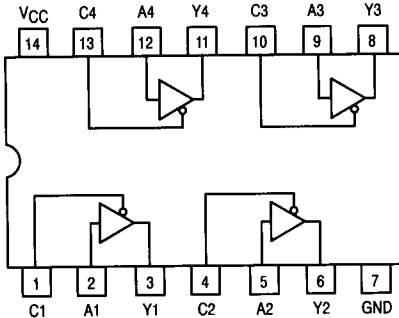




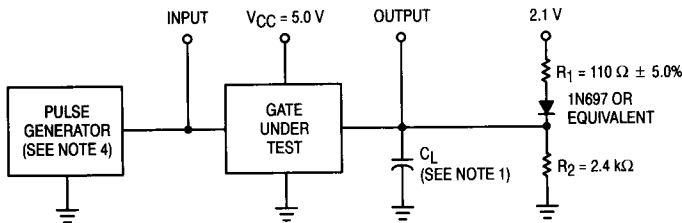
Quad Bus Buffer Gate Inverting Control Input

ELECTRICALLY TESTED PER:
MIL-M-38510/32301

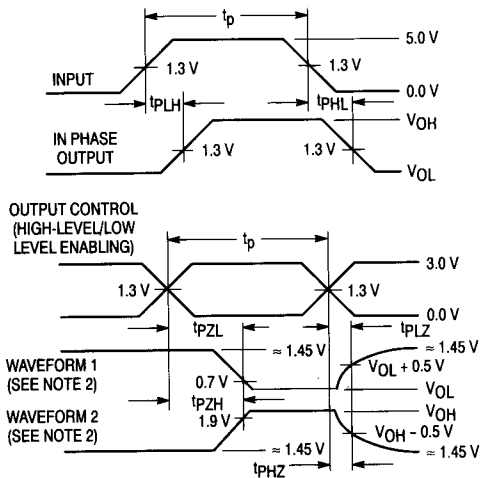
LOGIC DIAGRAM



AC TEST CIRCUIT



WAVEFORMS



REFERENCE NOTES ON PAGE 5-132

Military 54LS125A



AVAILABLE AS:

- 1) JAN: JM38510/32301BXA
- 2) SMD: N/A
- 3) 883: 54LS125A/BXAJC

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

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

PIN ASSIGNMENTS

FUNCT.	PIN ASSIGNMENTS			BURN-IN (COND. A)
	DIL 632-08	FLATS 717-04	LCC 756A-02	
C1	1	1	2	GND
A1	2	2	3	VCC
Y1	3	3	4	VCC
C2	4	4	6	GND
A2	5	5	8	VCC
Y2	6	6	9	VCC
GND	7	7	10	GND
Y3	8	8	12	VCC
A3	9	9	13	VCC
C3	10	10	14	GND
Y4	11	11	16	VCC
A4	12	12	18	VCC
C4	13	13	19	GND
VCC	14	14	20	VCC

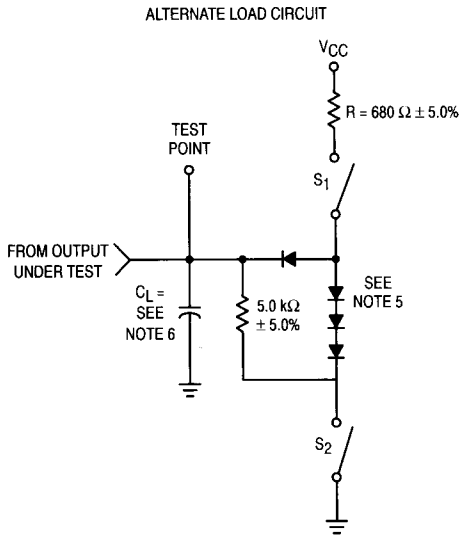
BURN-IN CONDITIONS:
VCC = 5.0 V MIN/6.0 V MAX

