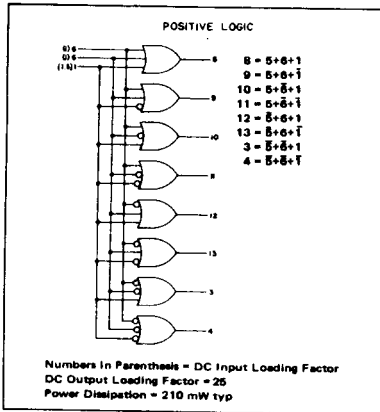


THREE-BIT BINARY TO ONE-OF-EIGHT LINE DECODER

MECL II MC1000/1200 series

MC1043

Advance Information

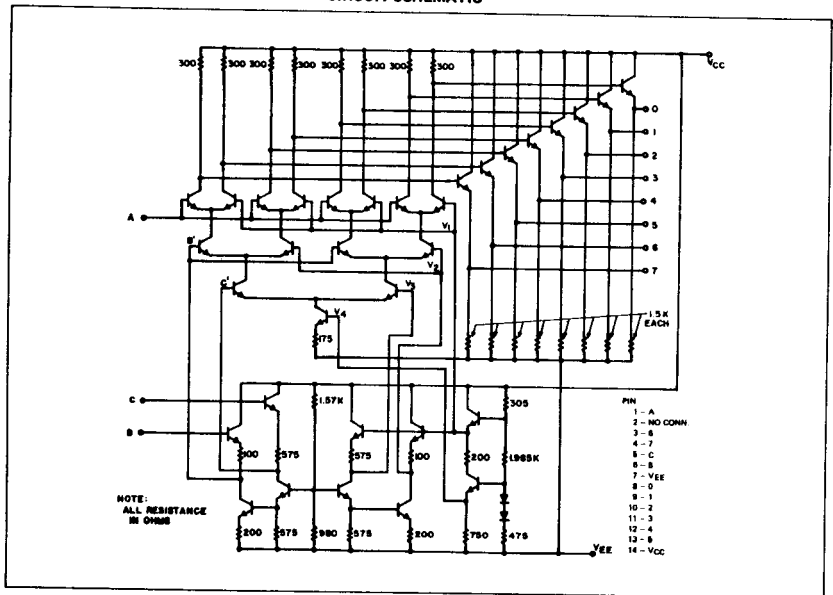


The MC1043 performs decoding of three-bit binary to one of eight line decimal output.

TRUTH TABLE

Inputs			Outputs							
C	B	A	0	1	2	3	4	5	6	7
5	6	1	8	9	10	11	12	13	3	4
0	0	0	1	1	1	1	1	1	1	1
0	0	1	0	1	1	1	1	1	1	1
0	1	0	1	0	1	1	1	1	1	1
0	1	1	1	1	0	1	1	1	1	1
1	0	0	1	1	1	1	0	1	1	1
1	0	1	1	1	1	1	0	1	1	1
1	1	0	1	1	1	1	1	1	0	1
1	1	1	1	1	1	1	1	1	1	0

CIRCUIT SCHEMATIC



261

MC1043 (continued)

ELECTRICAL CHARACTERISTICS ● 25°C				TEST VOLTAGE (Vdc) / CURRENT VALUE (mA)							
Characteristics	Symbol	Pin Under Test	Test Limits		Unit	VIL	VIH	VIL max.	VEE	VCC	IL
			min.	max.		-1.60	+0.50	+0.70	+2.40	and	+2.5
Power Supply Drain Current	IE	7	-	51	mAdc	1.5, 6	-	-	7	14	-
Input Current	Iin	6, 5	-	100	μAdc	1	-	6, 5	7	14	-
Input Leakage Current	IR	1, 5, 6	-	1.0	μAdc	-	1, 6	1	-	-	-
Logical "1" Output Voltage	*VOH	3, 4, 8 9, 10, 11 12, 13	-0.850	-0.700	Vdc	Apply Input Conditions per Truth Table		-	7	14	3, 4, 8 9, 10, 11, 13
Logical "0"	VOL	3, 4, 8 9, 10, 11 12, 13	-1.800	-1.500	Vdc			-	7	14	-

* Logical "1" limits apply from no load to full load (-2.5 mAdc)

Switching Speed (Fan-out = 15pF)	Symbol	Pin Under Test	AC Parameters (typical)	Unit	VIL	VIH	Pulse In	VEE	VCC	Pulse Out
					+1.2Vdc	+1.5Vdc				
Propagation Delay	t1-8-	1, 8	6.0	ns	5, 6	-	1	7	14	8
	t6-8-	6, 8	8.0		1, 5	-	6	-	-	-
	t5-8-	5, 8	11.0		1, 6	-	5	-	-	-
	t1+8+	1, 8	5.0		5, 6	-	1	-	-	-
	t6+8+	6, 8	6.5		1, 5	-	6	-	-	-
Rise Time	t8+	8	4.5		1, 6	-	5	-	-	-
	t8-	8	6.5		1, 6	-	5	-	-	-
Propagation Delay	t1+4-	1, 4	6.0		-	5, 6	1	-	-	4
	t6+4-	6, 4	7.0		-	1, 5	6	-	-	-
	t5+4-	5, 4	10.0		-	1, 6	5	-	-	-
	t1-4+	1, 4	4.5		-	5, 6	1	-	-	-
	t6-4+	6, 4	6.5		-	1, 5	6	-	-	-
Rise Time	t4+	4	6.0		-	1, 6	5	-	-	-
	t4-	4	7.5		-	1, 6	5	-	-	-

The MC1043 performs fast decoding of 3-bit binary to 8 line decimal. By taking advantage of the series gating techniques that are employed in Motorola's emitter coupled logic circuits, the MC1043 has very fast decoding time, typically 9 ns at 25°C. The selected output is at a logic "0" level while all other outputs are high or at a logic "1" level. The illustrated application shows the MC1043 being used to address the MC1036/MC1037 16-bit memory. The MC1010 quad two-input NOR gate is used to perform both inversion of the logic level and an available strobe function.

