

SN54HC365 THRU SN54HC368 SN74HC365 THRU SN74HC368 HEX BUS DRIVERS WITH 3-STATE OUTPUTS

SCLS139 D2684, DECEMBER 1982—REVISED JUNE 1989

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

'HC365, HC367
'HC366, HC368

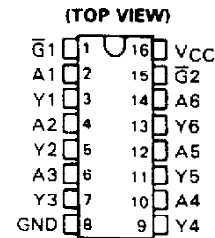
True Outputs
Inverting Outputs

description

These Hex 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. The designer has a choice of selected combinations of inverting and noninverting outputs, symmetrical G (active-low control) inputs.

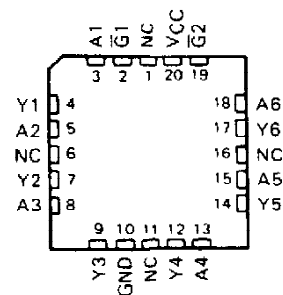
The SN54HC' family is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74HC' family is characterized for operation from -40°C to 85°C .

**SN54HC365, SN54HC366 . . . J PACKAGE
SN74HC365, SN74HC366 . . . D[†] OR N PACKAGE**



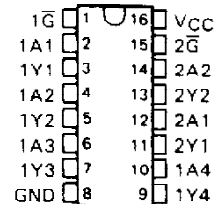
SN54HC365, SN54HC366 . . . FK PACKAGE

(TOP VIEW)



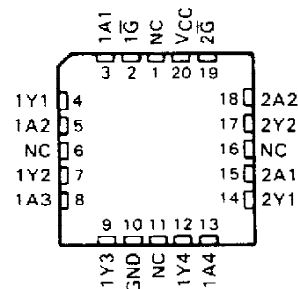
**SN54HC367, SN54HC368 . . . J PACKAGE
SN74HC367, SN74HC368 . . . D[†] OR N PACKAGE**

(TOP VIEW)



SN54HC367, SN54HC368 . . . FK PACKAGE

(TOP VIEW)



NC—No internal connection

[†] Contact the factory for D availability.

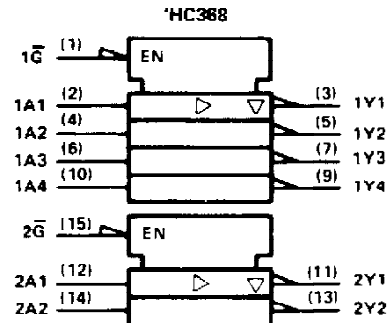
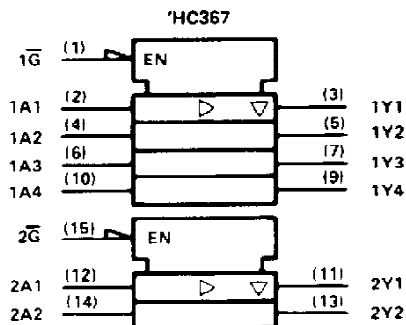
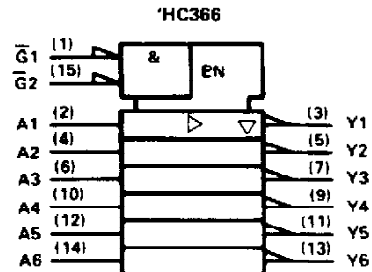
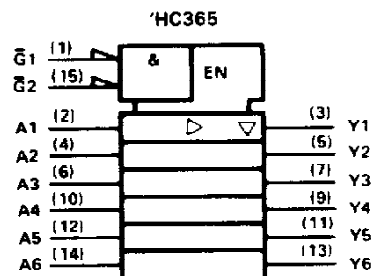
PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

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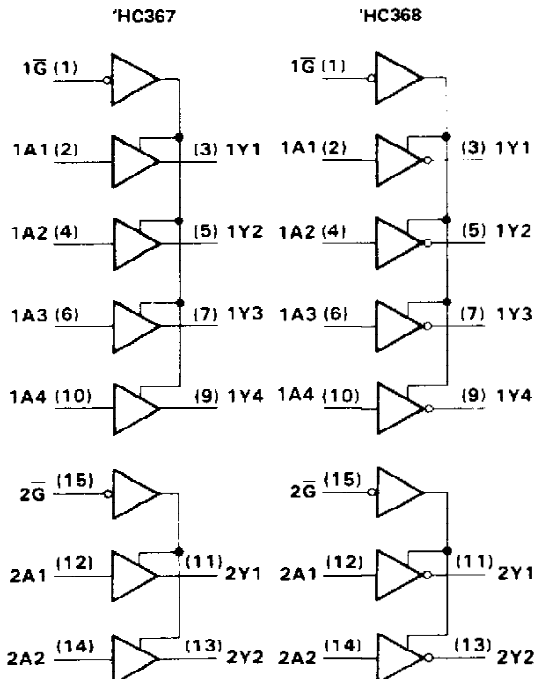
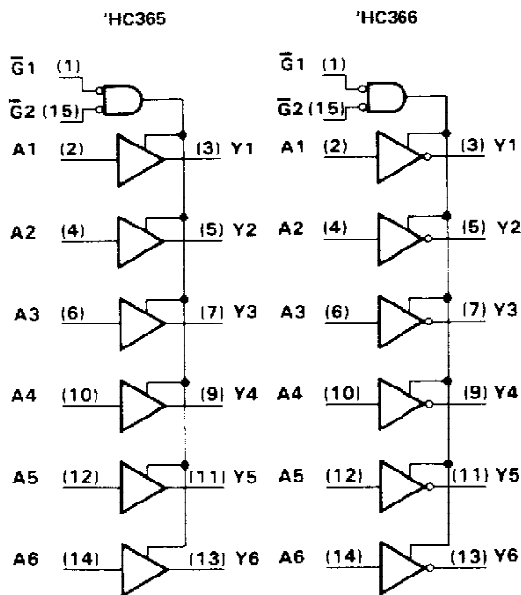
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**SN54HC365 THRU SN54HC368
SN74HC365 THRU SN74HC368
HEX BUS DRIVERS WITH 3-STATE OUTPUTS**

logic symbols†



logic diagrams (positive logic)



† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
Pin numbers shown are for D, J, and N packages.

