Military 54ALS04

Hex 1-Input Inverter Gate

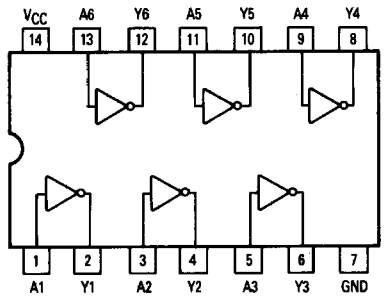
ELECTRICALLY TESTED PER:
MPG54ALS04

AVAILABLE AS:

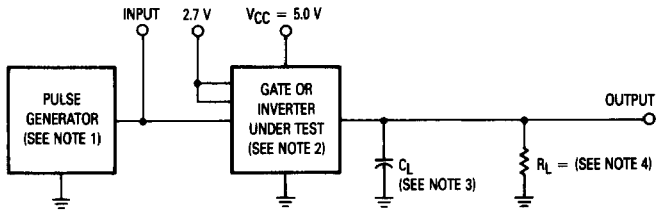
1) JAN: N/A
2) SMD: N/A
3) 883C: 54ALS04/BXAJC

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

LOGIC DIAGRAM



AC TEST CIRCUIT



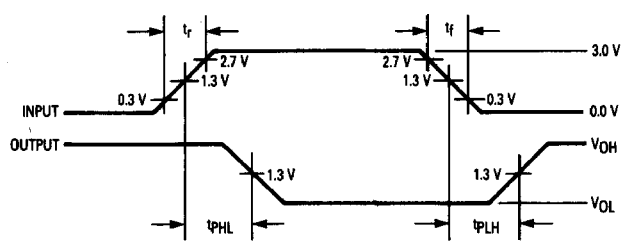
NOTES:
1. Pulse generator has the following characteristics: $t_r = t_f = 3.0 \pm 1.5$ ns, PRR ≤ 1.0 MHz, $Z_{out} \approx 50\ \Omega$.
2. Terminal conditions (pin not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).
3. $C_L = 50$ pF ± 10%, including scope probe, wiring and stray capacitance, without 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.

PIN ASSIGNMENTS

FUNCTION	DIL	FLATS	LCC	BURN-IN (CONDITION A)
A1	1	1	2	V_{CC}
Y1	2	2	3	OPEN
A2	3	3	4	V_{CC}
Y2	4	4	6	OPEN
A3	5	5	8	V_{CC}
Y3	6	6	9	OPEN
GND	7	7	10	GND
Y4	8	8	12	OPEN
A4	9	9	13	V_{CC}
Y5	10	10	14	OPEN
A5	11	11	16	V_{CC}
Y6	12	12	18	OPEN
A6	13	13	19	V_{CC}
V_{CC}	14	14	20	V_{CC}

BURN-IN CONDITIONS:
V_{CC} = 5.0 V MIN/6.0 V MAX

WAVEFORMS



TRUTH TABLE	
A	Y
0	1
1	0

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} = −400 μA, V_{IL} = 0.8 V, other inputs = 5.5 V.
V_{OL}	Logical "0" Output Voltage		0.4		0.4		0.4	V	V_{CC} = 4.5 V, I_{OL} = 4.0 mA, V_{IH} = 2.0 V, other inputs are GND.
V_{IC}	Input Clamping Voltage		−1.2					V	V_{CC} = 4.5 V, I_{IN} = −18 mA, other inputs are open.
I_{IH1}	Logical "1" Input Current		20		20		20	μA	V_{CC} = 5.5 V, V_{IH} = 2.7 V, other inputs are GND.
I_{IH2}	Logical "1" Input Current		100		100		100	μA	V_{CC} = 5.5 V, V_{IHH} = 7.0 V, other inputs are GND.
I_{IL}	Logical "0" Input Current	0	−100	0	−100	0	−100	μA	V_{CC} = 5.5 V, V_{IN} = 0.4 V, other inputs = 5.5 V.
I_O	Operating Circuit Current	−30	−110	−30	−110	−30	−110	mA	V_{CC} = 5.5 V, V_{IN} = GND, V_{OUT} = 2.25 V, other inputs are open.
I_{CCH}	Power Supply Current		1.1		1.1		1.1	mA	V_{CC} = 5.5 V, V_{IN} = GND.
I_{CCL}	Power Supply Current		4.4		4.4		4.4	mA	V_{CC} = 5.5 V, V_{IN} = 4.5 V.
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.
	Functional Tests	Subgroup 7		Subgroup 8A		Subgroup 8B			per Truth Table with V_{CC} = 4.5 V, **(Repeat at)** V_{CC} = 5.5 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	2.0	9.0	2.0	9.0	2.0	9.0	ns	V_{CC} = 5.0 V, C_L = 50 pF, R_L = 499 Ω.
t_{PLH}	Propagation Delay /Data-Output Output Low-High	2.0	11	2.0	13	2.0	13	ns	V_{CC} = 5.0 V, C_L = 50 pF, R_L = 499 Ω.