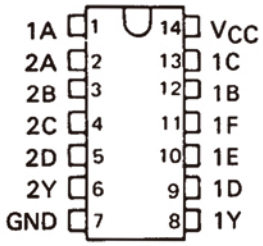
description

The 74LS51 contain two independent 2-wide 2-input AND-OR-INVERT gates. They perform the Boolean function $Y = \overline{AB + CD}$.

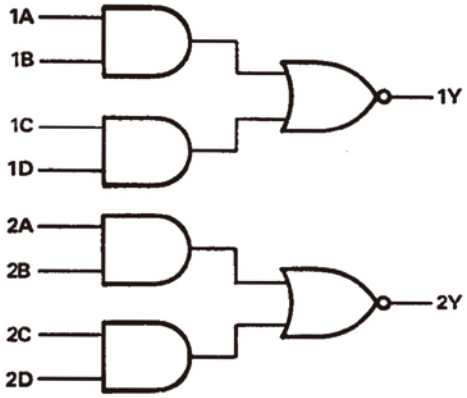
The 74LS51 contains one 2-wide 3-input and one 2-wide 2-input AND-OR-INVERT gates. They perform the Boolean functions $1Y = \overline{(1A \cdot 1B \cdot 1C) + (1D \cdot 1E \cdot 1F)}$ and $2Y = \overline{(2A \cdot 2B) + (2C \cdot 2D)}$.

XD74LS51
(TOP VIEW)



logic diagrams

74LS51



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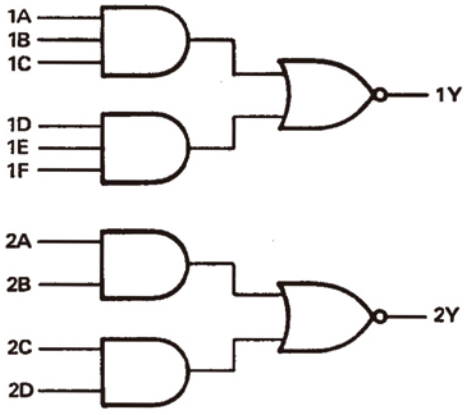
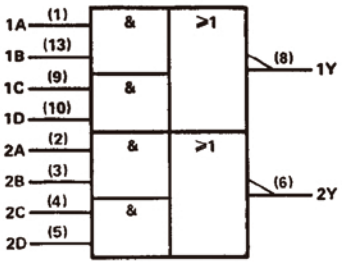


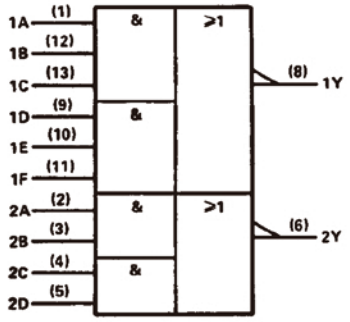
logic symbols†

74LS51



positive logic: $Y = \overline{AB + CD}$

74LS51



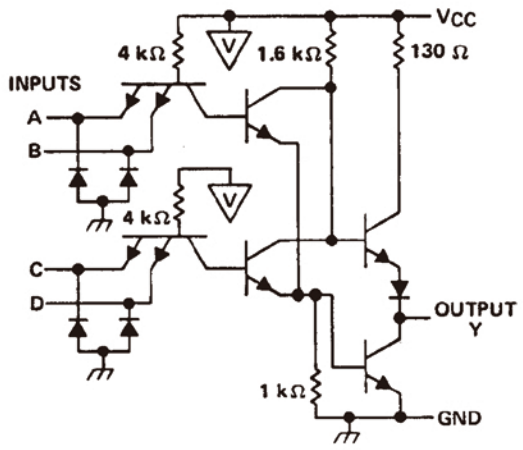
positive logic:

$1Y = \overline{(1A \cdot 1B \cdot 1C) + (1D \cdot 1E \cdot 1F)}$

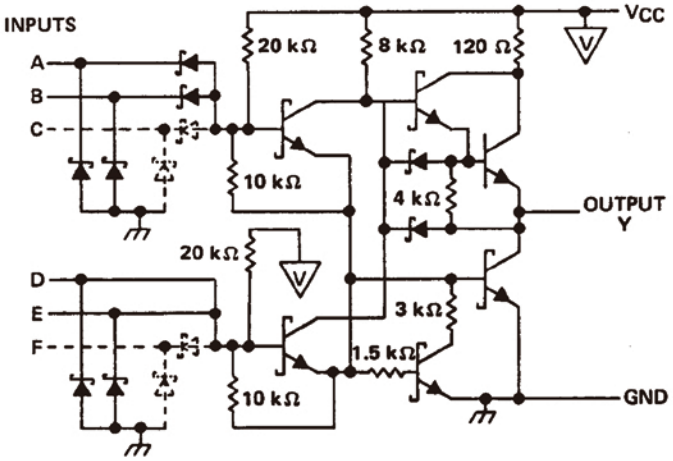
$2Y = \overline{(2A \cdot 2B) + (2C \cdot 2D)}$

