

TYPES SN5426, SN54LS26, SN7426, SN74LS26 QUADRUPLE 2-INPUT HIGH-VOLTAGE INTERFACE POSITIVE-NAND GATES

REVISED DECEMBER 1983

- For Driving Low-Threshold-Voltage MOS Inputs

description

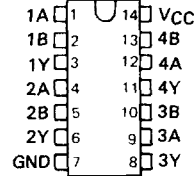
These 2-input open-collector NAND gates feature high-output voltage ratings for interfacing with low-threshold-voltage MOS logic circuits or other 12-volt systems. Although the output is rated to withstand 15 volts, the VCC terminal is connected to the standard 5-volt source.

The SN5426 and SN54LS26 are characterized for operation over the full military temperature range of -55°C to 125°C. The SN7426 and SN74LS26 are characterized for operation from 0°C to 70°C.

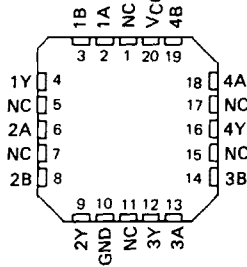
logic diagram (each gate)



SN5426 ... J PACKAGE
SN54LS26 ... J OR W PACKAGE
SN7426 ... J OR N PACKAGE
SN74LS26 ... D, J OR N PACKAGE
(TOP VIEW)



SN54LS26 ... FK PACKAGE
SN74LS26 ... FN PACKAGE
(TOP VIEW)



NC - No internal connection

positive logic

$$Y = \overline{AB}$$

PRODUCTION DATA

This document contains 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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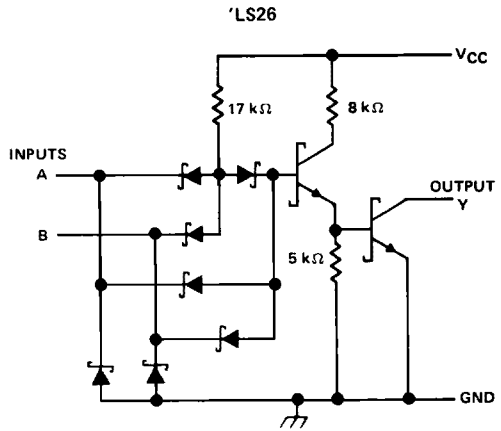
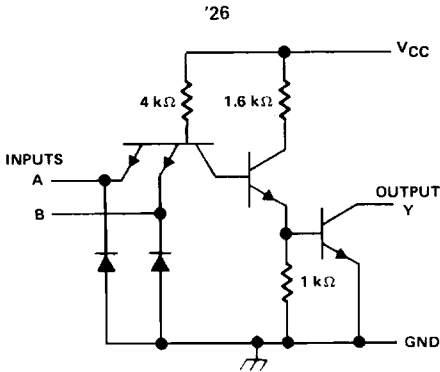
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TYPES SN5426, SN54LS26, SN7426, SN74LS26
QUADRUPLE 2-INPUT
HIGH-VOLTAGE INTERFACE POSITIVE-NAND GATES

schematics



Resistor values shown are nominal.

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage: '26	5.5 V
'LS26	7 V
Operating free-air temperature: SN54'	- 55°C to 125°C
SN74'	0°C to 70°C
Storage temperature range	- 65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

TYPES SN5426, SN7426

QUADRUPLE 2-INPUT

HIGH-VOLTAGE INTERFACE POSITIVE-NAND GATES

recommended operating conditions

	SN5426			SN7426			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V_{IH} High-level input voltage	2			2			V
V_{IL} Low-level input voltage			0.8			0.8	V
V_{OH} High-level output voltage			15			15	V
I_{OL} Low-level output current			16			16	mA
T_A Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS†	SN5426			SN7426			UNIT
		MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	$V_{CC} = \text{MIN.}$, $I_I = -12 \text{ mA}$		-1.5			-1.5		V
I_{OH}	$V_{CC} = \text{MIN.}$, $V_{IL} = 0.8 \text{ V}$, $V_{OH} = 12 \text{ V}$		50			50		μA
	$V_{CC} = \text{MIN.}$, $V_{IL} = 0.8 \text{ V}$, $V_{OH} = 15 \text{ V}$		1			1		mA
V_{OL}	$V_{CC} = \text{MIN.}$, $V_{IH} = 2 \text{ V}$, $I_{OL} = 16 \text{ mA}$		0.4			0.4		V
I_I	$V_{CC} = \text{MAX.}$, $V_I = 5.5 \text{ V}$		1			1		mA
I_{IH}	$V_{CC} = \text{MAX.}$, $V_{IH} = 2.4 \text{ V}$		40			40		μA
I_{IL}	$V_{CC} = \text{MAX.}$, $V_{IL} = 0.4 \text{ V}$		-1.6			-1.6		mA
I_{CCH}	$V_{CC} = \text{MAX.}$, $V_I = 0 \text{ V}$		4	8		4	8	mA
I_{CCL}	$V_{CC} = \text{MAX.}$, $V_I = 4.5 \text{ V}$		12	22		12	22	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

‡ All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$.

switching characteristics, $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$ (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	A or B	Y	$R_L = 1 \text{ k}\Omega$, $C_L = 15 \text{ pF}$		16	24	ns
t_{PHL}					11	17	ns

NOTE 2: See General Information Section for load circuits and voltage waveforms.

TYPES SN54LS26, SN74LS26 QUADRUPLE 2-INPUT HIGH-VOLTAGE INTERFACE POSITIVE-NAND GATES

recommended operating conditions

	SN54LS26			SN74LS26			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH} High-level input voltage	2			2			V
V _{IL} Low-level input voltage	0.7			0.8			V
V _{OH} High-level output voltage	15			15			V
I _{OL} Low-level output current	4			8			mA
T _A Operating free-air temperature	-55			125			0 70 °C

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

PARAMETER	TEST CONDITIONS†	SN54LS26		SN74LS26		UNIT
		MIN	TYP‡	MAX	MIN	
V _{IK}	V _{CC} = MIN, I _I = -18 mA	-1.5		-1.5		V
I _{OH}	V _{CC} = MIN, V _{IL} = MAX, V _{OH} = 12 V	50		50		μA
	V _{CC} = MIN, V _{IL} = MAX, V _{OH} = 15 V	1		1		mA
V _{OL}	V _{CC} = MIN, V _{IH} = 2 V, I _{OL} = 4 mA	0.25	0.4	0.25	0.4	V
	V _{CC} = MIN, V _{IH} = 2 V, I _{OL} = 8 mA	0.35		0.5		
I _I	V _{CC} = MAX, V _I = 7 V	0.1		0.1		mA
I _{IH}	V _{CC} = MAX, V _{IH} = 2.7 V	20		20		μA
I _{IL}	V _{CC} = MAX, V _{IL} = 0.4 V	-0.4		-0.4		mA
I _{CCH}	V _{CC} = MAX, V _I = 0 V	0.8	1.6	0.8	1.6	mA
I _{CCL}	V _{CC} = MAX, V _I = 4.5 V	2.4	4.4	2.4	4.4	

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{PLH}	A or B	Y	R _L = 2 kΩ, C _L = 15 pF	17		32	ns
t _{PHL}				15		28	ns

NOTE 2: See General Information Section for load circuits and voltage waveforms.

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TTL DEVICES