

Hex 1-Input Inverter Gate

ELECTRICALLY TESTED PER:
MPG54ALS04

Military 54ALS04

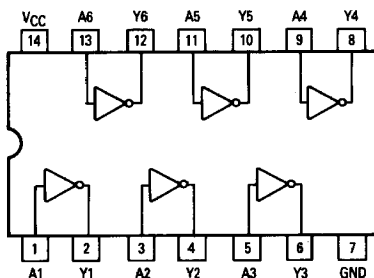


AVAILABLE AS:

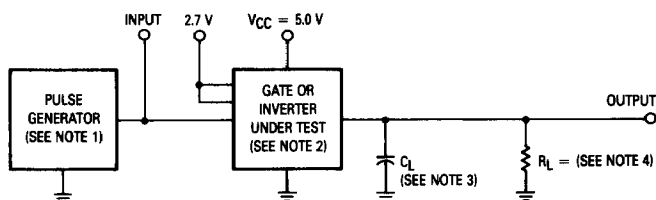
- 1) JAN: N/A
- 2) SMD: N/A
- 3) 883C: 54ALS04/BXAJC

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, $PRR \leq 1.0$ MHz, $Z_{out} = 50 \Omega$.
2. Terminal conditions (pin not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).
3. $C_L = 50$ pF $\pm 10\%$, 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	VCC
Y1	2	2	3	OPEN
A2	3	3	4	VCC
Y2	4	4	6	OPEN
A3	5	5	8	VCC
Y3	6	6	9	OPEN
GND	7	7	10	GND
Y4	8	8	12	OPEN
A4	9	9	13	VCC
Y5	10	10	14	OPEN
A5	11	11	16	VCC
Y6	12	12	18	OPEN
A6	13	13	19	VCC
VCC	14	14	20	VCC

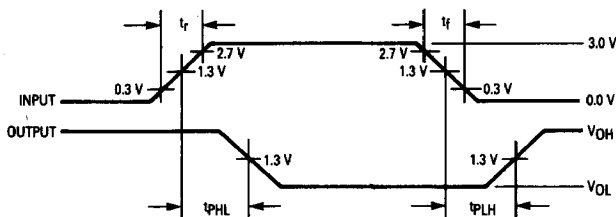
BURN-IN CONDITIONS:

VCC = 5.0 V MIN/6.0 V MAX

TRUTH TABLE

A	Y
0	1
1	0

WAVEFORMS



MOTOROLA MILITARY ALS/FAST/LS/TTL DATA

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.