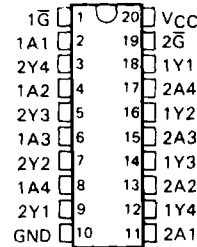


SN54HCT244, SN74HCT244 OCTAL BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

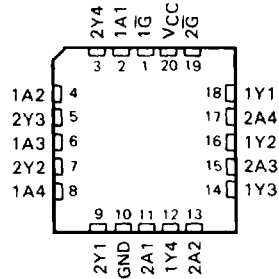
D2804, MARCH 1984--REVISED SEPTEMBER 1987

- Inputs are TTL-Voltage Compatible
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- High-Current Outputs Can Drive Up to 15 LSTTL Loads
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

SN54HCT244 . . . J PACKAGE
SN74HCT244 . . . DW OR N PACKAGE
(TOP VIEW)



SN74HCT244 . . . FK PACKAGE
(TOP VIEW)

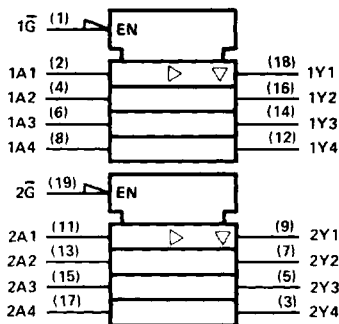


description

These octal buffers and line drivers are designed specifically to improve both the performance and density of three-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. Taken together with the 'HCT240 and 'HCT241, these devices provide the choice of selected combinations of inverting outputs, symmetrical \bar{G} (active-low input control) inputs, and complementary G and \bar{G} inputs.

The SN54HCT244 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74HCT244 is characterized for operation from -40°C to 85°C .

logic symbol†



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

2

HCMOS Devices

PRODUCTION DATA documents contain information 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.

**TEXAS
INSTRUMENTS**

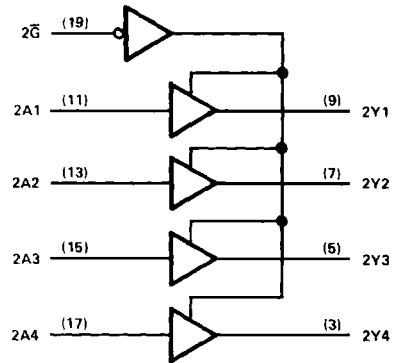
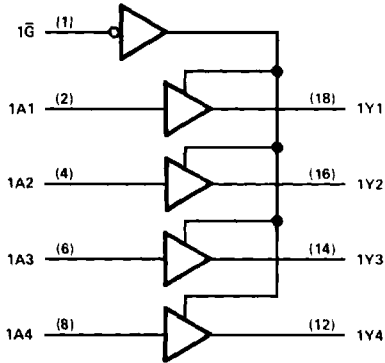
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SN54HCT244, SN74HCT244
OCTAL BUFFERS AND LINE DRIVERS
WITH 3-STATE OUTPUTS

logic diagram (positive logic)



2
HCMOS Devices

absolute maximum ratings over operating free-air temperature range†

Supply voltage, V_{CC}	-0.5 V to 7 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 $V_O > V_{CC}$)	± 20 mA
Continuous output current, I_O ($V_O = 0$ to V_{CC})	± 35 mA
Continuous current through V_{CC} or GND pins	± 70 mA
Lead temperature 1,6 mm (1/16 in) from case for 60 s: FK or J package	300 °C
Lead temperature 1,6 mm (1/16 in) from case for 10 s: DW or N package	260 °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

		SN54HCT244			SN74HCT244			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	$V_{CC} = 4.5$ V to 5.5 V		2	$V_{CC} = 4.5$ V to 5.5 V		2	V
V_{IL}	Low-level input voltage	$V_{CC} = 4.5$ V to 5.5 V		0	$V_{CC} = 4.5$ V to 5.5 V		0	V
V_I	Input voltage	0	V_{CC}		0	V_{CC}		V
V_O	Output voltage	0	V_{CC}		0	V_{CC}		V
t_t	Input transition (rise and fall) times	0	500		0	500		ns
T_A	Operating free-air temperature	-55	125		-40	85		°C

SN54HCT244, SN74HCT244
OCTAL BUFFERS AND LINE DRIVERS
WITH 3-STATE OUTPUTS

2
HC MOS Devices

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

PARAMETER	TEST CONDITIONS	V _{CC}	T _A = 25°C			SN54HCT244		SN74HCT244		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V _{OH}	V _I = V _{IH} or V _{IL} , I _{OH} = -20 μA	4.5 V	4.4	4.499		4.4		4.4	V	
	V _I = V _{IH} or V _{IL} , I _{OH} = -6 mA	4.5 V	3.98	4.30		3.7		3.84		
V _{OL}	V _I = V _{IH} or V _{IL} , I _{OL} = 20 μA	4.5 V		0.001	0.1			0.1	V	
	V _I = V _{IH} or V _{IL} , I _{OL} = 6 mA	4.5 V		0.17	0.26			0.33		
I _I	V _I = V _{CC} or 0	5.5 V		±0.1	±100			±1000	nA	
I _{OZ}	V _O = V _{CC} or 0, V _I = V _{IH} or V _{IL}	5.5 V		±0.01	±0.5			±10	μA	
I _{CC}	V _I = V _{CC} or 0, I _O = 0	5.5 V			8			160	μA	
ΔI _{CC} [†]	One input at 0.5 V or 2.4 V Other inputs at 0 V or V _{CC}	5.5 V		1.4	2.4			3	mA	
C _i		4.5 to 5.5 V		3	10			10	pF	

[†]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_{CC}.

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC}	T _A = 25°C			SN54HCT244		SN74HCT244		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{pd}	A	Y	4.5 V		15	28		42		35	ns
			5.5 V		13	25		38		32	
t _{en}	0	Y	4.5 V		21	35		53		44	ns
			5.5 V		19	32		48		40	
t _{dis}	0	Y	4.5 V		19	35		53		44	ns
			5.5 V		18	32		48		40	
t _t		Y	4.5 V		8	12		18		15	ns
			5.5 V		7	11		16		14	

C _{pd}	Power dissipation capacitance per buffer	No load, T _A = 25°C	40 pF typ
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switching characteristics over recommended operating free-air temperature range (unless otherwise noted), C_L = 150 pF (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC}	T _A = 25°C			SN54HCT244		SN74HCT244		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{pd}	A	Y	4.5 V		21	45		68		56	ns
			5.5 V		18	40		61		51	
t _{en}	0	Y	4.5 V		25	52		79		65	ns
			5.5 V		22	47		71		59	
t _t		Y	4.5 V		17	42		63		53	ns
			5.5 V		14	38		57		48	

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