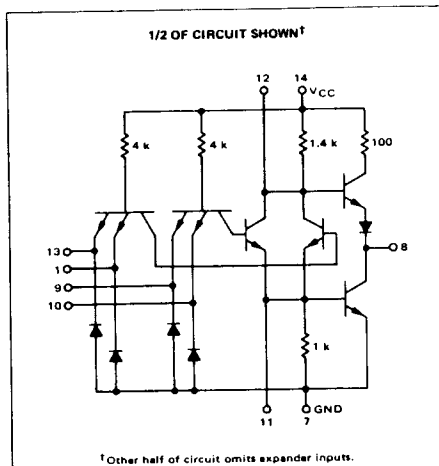


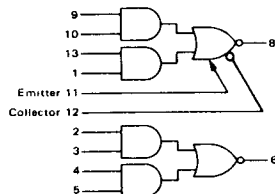
EXPANDABLE DUAL
2-WIDE 2-INPUT
"AND-OR-INVERT" GATE

MTTL MC7400P series
MTTL MC5400L/7400L series

MC5450L*
MC7450P,L*



This device consists of two AND-OR-INVERT gates, one of which is OR expandable. Each gate is made up of two 2-input AND gates ORed together and inverted. Up to four MC5460/7460 expander gates may be ORed with the device at the expander points.



Positive Logic:

$$8 = (9 \cdot 10) + (13 \cdot 1) + (\text{Expanders})$$

Negative Logic:

$$8 = (\bar{9} \cdot \bar{10}) \cdot (\bar{13} + 1) \cdot (\text{Expanders})$$

Input Loading Factor = 1

Output Loading Factor = 10

Total Power Dissipation = 28 mW typ/pkg

Propagation Delay Time = 13 ns typ

*L suffix = TO-116 ceramic package (Case 632)
P suffix = TO-116 plastic package (Case 606)
See General Information section for package outline dimensions.

