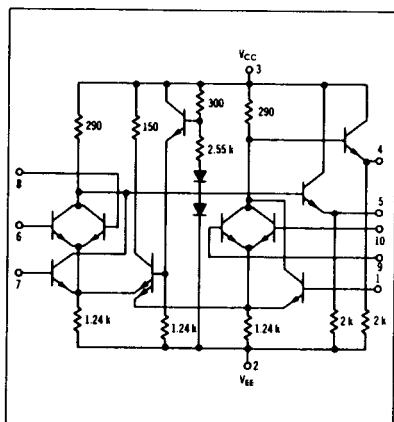


DUAL 3-INPUT GATE

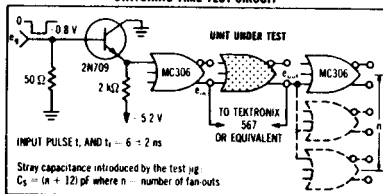
MECL MC300 series

MC312A

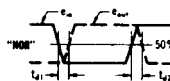
Dual 3-input gate that provides the positive logic "NOR" function, and features an internal bias driver. This gate is available without bias driver as MC312.



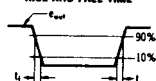
SWITCHING TIME TEST CIRCUIT



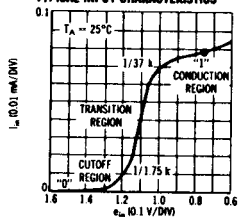
PROPAGATION DELAY



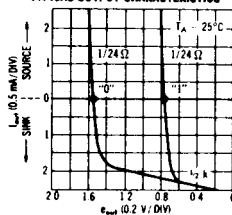
RISE AND FALL TIME



TYPICAL INPUT CHARACTERISTICS



TYPICAL OUTPUT CHARACTERISTICS



MC312A (continued)

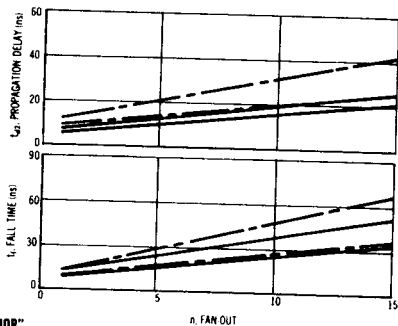
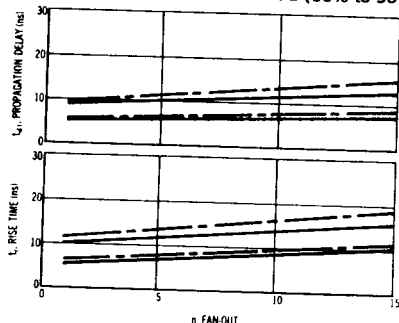
ELECTRICAL CHARACTERISTICS

