

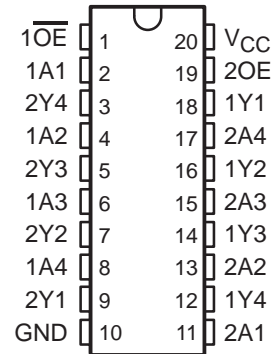
- BiCMOS Design Significantly Reduces I_{CCZ}
- ESD Protection Exceeds 2000 V Per MIL-STD-883C, Method 3015; Exceeds 200 V Using Machine Model (C = 200 pF, R = 0)
- Open-Collector Outputs Drive Bus Lines or Buffer Memory Address Registers
- Package Options Include Plastic Small-Outline (DW) Packages and Standard Plastic 300-mil DIPs (N)

description

This octal buffer and line driver is designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. This device provides complementary output-enable (OE and \overline{OE}) inputs and noninverting outputs.

The SN74BCT757 is characterized for operation from 0°C to 70°C.

**DW OR N PACKAGE
(TOP VIEW)**



FUNCTION TABLES

INPUTS		OUTPUT 1Y
$\overline{1OE}$	1A	
H	X	H
L	L	L
L	H	H

INPUTS		OUTPUT 2Y
2OE	2A	
L	X	H
H	L	L
H	H	H

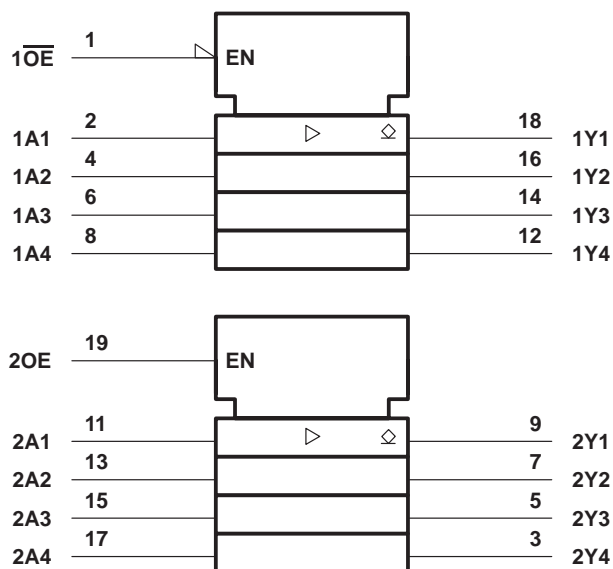
SN74BCT757

OCTAL BUFFER/DRIVER

WITH OPEN-COLLECTOR OUTPUTS

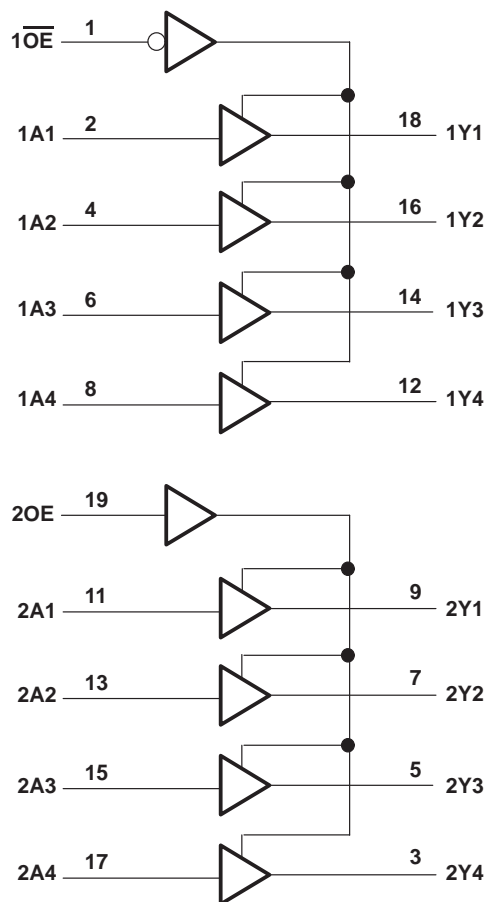
SCBS041D – NOVEMBER 1989 – REVISED NOVEMBER 1993

logic symbol†



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

logic diagram (positive logic)



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	–0.5 V to 7 V
Input current range, I_I	–30 mA to 5 mA
Voltage range applied to any output in the disabled or power-off state, V_O	–0.5 V to 5.5 V
Voltage range applied to any output in the high state, V_O	–0.5 V to V_{CC}
Current into any output in the low state, I_O	128 mA
Operating free-air temperature range	0°C to 70°C
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.

recommended operating conditions (see Note 1)

	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_{OH} High-level output voltage			5.5	V
I_{IK} Input clamp current			-18	mA
I_{OL} Low-level output current			64	mA
T_A Operating free-air temperature	0		70	°C

NOTE 1: Unused or floating inputs must be held high or low.

