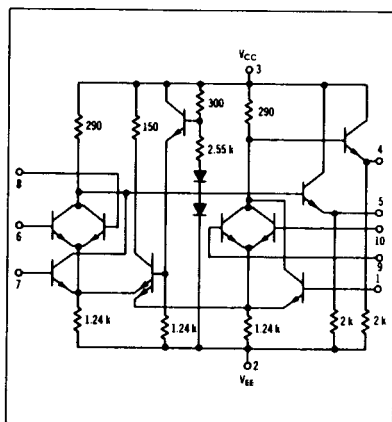


DUAL 3-INPUT GATE

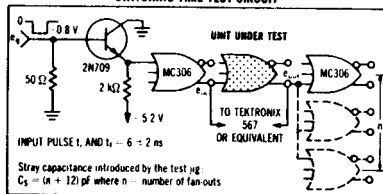
MECL MC300 series

MC312A

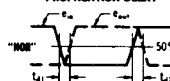
Dual 3-input gate that provides the positive logic "NOR" function, and features an internal bias driver. This gate is available without bias driver as MC312.



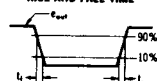
SWITCHING TIME TEST CIRCUIT



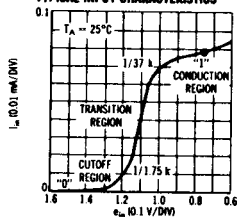
PROPAGATION DELAY



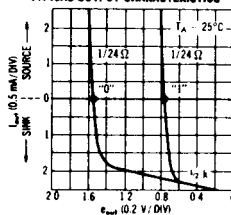
RISE AND FALL TIME



TYPICAL INPUT CHARACTERISTICS



TYPICAL OUTPUT CHARACTERISTICS



MC312A (continued)