Characteristic		Test Conditions					ΔV_{OL}	I_L	Ground	Symbol	Test Limits						Unit
		$V_{CC} = 1^*$									V_{OH}						
		V_{CC} Pin No.	V_{EE} Pin No.	V_L Pin No.	V_{OL} Pin No.	V_{OH} Pin No.					-55°C		+25°C		+125°C		
Power Supply Drain Current		—	—	—	—	1.2, 6.7, 8, 9, 10	—	—	3	I_{SD} (2)	—	17.7	—	17.0	—	16.4	mA
Input Current		1	—	—	—	2.6, 7.8, 9, 10	—	—	3	I_{IH} (1)	—	—	—	—	—	—	μA
		6	—	—	—	1.2, 7.8, 9, 10	—	—	3	I_{IH} (6)	—	—	—	100	—	—	μA
		7	—	—	—	1.2, 6.8, 9, 10	—	—	3	I_{IH} (7)	—	—	—	—	—	—	μA
		8	—	—	—	1.2, 6.7, 9, 10	—	—	3	I_{IH} (8)	—	—	—	—	—	—	μA
		9	—	—	—	1.2, 6.7, 8, 10	—	—	3	I_{IH} (9)	—	—	—	—	—	—	μA
		10	—	—	—	1.2, 6.7, 8, 9	—	—	3	I_{IH} (10)	—	—	—	—	—	—	μA
"NOR" Logical "1" Output Voltage		—	—	6	—	1.2, 7.8, 9, 10	—	—	3	V_{OL} (5)	-0.825	-0.945	-0.690	-0.795	-0.525	-0.655	V
		—	—	7	—	1.2, 6.8, 9, 10	—	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	—	8	—	1.2, 6.7, 9, 10	—	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	—	1	—	2.6, 7.8, 9, 10	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
		—	—	9	—	1.2, 6.7, 8, 10	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
		—	—	10	—	1.2, 6.7, 8, 9	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
"NOR" Logical "0" Output Voltage		—	6	—	—	1.2, 7.8, 9, 10	—	—	3	V_{OL} (5)	-1.560	-1.850	-1.465	-1.750	-1.340	-1.675	V
		—	7	—	—	1.2, 6.8, 9, 10	—	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	8	—	—	1.2, 6.7, 9, 10	—	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	1	—	—	2.6, 7.8, 9, 10	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
		—	9	—	—	1.2, 6.7, 8, 10	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
		—	10	—	—	1.2, 6.7, 8, 9	—	—	3	V_{OL} (4)	—	—	—	—	—	—	V
"NOR" Output Voltage Change		—	—	6	—	1.2, 7.8, 9, 10	—	50	3	ΔV_{OL} (5)	—	-0.055	—	-0.055	—	-0.060	Volts
		—	—	7	—	2.6, 7.8, 9, 10	—	40	3	ΔV_{OL} (4)	—	-0.055	—	-0.055	—	-0.060	Volts
		—	—	8	—	1.2, 7.8, 9, 10	40	—	3	V_{OL} (5)	—	-0.40	—	-0.55	—	-0.68	V
		—	—	1	—	1.2, 6.8, 9, 10	70	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	—	9	—	1.2, 6.7, 9, 10	80	—	3	V_{OL} (5)	—	—	—	—	—	—	V
		—	—	10	—	2.6, 7.8, 9, 10	100	—	3	V_{OL} (4)	—	—	—	—	—	V	
		—	—	—	—	1.2, 6.7, 8, 10	100	—	3	V_{OL} (4)	—	—	—	—	—	—	V
		—	—	—	—	1.2, 6.7, 8, 9	100	—	3	V_{OL} (4)	—	—	—	—	—	—	V
Switching Times		Pulse In	Pulse Out	—	—	—	—	—	—	Typ	Max	Typ	Max	Typ	Max	ns	
Propagation Delay Time		6	5	—	—	1.2, 7.8, 9, 10	—	—	3	t_{PL} (5)	6.5	10.5	6.5	10.5	7.5	11.5	ns
		1	4	—	—	2.6, 7.8, 9, 10	—	—	3	t_{PL} (4)	6.5	10.5	6.5	10.5	7.5	11.5	ns
		6	5	—	—	1.2, 7.8, 9, 10	—	—	3	t_{HL} (5)	8.5	11.5	8.5	11.5	10.0	15.0	ns
		1	4	—	—	2.6, 7.8, 9, 10	—	—	3	t_{HL} (4)	8.5	11.5	8.5	11.5	10.0	15.0	ns
		6	5	—	—	1.2, 7.8, 9, 10	—	—	3	t_{FL} (5)	9.0	12.5	9.5	12.5	11.5	15.5	ns
		1	4	—	—	2.6, 7.8, 9, 10	—	—	3	t_{FL} (4)	9.0	12.5	9.5	12.5	11.5	15.5	ns
Rise Time		6	5	—	—	1.2, 7.8, 9, 10	—	—	3	t_r (5)	8.5	14.0	9.0	14.0	11.5	17.0	ns
		1	4	—	—	2.6, 7.8, 9, 10	—	—	3	t_r (4)	8.5	14.0	9.0	14.0	11.5	17.0	ns
Fall Time		6	5	—	—	1.2, 7.8, 9, 10	—	—	3	t_f (5)	8.5	14.0	9.0	14.0	11.5	17.0	ns
		1	4	—	—	2.6, 7.8, 9, 10	—	—	3	t_f (4)	8.5	14.0	9.0	14.0	11.5	17.0	ns
Pins not listed are left open.																	
* Ambient temperature.																	

Pins not listed are left open.

① Input voltage is adjusted to obtain $dV_{OL}/dV_{OL} = 0$. ② Current test conditions: no load = 0; full load = -2.5 mA; $\pm 5\%$.

SWITCHING CHARACTERISTICS (10% to 90% distribution)



"NOR"

— -55°C and +25°C
 --- +125°C