TRUTH TABLE

Inputs		Output
E	D	
L	L	L
L	H	H
H	X	(Z)

H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care
Z = HIGH Impedance (off)

AC TEST CIRCUIT

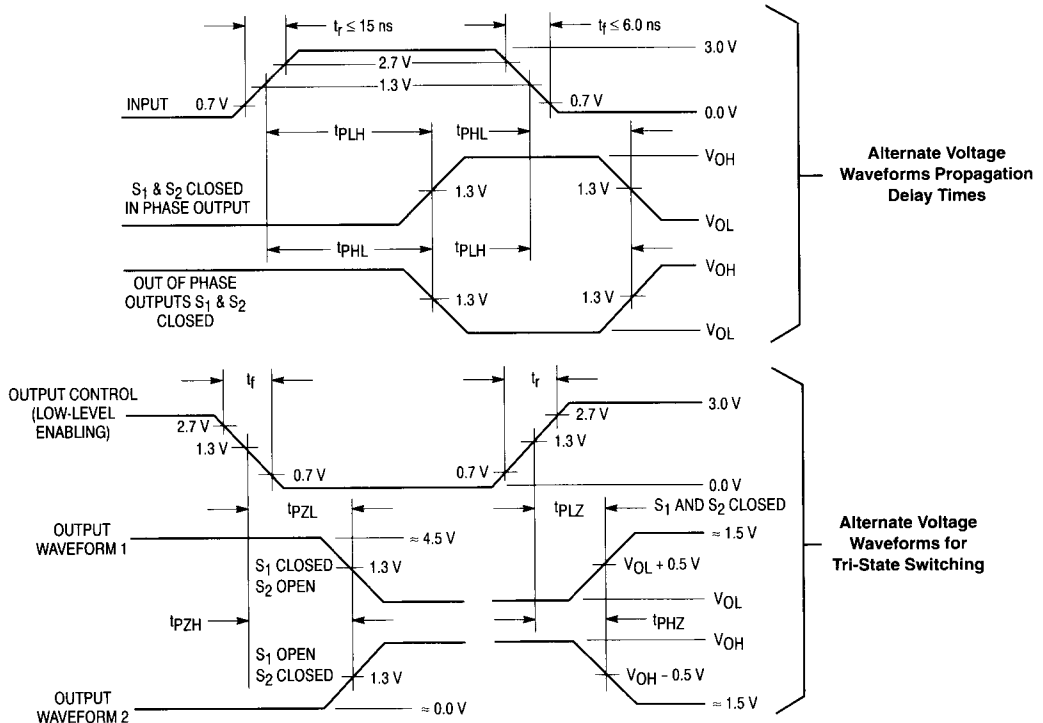


Test Type	S1	S2
t_{PZH}	open	closed
t_{PZL}	closed	open
t_{PLZ}	closed	closed
t_{PHZ}	closed	closed

NOTES:

- $C_L = 50 \text{ pF} \pm 10\%$ minimum for all tests. C_L includes scope probe and jig capacitance.
- Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
- In the example, the phase relationships between inputs and outputs have been chosen arbitrarily.
- All input pulses are supplied by generators having the following characteristics: $PRR \leq 1.0 \text{ MHz}$, $t_p = 500 \text{ ns}$, $Z_{OUT} \approx 50 \Omega$, $V_{gen} = 3.0 \text{ V}$ and $t_r \leq 15 \text{ ns}$, $t_f \leq 6.0 \text{ ns}$ between 0.7 V and 2.7 V .
- Diodes are 1N3064 or equivalent (unless otherwise specified).
- $C_L = 15 \text{ pF}$ minimum for t_{PHZ} and t_{PLZ} (for alternate load circuit).

