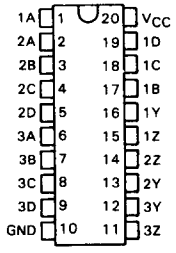
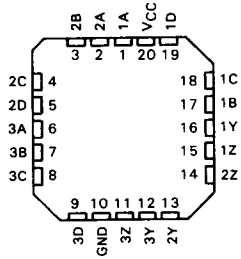
D2661, DECEMBER 1982—REVISED DECEMBER 1983

- Less than 0.5 ns Skew between True and Complementary Outputs
- High Capacitive-Drive Capability
- Current Sink/Source Capability Up to 48 mA
- Approximately 35% Improvement in AC Performance over Schottky TTL
- Package Options Include DIPs and Both Plastic and Ceramic Chip Carriers
- Suitable for Use in Applications such as:
  - Differential Line Drivers
  - Complementary Input Circuit for Decoders and Code Converters
  - Symmetrical Complementary Clock Generators
- Dependable Texas Instruments Quality and Reliability

SN54AS800 . . . . J PACKAGE
SN74AS800 . . . . N PACKAGE
(TOP VIEW)



SN54AS800 . . . . FH PACKAGE
SN74AS800 . . . . FN PACKAGE
(TOP VIEW)



description

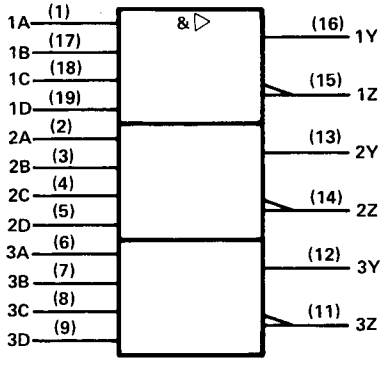
The 'AS800 is especially suitable for symmetrical complementary clock-generator applications due to the delay time in either function (AND/NAND) being typically 4 ns with less than 0.5 ns skew between the true and complementary outputs. Elimination of decode spikes in symmetrical decoder and code converter applications, and the high capacitive-drive capability coupled with high current-sinking capability (48 mA), make the device useful for applications such as a decoder or differential line driver.

The SN54AS800 is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74AS800 is characterized for operation from 0°C to 70°C.

PRODUCT PREVIEW

This document contains information on a product under development. Texas Instruments reserves the right to change or discontinue this product without notice.

logic symbol



Pin numbers shown are for J and N packages.

positive logic: $Y = ABCD$
$Z = \overline{ABCD}$

2 ALS AND AS CIRCUITS

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Operating free-air temperature range: SN54AS800 . . . . . −55 °C to 125 °C
SN74AS800 . . . . . 0 °C to 70 °C
Storage temperature range . . . . . −65 °C to 150 °C

recommended operating conditions

		SN54AS800			SN74AS800			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	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{OH}	High-level output current			−40			−48	mA
I_{OL}	Low-level output current			40			48	mA
T_A	Operating free-air temperature	−55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS		SN54AS800			SN74AS800			UNIT
			MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}	V_{CC} = 4.5 V,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	V_{CC} = 4.5 V to 5.5 V,	I_{OH} = −2 mA	V_{CC}−2			V_{CC}−2			V
	V_{CC} = 4.5 V,	I_{OH} = −3 mA	2.4	3.2		2.4	3.2		
	V_{CC} = 4.5 V,	I_{OH} = −40 mA	2						
	V_{CC} = 4.5 V,	I_{OH} = −48 mA				2			
V_{OL}	V_{CC} = 4.5 V,	I_{OL} = 40 mA		0.25	0.5				V
	V_{CC} = 4.5 V,	I_{OL} = 48 mA					0.35	0.5	
I_I	V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}	V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	μA
I_{IL}	V_{CC} = 5.5 V,	V_I = 0.4 V		−0.3			−0.3		mA
I_O‡	V_{CC} = 5.5 V,	V_O = 2.25 V		−150			−150		mA
I_{CC}	V_{CC} = 5.5 V,			13			13		mA

†All typical values are at V_{CC} = 5 V, T_A = 25°C.
‡The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 500 Ω, T_A = MIN to MAX						UNIT
			SN54AS800			SN74AS800			
			MIN	TYP†	MAX	MIN	TYP†	MAX	
t_{PLH}	A,B,C, or D	Z		3.5			3.5		ns
t_{PHL}				3.5			3.5		
t_{PLH}		Y		3			3		ns
t_{PHL}				4			4		

†All typical values are at V_{CC} = 5 V, T_A = 25°C.
NOTE 1: For load circuit and voltage waveforms, see page 1-12.

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