SWITCHING TIME TEST CIRCUIT

VOLTAGE WAVEFORMS AND DEFINITIONS

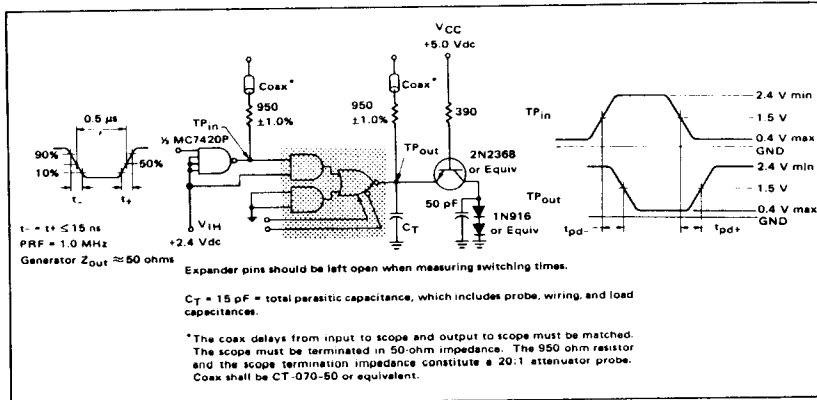


FIGURE 1 - I_{EX} TEST CIRCUIT

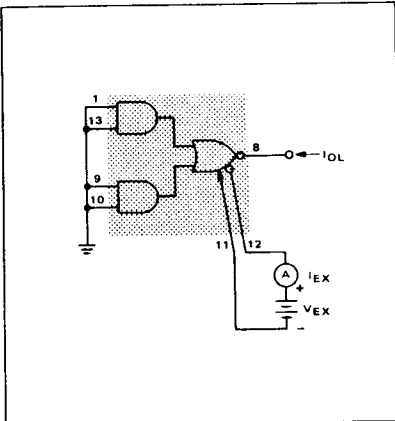


FIGURE 2 - V_{BE} TEST CIRCUIT

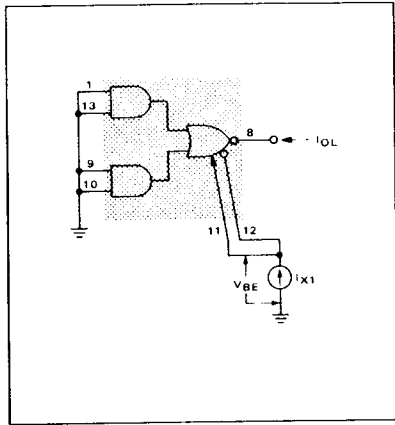
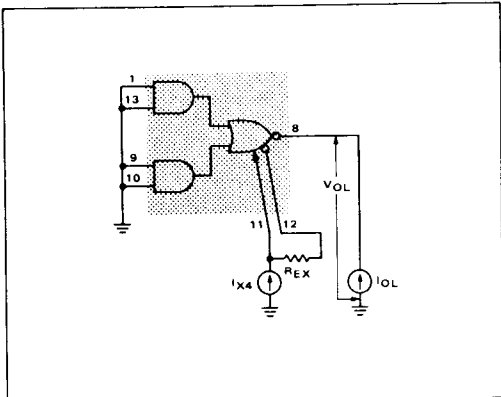


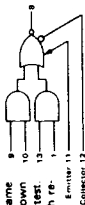
FIGURE 3 - V_{OL} TEST CIRCUIT



MC5450L, MC7450P, L (continued)

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The other gate is tested in the same manner. Further, test procedures are shown for only one input of the gate under test. To complete testing, sequence through remaining inputs.



MC5450
MC7450

MC5450 Test Limits
-55 to +125°C
0 to +70°C

MC7450 Test Limits
0 to +70°C

TEST CURRENT/VOLTAGE VALUES (All Temperatures)

TEST CURRENT/VOLTAGE APPLIED TO PMS LISTED BELOW:

Characteristic	Symbol	Pin Under Test	MC5450 Test Limits -55 to +125°C		MC7450 Test Limits 0 to +70°C		TEST CURRENT/VOLTAGE VALUES (All Temperatures)														Grade								
			Min	Max	Min	Max	mA	Volts																					
Input							I_{i1}	I_{i2}	I_{i3}	I_{i4}	$R_{i1,2}$	V_{i1}	V_{i2}	V_{i3}	V_{i4}	V_{i5}	V_{i6}	V_{i7}	V_{i8}	V_{i9}	V_{i10}	V_{i11}	V_{i12}	V_{i13}	V_{i14}	V_{i15}			
Forward Current	I_F	1	-1.6	mAdc	-1.8	mAdc	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7*
Leakage Current	I_{R1}	1	40	μ Adc	60	μ Adc	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10,13*
	I_{R2}	1	1.0	mAdc	1.0	mAdc	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10,13*
Expanded Input Current	I_{EX}	13 ①	-2.8	mAdc	-3.1	mAdc	-	-	-	-	-	11.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1,7,8,10,13**
Base-Emitter Voltage	V_{BE}	11 ②	-1.0	Vdc	-1.0	Vdc	1.1,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1,7,8,10,13**
Output Voltage	V_{OL}	8	0.4	Vdc	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10*
	V_{OH}	8 ③	0.4	Vdc	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1,7,8,10,13**
Short-Circuit Current	I_{SC}	8	2.4	Vdc	2.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10*
	I_{SC}	8	2.4	Vdc	2.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1,7,8,10,13**
Power Requirements (Total Device) Power Supply Drain	I_{PPH}	14	13.2	mAdc	13.2	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7
	I_{PDL}	14	7.2	mAdc	7.2	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1,7,8,10,13**
Switching Parameters	t_{pd}	1,8	15**	ns	15**	ns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10*
	t_{pd}	1,8	29**	ns	29**	ns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	7,8,10*

* Ground inputs to gate not under test. ** Tested only at 25°C. ① See Figure 1. ② See Figure 1. ③ See Figure 3.