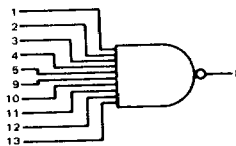
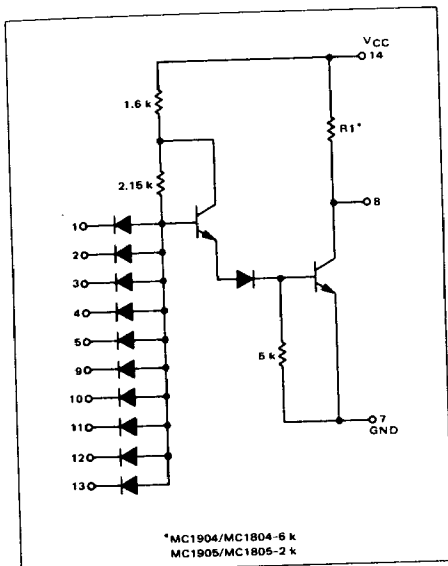


10-INPUT "NAND" GATE

MDTL MC930/830 series

MC1904F · MC1804F, P
MC1905F · MC1805F, P

This device is a 10-input NAND gate. It is useful when processing a large number of variables, such as in encoders or decoders.



Positive Logic: $B = \overline{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 9 \cdot 10 \cdot 11 \cdot 12 \cdot 13}$
Negative Logic: $B = \overline{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 9 \cdot 10 \cdot 11 \cdot 12 \cdot 13}$

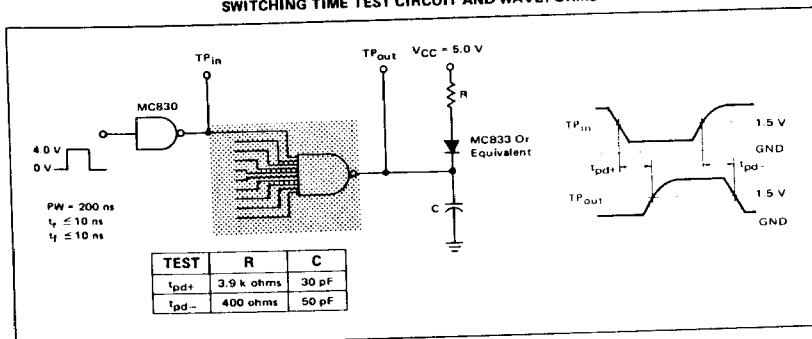
Input Loading Factor = 1

Output Loading Factor:
MC1904/MC1804 = 8
MC1905/MC1805 = 7

Total Power Dissipation:
MC1904/MC1804 = 11 mW typ/pkg
MC1905/MC1805 = 16.5 mW typ/pkg

Propagation Delay Time:
MC1904/MC1804 = 30 ns typ
MC1905/MC1805 = 25 ns typ

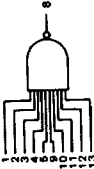
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



MC1904F/MC1804F, P, MC1905F/MC1805F, P (continued)

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one input of the gate. To complete testing, sequence through remaining inputs in the same manner.



② Test Temperature
 -55°C
 +25°C
 +125°C
 MC1904, MC1905
 MC1804, MC1805
 MC1904, MC1905, MC1804, MC1805
 MC1804, MC1805, MC1804, MC1805
 0°C
 +25°C
 +75°C
 MC1804, MC1805 Test Limits

Characteristic	Symbol	Pin Under Test	MC1904, MC1905 Test Limits						MC1804, MC1805 Test Limits						
			-55°C		+25°C		+125°C		0°C		+25°C		+75°C		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Unit
Output Voltage	V _{OL}	8	-	0.40	-	0.40	-	0.45	V _{dc}	-	0.45	-	0.50	-	V _{dc}
	V _{OH}	8	2.50	-	2.60	-	2.50	V _{dc}	2.60	-	2.60	-	2.50	-	V _{dc}
Short-Circuit Power Drain Current (Total Device)	I _{SC}	8	-1.34	-	-1.34	-	-1.50	mAdc	-1.30	-	-1.30	-	-1.25	-	mAdc
MC1904/MC1804		8	-4.00	-	-4.00	-	-3.80	mAdc	-3.90	-	-3.90	-	-3.75	-	mAdc
MC1905/MC1805		8	-	-	-	-	-	-	-	-	-	-	-	-	-
Reverse Current	I _R	1	-	2.0	-	5.0	μAdc	5.0	-	5.0	-	10	-	10	μAdc
Output Leakage Current	I _{CEX}	8	-	-	-	-	-	μAdc	-	-	-	-	100	-	μAdc
Forward Current	I _F	1	-1.40	-	-1.40	-	-1.50	mAdc	-1.40	-	-1.40	-	-1.30	-	mAdc
Power Drain Current (Total Device)	I _{PPH}	14	-	-	-	-	-	mAdc	-	-	-	-	4.0	-	mAdc
MC1904/MC1804		14	-	-	-	-	-	-	-	-	-	-	8.6	-	-
MC1905/MC1805		14	-	-	-	-	-	-	-	-	-	-	4.0	-	-
All Types	I _{max}	14	-	-	-	-	-	-	-	-	-	-	4.0	-	-
Switching Times	t _{pd+}	1,8	-	25	80	-	-	ns	-	-	25	80	-	-	ns
MC1904/MC1804	t _{pd-}	1,8	-	10	35	-	-	-	-	-	10	35	-	-	-
MC1905/MC1805	t _{pd+}	1,8	-	15	60	-	-	-	-	-	15	60	-	-	-
	t _{pd-}	1,8	-	10	35	-	-	-	-	-	10	35	-	-	-

Pin not listed are left open.

79

PRODUCT DOCUMENTATION

The three documents listed in the following table are required for a complete description of the DSP56301 and are necessary to design properly with the part. Documentation is available from one of the following locations (see back cover for detailed information):

- A local Motorola distributor
- A Motorola semiconductor sales office
- A Motorola Literature Distribution Center
- The World Wide Web (WWW)

See the **Additional Support** section of the *DSP56300 Family Manual* for detailed information on the multiple support options available to you.

Table 1 DSP56301 Documentation

Name	Description	Order Number
DSP56300 Family Manual	Detailed description of the DSP56300 family processor core and instruction set	DSP56300FM/AD
DSP56301 User's Manual	Detailed functional description of the DSP56301 memory configuration, operation, and register programming	DSP56301UM/AD
DSP56301 Technical Data	DSP56301 features list and physical, electrical, timing, and package specifications	DSP56301/D

