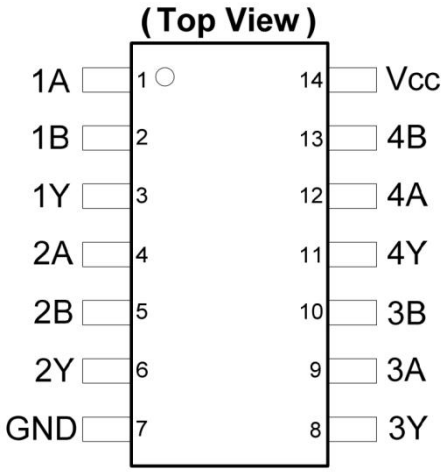
1. DESCRIPTION

These devices contain four independent 2-input Exclusive-OR gates.

A common application is as a true/complement element.If one of the inputs is low,the other input will be reproduced in true form at the output.If one of the inputs is high,the signal on the other input will be reproduced inverted at the output.

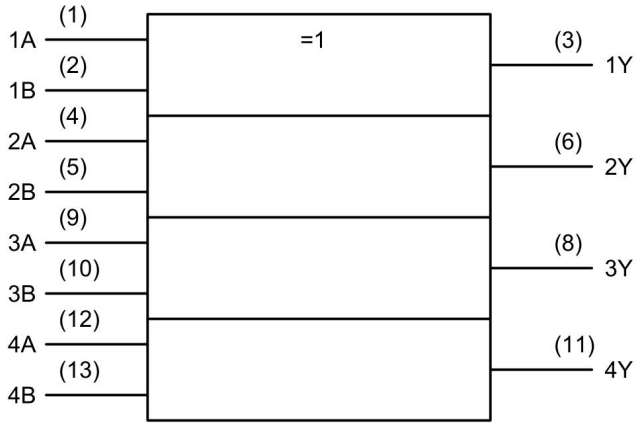
The XD74LS86 are characterized for operation from 0℃ to 70℃.

2. PIN CONFIGURATIONS

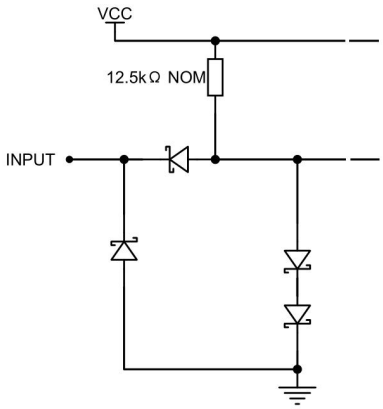


INPUTS		OUTPUT
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

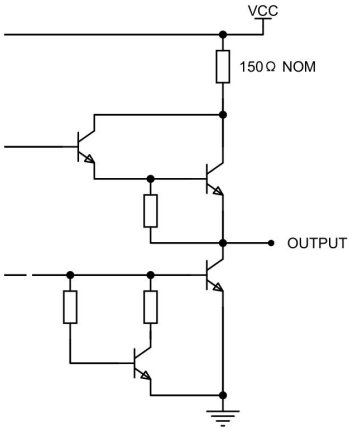
3. LOGIC DIAGRAM



4. SCHEMATICS (each gate)



EQUIVALENT OF EACH INPUT



TYPICAL OF ALL OUTPUTS

5. ABSOLUTE MAXIMUM RATINGS OVER OPERATING FREE-AIR TEMPERATURE RANGE (UNLESS OTHERWISE NOTES)

Supply voltage, V_{CC} (see Note 1)..... 7V

Input voltage, VI: 74LS86.....5.5V

Operating free-air temperature range: DIP package.....96°C/W

Storage temperature range, Tstg..... −65°C to 150°C

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

6. RECOMMENDED OPERATING CONDITIONS (SEE NOTE 3)

		XD74LS86			UNIT
		MIN	NOM	MAX	
V_{CC}	Supply voltage	4.75	5	5.25	V
I_{OH}	High-level output current			−400	μA
I_{OL}	Low-level output current			8	mA
T_A	Operating free-air temperature	0		70	°C

