description
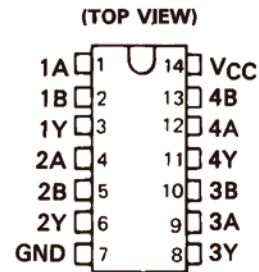
These devices contain four independent 2-input AND gates.

The XD74LSO8,XL74LS08 and XD54LSO8 are characterized for operation over the full military temperature range of −55°C to 125°C. The XD74LSO8,XL74LS08 and XD54LSO8 are characterized for operation from 0° to 70°C.
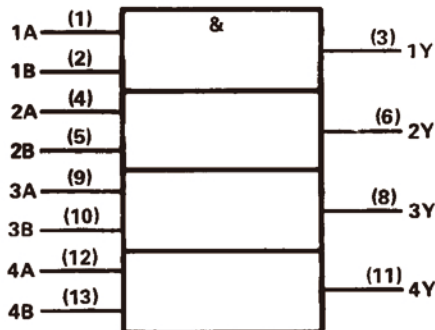
XD54LS08
XD74LS08
XL74LS08

(TOP VIEW)

FUNCTION TABLE (each gate)

INPUTS		OUTPUT
A	B	Y
H	H	H
L	X	L
X	L	L

logic symbol†

XD74LS08,XL74LS08 . . . FK PACKAGE
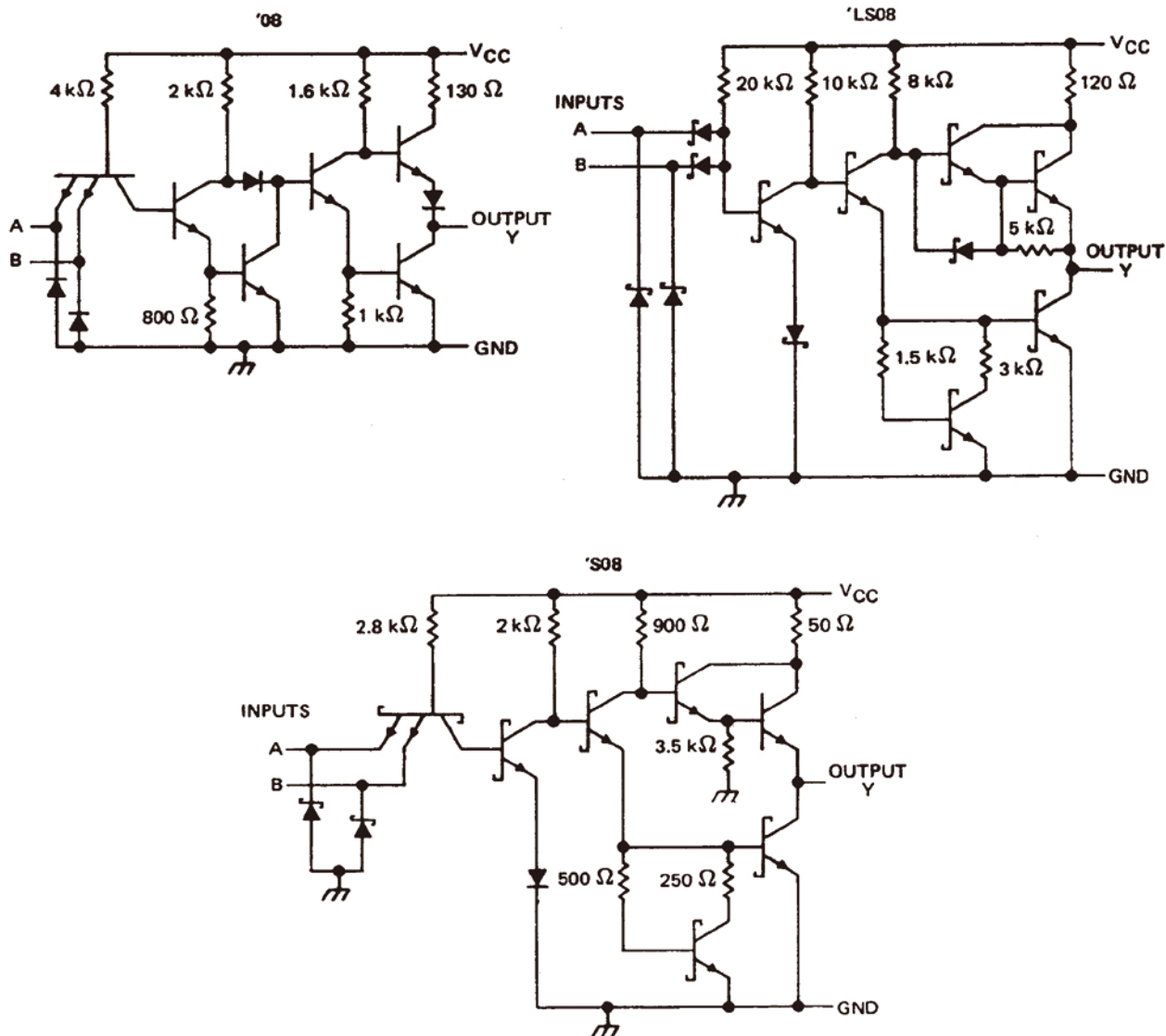
(TOP VIEW)
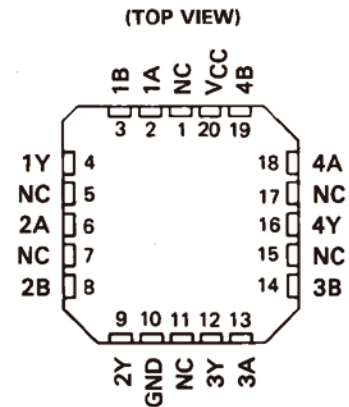
NC—No internal connection

