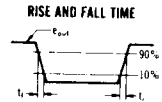
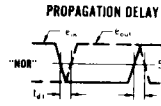
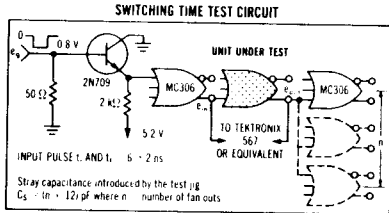
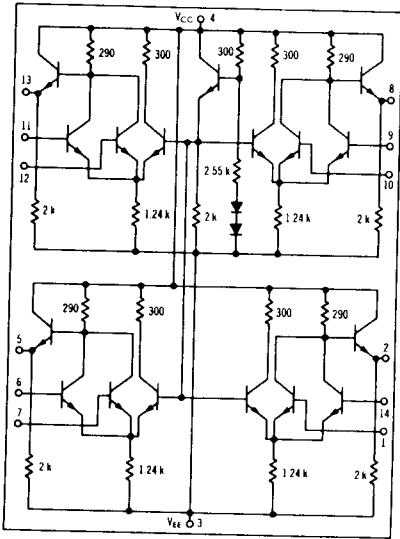
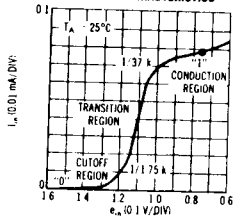


MC313F

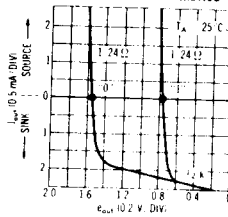
Quad 2-input gate that provides the positive logic "NOR" function, and features an internal bias driver.



TYPICAL INPUT CHARACTERISTICS



TYPICAL OUTPUT CHARACTERISTICS



MC313F (continued)

