

MNCD4070BM-X REV 0AL

 Original Creation Date: 10/12/95
 Last Update Date: 01/17/96
 Last Major Revision Date: 10/12/95

QUAD 2-INPUT EXCLUSIVE-OR GATE
Industry Part Number

CD4070BM

NS Part Numbers

 CD4070BMJ/883
 CD4070BMW/883

Prime Die

CD4070BM

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

Electrical Characteristics

DC PARAMETERS

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

DC: $V_{SS} = 0V$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
I _{dd}	Quiescent Device Current	V _{dd} = 5V				.25	uA	1, 3
						7.5	uA	2
		V _{dd} = 10V				.5	uA	1, 3
						15	uA	2
		V _{dd} = 15V	3			1	uA	1, 3
			3			30	uA	2
V _{ol}	Logical "0" Output Voltage	V _{dd} = 5V, I _{out} < 1uA				.05	V	1, 2, 3
		V _{dd} = 10V, I _{out} < 1uA				.05	V	1, 2, 3
		V _{dd} = 15V, I _{out} < 1uA				.05	V	1, 2, 3
V _{oh}	Logical "1" Output Voltage	V _{dd} = 5V, I _{out} < 1uA			4.95		V	1, 2, 3
		V _{dd} = 10V, I _{out} < 1uA			9.95		V	1, 2, 3
		V _{dd} = 15V, I _{out} < 1uA			14.95		V	1, 2, 3
V _{il}	Logical "0" Input Voltage	V _{dd} = 5V, V _{out} = 4.5V, I _{out} < 1uA	1			1.5	V	1, 2, 3
		V _{dd} = 10V, V _{out} = 9V, I _{out} < 1uA	1			3	V	1, 2, 3
		V _{dd} = 15V, V _{out} = 13.5V, I _{out} < 1uA	1			4	V	1, 2, 3
V _{ih}	Logical "1" Input Voltage	V _{dd} = 5V, V _{out} = .5V, I _{out} < 1uA	1		3.5		V	1, 2, 3
		V _{dd} = 10V, V _{out} = 1V, I _{out} < 1uA	1		7		V	1, 2, 3
		V _{dd} = 15V, V _{out} = 1.5V, I _{out} < 1uA	1		11		V	1, 2, 3

Electrical Characteristics

DC PARAMETERS (Continued)

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

DC: $V_{SS} = 0V$

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
I _{ol}	Logical "0" Output Current	V _{dd} = 5V, V _{out} = .4V			.51		mA	1
					.36		mA	2
					.64		mA	3
		V _{dd} = 10V, V _{out} = .5V			1.3		mA	1
					.9		mA	2
					1.6		mA	3
		V _{dd} = 15V, V _{out} = 1.5V	3		3.4		mA	1
			3		2.4		mA	2
			3		4.2		mA	3
I _{oh}	Logical "1" Output Current	V _{dd} = 5V, V _{out} = 4.6V			-.51		mA	1
					-.36		mA	2
					-.64		mA	3
		V _{dd} = 10V, V _{out} = 9.5V			-1.3		mA	1
					-.9		mA	2
					-1.6		mA	3
		V _{dd} = 15V, V _{out} = 13.5V	3		-3.4		mA	1
			3		-2.4		mA	2
			3		-4.2		mA	3
I _{in}	Input Current	V _{dd} = 15V, V _{in} = 0V or 15V				±.1	uA	1, 3
						±1	uA	2

DC PARAMETERS: RAD HARD STRESS TEST

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

DC: $V_{SS} = 0V$

I _{ih}	Input Leakage Current	V _{dd} = 15V, V _{Ih} = 15V				1000	nA	2
I _{il}	Input Leakage Current	V _{il} = 0V				-1000	nA	2
I _{cc}	Power Supply Current	V _{dd} = 15V, V _{Ih} = 15V				30	uA	2

Electrical Characteristics

AC PARAMETERS

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

AC: $V_{ss} = 0V$, t_r & $t_f \leq 20nS$, $C_l = 50pF$, $R_l = 200K$ or equivalent impedance provided by diode load.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tPHL	Propagation Delay Time:	Vdd = 5V	4			185	nS	9
			4			260	nS	10
			4			150	nS	11
		Vdd = 10V	2			90	nS	9
			2			125	nS	10
			2			70	nS	11
		Vdd = 15V	2			75	nS	9
			2			105	nS	10
			2			60	nS	11
tPLH	Propagation Delay Time:	Vdd = 5V	4			185	nS	9
			4			260	nS	10
			4			150	nS	11
		Vdd = 10V	2			90	nS	9
			2			125	nS	10
			2			70	nS	11
		Vdd = 15V	2			75	nS	9
			2			105	nS	10
			2			60	nS	11
tTHL	Transition Time	Vdd = 5V	4			200	nS	9
			4			280	nS	10
			4			160	nS	11
		Vdd = 10V	2			100	nS	9
			2			140	nS	10
			2			80	nS	11
		Vdd = 15V	2			80	nS	9
			2			110	nS	10
			2			65	nS	11

Electrical Characteristics

AC PARAMETERS (Continued)

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

AC: $V_{ss} = 0V$, t_r & $t_f \leq 20nS$, $C_l = 50pF$, $R_l = 200K$ or equivalent impedance provided by diode load.

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tTLH	Transition Time	Vdd = 5V	4			200	nS	9
			4			280	nS	10
			4			160	nS	11
		Vdd = 10V	2			100	nS	9
			2			140	nS	10
			2			80	nS	11
		Vdd = 15V	2			80	nS	9
			2			110	nS	10
			2			65	nS	11
Cin	Average Input Capacitance	Any Input	2			7.5	pF	9

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

Note 2: Guaranteed parameter not tested.

Note 3: Applies to Class "S" only, except 38510. Drift Limits at 25 C for $I_{dd} = \pm 3\mu A$, I_{ol} & $I_{oh} = \pm 15\%$. "THIS NOTE IS INVALID AND CURRENTLY BEING UPDATED. CONTACT FACTORY."

Note 4: Tested at 25 C; guaranteed but not tested at +125 C & -55 C.