

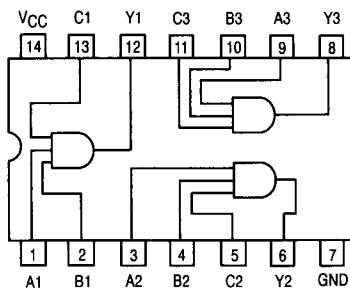


MOTOROLA

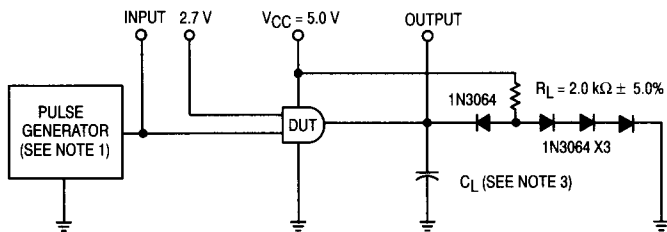
Triple 3-Input Positive AND Gate

ELECTRICALLY TESTED PER:
MIL-M-38510/31001

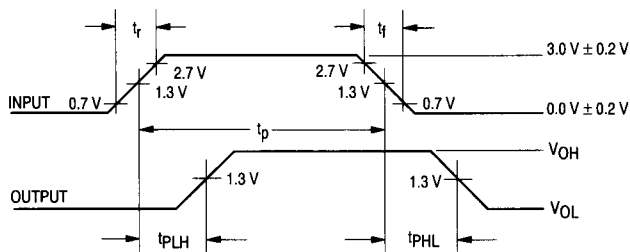
LOGIC DIAGRAM



AC TEST CIRCUIT



WAVEFORMS



NOTES:

1. Pulse generator has the following characteristics: $t_r \leq 15$ ns, $t_f \leq 6.0$ ns, $PRR \leq 1.0$ MHz, $t_p = 0.5$ μ s, and $Z_{OUT} = 50$ Ω .
2. Inputs not under test are at 2.7 V.
3. $C_L = 50$ pF $\pm 10\%$, including scope probe, wiring and stray capacitance.
4. Voltage measurements are to be made with respect to network ground terminal.
5. All diodes are 1N3064 or equivalent.

Military 54LS11



AVAILABLE AS:

- 1) JAN: JM38510/31001BXA
- 2) SMD: N/A
- 3) 883: 54LS11/BXAJC

X = CASE OUTLINE AS FOLLOWS:
PACKAGE: CERDIP: C
CERFLAT: D
LCC: 2

THE LETTER "M" APPEARS
BEFORE THE / ON LCC.

PIN ASSIGNMENTS

FUNCT.	DIL 632-08	FLATS 717-04	LCC 756A-02	BURN-IN (COND. A)
A1	1	1	2	VCC
B1	2	2	3	VCC
A2	3	3	4	VCC
B2	4	4	6	VCC
C2	5	5	8	VCC
Y2	6	6	9	VCC
GND	7	7	10	GND
Y3	8	8	12	VCC
A3	9	9	13	VCC
B3	10	10	14	VCC
C3	11	11	16	VCC
Y1	12	12	18	VCC
C1	13	13	19	VCC
VCC	14	14	20	VCC

BURN-IN CONDITIONS:
VCC = 5.0 V MIN/6.0 V MAX

TRUTH TABLE

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

Symbol	Parameter	Limits						Unit	Test Condition (Unless Otherwise Specified)
	Static Parameters:	+ 25°C		+ 125°C		– 55°C			
		Subgroup 1		Subgroup 2		Subgroup 3			
		Min	Max	Min	Max	Min	Max		
V _{OH}	Logical “1” Output Voltage	2.5		2.5		2.5		V	V _{CC} = 4.5 V, I _{OH} = –400 μA, V _{IH} = 2.0 V (all inputs), or V _{IN} = 5.5 V on all inputs.
V _{OL}	Logical “0” Output Voltage		0.4		0.4		0.4	V	V _{CC} = 4.5 V, I _{OL} = 4.0 mA, V _{IL} = 0.7 V, other inputs = 5.5 V.
V _{IC}	Input Clamping Voltage		– 1.5					V	V _{CC} = 4.5 V, I _{IN} = –18 mA, other inputs are open.
I _{IH}	Logical “1” Input Current		20		20		20	μA	V _{CC} = 5.5 V, V _{IH} = 2.7 V, other inputs = GND.
I _{IHH}	Logical “1” Input Current		100		100		100	μA	V _{CC} = 5.5 V, V _{IHH} = 5.5 V, other inputs = GND.
I _{IL}	Logical “0” Input Current	– 150	– 380	– 150	– 380	– 150	– 380	μA	V _{CC} = 5.5 V, V _{IL} = 0.4 V, other inputs = 5.5 V.
I _{OS1}	Output Short Circuit Current, 2Y and 3Y	– 30	– 130	– 30	– 130	– 30	– 130	mA	V _{CC} = 5.5 V, V _{IN} = 5.5 V (all inputs), V _{OUT} = 0 V.
I _{OS2}	Output Short Circuit Current, Y1	– 15	– 100	– 15	– 100	– 15	– 100		
I _{CCH}	Power Supply Current		3.6		3.6		3.6	mA	V _{CC} = 5.5 V, V _{IN} = 5.5 V (all inputs).
I _{CCL}	Power Supply Current		6.6		6.6		6.6	mA	V _{CC} = 5.5 V, V _{IN} = 0 V (all inputs).
V _{IH}	Logical “1” Input Voltage	2.0		2.0		2.0		V	V _{CC} = 4.5 V.
V _{IL}	Logical “0” Input Voltage		0.7		0.7		0.7	V	V _{CC} = 4.5 V.
	Functional Tests	Subgroup 7		Subgroup 8A		Subgroup 8B			per Truth Table with V _{CC} = 5.0 V, V _{INL} = 0.4 V, and V _{INH} = 2.5 V.

Symbol	Parameter	Limits						Unit	Test Condition (Unless Otherwise Specified)
	Switching Parameters:	+ 25°C		+ 125°C		– 55°C			
		Subgroup 9		Subgroup 10		Subgroup 11			
		Min	Max	Min	Max	Min	Max		
t _{PHL} t _{PHL}	Propagation Delay /Data-Output Output <u>High-Low</u>	2.0 —	20 20	2.0 —	30 25	2.0 —	30 25	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 2.0 kΩ. V _{CC} = 5.0 V, C _L = 15 pF, R _L = 2.0 kΩ.
t _{PLH} t _{PLH}	Propagation Delay /Data-Output Output <u>Low-High</u>	2.0 —	15 15	2.0 —	25 20	2.0 —	25 20	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 2.0 kΩ. V _{CC} = 5.0 V, C _L = 15 pF, R _L = 2.0 kΩ.

NOTE:

1. The limits specified for C_L = 15 pF are guaranteed but not tested.