logic diagram (positive logic)
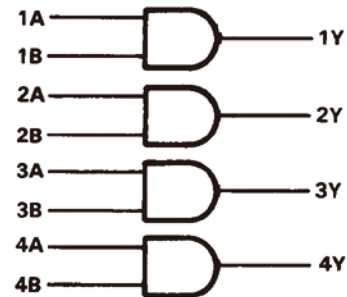
$$Y = A \cdot B \quad \text{or} \quad Y = \overline{\overline{A} + \overline{B}}$$

XD74LS08 DIP14/XL74LS08 SOP14

schematics (each gate)

'08

'LS08

'S08

Resistor values 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: '08, 'S08 . . . . 5.5 V
     'LS08 . . . . 7 V
Operating free-air temperature range: XD54' . . . . −55°C to 125°C
            XD74' . . . . 0°C to 70°C
Storage temperature range . . . . −65°C to 150°C

XD74LS08 DIP14/XL74LS08 SOP14

recommended operating conditions

PARAMETER		XD74LS08			XL74LS08			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
I_{OH}	High-level output current			−0.8			−0.8	mA
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†		XD74LS08			XL74LS08			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −12 mA			−1.5			−1.5	V
V_{OH}	V_{CC} = MIN,	V_{IH} = 2 V, I_{OH} = −0.8 mA	2.4	3.4		2.4	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IL} = 0.8 V, I_{OL} = 16 mA		0.2	0.4		0.2	0.4	V
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.4 V			40			40	µA
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V			−1.6			−1.6	mA
I_{OS}§	V_{CC} = MAX		−20		−55	−18		−55	mA
I_{CCH}	V_{CC} = MAX,	V_I = 4.5 V		11	21		11	21	mA
I_{CCL}	V_{CC} = MAX,	V_I = 0 V		20	33		20	33	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.

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 = 400 Ω, C_L = 15 pF		17.5	27	ns
t_{PHL}					12	19	ns

recommended operating conditions

		XD74LS08			XL74LS08			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
I_{OH}	High-level output current			− 0.4			− 0.4	mA
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 †			XD74LS08			XL74LS08			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = − 18 mA				− 1.5			− 1.5	V
V_{OH}	V_{CC} = MIN,	V_{IH} = 2 V,	I_{OH} = − 0.4 mA	2.5	3.4		2.7	3.4		V
V_{OL}	V_{CC} = MIN,	V_{IL} = MAX,	I_{OL} = 4 mA		0.25	0.4		0.25	0.4	V
	V_{CC} = MIN,	V_{IL} = MAX,	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_I = 2.7 V				20			20	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.4 V				− 0.4			− 0.4	mA
I_{OS}§	V_{CC} = MAX			− 20		− 100	− 20		− 100	mA
I_{CCH}	V_{CC} = MAX,	V_I = 4.5 V			2.4	4.8		2.4	4.8	mA
I_{CCL}	V_{CC} = MAX,	V_I = 0 V			4.4	8.8		4.4	8.8	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.