ELECTRICAL CHARACTERISTICS

Characteristic	Test Conditions				dV_{in}	I_L	Ground	Symbol Pin No ()	Test Limits						Unit
	$V_{CC} = 1\%$								-55°C		+25°C		+125°C		
	V_{in} Pin No	V_{max} Pin No	V_L Pin No	V_{EE} Pin No					Min	Max	Min	Max	Min	Max	
Power Supply Brake Current	---	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$I_{s(1)}$	---	31.0	---	30.0	29.0	mADC	
Input Current	1	---	---	3,6,7,9,10,11,12,14	---	---	---	$I_{i(1)}$	---	---	---	---	---	---	
	6	---	---	1,3,7,9,10,11,12,14	---	---	---	$I_{i(6)}$	---	---	---	---	---	---	
	7	---	---	1,3,6,9,10,11,12,14	---	---	---	$I_{i(7)}$	---	---	---	---	---	---	
	9	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$I_{i(9)}$	---	---	---	---	---	---	
	10	---	---	1,3,6,7,9,11,12,14	---	---	---	$I_{i(10)}$	---	---	---	---	---	---	
	11	---	---	1,3,6,7,9,10,12,14	---	---	---	$I_{i(11)}$	---	---	---	---	---	---	
	12	---	---	1,3,6,7,9,10,11,14	---	---	---	$I_{i(12)}$	---	---	---	---	---	---	
14	---	---	1,3,6,7,9,10,11,12	---	---	---	$I_{i(14)}$	---	---	---	---	---	---		
"NOR" Logical "1" Output Voltage	---	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$V_{o(1)}$	---	---	---	---	---	---	
	---	---	---	6,1,3,7,9,10,11,12,14	---	---	---	$V_{o(6)}$	-0.825	-0.945	0.690	0.795	-0.525	-0.655	V _{CC}
	---	---	---	7,1,3,6,9,10,11,12,14	---	---	---	$V_{o(7)}$	---	---	---	---	---	---	
	---	---	---	9,1,3,6,7,10,11,12,14	---	---	---	$V_{o(9)}$	---	---	---	---	---	---	
	---	---	---	10,1,3,6,7,9,11,12,14	---	---	---	$V_{o(10)}$	---	---	---	---	---	---	
	---	---	---	11,1,3,6,7,9,10,12,14	---	---	---	$V_{o(11)}$	---	---	---	---	---	---	
	---	---	---	12,1,3,6,7,9,10,11,14	---	---	---	$V_{o(12)}$	---	---	---	---	---	---	
	---	---	---	14,1,3,6,7,9,10,11,12	---	---	---	$V_{o(14)}$	---	---	---	---	---	---	
	---	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$V_{o(1)}$	---	---	---	---	---	---	
	---	---	---	6,1,3,7,9,10,11,12,14	---	---	---	$V_{o(6)}$	---	---	---	---	---	---	
	---	---	---	7,1,3,6,9,10,11,12,14	---	---	---	$V_{o(7)}$	---	---	---	---	---	---	
	---	---	---	9,1,3,6,7,10,11,12,14	---	---	---	$V_{o(9)}$	---	---	---	---	---	---	
	---	---	---	10,1,3,6,7,9,11,12,14	---	---	---	$V_{o(10)}$	---	---	---	---	---	---	
	---	---	---	11,1,3,6,7,9,10,12,14	---	---	---	$V_{o(11)}$	---	---	---	---	---	---	
---	---	---	12,1,3,6,7,9,10,11,14	---	---	---	$V_{o(12)}$	---	---	---	---	---	---		
---	---	---	14,1,3,6,7,9,10,11,12	---	---	---	$V_{o(14)}$	---	---	---	---	---	---		
"NOR" Logical "0" Output Voltage	---	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$V_{o(1)}$	---	---	---	---	---	V _{CC}	
	---	---	---	6,1,3,7,9,10,11,12,14	---	---	---	$V_{o(6)}$	---	---	---	---	---	---	
	---	---	---	7,1,3,6,9,10,11,12,14	---	---	---	$V_{o(7)}$	---	---	---	---	---	---	
	---	---	---	9,1,3,6,7,10,11,12,14	---	---	---	$V_{o(9)}$	---	---	---	---	---	---	
	---	---	---	10,1,3,6,7,9,11,12,14	---	---	---	$V_{o(10)}$	---	---	---	---	---	---	
"NOR" Output Voltage Change (No load to full load)	---	---	---	1,3,6,7,9,10,11,12,14	---	2⊙	---	$\Delta V_{o(1)}$	---	-0.055	---	-0.055	---	Volts	
	---	---	---	6,1,3,7,9,10,11,12,14	---	8⊙	---	$\Delta V_{o(6)}$	---	---	---	---	---	---	
	---	---	---	7,1,3,6,9,10,11,12,14	---	8⊙	---	$\Delta V_{o(7)}$	---	---	---	---	---	---	
	---	---	---	9,1,3,6,7,10,11,12,14	---	13⊙	---	$\Delta V_{o(9)}$	---	---	---	---	---	---	
	---	---	---	10,1,3,6,7,9,11,12,14	---	13⊙	---	$\Delta V_{o(10)}$	---	---	---	---	---	---	
"NOR" Staircase Output Voltage	---	---	---	1,3,6,7,9,10,11,12,14	---	1⊙	---	$V_{o(1)}$	---	---	---	---	---	V _{CC}	
	---	---	---	6,1,3,7,9,10,11,12,14	---	7⊙	---	$V_{o(6)}$	---	-0.40	---	-0.55	---	---	
	---	---	---	7,1,3,6,9,10,11,12,14	---	10⊙	---	$V_{o(7)}$	---	---	---	---	---	---	
	---	---	---	9,1,3,6,7,10,11,12,14	---	12⊙	---	$V_{o(9)}$	---	---	---	---	---	---	
	---	---	---	10,1,3,6,7,9,11,12,14	---	12⊙	---	$V_{o(10)}$	---	---	---	---	---	---	
Switching Time	Pulse	Pulse	---	3,6,7,9,10,11,12,14	---	---	---	$t_{s(1)}$	Typ	Max	Typ	Max	Typ	Max	ns
	t_r	t_f	---	3,6,7,9,10,11,12,14	---	---	---	$t_{s(6)}$	8.5	11.0	8.5	11.0	8.0	14.5	---
Propagation Delay Time	---	---	---	1,3,7,9,10,11,12,14	---	---	---	$t_{p(1)}$	---	---	---	---	---	---	
	---	---	---	1,3,6,7,9,10,12,14	---	---	---	$t_{p(13)}$	---	---	---	---	---	---	
Rise Time	---	---	---	3,6,7,9,10,11,12,14	---	---	---	$t_r(1)$	---	---	---	---	---	---	
	---	---	---	1,3,7,9,10,11,12,14	---	---	---	$t_r(5)$	---	---	---	---	---	---	
Fall Time	---	---	---	1,3,6,7,9,10,11,12,14	---	---	---	$t_f(1)$	---	---	---	---	---	---	
	---	---	---	1,3,6,7,9,10,12,14	---	---	---	$t_f(13)$	---	---	---	---	---	---	

Pins not listed are left open. ⊙ Input voltage is adjusted to obtain $dV_{in}/dV_{in} = 0$. ⊙ Current test conditions: no load = 0, full load = -2.5 mADC ± 5%.

SWITCHING CHARACTERISTICS (10% to 90% distribution)