ELECTRICAL CHARACTERISTICS

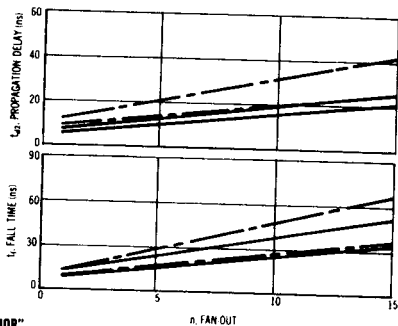
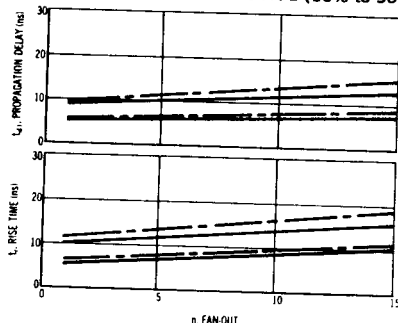
Characteristic	Test Conditions						Test Limits						Unit
	$V_{CC} = 1^*$												
	V_{CC} Pin No.	V_{EE} Pin No.	V_I Pin No.	V_O Pin No.	dV_I Pin No.	I_L Pin No.	Ground Pin No.	Symbol Pin No. (n)	-55°C Min	+25°C Max	+125°C Min	+125°C Max	
Power Supply Bypass Current	—	—	—	1, 2, 6, 7, 8, 9, 10	—	—	3	I_{SD} (2)	—	17.7	—	16.4	mAdc
Input Current	1	—	—	2, 6, 7, 8, 9, 10	—	—	3	I_{IH} (1)	—	—	—	—	μ Adc
	6	—	—	1, 2, 7, 8, 9, 10	—	—	3	I_{IH} (6)	—	100	—	—	—
	7	—	—	1, 2, 6, 8, 9, 10	—	—	3	I_{IH} (7)	—	—	—	—	—
	8	—	—	1, 2, 6, 7, 9, 10	—	—	3	I_{IH} (8)	—	—	—	—	—
	9	—	—	1, 2, 6, 7, 8, 10	—	—	3	I_{IH} (9)	—	—	—	—	—
10	—	—	1, 2, 6, 7, 8, 9	—	—	3	I_{IH} (10)	—	—	—	—	—	
"NOR" Logical "1" Output Voltage	—	—	6	1, 2, 7, 8, 9, 10	—	—	3	V_O (5)	-0.825	-0.945	-0.690	-0.795	Vdc
	—	—	7	1, 2, 6, 8, 9, 10	—	—	3	V_O (5)	—	—	—	-0.855	—
	—	—	8	1, 2, 6, 7, 9, 10	—	—	3	V_O (5)	—	—	—	—	—
	—	—	1	2, 6, 7, 8, 9, 10	—	—	3	V_O (4)	—	—	—	—	—
	—	—	9	1, 2, 6, 7, 8, 10	—	—	3	V_O (4)	—	—	—	—	—
"NOR" Logical "0" Output Voltage	—	—	10	1, 2, 6, 7, 8, 9	—	—	3	V_O (4)	—	—	—	—	—
	—	6	—	1, 2, 7, 8, 9, 10	—	—	3	V_O (5)	-1.560	-1.850	-1.485	-1.750	Vdc
	—	7	—	1, 2, 6, 8, 9, 10	—	—	3	V_O (5)	—	—	—	-1.340	—
	—	8	—	1, 2, 6, 7, 9, 10	—	—	3	V_O (5)	—	—	—	—	—
	—	1	—	2, 6, 7, 8, 9, 10	—	—	3	V_O (4)	—	—	—	—	—
"NOR" Output Voltage Change	—	—	10	1, 2, 6, 7, 8, 9	—	—	3	V_O (4)	—	—	—	—	—
	—	6	—	1, 2, 7, 8, 9, 10	—	5	3	ΔV_O (5)	-0.055	-0.055	-0.055	-0.060	Volts
"NOR" Substrate Breakpoint Voltage	—	—	1	2, 6, 7, 8, 9, 10	—	4	3	ΔV_O (4)	-0.055	-0.055	—	-0.060	Volts
	—	—	—	1, 2, 7, 8, 9, 10	—	7	3	V_{IS} (5)	—	-0.40	—	—	Vdc
	—	—	—	1, 2, 6, 8, 9, 10	—	8	3	V_{IS} (5)	—	—	-0.55	—	—
	—	—	—	1, 2, 6, 7, 9, 10	—	9	3	V_{IS} (5)	—	—	—	—	—
	—	—	—	1, 2, 6, 7, 8, 10	—	10	3	V_{IS} (4)	—	—	—	—	—
Switching Times	Pulse In	Pulse Out	—	—	—	—	—	—	Typ	Max	Typ	Max	ns
	6	5	—	1, 2, 7, 8, 9, 10	—	—	3	t_{ar} (5)	6.5	10.5	6.5	10.5	ns
Propagation Delay Time	1	4	—	2, 6, 7, 8, 9, 10	—	—	3	t_{ar} (4)	6.5	10.5	6.5	10.5	ns
	6	5	—	1, 2, 7, 8, 9, 10	—	—	3	t_{ar} (5)	8.5	11.5	8.5	11.5	ns
Rise Time	1	4	—	2, 6, 7, 8, 9, 10	—	—	3	t_{ar} (4)	8.5	11.5	8.5	11.5	ns
	6	5	—	1, 2, 7, 8, 9, 10	—	—	3	t_{ri} (5)	9.0	12.5	9.5	12.5	ns
Fall Time	1	4	—	2, 6, 7, 8, 9, 10	—	—	3	t_{fi} (4)	9.0	12.5	9.5	12.5	ns
	6	5	—	1, 2, 7, 8, 9, 10	—	—	3	t_{fi} (5)	8.5	14.0	8.0	14.0	ns
	1	4	—	2, 6, 7, 8, 9, 10	—	—	3	t_{fi} (4)	8.5	14.0	8.0	14.0	ns

* Pins not listed are left open.
† Internal circuit node.

Pins not listed are left open.

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

SWITCHING CHARACTERISTICS (10% to 90% distribution)



"NOR"

n. FAN OUT

— -55°C and +25°C
--- +125°C