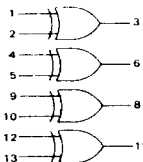
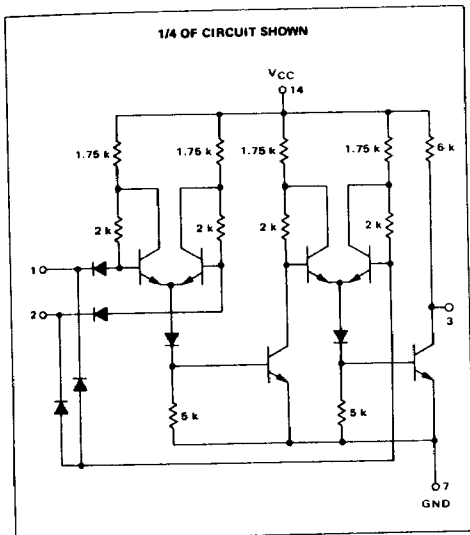


QUAD 2-INPUT  
EXCLUSIVE "OR" GATE

MDTL MC930/830 series

MC1912F • MC1812F,P

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



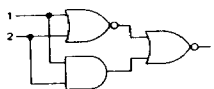
Positive Logic:  $3 = 1 \oplus 2 + \bar{1} \oplus 2$

Input Loading Factor = 2  
Output Loading Factor = 8  
Total Power Dissipation:

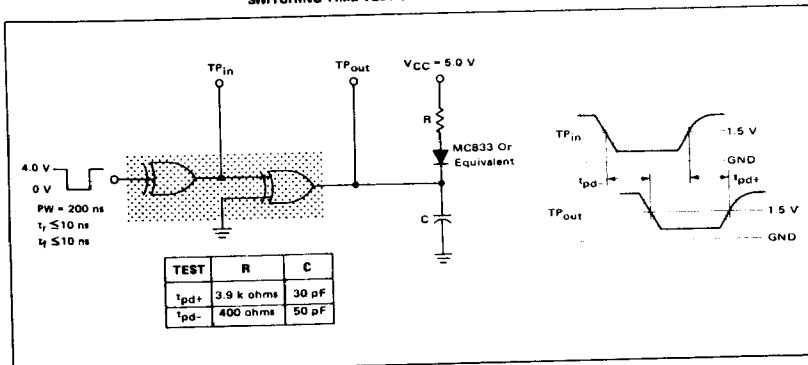
MC1912/MC1812	
Both Inputs High	115 mW
Both Inputs Low	130 mW
One Low One High	95 mW

Propagation Delay Time = 40 ns typ

LOGIC DIAGRAM  
1/4 OF DEVICE SHOWN



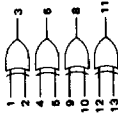
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



MC1912F/MC1812F, P (continued)

ELECTRICAL CHARACTERISTICS

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



Characteristic	Symbol	Pin Under Test	TEST VOLTAGE / CURRENT VALUES												Grid	
			mA													
			Volts													
			$I_{OL}$	$I_{OH}$	$V_{OL}$	$V_{OH}$	$V_{IH}$	$V_{IL}$	$V_{PO}$	$V_F$	$V_{CEX}$	$V_{CC}$	$V_{CD}$	$V_{CCH}$		
Output Voltage	$V_{OL}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Output Voltage	$V_{OH}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Short-Circuit Current	$I_{SC}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Reverse Current	$I_{R}$	2	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Output Leakage Current	$I_{CEX}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Forward Current	$I_F$	2	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Power Drain Current (Total Device)	$I_{PDB}$	14	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Switching Times	$t_{pL}$	1,3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Switching Times	$t_{pH}$	1,3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		

TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW:

Characteristic	Symbol	Pin Under Test	TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW:												Grid	
			$I_{OL}$	$I_{OH}$	$V_{OL}$	$V_{OH}$	$V_{IH}$	$V_{IL}$	$V_{PO}$	$V_F$	$V_{CEX}$	$V_{CC}$	$V_{CD}$	$V_{CCH}$		
Output Voltage	$V_{OL}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Output Voltage	$V_{OH}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Short-Circuit Current	$I_{SC}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Reverse Current	$I_{R}$	2	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Output Leakage Current	$I_{CEX}$	3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Forward Current	$I_F$	2	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Power Drain Current (Total Device)	$I_{PDB}$	14	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Switching Times	$t_{pL}$	1,3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
Switching Times	$t_{pH}$	1,3	-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		14	7
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		

*Handwritten notes:*  
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*Handwritten mark:* 87

## 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

