

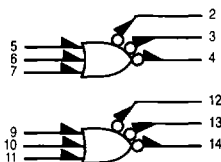
# Dual 3-Input/3-Output NOR Gate

The MC10211 is designed to drive up to six transmission lines simultaneously. The multiple outputs of this device also allow the wire "OR"-ing of several levels of gating for minimization of gate and package count.

The ability to control three parallel lines with minimum propagation delay from a single point makes the MC10211 particularly useful in clock distribution applications where minimum clock skew is desired.

$P_D = 160 \text{ mW typ/pkg (No Loads)}$   
 $t_{pd} = 1.5 \text{ ns typ (All Output Loaded)}$   
 $t_r, t_f = 1.5 \text{ ns typ (20\%–80\%)}$

### LOGIC DIAGRAM



$V_{CC1} = \text{PIN 1, 15}$   
 $V_{CC2} = \text{PIN 16}$   
 $V_{EE} = \text{PIN 8}$

## MC10211



**L SUFFIX**  
CERAMIC PACKAGE  
CASE 620-10

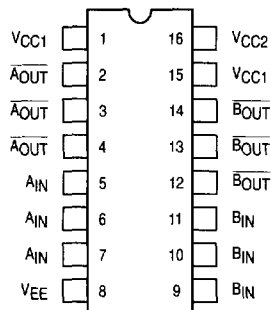


**P SUFFIX**  
PLASTIC PACKAGE  
CASE 648-08



**FN SUFFIX**  
PLCC  
CASE 775-02

### DIP PIN ASSIGNMENT



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Pin assignment is for Dual-in-Line Package.  
For PLCC pin assignment, see the Pin Conversion Tables on page 6-11.



**ELECTRICAL CHARACTERISTICS**

Characteristic	Symbol	Pin Under Test	Test Limits						Unit	
			-30°C		+25°C		+85°C			
			Min	Max	Min	Typ	Max	Min		Max
Power Supply Drain Current	I <sub>E</sub>	8		42		30	38		42	mAdc
Input Current	I <sub>inH</sub>	5, 6, 7		650			410		410	μAdc
	I <sub>inL</sub>	5, 6, 7	0.5		0.5			0.3		μAdc
Output Voltage Logic 1	V <sub>OH</sub>	2	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	Vdc
		3	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	
		4	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	
Output Voltage Logic 0	V <sub>OL</sub>	2	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	Vdc
		3	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	
		4	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	
Threshold Voltage Logic 1	V <sub>OHA</sub>	2	-1.080		-0.980			-0.910		Vdc
		3	-1.080		-0.980			-0.910		
		4	-1.080		-0.980			-0.910		
Threshold Voltage Logic 0	V <sub>OLA</sub>	2		-1.655			-1.630		-1.595	Vdc
		3		-1.655			-1.630		-1.595	
		4		-1.655			-1.630		-1.595	
Switching Times (50Ω Load)										ns
Propagation Delay	t <sub>5+2-</sub> t <sub>5-2+</sub> t <sub>5+3-</sub> t <sub>5-3+</sub> t <sub>5+4-</sub> t <sub>5-4+</sub>	2	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		2	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		3	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		3	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		4	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		4	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
Rise Time (20 to 80%)	t <sub>2+</sub> t <sub>3+</sub> t <sub>4+</sub>	2	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		3	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		4	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
Fall Time (20 to 80%)	t <sub>2-</sub> t <sub>3-</sub> t <sub>4-</sub>	2	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		3	1.0	2.6	1.0	1.5	2.5	1.0	2.8	
		4	1.0	2.6	1.0	1.5	2.5	1.0	2.8	

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## ELECTRICAL CHARACTERISTICS (continued)

② Test Temperature			TEST VOLTAGE VALUES (Volts)					(V <sub>CC</sub> ) Gnd
			V <sub>IHmax</sub>	V <sub>ILmin</sub>	V <sub>IHAmin</sub>	V <sub>ILAmax</sub>	V <sub>EE</sub>	
-30°C			-0.890	-1.890	-1.205	-1.500	-5.2	
+25°C			-0.810	-1.850	-1.105	-1.475	-5.2	
+85°C			-0.700	-1.825	-1.035	-1.440	-5.2	
Characteristic	Symbol	Pin Under Test	TEST VOLTAGE APPLIED TO PINS LISTED BELOW					
			V <sub>IHmax</sub>	V <sub>ILmin</sub>	V <sub>IHAmin</sub>	V <sub>ILAmax</sub>	V <sub>EE</sub>	
Power Supply Drain Current	I <sub>E</sub>	8					8	1, 15, 16
Input Current	I <sub>inH</sub>	5, 6, 7	*				8	1, 15, 16
	I <sub>inL</sub>	5, 6, 7		*			8	1, 15, 16
Output Voltage Logic 1	V <sub>OH</sub>	2					8	1, 15, 16
		3					8	1, 15, 16
		4					8	1, 15, 16
Output Voltage Logic 0	V <sub>OL</sub>	2	5				8	1, 15, 16
		3	6				8	1, 15, 16
		4	7				8	1, 15, 16
Threshold Voltage Logic 1	V <sub>OHA</sub>	2				5	8	1, 15, 16
		3				6	8	1, 15, 16
		4				7	8	1, 15, 16
Threshold Voltage Logic 0	V <sub>OLA</sub>	2			5		8	1, 15, 16
		3			6		8	1, 15, 16
		4			7		8	1, 15, 16
Switching Times (50Ω Load)					Pulse In	Pulse Out	-3.2 V	+2.0 V
Propagation Delay	t <sub>5+2-</sub>	2			5	2	8	1, 15, 16
	t <sub>5-2+</sub>	2			5	2	8	1, 15, 16
	t <sub>5+3-</sub>	3			5	3	8	1, 15, 16
	t <sub>5-3+</sub>	3			5	3	8	1, 15, 16
	t <sub>5+4-</sub>	4			5	4	8	1, 15, 16
	t <sub>5-4+</sub>	4			5	4	8	1, 15, 16
Rise Time (20 to 80%)	t <sub>2+</sub>	2			5	2	8	1, 15, 16
	t <sub>3+</sub>	3			5	3	8	1, 15, 16
	t <sub>4+</sub>	4			5	4	8	1, 15, 16
Fall Time (20 to 80%)	t <sub>2-</sub>	2			5	2	8	1, 15, 16
	t <sub>3-</sub>	3			5	3	8	1, 15, 16
	t <sub>4-</sub>	4			5	4	8	1, 15, 16

\* Individually test each input using the pin connections shown.

Each MECL 10,000 series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 50-ohm resistor to -2.0 volts. Test procedures are shown for only one gate. The other gates are tested in the same manner.

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