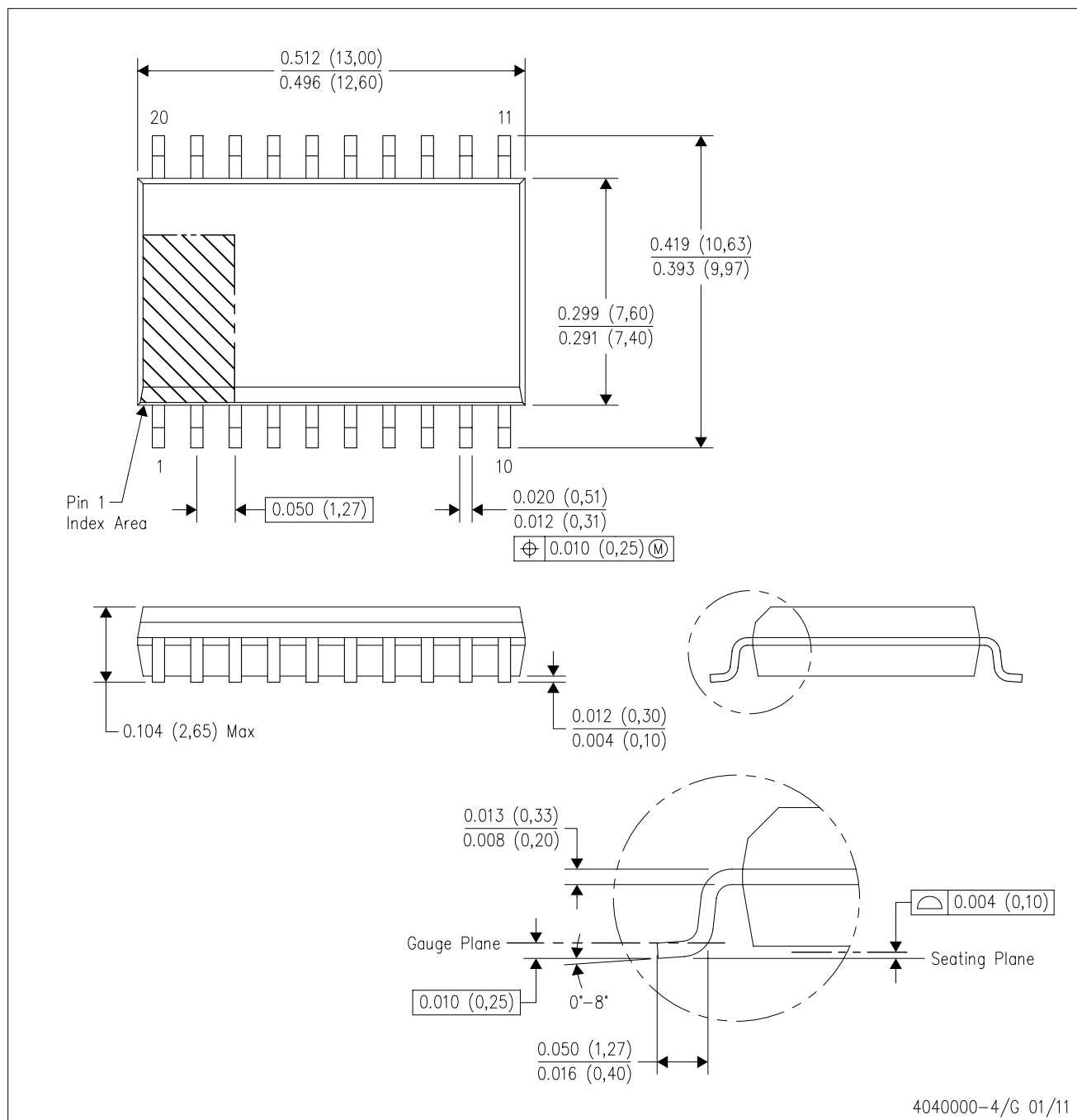
14/18 Pin Only  
20 Pin vendor option

4040049/E 12/2002

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