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		8	15	ns
t_{PHL}						10	20	ns

XD74LS08 DIP14/XL74LS08 SOP14

recommended operating conditions

		XD74LS08			XL74LS08			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
I_{OH}	High-level output current			−1			−1	mA
I_{OL}	Low-level output current			20			20	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 †			XD74LS08			XL74LS08			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX		
V_{IK}	V_{CC} = MIN,	I_I = −18 mA			−1.2			−1.2		V
V_{OH}	V_{CC} = MIN, V_{IH} = 2 V,	I_{OH} = −1 mA	2.5	3.4		2.7	3.4			V
V_{OL}	V_{CC} = MIN, V_{IL} = 0.8 V	I_{OL} = 20 mA			0.5			0.5		V
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1		mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V			50			50		µA
I_{IL}	V_{CC} = MAX,	V_I = 0.5 V			−2			−2		mA
I_{OS}§	V_{CC} = MAX		−40		−100	−40		−100		mA
I_{CCH}	V_{CC} = MAX,	V_I = 4.5 V		18	32		18	32		mA
I_{CCL}	V_{CC} = MAX,	V_I = 0 V		32	57		32	57		mA

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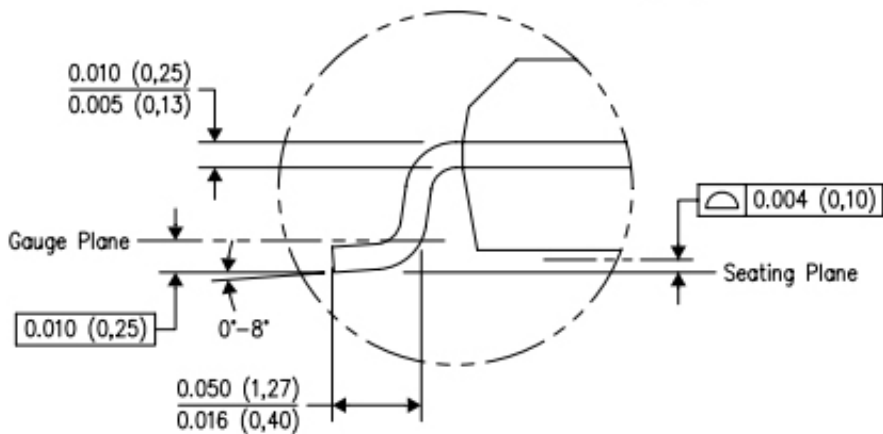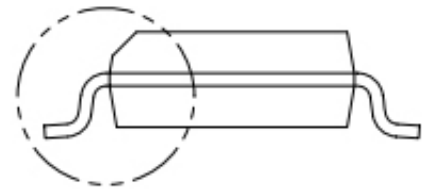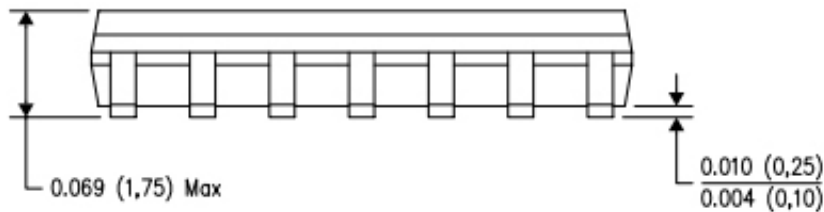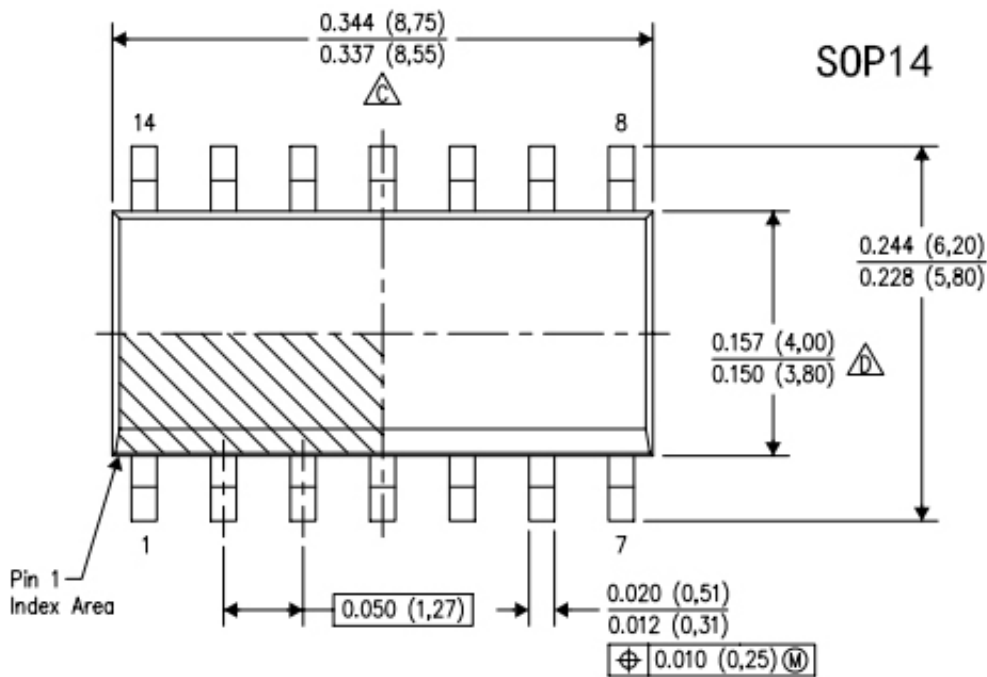‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.
§ Not more than one output should be shorted at a time, and the duration of the short-circuit should not exceed one second.

