

MNMM70C97-X REV 1A0

 Original Creation Date: 10/27/95
 Last Update Date: 05/19/97
 Last Major Revision Date: 04/02/97

TRI-STATE HEX BUFFER
General Description

These gates are monolithic complementary MOS (CMOS) integrated circuits constructed with N- and P-channel enhancement mode transistors. The MM70C97 converts CMOS or TTL outputs to TRI-STATE outputs with no logic inversion. The MM70C97 has two TRI-STATE controls; one for two devices and one for the other four devices. Inputs are protected from damage due to static discharge by diode clamps to Vcc and Gnd.

Industry Part Number

MM70C97

NS Part Numbers

 MM70C97J/883
 MM70C97W/883

Prime Die

MM70C97

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp	Description	Temp (°C)
1	Static tests at	+25
2	Static tests at	+125
3	Static tests at	-55
4	Dynamic tests at	+25
5	Dynamic tests at	+125
6	Dynamic tests at	-55
7	Functional tests at	+25
8A	Functional tests at	+125
8B	Functional tests at	-55
9	Switching tests at	+25
10	Switching tests at	+125
11	Switching tests at	-55

Features

- Wide supply voltage range 3.0V to 15V
- Guaranteed noise margin 1.0V
- High noise immunity 0.45 Vcc (typ.)
- TTL compatible Drive 1 TTL load

Applications

- Bus drivers Typical propagation delay into 150pF load is 40nS

(Absolute Maximum Ratings)

(Note 1)

Voltage at Any Pin	-0.3V to Vcc +0.3V
Operating Temperature Range	-55 C to +125 C
Storage Temperature Range	-65 C to +150 C
Power Dissipation (Pd)	
Dual-In-Line	700mW
Small Outline	500mW
Power Supply Voltage (Vcc)	18V
Lead Temperature (Soldering, 10 seconds)	260 C

Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. Except for "Operating Temperature Range" they are not meant to imply that the devices should be operated at these limits. The table of "Electrical Characteristics" provides conditions for actual device operation.

Electrical Characteristics

DC PARAMETERS:

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Voh	Logical "1" Output Voltage	Vcc = 5V, Vdis = 1.5V, Ioh = 0uA, (other inputs at 3.5V)			4.5		V	1, 2, 3
		Vcc = 10V, Vdis = 2V, Ioh = 0uA, (other inputs at 8V)			9		V	1, 2, 3
		Vcc = 4.5V, Vdis = 0.8V, Ioh = -1.6mA, (other inputs at 3V)			2.4		V	1, 2, 3
Vol	Logical "0" Output Voltage	Vcc = 5V, Iol = 0uA, (all inputs at 1.5V)				0.5	V	1, 2, 3
		Vcc = 10V, Iol = 0uA, (all inputs at 2V)				1	V	1, 2, 3
		Vcc = 4.5V, Iol = 1.6mA, (all inputs at 0.8V)				0.4	V	1, 2, 3
Iih	Logical "1" Input Current	Vcc = 15V, Vin = 15V, (other inputs at 0V)				1000	nA	1, 2, 3
Iil	Logical "0" Input Current	Vcc = 15V, Vin = 0V, (other inputs at 15V)				-1000	nA	1, 2, 3
Iozh	TRI-STATE Output Current	Vcc = 15V, Vdis(one input)=Vout=15V, (other inputs at 0V)				1000	nA	1, 2, 3
Iozl	TRI-STATE Output Current	Vcc=15V, Vdis(one input)=15V, Vout=0V, (other inputs at 0V)				-1000	nA	1, 2, 3
Icc	Power Supply Current	Vcc = 15V				15	uA	1, 2, 3
Ioh	Output Source Current	Vcc = 5V, Vin = 5V, Vout = 0V, Vdis = 0V	3		-4.35		mA	1, 3
			3		-3.04		mA	2
		Vcc = 10V, Vin = 10V, Vout = 0V, Vdis = 0V	3		-20		mA	1, 3
			3		-13.6		mA	2
Iol	Output Sink Current	Vcc = 5V, (all inputs at 0V), Vout = 5V	3		4.35		mA	1, 3
			3		3.04		mA	2
		Vcc = 10V, (all inputs at 0V), Vout = 10V	3		20		mA	1, 3
			3		13.6		mA	2
Vih	Logical "1" Input Voltage	Vcc = 5V	1		3.5		V	1, 2, 3
		Vcc = 10V	1		8		V	1, 2, 3
		Vcc = 4.5V	1		3		V	1, 2, 3

Electrical Characteristics

DC PARAMETERS: (Continued)

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
Vil	Logical "0" Input Voltage	Vcc = 5V	1			1.5	V	1, 2, 3
		Vcc = 10V	1			2	V	1, 2, 3
		Vcc = 4.5V	1			0.8	V	1, 2, 3

AC PARAMETERS: PROPAGATION DELAY TIME:

(The following conditions apply to all the following parameters, unless otherwise specified.)

AC: Vcc = 5V, Cl = 50pF, Rl = 10K Ohms

tPHL/tPLH		Vcc = 5V, Data to Output	3			100	nS	9
			3			140	nS	10
			3			80	nS	11
		Vcc = 10V, Data to Output	2			40	nS	9
			2			55	nS	10
			2			30	nS	11
		Vcc = 5V, Cl = 150pF	2			160	nS	9
			2			225	nS	10
			2			130	nS	11
		Vcc = 10V, Cl = 150pF	2			80	nS	9
			2			110	nS	10
			2			65	nS	11
tPHZ/tPLZ	From Disable to High Impedance	Vcc = 5V, From Logical "1" or "0"	3			170	nS	9
			3			240	nS	10
			3			135	nS	11
		Vcc = 10V, From Logical "1" or "0"	2			120	nS	9
tPZH/tPZL	From Disable to Logical "1" or "0"	Vcc = 5V, From High Impedance State	3			175	nS	9
			3			245	nS	10
			3			195	nS	11
		Vcc = 10V, From High Impedance State	2			80	nS	9
tPHZ/tPLZ	From Disable to High Impedance	Vcc = 5V, Cl = 5pF	2			125	nS	9

Note 1: Parameter tested go-no-go only.

Note 2: Guaranteed parameter not tested.

Note 3: Tested at 25 C; guaranteed but not tested at +125 C and -55 C.