

Gates, Series 54/74

DM5486/DM7486 (SN5486/SN7486) quad exclusive-OR gate

general description

The DM5486/DM7486 utilizes TTL (Transistor-Transistor Logic) to provide four exclusive-OR gates in one package. Characteristics of the circuits include high noise immunity, low output impedance, good capacitive drive capability, and minimal variation in switching times with temperature. The device is completely compatible with other Series 54/74 devices.

Key features include:

- Input clamp diodes
- Typical noise immunity

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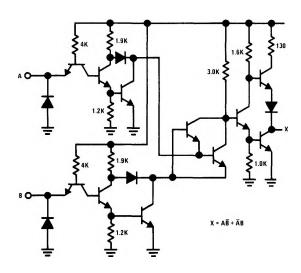
Average propagation delay

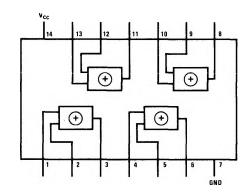
15 ns

Average power dissipation

40 mW per gate

schematic and connection diagrams





absolute maximum ratings

 $\begin{array}{ccc} V_{CC} & 7.0V \\ Input \ Voltage & 5.5V \\ Operating \ Temperature \ Range \ DM7486 & 0°C \ to \ 70°C \\ & DM5486 & -55°C \ to \ +125°C \\ Storage \ Temperature \ Range & -65°C \ to \ +150°C \\ Fan \ Out & 10 \\ Lead \ Temperature \ (Soldering, \ 10 \ sec) & 300°C \\ \end{array}$

electrical characteristics (Note 1)

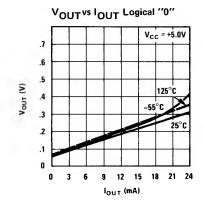
PARAMETER		CONDITIONS		MIN	TYP	MAX	UNITS
Input Diode Clamp Voltage		$V_{CC} = 5.0V, T_A = 25^{\circ}C, I_{IN} = -12 \text{ m}$	nΑ			-1.5	V
Logical "1" Input Voltage	DM5486	V _{CC} = 4.5V		2.0			V
	DM7486	V _{CC} = 4.75V		2.0			V
Logical "0" Input Voltage	DM5486	V _{CC} = 4.5V	ĺ			0.8	V
	DM7486	V _{CC} = 4.75V					
Logical "1" Output Voltage	DM5486	V _{CC} = 4.5V					
	DM7486	V _{CC} = 4.75V, Input Conditions .8V & 2.0V or 2.0V & .8V, I _{OUT} = -4	400 μΑ	2.4			V
	DM5486	V _{CC} = 4.5V	l				
Logical "0" Output Voltage	DM7486	V _{CC} = 4.75V, Input Conditions .8V & .8V or 2.0V & 2.0V, I _{OUT} = 1	6 mA			0.4	V
Logical "1" Input Current	DM5486	V _{CC} = 5.5V	İ				
	DM7486	V _{CC} = 5.25V, V _{IN} = 2.4V	- 1			40	μΑ
Logical "1" Input Current	DM5486	V _{CC} = 5.5V					
	DM7486	V _{CC} = 5.25V, V _{IN} = 5.5V				1	mA
Logical "0" Input Current	DM5486	V _{CC} = 5.5V					
	DM7486	$V_{CC} = 5.25V, V_{IN} = 0.4V$				-1.6	mA
Output Short Circuit Current (Note 2)	DM5486	V _{CC} = 5.5V					
	DM7486	$V_{CC} = 5.25V, V_{IN} = 0V$		-18.0		-55	mA
Supply Current	DM5486	V _{CC} = 5.5V					
Logical "0" (Each Gate)	DM7486	V_{CC} = 5.25V Both Inputs Logical "1" (Worst Case)			9.0	14.2	mA
Supply Current	DM5486	V _{CC} = 5.5V					
Logical "1" (Each Gate)	DM7486	V _{CC} = 5.25V, One Input Logical "1", One Input Logical "0"			7.0	10.5	mA
Propagation Delay Time		$V_{CC} = 5.0V, T_A = 25^{\circ}C,$ Inv.		7	12	20	ns
to Logical "0", t _{pd0} (Note 3)		F.O. = 10 C _o = 50 pF Nor	n-Inv.	7	12	20	ns
Propagation Delay Time		$V_{CC} = 5.0V, T_A = 25^{\circ}C,$ Inv.		10	19	30	ns
to Logical "1", tpd1 (Note 3)			n-Inv.	8	14.5	23	ns

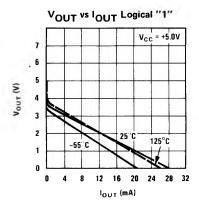
Note 1. Min/max limits apply across the guaranteed temperature range of 0°C to 70°C for the DM7486 and -55° C to +125°C for the DM5486 unless otherwise specified. All typicals are given for V_{CC} = 5.0V and T_{A} = 25°C.

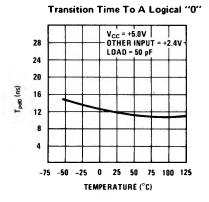
Note 2. Not more than one output should be shorted at a time.

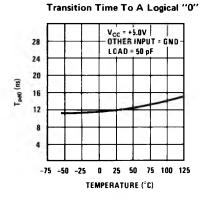
Note 3. For explanation of the inverting and non-inverting specs, see the AC test circuit and AC waveforms.

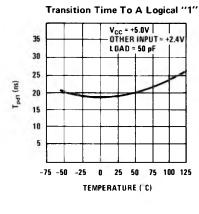
typical performance characteristics

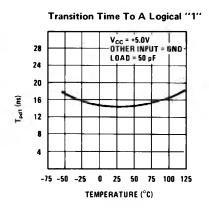


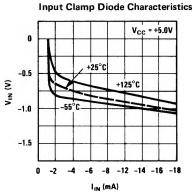


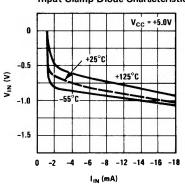




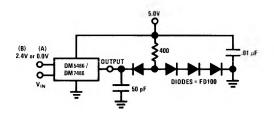








ac test circuit



switching time waveform

