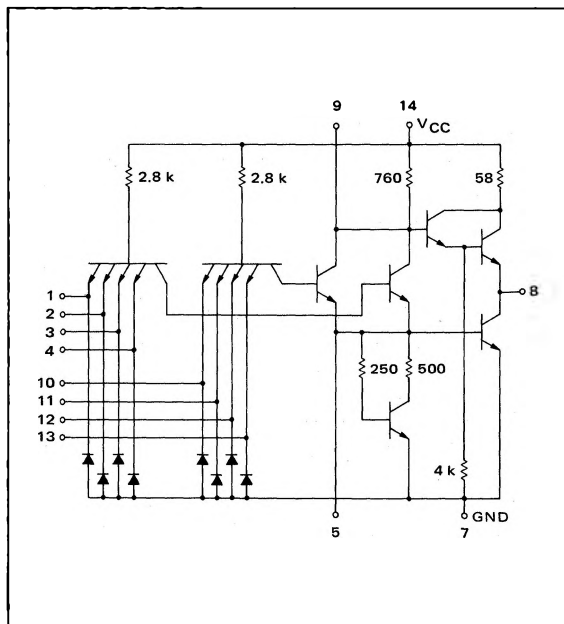


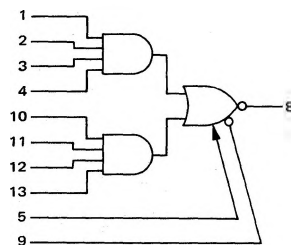
EXPANDABLE 2-WIDE 4-INPUT
"AND-OR-INVERT" GATE

MC3100/MC3000 series

MC3134F • MC3034F
MC3134L • MC3034L,P
(54H55J) (74H55J, N)



This device consists of two 4-input AND gates ORed together and inverted. The emitter and collector nodes of the OR stage are brought out to provide expansion capability to a 6-wide AOI gate using the MC3130/3030 or MC3118/3018 expanders.



Positive Logic:

$$8 = (1 \bullet 2 \bullet 3 \bullet 4) + (10 \bullet 11 \bullet 12 \bullet 13) + (\text{Expanders})$$

Negative Logic:

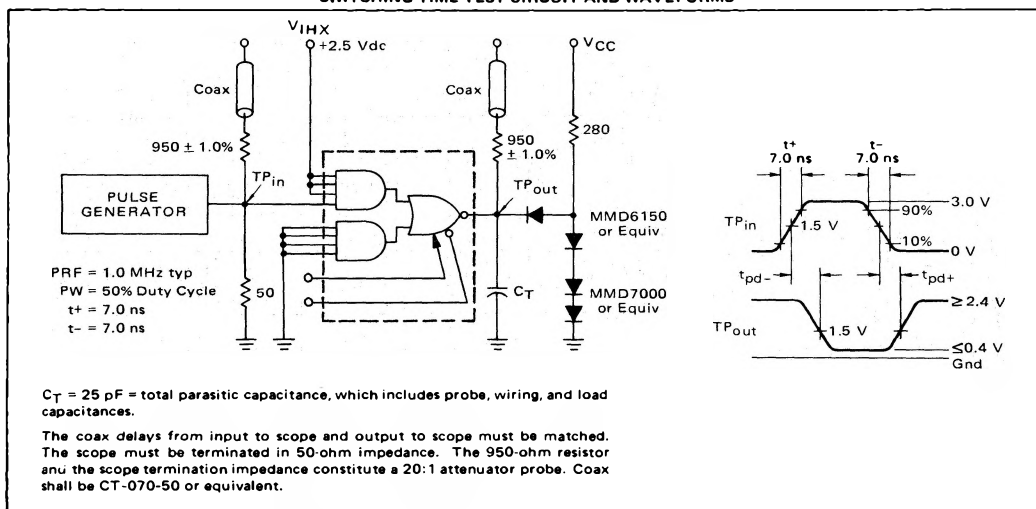
$$8 = (1 + 2 + 3 + 4) \bullet (10 + 11 + 12 + 13) \bullet (\text{Expanders})$$

Input Loading Factor = 1
Output Loading Factor = 10
Total Power Dissipation = 30 mW typ/pkg
Propagation Delay Time = 7.0 ns typ

Pin numbers for the 54H55F/74H55F device are shown in the chart. These devices are available on special request.

DEVICE	PIN NUMBERS													
MC3134F,L/3034F,L,P	1	2	3	4	5	6	7	8	9	10	11	12	13	14
54H55F/74H55F	14	1	2	3	9	10	11	12	13	5	6	7	8	4

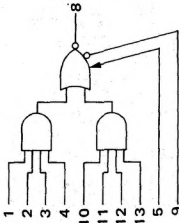
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



See General Information section for packaging.

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one input of the gate under test. To complete testing, sequence through remaining inputs.



Characteristic		Pin Under Test	MC3134 Test Limits -55 to +125°C				MC3034 Test Limits 0 to +75°C				TEST CURRENT/VOLTAGE VALUES (All Temperatures)																		
			Min	Max	Unit	Min	Max	Unit	mA				Volts																
			Symbol	Test							I _{OL}	I _{OH}	I _{IN}	I _{IO}	I _{X1}	I _{X2}	I _{X3}	I _{X4}	R _{EX} ③	V _{EX} ①	V _F	V _R	V _{BH}	V _{IH}	V _{IHX}	V _{IL}	V _{CC}	V _{CL}	V _{CH}
Input																													
Forward Current			I _F	1	-	-2.0	mAdc	-	-2.0	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leakage Current			I _{RL}	1	-	50	μAdc	-	50	μAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Breakdown Voltage			BV _{IN}	1	5.5**	-	mVdc	5.5**	-	mVdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clamp Voltage			V _D	1	-	-1.5**	Vdc	-	-1.5**	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expander Input Current			I _{EX}	9 ①	-	-5.85	mAdc	-	-6.3	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Base-Emitter Voltage			V _{BE}	5 ②	-	1.0	Vdc	-	1.0	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Output																													
Output Voltage			V _{OL}	8	-	0.4	Vdc	-	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			V _{OH}	8 ③	-	0.4	Vdc	-	0.4	Vdc	-	-	-	-	-	-	5	9	-	-	-	-	-	-	-	-	-	-	-
			V _{OH}	8	2.4	-	Vdc	2.5	-	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			V _{OH}	8	2.4	-	Vdc	2.5	-	Vdc	-	-	-	-	-	-	5	9	-	-	-	-	-	-	-	-	-	-	-
Short-Circuit Current			I _{SC}	8	-40	-100	mAdc	-40	-100	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power Requirements																													
Power Supply Drain			I _{PDH}	14	-	12	mAdc	-	12	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			I _{PDL}	14	-	6.4	mAdc	-	6.4	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Switching Parameters																													
Turn-On Delay			t _{pd**}	1, 8	-	11**	ns	-	11**	ns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turn-Off Delay			t _{pd**}	1, 8	-	11**	ns	-	11**	ns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Tested only at 25°C
① See Figure 1.
② See Figure 2.
③ See Figure 3.