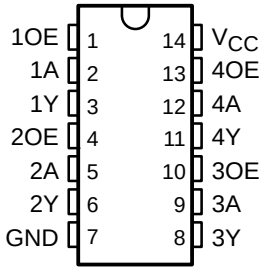
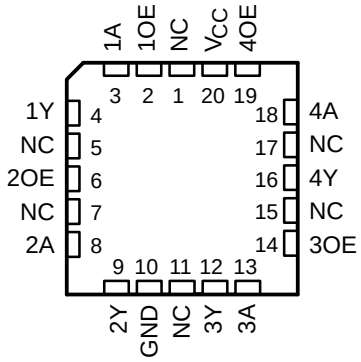
- **High-Current 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers**
- **Inputs Are TTL-Voltage Compatible**
- **Package Options Include Plastic Small-Outline (D) Packages, Ceramic Chip Carriers (FK), and Standard Plastic (N) and Ceramic (J) 300-mil DIPs**

SN54HCT126 . . . J PACKAGE
SN74HCT126 . . . D OR N PACKAGE
(TOP VIEW)



SN54HCT126 . . . FK PACKAGE
(TOP VIEW)



NC – No internal connection

description

These bus buffers feature independent line drivers with 3-state outputs. Each output is disabled when the associated OE is low.

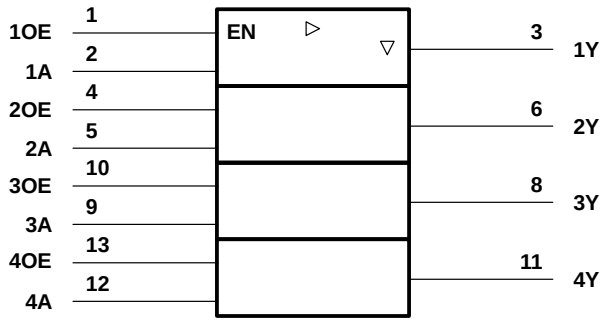
The SN54HCT126 is characterized for operation over the full military temperature range of –55°C to 125°C. The SN74HCT126 is characterized for operation from –40°C to 85°C.

FUNCTION TABLE

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

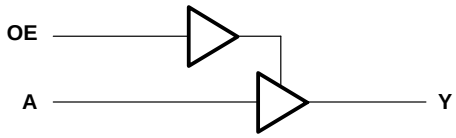
H = high level, L = low level,
X = irrelevant

logic symbol†



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

logic diagram, each buffer (positive logic)



absolute maximum ratings over operating free-air temperature range†

Supply voltage range, 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

			SN54HCT126			SN74HCT126			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			2			V
V_{IL}	Low-level input voltage	V_{CC} = 4.5 V to 5.5 V	0		0.8	0		0.8	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) time		0		500	0		500	ns
T_A	Operating free-air temperature		–55		125	–40		85	°C

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

PARAMETER	TEST CONDITIONS	V_{CC}	T_A = 25°C			SN54HCT126		SN74HCT126		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		3.98	4.3		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		0.1	V
	$V_I = V_{IH}$ or V_{IL}, I_{OL} = 6 mA			0.17	0.26		0.4		0.33	
I_I	$V_I = V_{CC}$ or 0	5.5 V		±0.1	±100		±1000		±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		±5	μA
I_{CC}	$V_I = V_{CC}$ or 0, I_O = 0	5.5 V			8		160		80	μA
ΔI_{CC}‡	One input at 0.5 V or 2.4 V, Other inputs at 0 or V_{CC}	5.5 V		1.4	2.4		3		2.9	mA
C_i		4.5 V to 5.5 V		3	10		10*		10	pF

* On products compliant to MIL-STD-883C, Class B, this parameter is not production tested.
‡ 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, C_L = 50 pF (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC}	T_A = 25°C			SN54HCT126		SN74HCT126		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{pd}	A	Y	4.5 V		15	26		39		33	ns
			5.5 V		12	23		35		30	
t_{en}	OE	Y	4.5 V		19	26		39		33	ns
			5.5 V		15	23		35		30	
t_{dis}	OE	Y	4.5 V		18	26		39		33	ns
			5.5 V		15	23		35		30	
t_t		Any	4.5 V		8	15		22		19	ns
			5.5 V		7	14		21		17	

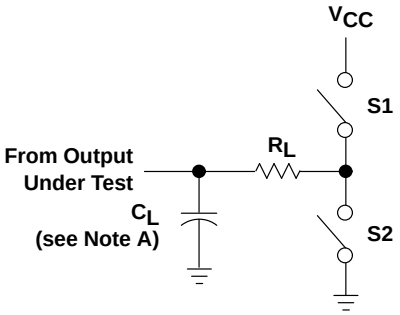
switching characteristics over recommended operating free-air temperature range, C_L = 150 pF (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC}	T_A = 25°C			SN54HCT126		SN74HCT126		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{pd}	A	Y	4.5 V		21	36		58		46	ns
			5.5 V		17	32		48		42	
t_{en}	OE	Y	4.5 V		25	36		58		46	ns
			5.5 V		21	32		48		42	
t_t		Any	4.5 V		17	42		63		53	ns
			5.5 V		14	38		57		48	

operating characteristics, T_A = 25°C

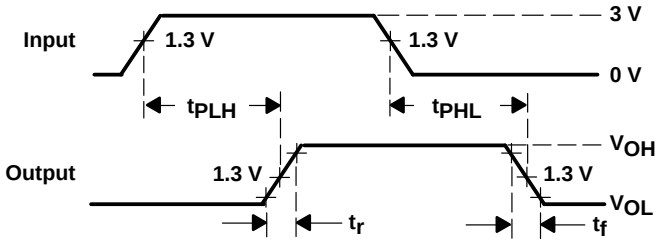
PARAMETER		TEST CONDITIONS	TYP	UNIT
C_{pd}	Power dissipation capacitance	No load	35	pF

PARAMETER MEASUREMENT INFORMATION

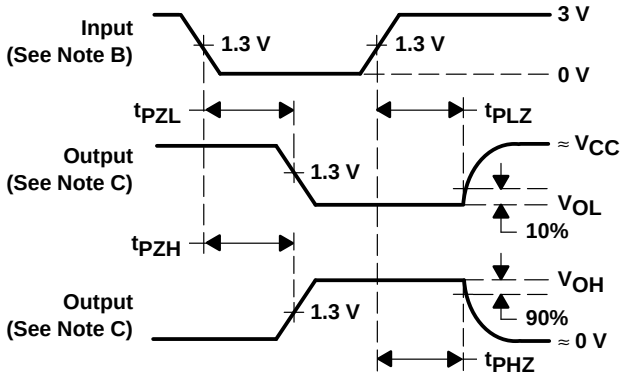


LOAD CIRCUIT

PARAMETER		R_L	C_L	S1	S2
t_{en}	t_{PZH}	1 kΩ	50 pF or 150 pF	Open	Closed
	t_{PZL}			Closed	Open
t_{dis}	t_{PHZ}	1 kΩ	50 pF	Open	Closed
	t_{PLZ}			Closed	Open
t_{pd} or t_t		––	50 pF or 150 pF	Open	Open



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES

NOTES: A. C_L includes probe and jig capacitance.
B. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1 MHz, Z_O = 50 Ω, t_r ≤ 6 ns, t_f ≤ 6 ns.
C. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
D. The outputs are measured one at a time with one input transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms

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