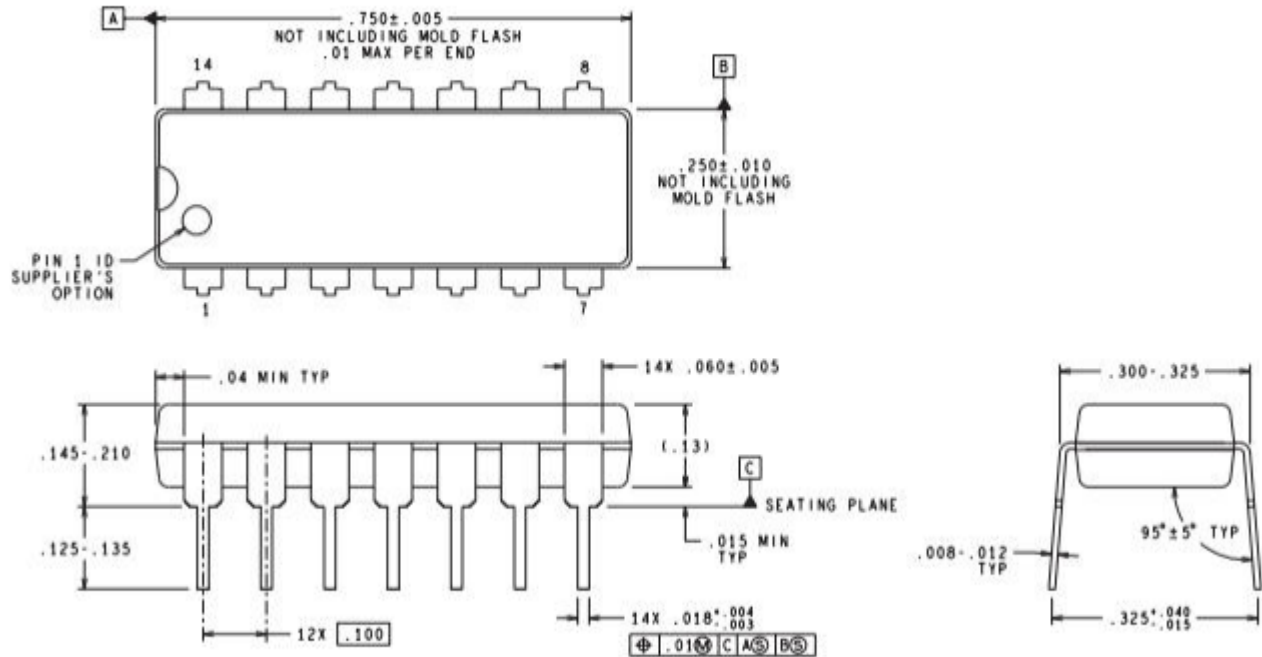## switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	A or B	Y	R_L = 280 Ω,	C_L = 15 pF		4.5	7	ns
t_{PHL}						5	7.5	ns
t_{PLH}			R_L = 280 Ω,	C_L = 50 pF		6		ns
t_{PHL}						7.5		ns

5

SOP14

$\frac{0.344 \ (8,75)}{0.337 \ (8,55)}$

14   8

$\frac{0.244 \ (6,20)}{0.228 \ (5,80)}$

$\frac{0.157 \ (4,00)}{0.150 \ (3,80)}$

Pin 1
Index Area

1   7

0.050 (1,27)

$\frac{0.020 \ (0,51)}{0.012 \ (0,31)}$

⊕ 0.010 (0,25) Ⓜ

0.069 (1,75) Max

$\frac{0.010 \ (0,25)}{0.004 \ (0,10)}$

$\frac{0.010 \ (0,25)}{0.005 \ (0,13)}$

Gauge Plane

0.010 (0,25)

0°-8°

△ 0.004 (0,10)

Seating Plane

$\frac{0.050 \ (1,27)}{0.016 \ (0,40)}$

DIP14

以上信息仅供参考. 如需帮助联系客服人员。谢谢 XINLUDA