

S5486-A,F,W • N7486-A,F

DIGITAL 54/74 TTL SERIES

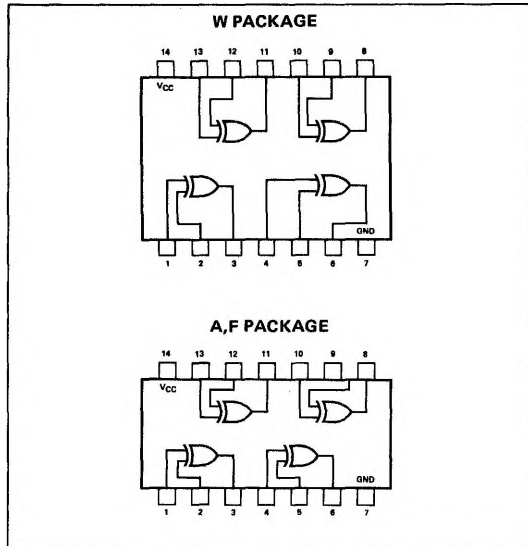
DESCRIPTION

The 54/7486 Quad 2-Input Exclusive OR Gate is a TTL element providing the function $\overline{A}B + A\overline{B}$ at the output.

TRUTH TABLE

INPUTS		OUTPUT
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

PIN CONFIGURATIONS



RECOMMENDED OPERATING CONDITIONS

		MIN	NOM	MAX	UNIT
Supply Voltage V_{CC}	S5486 Circuits N7486 Circuits	4.5 4.75	5 5	5.5 5.25	V V
Normalized Fan-Out from each output, N:	Logical 0 Logical 1			10 20	

ELECTRICAL CHARACTERISTICS (over recommended operating free-air temperature range unless otherwise noted)

PARAMETER	TEST CONDITIONS*	MIN	TYP**	MAX	UNIT
$V_{in(1)}$	Input voltage required to ensure logical 1 at any input terminal $V_{CC} = \text{MIN}$		2		V
$V_{in(0)}$	Input voltage required to ensure logical 0 at any input terminal $V_{CC} = \text{MIN}$			0.8	V
$V_{out(1)}$	Logical 1 output voltage $V_{CC} = \text{MIN}, V_{in(1)} = 2V,$ $V_{in(0)} = 0.8V, I_{load} = -800 \mu A$		2.4		V
$V_{out(0)}$	Logical 0 output voltage $V_{CC} = \text{MIN}, V_{in(1)} = 2V,$ $V_{in(0)} = 0.8V, I_{sink} = 16mA$			0.4	V
$I_{in(1)}$	Logical 1 level input current (each input) $V_{CC} = \text{MAX}, V_{in} = 2.4V$ $V_{CC} = \text{MAX}, V_{in} = 5.5V$			40 1	μA mA
$I_{in(0)}$	Logical 0 level input current (each input) $V_{CC} = \text{MAX}, V_{in} = 0.4V$			-1.6	mA
I_{OS}	Short circuit output current† $V_{CC} = \text{MAX}, V_{in(1)} = 4.5V,$ $V_{in(0)} = 0$		-20 -18	-55 -55	mA mA
I_{CC}	Supply current $V_{CC} = \text{MAX}, V_{in} = 4.5V$			30 30	43 50 mA mA

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SWITCHING CHARACTERISTICS, $V_{CC} = 5V$, $T_A = 25^\circ C$, $N = 10$

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{pd0}	Propagation delay time to logical 0 level (other input low)	$C_L = 15pF$,	$R_L = 400$		11	17	ns
t_{pd1}	Propagation delay time to logical 1 level (other input low)	$C_L = 15pF$,	$R_L = 400$		15	23	ns
t_{pd0}	Propagation delay time to logical 0 level (Other input high)	$C_L = 15pF$,	$R_L = 400$		13	22	ns
t_{pd1}	Propagation delay time to logical 1 level (other input high)	$C_L = 15pF$,	$R_L = 400$		18	30	ns

* For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable circuit type.

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

+ Not more than one output should be shorted at a time.