



Gates, Series 54/74

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

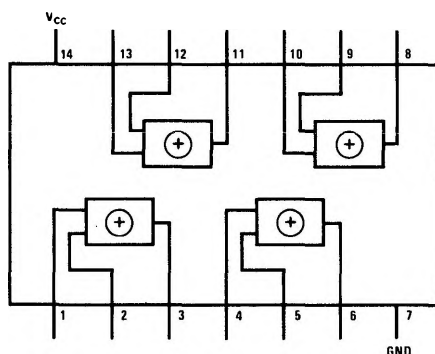
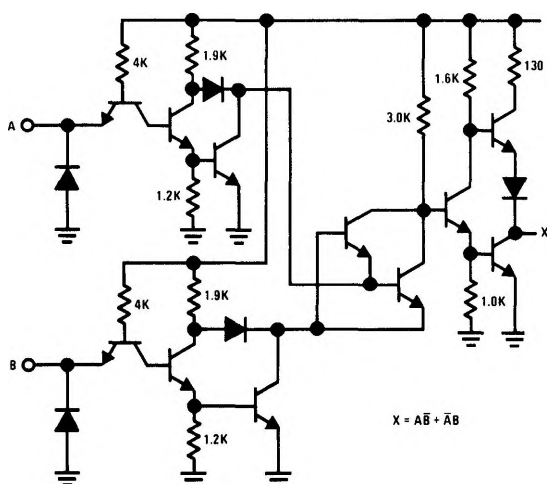
general description

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 1V
- Average propagation delay 15 ns
- Average power dissipation 40 mW per gate

schematic and connection diagrams



absolute maximum ratings

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

electrical characteristics (Note 1)

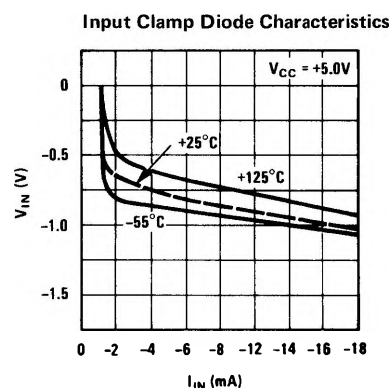
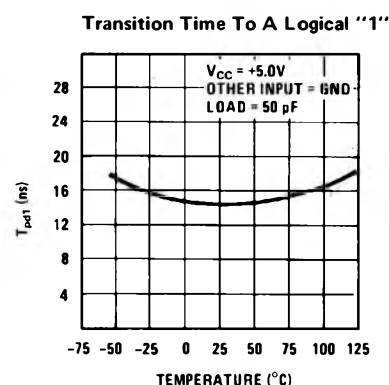
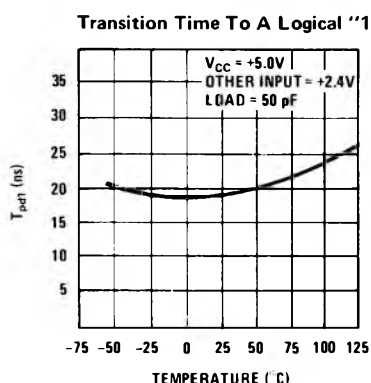
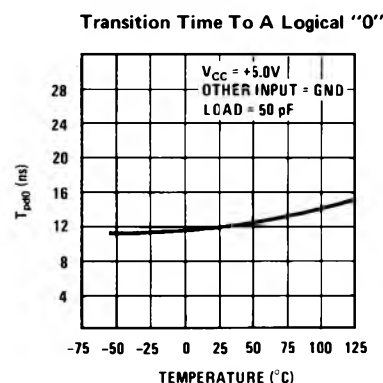
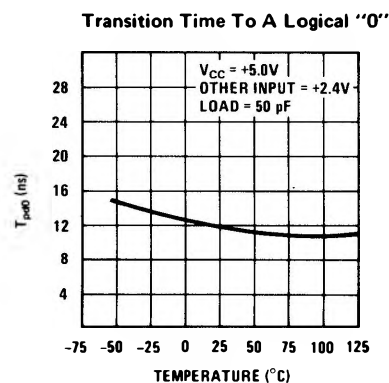
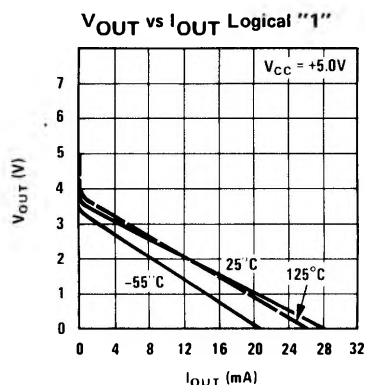
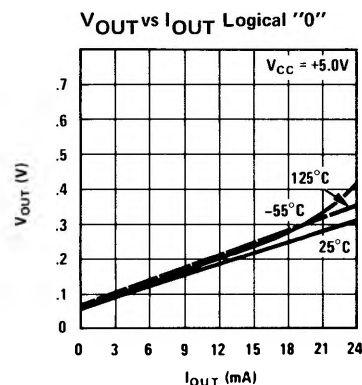
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Diode Clamp Voltage	$V_{CC} = 5.0V$, $T_A = 25^\circ C$, $I_{IN} = -12\text{ mA}$			-1.5	V
Logical "1" Input Voltage	DM5486 $V_{CC} = 4.5V$	2.0			V
	DM7486 $V_{CC} = 4.75V$				
Logical "0" Input Voltage	DM5486 $V_{CC} = 4.5V$			0.8	V
	DM7486 $V_{CC} = 4.75V$				
Logical "1" Output Voltage	DM5486 $V_{CC} = 4.5V$	2.4			V
	DM7486 $V_{CC} = 4.75V$, Input Conditions .8V & 2.0V or 2.0V & .8V, $I_{OUT} = -400\text{ }\mu A$				
Logical "0" Output Voltage	DM5486 $V_{CC} = 4.5V$			0.4	V
	DM7486 $V_{CC} = 4.75V$, Input Conditions .8V & .8V or 2.0V & 2.0V, $I_{OUT} = 16\text{ mA}$				
Logical "1" Input Current	DM5486 $V_{CC} = 5.5V$			40	μA
	DM7486 $V_{CC} = 5.25V$, $V_{IN} = 2.4V$				
Logical "1" Input Current	DM5486 $V_{CC} = 5.5V$			1	mA
	DM7486 $V_{CC} = 5.25V$, $V_{IN} = 5.5V$				
Logical "0" Input Current	DM5486 $V_{CC} = 5.5V$			-1.6	mA
	DM7486 $V_{CC} = 5.25V$, $V_{IN} = 0.4V$				
Output Short Circuit Current (Note 2)	DM5486 $V_{CC} = 5.5V$	-18.0		-55	mA
	DM7486 $V_{CC} = 5.25V$, $V_{IN} = 0V$				
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 $C_O = 50\text{ pF}$ Non-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", t_{pd1} (Note 3)	F.O. = 10 $C_O = 50\text{ pF}$ Non-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 $T_A = 25^\circ C$.

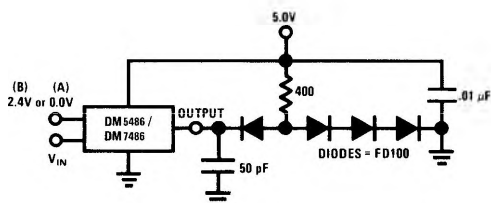
Note 2. Not more than one output should be shorted at a time.

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

