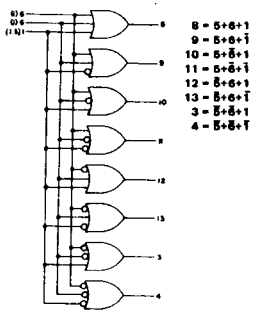
MC1043

Advance Information

POSITIVE LOGIC



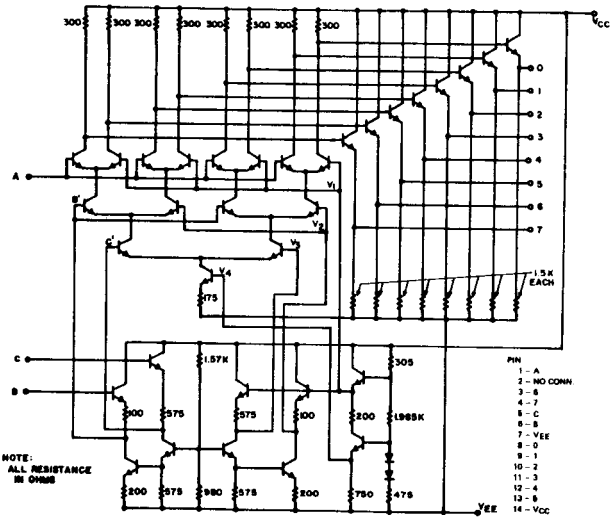
Numbers In Parenthesis = DC Input Loading Factor
DC Output Loading Factor = 25
Power Dissipation = 210 mW typ

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
Pin No.	5	6	1	8	9	10	11	12	13	3	4
	0	0	0	0	1	1	1	1	1	1	1
	0	0	1	1	0	1	1	1	1	1	1
	0	1	0	1	1	0	1	1	1	1	1
	0	1	1	1	1	1	0	1	1	1	1
	1	0	0	1	1	1	1	0	1	1	1
	1	0	1	1	1	1	1	1	0	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



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ELECTRICAL CHARACTERISTICS ● 25°C						TEST VOLTAGE (Vdc) / CURRENT VALUES (mAdc)					
Characteristics	Symbol	Pin Under Test	Test Limits min.	Test Limits max.	Unit	-1.300 VIL	-0.850 VIH	-0.700 VIH max.	-5.20 VEE	Gnd VCC	-2.5 IE
Power Supply Drain Current	IE	7	-	51	mAdc	1,5,6	-	-	7	14	-
Input Current	Iin	6,5 1	- -	100 150	µAdc µAdc	1	- 5,6	6,5 1	7	14	-
Input Leakage Current	IR	1,5,6		1.0	µAdc	-	-	-	1,5 6,7	14	-
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, 11,12,13
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 +1.2Vdc	VIH +1.2Vdc	Pulse In	VEE -4.0Vdc	VCC -1.2Vdc	Pulse Out
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			
	t5+8+	5,8	9.0		1,6		5			
Rise Time	t8+	8	4.5		1,6		5			
Fall Time	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			
	t5-4+	5,4	10.0			1,6	5			
Rise Time	t4+	4	6.0			1,6	5			
Fall Time	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.