WAVEFORMS



54LS125A

Symbol	Parameter	Limits						Unit	Test Condition (Unless Otherwise Specified)
		+ 25°C		+ 125°C		- 55°C			
		Subgroup 1		Subgroup 2		Subgroup 3			
		Min	Max	Min	Max	Min	Max		
V _{OH}	Logical "1" Output Voltage	2.4		2.4		2.4		V	V _{CC} = 4.5 V, I _{OH} = -1.0 mA, V _{IH} = 2.0 V, other input = 0.7 V.
V _{OL}	Logical "0" Output Voltage		0.4		0.4		0.4	V	V _{CC} = 4.5 V, I _{OL} = 12 mA, V _{IL} = 0.7 V (both inputs).
V _{IC}	Input Clamping Voltage		-1.5					V	V _{CC} = 4.5 V, I _{IN} = -18 mA, other input = 4.5 V.
I _{IH}	Logical "1" Input Current		20		20		20	μA	V _{CC} = 5.5 V, V _{IH} = 2.7 V, other input is open (or) V _{IH} = 2.7 V, other input = GND.
I _{IHH}	Logical "1" Input Current		100		100		100	μA	V _{CC} = 5.5 V, V _{IHH} = 5.5 V, other input is open (or) V _{IHH} = 5.5 V, other input = GND.
I _{IL1}	Logical "0" Input Current	-0.16	-0.4	-0.16	-0.4	-0.16	-0.4	mA	V _{CC} = 5.5 V, V _{IN} = 0.4 V, other input is open.
I _{IL2}	Logical "0" Input Current	0	-0.1			0	-0.1	mA	V _{CC} = 5.5 V, V _{IN} = 0.4 V, other input = GND.
I _{OS}	Output Short Circuit Current	-40	-225			-40	-225	mA	V _{CC} = 5.5 V, V _{IN} = 4.5 V, other input = GND, V _{OUT} = GND.
I _{IOZH}	Output Off Current High		20		20		20	μA	V _{CC} = 5.5 V, V _{IN} = 2.0 V, other input = 0.7 V, V _{OUT} = 2.4 V.
I _{IOZL}	Output Off Current Low		-20		-20		-20	μA	V _{CC} = 5.5 V, V _{IN} = 2.0 V (both inputs), V _{OUT} = 0.4 V.
I _{CC}	Power Supply Current Off		20		20		20	mA	V _{CC} = 5.5 V, V _{IN} = 4.5 V, other input = GND.
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} = 2.4 V.

54LS125A

Symbol	Parameter	Limits						Unit	Test Condition (Unless Otherwise Specified)
		+ 25°C		+ 125°C		- 55°C			
		Subgroup 9		Subgroup 10		Subgroup 11			
		Min	Max	Min	Max	Min	Max		
t _{PHL1} t _{PHL1}	Propagation Delay /Data-Output Output High-Low	2.0 —	18 18	2.0 —	24 19	2.0 —	24 19	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.
t _{PLH1} t _{PLH1}	Propagation Delay /Data-Output Output Low-High	2.0 —	15 15	2.0 —	20 15	2.0 —	20 15	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.
t _{PLZ1} t _{PLZ1}	Propagation Delay /Data-Output Output Low-High	2.0 —	25 20	2.0 —	33 28	2.0 —	33 28	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.
t _{PHZ1} t _{PHZ1}	Propagation Delay /Data-Output Output High-Low	2.0 —	37 20	2.0 —	41 36	2.0 —	41 36	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.
t _{PZL1} t _{PZL1}	Propagation Delay /Data-Output Output Low-High	2.0 —	25 25	2.0 —	33 28	2.0 —	33 28	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.
t _{PZH1} t _{PZH1}	Propagation Delay /Data-Output Output High-Low	2.0 —	20 20	2.0 —	28 23	2.0 —	28 23	ns	V _{CC} = 5.0 V, C _L = 50 pF, R ₁ = 110 Ω, R ₂ = 2.4 kΩ. V _{CC} = 5.0 V, C _L = 45 pF, R _L = 667 Ω.