

Gates, Series 54/74

DM5404/DM7404 (SN5404/SN7404) hex inverter

general description

The DM5404/DM7404 is a hex inverter utilizing TTL to achieve high speed at nominal power dissipation. It is totally compatible with other Series 54/74 devices.

Features include:

- Input clamping diodes
- Typical Noise Immunity

Guaranteed Noise Immunity

400 mV

■ Fan-out

10

Allowable Power Supply Variation

DM5404

4.5V to 5.5V 4.75V to 5.25V

DM7404 Average Propagation

12 ns (with 50 pF)

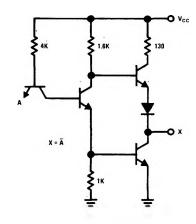
Delay

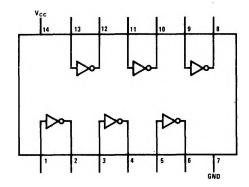
Average Power Dissipation 10 mW per gate

schematic and connection diagrams

DM5404/DM7404

1V





absolute maximum ratings

 $\begin{array}{ccc} V_{CC} & 7V \\ Input \ Voltage & 5.5V \\ Operating \ Temperature \ Range & \\ DM7404 & 0°C \ to \ 70°C \\ DM5404 & -55°C \ to \ +125°C \\ Storage \ Temperature \ Range & -65°C \ to \ +150°C \\ Lead \ Temperature \ (soldering, 10 \ sec) & 300°C \\ \end{array}$

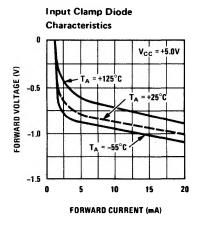
electrical characteristics (Note 1)

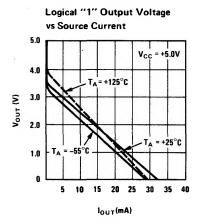
PARAMETER			CONDITIONS	MIN	TYP	MAX	UNITS
Input diode clamp voltage		$V_{CC} = 5.0V$ $I_{1N} = -12 \text{ mA}$	$T_A = 25^{\circ}C$			-1.5	٧
Logical "1" Input Voltage	DM5404 DM7404		м.	2.0			v
Logical "O" Input Voltage	DM5404 DM7404	$V_{CC} = 4.5V$ $V_{CC} = 4.75V$				0.8	v
Logical "1" Output Voltage	DM5404 DM7404	V _{CC} = 4.5V	$V_{IN} = 0.8V$, $I_{OUT} = -400 \mu\text{A}$	2.4			V
Logical "0" Output Voltage	DM5404 DM7404	V _{CC} = 4.5V	V _{IN} = 2.0V, I _{OUT} = 16 mA	- X		0.4	V
Logical "1" Input Current	DM5404 DM7404	V _{CC} = 5.5V	V _{IN} = 2.4V			40	μΑ
Logical "1" Input Current	DM5404 DM7404	V _{CC} = 5.5V	V _{IN} = 5.5V		ŧ	1	mA
Logical "0" Input Current	DM5404 DM7404	V _{CC} = 5.5V	V _{IN} = 0.4V		-1.0	-1.6	mA
Output Short Circuit Current (Note 2)	DM5404 DM7404		V _{OUT} = 0	-20 -18	-30	-55	mA
Supply Current - Logical "0" (each gate)	DM5404 DM7404		V _{IN} = 5.0V		3.0	5.1	mA
Supply Current - Logical "1" (each gate)	DM5404 DM7404	V _{CC} = 5.5V V _{CC} = 5.25V	V _{IN} = 0		1.0	1.8	mΑ
Propagation Delay to a Logical "1", t _{pd1}		T _A = 25°C N = 10	V _{CC} = 5.0V C = 50 pF	5	16	22	ns
Propagation Delay to a Logical "0" t _{pd0}		T _A = 25°C N = 10	V _{CC} = 5.0V C = 50 pF	3	9	15	ns

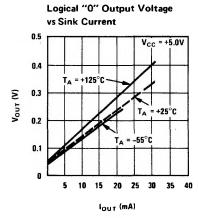
Note 1. Min/Max limits apply across the guaranteed temperature range of 0°C to 70°C for the DM7404, and -55°C to +125°C for the DM5404, unless otherwise specified. All typicals are given for V_{CC} = 5.0V and T_A = 25°C.

Note 2. Only one output at a time should be short circuited.

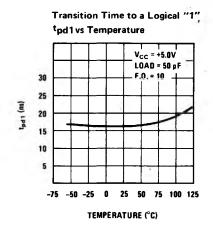
typical performance characteristics



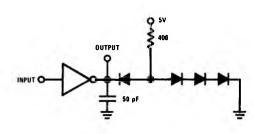




TEMPERATURE (°C)



ac test circuit



switching time waveform

