

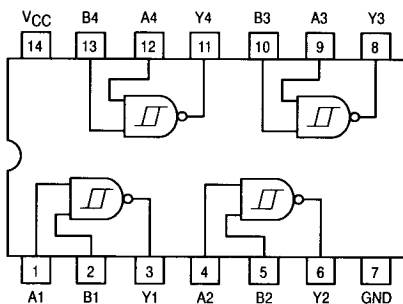


MOTOROLA

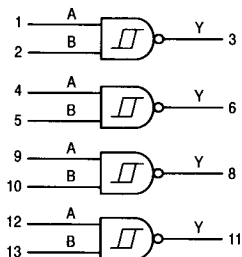
Quad 2-Input NAND Schmitt Trigger

ELECTRICALLY TESTED PER:
MPG54F132

LOGIC DIAGRAM



LOGIC SYMBOL



Military 54F132



AVAILABLE AS:

- 1) JAN: N/A
- 2) SMD: N/A
- 3) 883: 54F132/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	FLATG 717-04	LCC 756A-02	BURN-IN (COND. A)
A1	1	1	2	VCC
B1	2	2	3	VCC
Y1	3	3	4	OPEN
A2	4	4	6	VCC
B2	5	5	8	VCC
Y2	6	6	9	OPEN
GND	7	7	10	GND
Y3	8	8	12	OPEN
A3	9	9	13	VCC
B3	10	10	14	VCC
Y4	11	11	16	OPEN
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

FUNCTION TABLE

Inputs		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

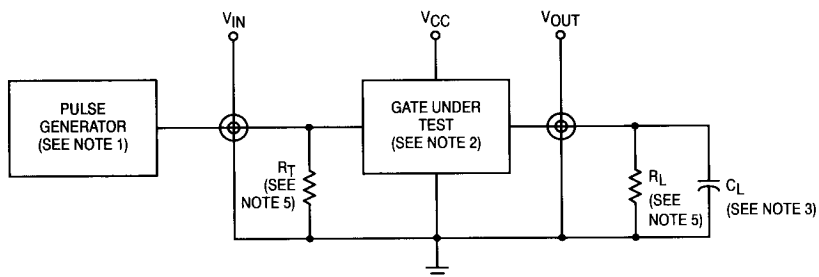
H = HIGH Voltage Level
L = LOW Voltage Level

4

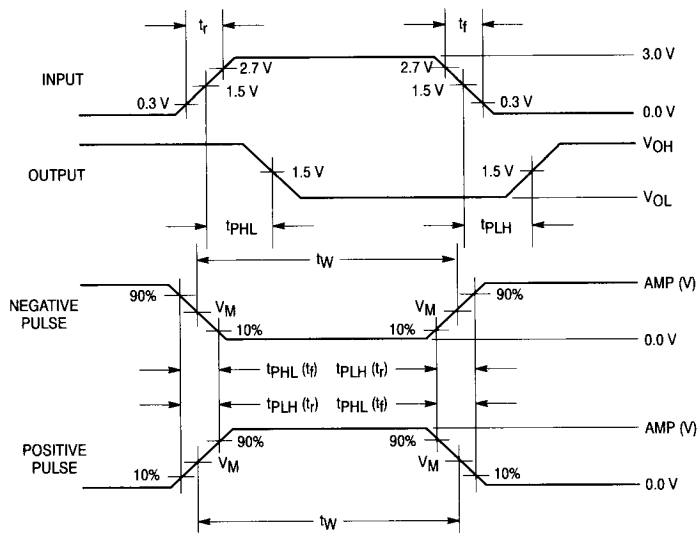
MOTOROLA MILITARY FAST/LS/TTL DATA

4-45

AC TEST CIRCUIT



WAVEFORMS



NOTES:

1. Pulse generator has the following characteristics:
 $V_{IN} = 3.0 \text{ V}$, $t_r = t_f \leq 2.5 \text{ ns}$, $t_W = 500 \text{ ns}$, and $PRR = 1.0 \text{ MHz}$.
2. Terminal conditions (pins not designated may be high $\geq 1.5 \text{ V}$, low $\leq 1.1 \text{ V}$, or open).
3. $C_L = 50 \text{ pF} \pm 10\%$ including scope probe, wiring and stray capacitance, without package in test fixture.
4. Voltage measurements are to be made with respect to network ground terminal.
5. $R_L = 500 \Omega \pm 5.0\%$, $R_T = 50 \Omega$.

54F132

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 _{OH1}	Logical "1" Output Voltage	2.5		2.5		2.5		V	V _{CC} = 4.5 V, I _{OH} = –1.0 mA, V _{IH} = 2.0 V, other input is = 0.5 V.
V _{OL1}	Logical "0" Output Voltage		0.5		0.5		0.5	V	V _{CC} = 4.5 V, I _{OL} = 20 mA, V _{IN} = 2.0 V (both inputs).
V _{OH2}	Logical "1" Output Voltage	2.5		2.5		2.5		V	V _{CC} = 4.5 V, I _{OH} = –1.0 mA, V _{IH} = 2.0 V, other input is = (See Note 1).
V _{OL2}	Logical "0" Output Voltage		0.5		0.5		0.5	V	V _{CC} = 4.5 V, I _{OL} = 20 mA, V _{IH} = (See Note 2).
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 _{IN} = 2.7 V, other input is GND.
I _{IH2}	Logical "1" Input Current		100		100		100	μA	V _{CC} = 5.5 V, V _{IN} = 7.0 V, other input is GND.
I _{IL}	Logical "0" Input Current	–0.03	–0.6	–0.03	–0.6	–0.03	–0.6	mA	V _{CC} = 5.5 V, V _{IN} = 0.5 V, other input is = 5.5 V.
I _{OS}	Output Short Circuit Current	–60	–150	–60	–150	–60	–150	mA	V _{CC} = 5.5 V, both inputs are GND, V _{OUT} = GND.
I _{CCH}	Power Supply Current		12		12		12	mA	V _{CC} = 5.5 V, V _{IN} = GND (all inputs).
I _{CCL}	Power Supply Current		19.5		19.5		19.5	mA	V _{CC} = 5.5 V, V _{IN} = 5.5 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		0.5		0.5		0.5	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} = 0.5 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}	Propagation Delay /Data-Output Output <u>High-Low</u>	3.5	8.5	4.5	13.5	4.0	13.5	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 500 Ω.
t _{PLH}	Propagation Delay /Data-Output Output <u>Low-High</u>	4.0	7.0	3.0	13	3.0	13	ns	V _{CC} = 5.0 V, C _L = 50 pF, R _L = 500 Ω.

NOTES:

1. Momentary 0.5 V, then 1.5 V without overshoot during test.
2. Momentary 2.0 V, then 1.1 V without undershoot during test.