**SN54HC365 THRU SN54HC368
SN74HC365 THRU SN74HC368
HEX BUS DRIVERS WITH 3-STATE OUTPUTS**

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: D 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

		SN54HC365 thru SN54HC368			SN74HC365 thru SN74HC368			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	2	5	6	2	5	6	V
V_{IH}	High-level input voltage	$V_{CC} = 2$ V 1.5 $V_{CC} = 4.5$ V 3.15 $V_{CC} = 6$ V 4.2			$V_{CC} = 2$ V 1.5 $V_{CC} = 4.5$ V 3.15 $V_{CC} = 6$ V 4.2			V
V_{IL}	Low-level input voltage	$V_{CC} = 2$ V 0 $V_{CC} = 4.5$ V 0 $V_{CC} = 6$ V 0			$V_{CC} = 2$ V 0 $V_{CC} = 4.5$ V 0 $V_{CC} = 6$ V 0			V
V_I	Input voltage	0			0			V
V_O	Output voltage	0			0			V
t_t	Input transition (rise and fall) times	$V_{CC} = 2$ V 0 $V_{CC} = 4.5$ V 0 $V_{CC} = 6$ V 0			$V_{CC} = 2$ V 0 $V_{CC} = 4.5$ V 0 $V_{CC} = 6$ V 0			ns
T_A	Operating free-air temperature	−55			−40			°C

SN54HC365 THRU SN54HC368
SN74HC365 THRU SN74HC368
HEX BUS DRIVERS WITH 3-STATE OUTPUTS

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

PARAMETER	TEST CONDITIONS	V _{CC}	T _A = 25 °C			SN54HC365 thru SN54HC368		SN74HC365 thru SN74HC368		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V _{OH}	V _I = V _{IH} or V _{IL} , I _{OH} = -20 µA	2 V	1.9	1.998		1.9		1.9		V
		4.5 V	4.4	4.499		4.4		4.4		
		6 V	5.9	5.999		5.9		5.9		
	V _I = V _{IH} or V _{IL} , I _{OH} = -6 mA	4.5 V	3.98	4.30		3.7		3.84		
	V _I = V _{IH} or V _{IL} , I _{OH} = -7.8 mA	6 V	5.48	5.80		5.2		5.34		
V _{OL}	V _I = V _{IH} or V _{IL} , I _{OL} = 20 µA	2 V		0.002	0.1		0.1		0.1	V
		4.5 V		0.001	0.1		0.1		0.1	
		6 V		0.001	0.1		0.1		0.1	
	V _I = V _{IH} or V _{IL} , I _{OL} = 6 mA	4.5 V		0.17	0.26		0.4		0.33	
	V _I = V _{IH} or V _{IL} , I _{OL} = 7.8 mA	6 V		0.15	0.26		0.4		0.33	
I _I	V _I = V _{CC} or 0	6 V		±0.1	±100		±1000		±1000	nA
I _{OZ}	V _O = V _{CC} or 0	6		±0.01	±0.5		±10		±5	µA
I _{CC}	V _I = V _{CC} or 0, I _O = 0	6 V			8		160		80	µA
C _i		2 to 6 V		3	10		10		10	pF

SN54HC365 THRU SN54HC368
SN74HC365 THRU SN74HC368
HEX BUS DRIVERS WITH 3-STATE OUTPUTS

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC}	T _A = 25°C			SN54HC'		SN74HC'		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{pd}	A	Y	2 V		50	95		145		120	ns
			4.5 V		12	19		29		24	
			6 V		10	16		25		20	
t _{en}	\bar{G}	Y	2 V		100	190		285		238	ns
			4.5 V		26	38		57		48	
			6 V		21	32		48		41	
t _{dis}	\bar{G}	Y	2 V		50	175		265		240	ns
			4.5 V		21	35		53		48	
			6 V		19	30		45		41	
t _t		Any	2 V		28	60		90		75	ns
			4.5 V		8	12		18		15	
			6 V		6	10		15		13	

C _{pd}	Power dissipation capacitance per driver	No load, T _A = 25°C	35 pF typ
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switching characteristics over recommended operating free-air temperature range (unless otherwise noted), $C_L = 150 \text{ pF}$ (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC}	T _A = 25°C			SN54HC'		SN74HC'		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{pd}	A	Y	2 V		70	120		180		150	ns
			4.5 V		17	24		36		30	
			6 V		14	20		31		25	
t _{en}	\bar{G}	Y	2 V		140	230		345		285	ns
			4.5 V		30	46		69		57	
			6 V		28	39		59		48	
t _t			2 V		45	210		315		265	ns
			4.5 V		17	42		63		53	
			6 V		13	36		53		45	

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

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