7. ELECTRICAL CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR RANGE (UNLESS OTHERWISE NOTED)

PARAMETER	TEST CONDITIONS†		XD74LS86			UNIT
			MIN	TYP‡	MAX	
V_{IH}			2			
V_{IL}					0.8	
V_{IK}	V_{CC} = MIN, I_I = −18 mA				−1.5	V
V_{OH}	V_{CC} = MIN, V_{LI}=V_{IL} max, I_{OH} = −400μA V_{IH} = 2V		2.7	3.4		V
V_{OL}	V_{CC} = MIN, V_{IH} = 2V, V_{IL} = V_{IL} max	I_{OL} = 4 mA		0.25	0.4	V
		I_{OL} = 8 mA		0.35	0.5	
I_I	V_{CC} = MAX, V_I = 7 V				0.2	mA
I_{IH}	V_{CC} = MAX, V_I = 2.7 V				40	μA
I_{IL}	V_{CC} = MAX, V_I = 0.4 V				−0.8	mA
I_{OS}§	V_{CC} = MAX		−20		−100	mA
I_{CC}	V_{CC} = MAX, See Note 2			6.1	10	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the application type.
‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.
§ Not more than one output should be shorted at a time.

NOTE 2 : Icc is measured with the inputs grounded and the outputs open.

8. SWITCHING CHARACTERISTICS,VCC = 5 V, TA = 25 C (see Figure 2)

PARAMETER	FROM (INPUT)	TEST CONDITIONS		XD74LS86			UNIT
				MIN	TYP	MAX	
t_{PLH}	A or B	Other input low	C_L=15 pF, RL=2kΩ, See Note 3		12	23	ns
t_{PHL}					10	17	
t_{PLH}	A or B	Other input high			20	30	ns
t_{PHL}					13	22	

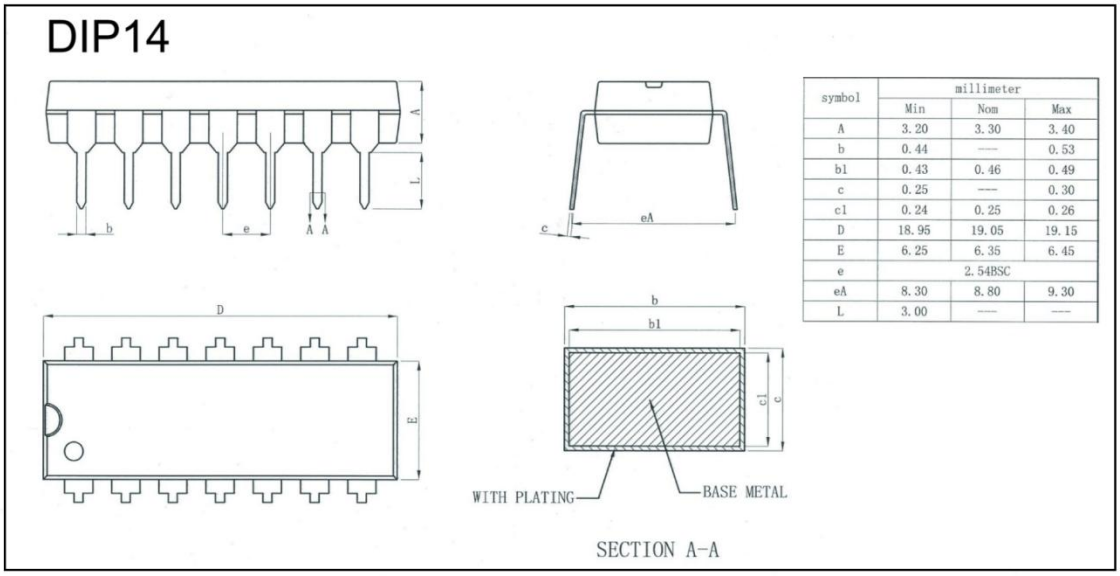
NOTE 3 :Load circuits and voltage waveforms are shown in Section 1.

9. ORDERING INFORMATION

Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XD74LS86	XD74LS86	DIP14	19.05 * 6.35	-40 to 85	MSL3	Tube 25	1000

10. DIMENSIONAL DRAWINGS



symbol	millimeter		
	Min	Nom	Max
A	3.20	3.30	3.40
b	0.44	---	0.53
b1	0.43	0.46	0.49
c	0.25	---	0.30
c1	0.24	0.25	0.26
D	18.95	19.05	19.15
E	6.25	6.35	6.45
e	2.54BSC		
eA	8.30	8.80	9.30
L	3.00	---	---