



MOTOROLA

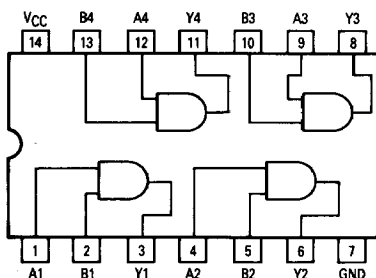
Quad 2-Input Positive AND Gate

**ELECTRICALLY TESTED PER:
MPG54ALS08**

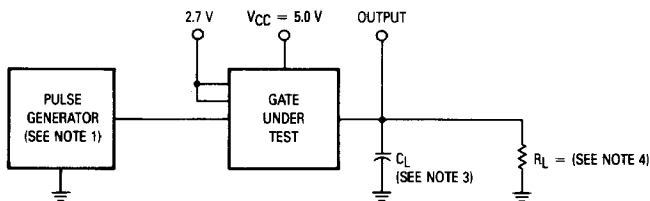
Military 54ALS08



LOGIC DIAGRAM



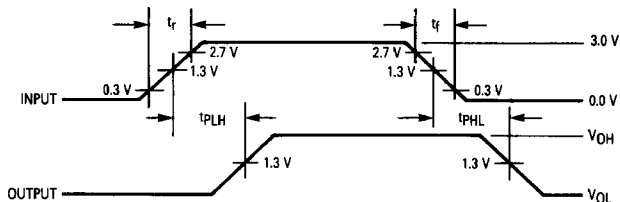
AC TEST CIRCUIT



NOTES:

1. The pulse generator has the following characteristics: $t_r = t_f = 6.0 \pm 1.5$ ns, $PRR = 1.0$ MHz, $Z_{out} \approx 50 \Omega$.
2. Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).
3. $C_L = 50$ pF $\pm 10\%$, including scope probe, wiring and jig capacitance, without package in test fixture.
4. $R_L = 499 \Omega \pm 1.0\%$.
5. Voltage measurements are to be made with respect to network ground terminal.

WAVEFORMS



AVAILABLE AS:

- 1) JAN: N/A
- 2) SMD: N/A
- 3) 883C: 54ALS08/BXAJC

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

***Call Factory for latest update**

PIN ASSIGNMENTS

FUNCTION	DIL	FLATS	LCC	BURN-IN (CONDITION A)
A1	1	1	2	VCC
B1	2	2	3	VCC
Y1	3	3	4	VCC
A2	4	4	6	VCC
B2	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
Y4	11	11	16	VCC
A4	12	12	18	VCC
B4	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	Y
0	0	0
0	1	0
1	0	0
1	1	1

MOTOROLA MILITARY ALS/FAST/LS/TTL DATA

54ALS08

Symbol	Parameter	Limits						Units	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} = −0.4 mA, V _{IH} = 2.0 V, V _{IN} = 2.0 V on other input.
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} = 0.8 V, V _{IN} = 5.5 V on other input.
V _{IC}	Input Clamping Voltage		−1.5					V	V _{CC} = 4.5 V, I _{IN} = −18 mA, on 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 input is open.
I _{IHH}	Logical “1” Input Current		100		100		100	μA	V _{CC} = 5.5 V, V _{IHH} = 7.0 V, other input is open.
I _{IL}	Logical “0” Input Current	0	−100	0	−100	0	−100	μA	V _{CC} = 5.5 V, V _{IN} = 0.4 V, other input = 5.5 V.
I _{OS}	Output Short Circuit Current	−30	−110	−30	−110	−30	−110	mA	V _{CC} = 5.5 V, V _{IN} = 5.5 V (both inputs), V _{OUT} = 2.25 V.
I _{CCH}	Power Supply Current		2.4		2.4		2.4	mA	V _{CC} = 5.5 V, V _{IN} = 4.5 V (all inputs).
I _{CCL}	Power Supply Current		4.0		4.0		4.0	mA	V _{CC} = 5.5 V, V _{IN} = GND (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		0.8		0.8		0.8	V	V _{CC} = 4.5 V.
		Subgroup 7		Subgroup 8A		Subgroup 8B			
	Functional Tests								per Truth Table with V _{CC} = 5.0 V, V _{INL} = 0.4 V, and V _{INH} = 2.5 V.

Symbol	Parameter	Limits						Units	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}	Propagation Delay /Data-Output Output High-Low	3.0	10	3.0	12	3.0	12	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 499 Ω.
t _{PLH}	Propagation Delay /Data-Output Output Low-High	4.0	14	4.0	16	4.0	16	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 499 Ω.

NOTE:

- Method 3011 of MIL-STD-883 shall be used, except the output shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.