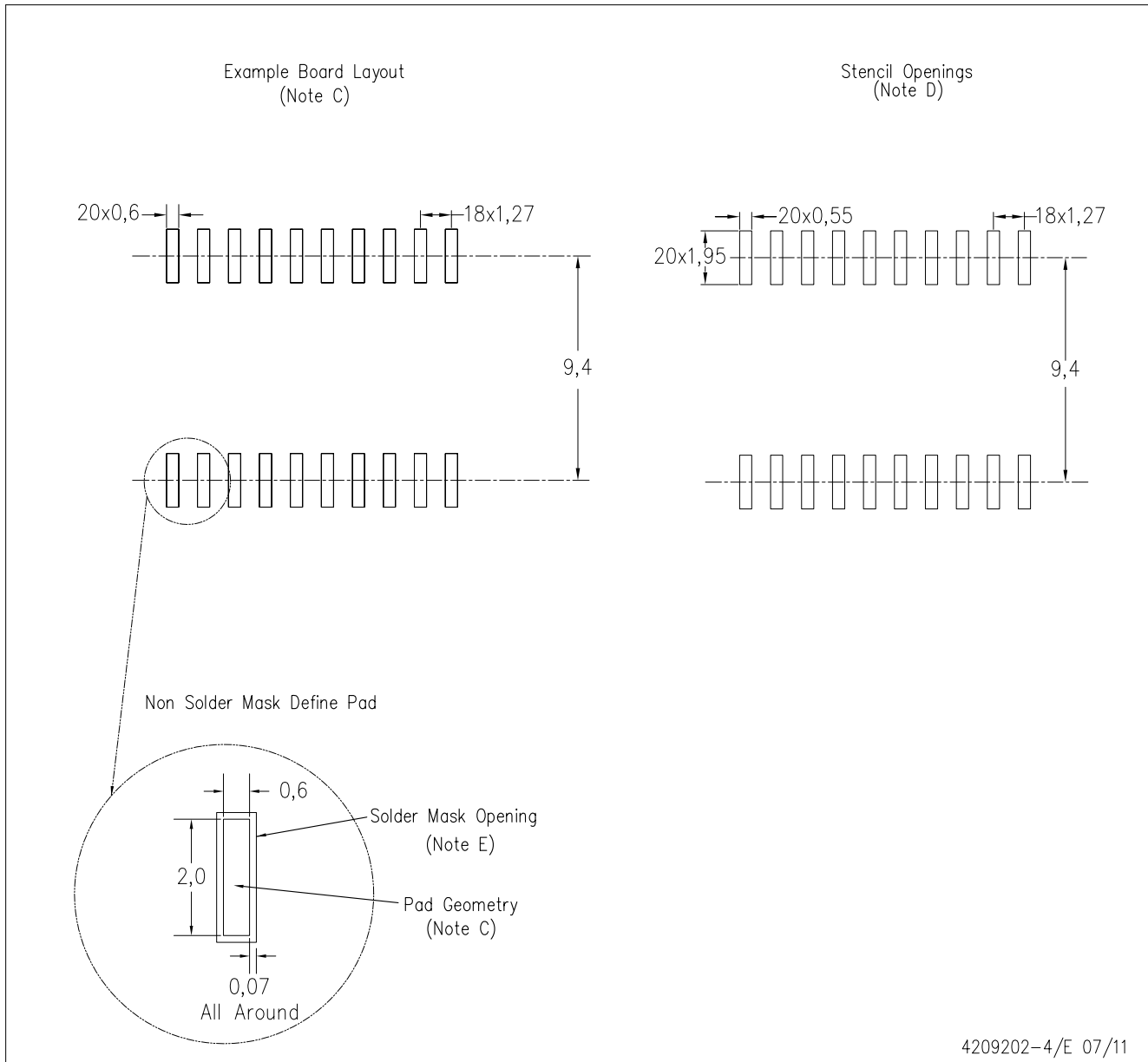
PLASTIC SMALL OUTLINE



- 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.

## 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)