schematics

74LS51



74LS51



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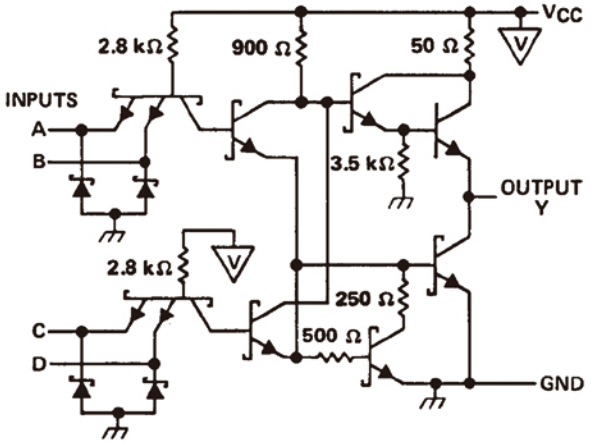


absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (See Note 1): 74LS51	7 V
Input voltage: 74LS51	5.5 V
74LS51	7 V
Operating free-air temperature range: 74LS51	0°C to 70°C
Storage temperature range	−65°C to 150°C

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

recommended operating conditions

		74LS51			UNIT
		MIN	NOM	MAX	
V_{CC}	Supply voltage	4.75	5	5.25	V
V_{IH}	High-level input voltage	2			V
V_{IL}	Low-level input voltage			0.8	V
I_{OH}	High-level output current			−0.4	mA
I_{OL}	Low-level output current			8	mA
T_A	Operating free-air temperature	0		70	°C

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

PARAMETER	TEST CONDITIONS †			74LS51			UNIT
				MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −18 mA				−1.5	V
V_{OH}	V_{CC} = MIN,	V_{IL} = MAX,	I_{OH} = −0.4 mA	2.7	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IH} = 2 V,	I_{OL} = 4 mA		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	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V				20	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V				−0.4	mA
I_{OS}§	V_{CC} = MAX			−20		−100	mA
I_{CCH}	V_{CC} = MAX,	V_I = 0 V			0.8	1.6	mA
I_{CCL}	V_{CC} = MAX,	See Note 2			1.4	2.8	mA

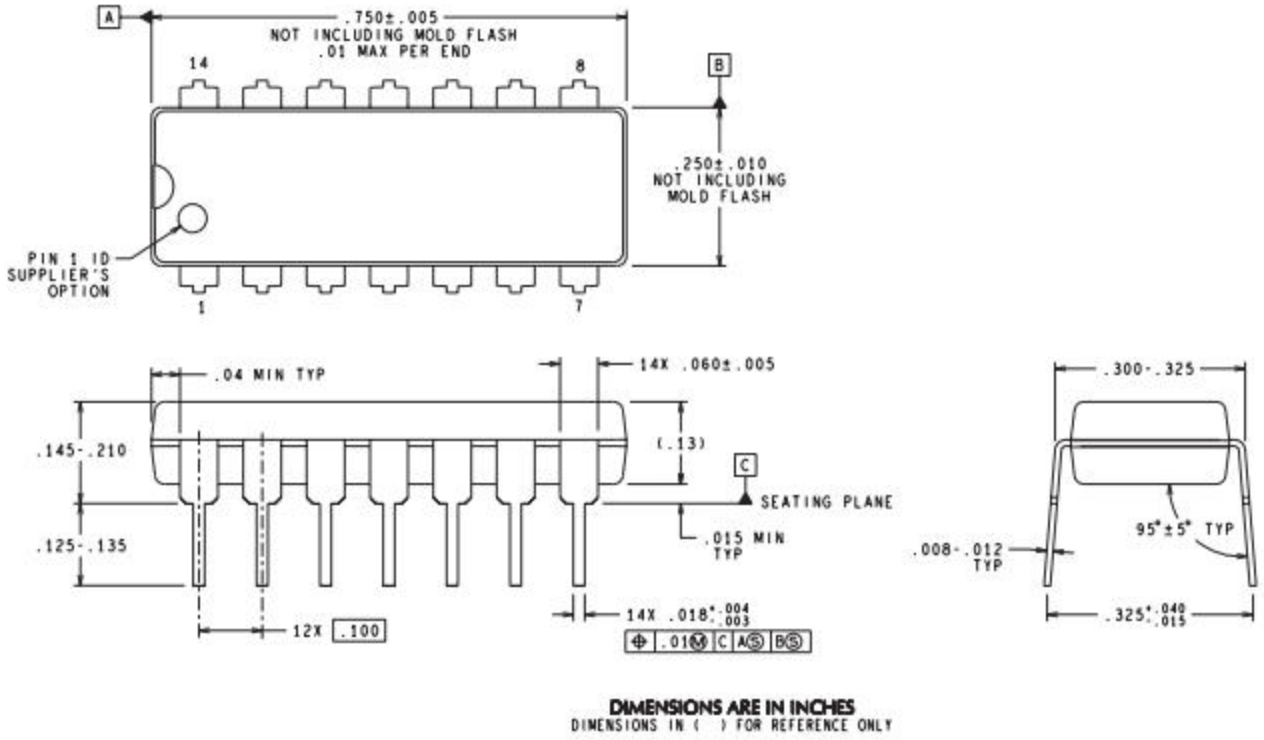
† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.
§ Not more than one output should be shorted at a time, and the duration of the short-circuit should not exceed one second.
NOTE 2: All inputs of one AND gate at 4.5 V, all others at GND.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	Any	Y	R_L = 2 kΩ,	C_L = 15 pF		12	20	ns
t_{PHL}						12.5	20	ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

DIP14



以上信息仅供参考.如需帮助联系客服人员。谢谢 XINLUDA

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