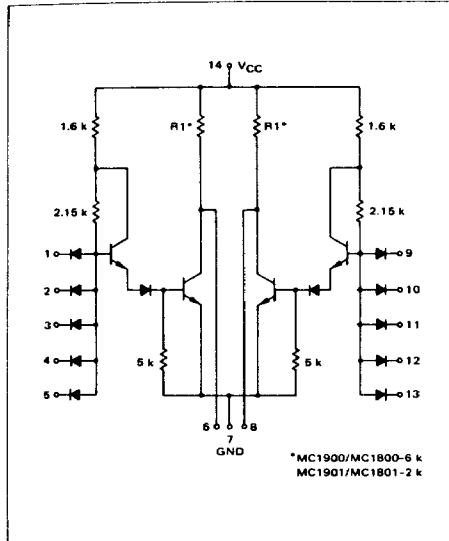


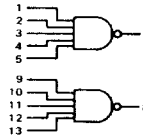
DUAL 5-INPUT "NAND" GATE

MDTL MC930/830 series

MC1900F · MC1800F, P  
MC1901F · MC1801F, P



This gate element, in the 14-pin flat and dual in-line packages, consists of two 5-input NAND gate circuits. The elements may be cross-coupled to form a bistable multivibrator, or the outputs may be connected in parallel to perform the logic "OR" function.



Positive Logic: 6 = 1·2·3·4·5

Negative Logic: 6 = 1+2+3+4+5

Input Loading Factor = 1

Output Loading Factor:

MC1900/MC1800 - 8

MC1901/MC1801 - 7

Total Power Dissipation:

MC1900/MC1800 = 22 mW typ/pkg

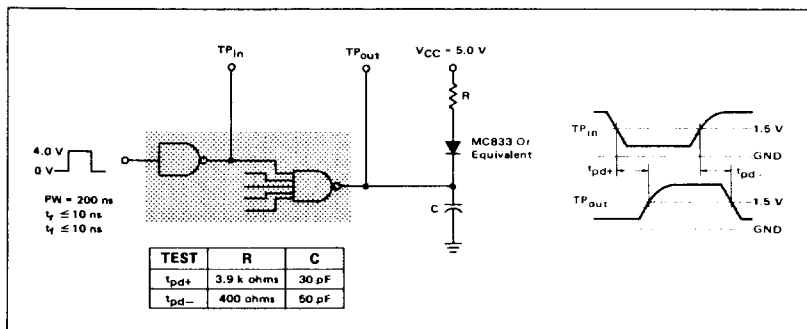
MC1901/MC1801 = 33 mW typ/pkg

Propagation Delay Time:

MC1900/MC1800 = 30 ns typ

MC1901/MC1801 = 25 ns typ

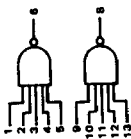
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



MC1900F/MC1800F, P, MC1901F/MC1801F, P (continued)

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The other gates in tested in the same manner.



Characteristic	Symbol	MC1900, MC1800 Test Limits										MC1901, MC1801 Test Limits										MC1900, MC1800 Test Limits										MC1901, MC1801 Test Limits									
		-55°C		+25°C		+125°C		0°C		+25°C		+75°C		-55°C		+25°C		+125°C		0°C		+25°C		+75°C		-55°C		+25°C		+125°C		0°C		+25°C		+75°C					
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max								
Output Voltage	V <sub>OL</sub>	0	0.40	0.40	0.40	0.45	V <sub>CC</sub>	0.45	0.45	0.45	0.50	V <sub>CC</sub>	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45							
	V <sub>OH</sub>	2.50	2.60	2.60	3.50	3.50	V <sub>CC</sub>	2.60	2.60	2.60	2.50	V <sub>CC</sub>	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60							
Short-Circuit Current	I <sub>SC</sub>	0	-1.34	-1.34	-4.00	-4.00	-1.30 mAdc	-1.30	-1.30	-1.30	-1.25 mAdc	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25	-1.25							
Reverse Current	I <sub>R</sub>	1	2.0	2.0	5.0	5.0	5.0 μAde	5.0	5.0	5.0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10						
Output Leakage Current	I <sub>CEK</sub>	6	-	-	50	50	μAde	100	100	100	μAde	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					
Forward Current	I <sub>F</sub>	1	-1.60	-1.60	-1.90	-1.90	mAde	-1.60	-1.60	-1.60	-1.30	mAde	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60	-1.60					
Power Drain Current	I <sub>PDH</sub>	14	-	-	6.5	6.5	mAde	6.0	6.0	6.0	mAde	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0					
	I <sub>PDH</sub>	14	-	-	10.7	10.7	mAde	10.1	10.1	10.1	mAde	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1					
	I <sub>PDH</sub>	14	-	-	5.5	5.5	mAde	5.0	5.0	5.0	mAde	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0						
All Types	I <sub>max</sub>	14	-	-	5.5	5.5	mAde	5.0	5.0	5.0	mAde	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0						
Switching Times	t <sub>pd+</sub>	1,6	-	-	25	25	ns	25	25	25	ns	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25					
	t <sub>pd-</sub>	1,6	-	-	10	10	ns	10	10	10	ns	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10					
	t <sub>pd-</sub>	1,6	-	-	15	15	ns	15	15	15	ns	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15					
	t <sub>pd-</sub>	1,6	-	-	10	10	ns	10	10	10	ns	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10					

Pin not listed are left open.

75

## 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

