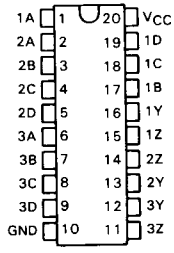
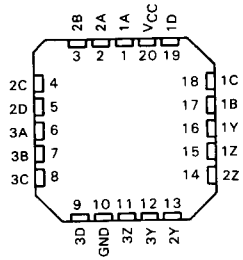
D2662, DECEMBER 1982—REVISED DECEMBER 1983

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

SN54AS802 . . . . J PACKAGE
SN74AS802 . . . . N PACKAGE
(TOP VIEW)



SN54AS802 . . . . FH PACKAGE
SN74AS802 . . . . FN PACKAGE
(TOP VIEW)



description

The 'AS802 is uniquely suitable for symmetrical complementary clock-generator applications due to the delay time in either function (OR/NOR) 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.

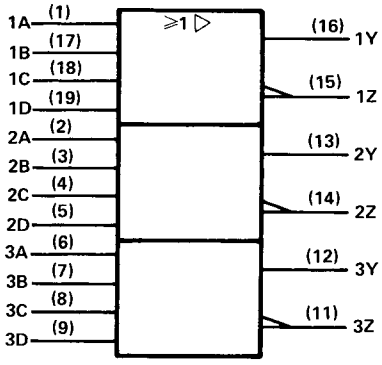
The SN54AS802 is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74AS802 is characterized for operation from 0°C to 70°C.

PRODUCT PREVIEW

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

Copyright © 1982 Texas Instruments Incorporated

logic symbol



Pin numbers shown are for J and N packages.

positive logic: $Y = A + B + C + D$, $Z = \overline{A + B + C + D}$

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Operating free-air temperature range: SN54AS802 . . . . . −55 °C to 125 °C
SN74AS802 . . . . . 0 °C to 70 °C
Storage temperature range . . . . . −65 °C to 150 °C

recommended operating conditions

		SN54AS802			SN74AS802			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

TEXAS INSTRUMENTS
POST OFFICE BOX 225012 • DALLAS, TEXAS 75265

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

PARAMETER	TEST CONDITIONS		SN54AS802			SN74AS802			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,			20			20		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
			SN54AS802			SN74AS802			
			MIN	TYP†	MAX	MIN	TYP†	MAX	
t_{PLH}	A, B, C, D	Y		3.5			3.5		ns
t_{PHL}				4.5			4.5		
t_{PLH}		Z		4			4		ns
t_{PHL}				5			5		

†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.