MNMM54C901-X REV 1A0

HEX INVERTING TTL BUFFER

General Description

These hex buffers employ complementary MOS to achieve wide supply operating range, low power consumption, and high noise immunity. These buffers provide direct interface from PMOS into CMOS or TTL and direct interface from CMOS to TTL or CMOS operating at a reduced Vcc supply.

Industry Part Number	NS Part Numbers
MM54C901	MM54C901J/883
	MM54C901W/883

Prime Die

MM54C901

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp	Description	Temp ($^\circ$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 compatibility   Fan out of 2

driving standard TTL

(Absolute Maximum Ratings)
(Note 1)

Voltage at Any Pin
                                                                -0.3V to Vcc +0.3V

Voltage at Any Input Pin
                                                                -0.3V to +15V

Storage Temperature Range (Ts)
                                                                -65 C to +150 C

Power Dissipation (Pd)
    Dual-In-Line   700mW
    Small Outline   500mW
Operating Temperature Range (TA)
                                                                -55 C to +125 C

Operating Vcc Range
                                                                3.0V to 15V

Absolute Maximum Vcc
                                                                18V

Lead Temperature (Tl)
    (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, Iout = -10uA, Vil = 1.5V (all inputs)			4.5		V	1, 2, 3
		Vcc = 10V, Iout = -10uA, Vil = 2V (all inputs)			9		V	1, 2, 3
		Vcc = 4.5V, Iout = -800uA, Vil = 1V (all inputs) (CMOS to LP)			2.4		V	1, 2, 3
		Vcc = 4.5V, Iout = -10uA, Vil = 0.8V (all inputs) (LP to CMOS)			4.4		V	1, 2, 3
Vol	Logical "0" Output Voltage	Vcc = 5V, Iout = 10uA, Vih = 3.5V (all inputs)				0.5	V	1, 2, 3
		Vcc = 10V, Iout = 10uA, Vih = 8V (all inputs)				1	V	1, 2, 3
		Vcc = 4.5V, Iout = 2.6mA, Vih = 4V (all inputs) (CMOS to LP)				0.4	V	1, 2, 3
		Vcc = 4.5V, Iout = 10uA, Vih = 3V (all inputs) (LP to CMOS)				0.4	V	1, 2, 3
Iih	Logical "1" Input Current	Vcc = 15V, Vin = 15V, other inputs at 0				1	uA	1, 2, 3
Iil	Logical "0" Input Current	Vcc = 15V, Vin = 0V, other inputs at 15V				-1	uA	1, 2, 3
Icc	Quiescent Device Current	Vcc = 15V, Vin = 0V (all inputs) or 15V (all inputs)				15	uA	1, 2, 3
Isource	Output Source Current	Vcc = 5V, Vout = 0V, Vin = 0V (all inputs)	3		-5		mA	1, 2, 3
		Vcc = 10V, Vout = 0V, Vin = 0V (all inputs)	3		-20		mA	1, 2, 3
Isink	Output Sink Current	Vcc = 5V, Vout = 5V, Vih = 5V (all inputs)	3		9		mA	1, 2, 3
		Vcc = 5V, Vout = 0.4V, Vih = 5V (all inputs)	3		3.8		mA	1, 2, 3
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 (LP to CMOS)	1		3		V	1, 2, 3
		Vcc = 4.5V (CMOS to LP)	1		4		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 (LP to CMOS)	1			0.8	V	1, 2, 3
		Vcc = 4.5V (CMOS to LP)	1			1	V	1, 2, 3

AC PARAMETERS: PROPAGATION DELAY TIME:

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: Cl = 50pF

tPLH		Vcc = 5V	3			70	nS	9
			3			100	nS	10
			3			55	nS	11
		Vcc = 10V	2			30	nS	9
			2			40	nS	10
			2			25	nS	11
tPHL		Vcc = 5V	3			35	nS	9
			3			50	nS	10
			3			30	nS	11
		Vcc = 10V	2			20	nS	9
			2			30	nS	10
			2			15	nS	11

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.