5486 / 7486 Quadruple 2-Input Exclusive-OR Gate

	Schottky TTL					High-Speed TTL					Low-Power Schottky TTL					Standard TTL					Low-Power TTL				
	Device Type	Package				Device Type	Package				Device Type	Package				Device Type	Package				Device Type	Package			
		C	P	M	CF		C	P	M	CF		C	P	M	CF		C	P	M	CF		C	P	M	CF
T.I.	SN54S86	J⑭			W⑭						SN54LS86	J⑭			W⑭	SN5486	J⑭			W⑭	SN54L86	J⑫	N⑫		T⑭
	SN74S86	J⑭	N⑭								SN74LS86	J⑭	N⑭			SN7486	J⑭	N⑭			SN74L86	J⑫	N⑫		T⑭
FAIRCHILD	FM54S86 / FM9S86	D⑭			F⑭						FM54LS86 / FM9LS86	D⑭			F⑭	FM5486/FM9N86	D⑭			F⑭					
	FC74S86 / FC9S86	D⑭	P⑭								FC74LS86 / FC9LS86	D⑭	P⑭		F⑭	FC7486/FC9N86	D⑭	P⑭							
MOTOROLA											SN74LS86		P⑭			MC7486		P⑭							
N.S.C											DM54LS86		P⑭			DM5486	J⑭	N⑭		W⑭	DM54L86	J⑫	N⑫		F⑭
	DM74S86		N⑭								DM74LS86		P⑭			DM7486	J⑭	N⑭			DM74L86	J⑫	N⑫		F⑭
PHILIPS	N74S86										N74LS86					FJH271/7486		⑭							
SIGNETICS	S54S86															S5486	F⑭	A⑭		W⑭					
	N74S86										N74LS86		A⑭			N7486	F⑭	A⑭							
SIEMENS																FLH341		⑭							
FUJITSU											74LS86		M⑭			MB449	⑭	M⑭							
HITACHI	HD74S86	⑭	P⑭								HD74LS86		P⑭			HD7486/HD2526	⑭	P⑭							
MISUBISHI											M74LS86		P⑭			M53286		P⑭							
NEC											74LS86		C⑭			μPB2086	D⑭								
TOSHIBA																TD7486		P⑭							

Electrical Characteristics SN54LS86/SN74LS86

absolute maximum ratirgs over operatirng free-air temperature range

Supply voltage, V_{CC}	7V	Operating free-air temperature range	SN54LS	−55°C to 125°C
Input voltage	7V		SN74LS	0°C to 70°C
		Storage temperature range		−65°C to 150°C

recommended operating conditions

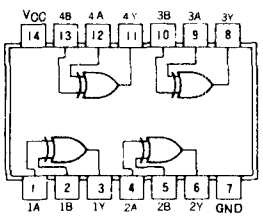
	SN54LS86			SN74LS86			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}			−800			−800	μA
Low-level output current, I_{OL}			4			8	mA
Operating free-air temperature, T_A	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range

PARAMETER *		TEST CONDITIONS †		SN74LS86			UNIT
				MIN	TYP‡	MAX	
V_{IH}	High-level input voltage			2			V
V_{IL}	Low-level input voltage					0.8	V
V_I	Input clamp voltage	V_{CC} = MIN, I_I = −18mA				1.5	V
V_{OH}	High-level output voltage	V_{CC} = MIN, V_{IH} = 2V, V_{IL} = V_{IL} max, I_{OH} = −400μA		2.7	3.4		V
V_{OL}	Low-level output voltage	V_{CC} = MIN, V_{IH} = 2V, V_{IL} = V_{IL} max	I_{OL} = 4mA		0.25	0.4	V
			I_{OL} = 8mA		0.35	0.5	
I_I	Input current at maximum input voltag	V_{CC} = MAX, V_I = 7V				0.2	mA
I_{IH}	High-level input current	V_{CC} = MAX, V_I = 2.7V				40	μA
I_{IL}	Low-level input current	V_{CC} = MAX, V_I = 0.4V				−0.8	mA
I_{OS}	Short-circuit output current	V_{CC} = MAX		−5		−42	mA
I_{CC}	Supply current	V_{CC} = MAX, See Note 2			6.1	10	mA
t_{PLH}	from A or B input, Other input low	V_{CC} = 5V, T_A = 25°C, C_L = 15pF, R_L = 2kΩ			12	23	ns
t_{PHL}					10	17	ns
t_{PLH}	frm A or B input, Other input high				20	30	ns
t_{PHL}					13	22	ns

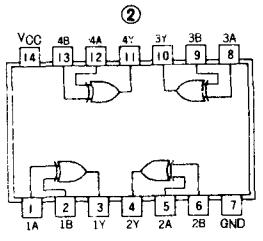
Pin Assignments (Top View)

①



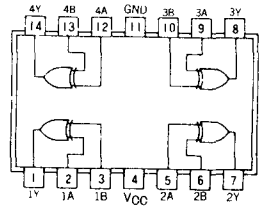
positive logic : $Y = A \oplus B = \overline{A}B + A\overline{B}$

②



positive logic : $Y = A \oplus B = \overline{A}B + A\overline{B}$

③



positive logic : $Y = A \oplus B = \overline{A}B + A\overline{B}$

Function Table

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

H = High-level L = Low-level

NOTE : I_{CC} is measured with the inputs grounded and the outputs open.

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable type.
‡ All typical values are at V_{CC} = 5V, T_A = 25°C.
* Not more than one output should be shorted at a time.
* t_{PLH} = propagation delay time, low-to-high-level output
t_{PHL} = propagation delay time, high-to-low-level output