

MNMM54C30-X REV 1A0

 Original Creation Date: 10/19/95
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8-INPUT NAND GATE

General Description

The logical gate employs complementary MOS (CMOS) to achieve wide power supply operating range, low power consumption and high noise immunity. Function and pin out compatibility with series 54 devices minimizes design time for those designers familiar with the standard 54 logic family.

All inputs are protected from damage due to static discharge by diode clamps to Vcc and Gnd.

Industry Part Number

MM54C30

NS Part Numbers

 MM54C30J/883
 MM54C30W/883

Prime Die

MM54C30

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.) |
| - Low power | Fan out of 2 |
| - TTL compatibility | driving 74L |

(Absolute Maximum Ratings)

(Note 1)

Voltage at Any Pin	-0.3V to Vcc +0.3V
Operating Temperature Range (TA)	-55 C to +125 C
Storage Temperature Range (Ts)	-65 C to +150 C
Power Dissipation (Pd)	
Dual-In-Line	700mW
Small Outline	500mW
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, Vih = 3.5V, Vil = 1.5V, Iout = -10uA			4.5		V	1, 2, 3
		Vcc = 10V, Vih = 8V, Vil = 2V, Iout = -10uA			9		V	1, 2, 3
		Vcc = 4.5V, Vih = 3V, Vil = 0.8V, Iout = -360uA			2.4		V	1, 2, 3
Vol	Logical "0" Output Voltage	Vcc = 5V, Vih = 3.5V, Iout = 10uA				0.5	V	1, 2, 3
		Vcc = 10V, Vih = 8V, Iout = 10uA				1	V	1, 2, 3
		Vcc = 4.5V, Vih = 3V, Iout = 360uA				0.4	V	1, 2, 3
Iih	Logical "1" Input Current	Vcc = 15V, Vin = 15V, other inputs at 0				0.15	uA	1, 3
						1	uA	2
Iil	Logical "0" Input Current	Vcc = 15V, Vin = 0V, other inputs at 15V				-0.15	uA	1, 3
						-1	uA	2
Icc	Quiescent Device Current	Vcc = 15V, Vih = 15V, Vil = 0V				0.15	uA	1, 3
						15	uA	2
Ioh	Logical "1" Output Current	Vcc = 5V, Vih = 5V, Vil = 0V, Vout = 0			-1.75		mA	1, 3
					-1.2		mA	2
		Vcc = 10V, Vih = 10V, Vil = 0V, Vout = 0			-8		mA	1, 3
					-5.6		mA	2
Iol	Logical "0" Output Current	Vcc = 5V, Vout = 5V, Vin = 5V			1.75		mA	1, 3
					1.2		mA	2
		Vcc = 10V, Vout = 10V, Vin = 10V			8		mA	1, 3
					5.6		mA	2
		Vcc = 4.5V, Vout = 0.4V, Vin = 4.5V			360		uA	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
Pd	Power Dissipation	Vcc = 15V	1			2.25	uW	1, 3
			1			225	uW	2

AC PARAMETERS:

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

AC: Cl = 50pF

tPHL	Propagation Delay Time	Vcc = 5V	3			180	nS	9
			3			250	nS	10
			3			145	nS	11
		Vcc = 10V	2			90	nS	9
			2			125	nS	10
			2			70	nS	11
tPLH	Propagation Delay Time	Vcc = 5V	3			180	nS	9
			3			250	nS	10
			3			145	nS	11
		Vcc = 10V	2			90	nS	9
			2			125	nS	10
			2			70	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.