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

PARAMETER	TEST CONDITIONS		MIN	TYP†	MAX	UNIT
V_{IK}	$V_{CC} = 4.5\text{ V}$,	$I_I = -18\text{ mA}$			-1.2	V
V_{OL}	$V_{CC} = 4.5\text{ V}$,	$I_{OL} = 64\text{ mA}$	0.42		0.55	V
I_I	$V_{CC} = 5.5\text{ V}$,	$V_I = 7\text{ V}$			0.1	mA
I_{IH}	$V_{CC} = 5.5\text{ V}$,	$V_I = 2.7\text{ V}$			20	μA
I_{IL}	$V_{CC} = 5.5\text{ V}$,	$V_I = 0.5\text{ V}$			-1	mA
I_{OH}	$V_{CC} = 4.5\text{ V}$,	$V_{OH} = 5.5\text{ V}$			0.1	mA
I_{CC}	$V_{CC} = 5.5\text{ V}$,	Outputs high			34	mA
		Outputs open			77	
		OE and $\overline{\text{OE}}$ inactive			10	
C_i	$V_{CC} = 5\text{ V}$,	$V_I = 2.5\text{ V}$ or 0.5 V		6		pF
C_o	$V_{CC} = 5\text{ V}$,	$V_O = 2.5\text{ V}$ or 0.5 V		4		pF

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

switching characteristics over recommended ranges of supply voltage and operating free-air temperature, $C_L = 50\text{ pF}$ (unless otherwise noted) (see Note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
t_{PLH}	A	Y	6.9	8.3	9.6	6.6	10.1	ns
t_{PHL}			2.4	4.2	6	2	6.6	
t_{PLH}	2OE	Y	11	14.8	17.9	10.8	19.7	ns
t_{PHL}			2.9	4.6	6.2	2.6	6.9	
t_{PLH}	1OE	Y	11.4	13.9	16.1	10	18	ns
t_{PHL}			4.4	6.1	7.8	4	8.5	

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⁾
SN74BCT757DW	ACTIVE	SOIC	DW	20	25	Pb-Free (RoHS)	CU NIPDAU	Level-2-250C-1 YEAR/ Level-1-235C-UNLIM
SN74BCT757DWR	ACTIVE	SOIC	DW	20	2000	Pb-Free (RoHS)	CU NIPDAU	Level-2-250C-1 YEAR/ Level-1-235C-UNLIM
SN74BCT757N	ACTIVE	PDIP	N	20	20	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC

⁽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 - May not be currently available - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

None: Not yet available Lead (Pb-Free).

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.

Green (RoHS & no Sb/Br): TI defines "Green" to mean "Pb-Free" and in addition, uses package materials that do not contain halogens, including bromine (Br) or antimony (Sb) above 0.1% of total product weight.

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

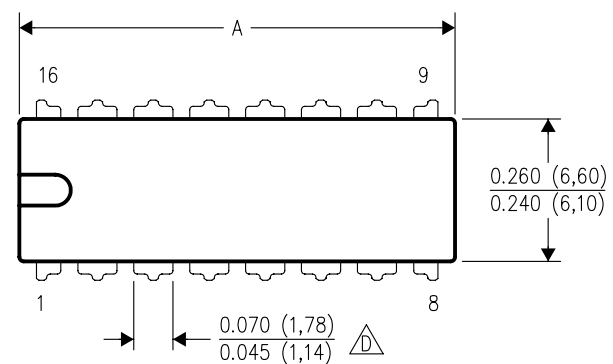
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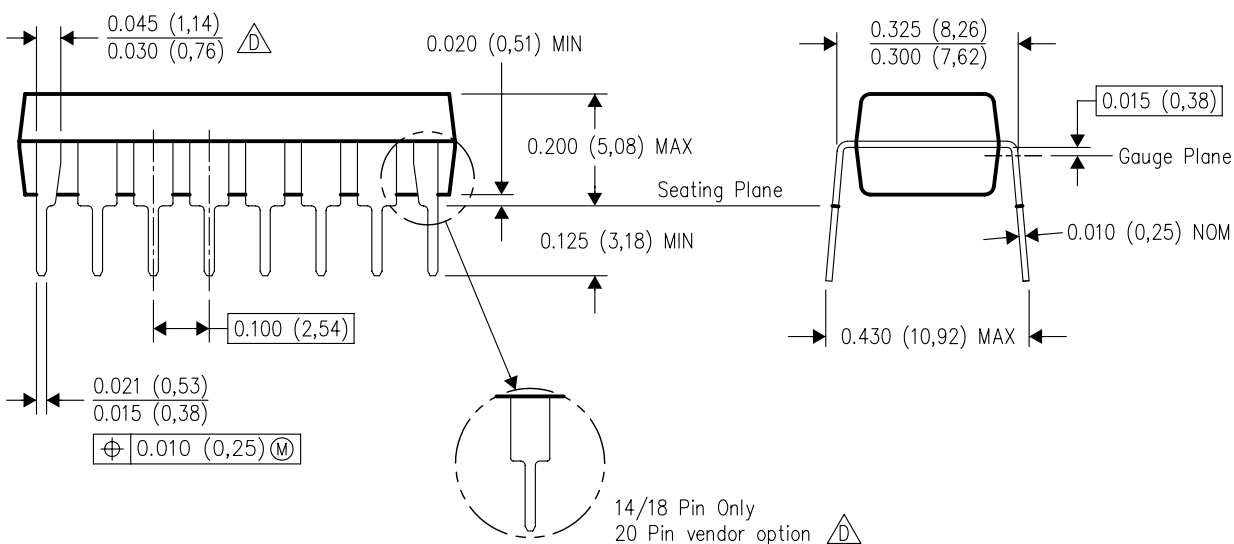
N (R-PDIP-T**)

16 PINS SHOWN



PLASTIC DUAL-IN-LINE PACKAGE



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



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 PACKAGE



4040000-4/F 06/2004

- NOTES: 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.

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