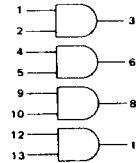
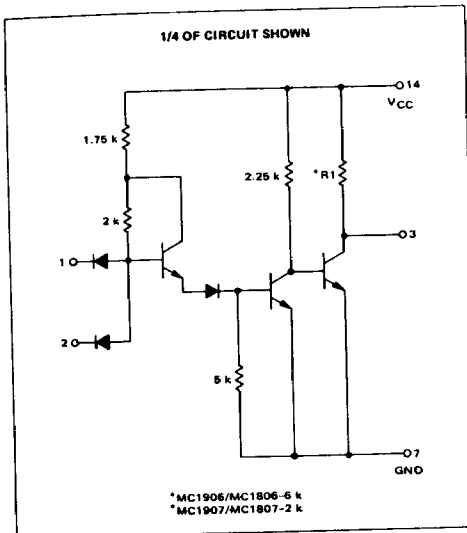


MDTL MC930/830 series

QUAD 2-INPUT "AND" GATE

MC1906F • MC1806F,P  
MC1907F • MC1807F,P

This device consists of four 2-input gates, each performing the logical AND function. Added logic flexibility provided by this device helps to optimize system designs.



Positive Logic: 3 = 1 + 2  
Negative Logic: 3 = 1 + 2

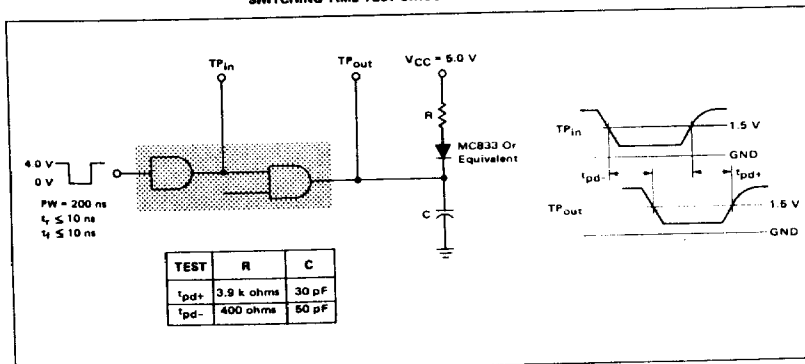
Input Loading Factor = 1  
Output Loading Factor:  
MC1906, MC1806 = 8  
MC1907, MC1807 = 7

Total Power Dissipation:

	MC1906 MC1806	MC1907 MC1807
Inputs Low	75 mW	100 mW
Inputs High	70 mW	70 mW
50% Duty Cycle	72 mW	86 mW

Propagation Delay Time  
MC1906/MC1806 = 35 ns typ  
MC1907/MC1807 = 30 ns typ

SWITCHING TIME TEST CIRCUIT AND WAVEFORMS

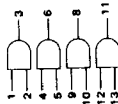


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MC1906F/MC1806F, P, MC1907F/MC1807F, P (continued)

ELECTRICAL CHARACTERISTICS

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



Pin 1: 3  
Pin 2: 3  
Pin 3: 3  
Pin 4: 6  
Pin 5: 6  
Pin 6: 8  
Pin 7: 8  
Pin 8: 8  
Pin 9: 8  
Pin 10: 8  
Pin 11: 8  
Pin 12: 8  
Pin 13: 8

Characteristic	Symbol	Pin Under Test	TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW:												TEST VOLTAGE / CURRENT VALUES											
			-55°C				+25°C				+125°C				0°C				+25°C				+125°C			
			Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit
Output Voltage	V <sub>OL</sub>	3	0.40	0.40	0.45	0.45	0.45	0.45	Vdc	2.80	2.80	2.90	2.80	2.80	2.90	↓	2.80	2.80	2.90	2.80	2.80	2.90	2.80	2.80	2.90	
Output Voltage	V <sub>OH</sub>	3	2.90	2.80	2.50	2.50	2.50	2.50	↑	2.80	2.80	2.90	2.80	2.80	2.90	↑	2.80	2.80	2.90	2.80	2.80	2.90	2.80	2.80	2.90	
Short-Circuit Output Current	I <sub>SC</sub>	3	-1.34	-1.34	-1.30	-1.30	-1.30	-1.30	mA/dc	-1.20	-1.20	-1.25	-1.20	-1.20	-1.25	mA/dc	-1.20	-1.20	-1.25	-1.20	-1.20	-1.25	-1.20	-1.20	-1.25	
Reverse Current	I <sub>R</sub>	1	2.0	2.0	3.0	3.0	3.0	3.0	μA/dc	5.0	5.0	10	5.0	5.0	10	μA/dc	5.0	5.0	10	5.0	5.0	10	5.0	5.0	10	
Output Leakage Current	I <sub>CEX</sub>	3	-	-	50	50	50	50	μA/dc	-	-	100	-	-	100	μA/dc	-	-	100	-	-	100	-	-	100	
Forward Current	I <sub>F</sub>	1	-1.60	-1.60	-1.50	-1.50	-1.50	-1.50	mA/dc	-1.40	-1.40	-1.40	-1.40	-1.40	-1.40	mA/dc	-1.40	-1.40	-1.40	-1.40	-1.40	-1.40	-1.40	-1.40	-1.40	
Power Drain Current	I <sub>PD</sub>	14	-	-	19.5	19.5	19.5	19.5	mA/dc	-	-	23	-	-	23	mA/dc	-	-	23	-	-	23	-	-	23	
Power Drain Current	I <sub>PD</sub>	14	-	-	29.0	29.0	29.0	29.0	mA/dc	-	-	31	-	-	31	mA/dc	-	-	31	-	-	31	-	-	31	
All Types	I <sub>PD</sub>	14	-	-	34	34	34	34	mA/dc	-	-	39	-	-	39	mA/dc	-	-	39	-	-	39	-	-	39	
Switching Times	t <sub>pd</sub>	1,3	-	25	80	80	80	80	ns	-	-	25	80	80	80	ns	-	-	25	80	80	80	80	80	80	
Switching Times	t <sub>pd</sub>	1,3	-	15	65	65	65	65	ns	-	-	15	65	65	65	ns	-	-	15	65	65	65	65	65	65	
Switching Times	t <sub>pd</sub>	1,3	-	15	65	65	65	65	ns	-	-	15	65	65	65	ns	-	-	15	65	65	65	65	65	65	
Switching Times	t <sub>pd</sub>	1,3	-	15	65	65	65	65	ns	-	-	15	65	65	65	ns	-	-	15	65	65	65	65	65	65	

Pin not listed are left open.

## 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

