



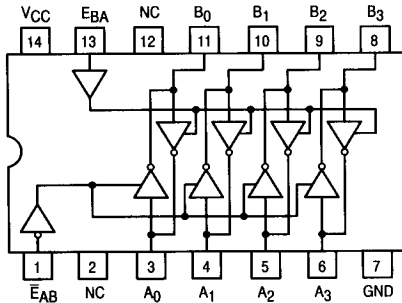
# Quad Non-Inverting Bus Transceivers With 3-State Outputs

ELECTRICALLY TESTED PER:  
MIL-M-38510/34801

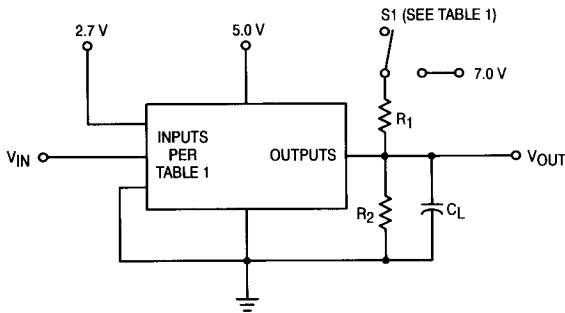
The 54F242 is a Quad Bus Transmitter/Receivers designed for 4-line asynchronous 2-way data communications between data buses.

- 2-Way Asynchronous Data Bus Communication
- Input Clamp Diodes Limit High Speed Termination Effects

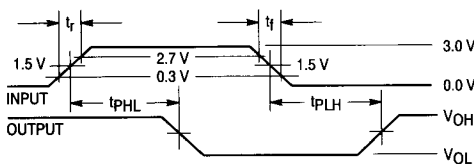
### LOGIC DIAGRAM



### AC TEST CIRCUIT



### PROPAGATION DELAY TIMES



**Military 54F242**



### AVAILABLE AS:

- 1) JAN: JM38510/34801BXA
- 2) SMD: N/A
- 3) 883: 54F242/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	FLATS 717-04	LCC 756A-02	BURN-IN (COND. A)
$\bar{E}AB$	1	1	2	VCC
NC	2	2	3	VCC
A <sub>0</sub>	3	3	4	OPEN
A <sub>1</sub>	4	4	6	OPEN
A <sub>2</sub>	5	5	8	OPEN
A <sub>3</sub>	6	6	9	OPEN
GND	7	7	10	GND
B <sub>3</sub>	8	8	12	OPEN
B <sub>2</sub>	9	9	13	OPEN
B <sub>1</sub>	10	10	14	OPEN
B <sub>0</sub>	11	11	16	OPEN
NC	12	12	18	VCC
EBA	13	13	19	VCC
VCC	14	14	20	VCC

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

### TRUTH TABLE

Inputs		Output	Inputs		Output
$\bar{E}AB$	D		$\bar{E}BA$	D	
L	L	H	L	X	(Z)
L	H	L	L	X	(Z)
H	X	(Z)	H	L	H
H	X	(Z)	H	H	L

H = HIGH Voltage Level  
L = LOW Voltage Level  
X = Immaterial  
Z = HIGH Impedance

MOTOROLA MILITARY FAST/LS/TTL DATA

4-110



## 54F242

Symbol	Parameter	Limits			Unit	Test Condition (Unless Otherwise Specified)
		+ 25°C	+ 125°C	- 55°C		
	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, $V_{INH} = 2.5$ V.

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 <sub>PHL1</sub>	Propagation Delay /Data-Output B to A	1.5	5.2	1.0	8.5	1.0	8.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PLH1</sub>	Propagation Delay /Data-Output B to A	1.5	5.2	1.0	6.5	1.0	6.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PHL2</sub>	Propagation Delay /Data-Output A to B	1.5	5.2	1.0	8.5	1.0	8.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PLH2</sub>	Propagation Delay /Data-Output A to B	1.5	5.2	1.0	6.5	1.0	6.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PLZ1</sub>	Propagation Delay /Data-Output B to A	2.5	6.0	2.0	8.5	2.0	8.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PHZ1</sub>	Propagation Delay /Data-Output B to A	2.5	6.0	2.0	7.5	2.0	7.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PZL1</sub>	Propagation Delay /Data-Output B to A	2.5	8.5	2.0	10.5	2.0	10.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PZH1</sub>	Propagation Delay /Data-Output B to A	2.5	5.7	2.0	8.0	2.0	8.0	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PLZ2</sub>	Propagation Delay /Data-Output A to B	2.5	6.0	2.0	8.5	2.0	8.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PHZ2</sub>	Propagation Delay /Data-Output A to B	2.5	6.0	2.0	7.5	2.0	7.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PZL2</sub>	Propagation Delay /Data-Output A to B	2.5	8.5	2.0	10.5	2.0	10.5	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .
t <sub>PZH2</sub>	Propagation Delay /Data-Output A to B	2.5	5.7	2.0	8.0	2.0	8.0	ns	$V_{CC} = 5.0$ V, $C_L = 50$ pF, $R_1 = R_2 = 500$ $\Omega$ .

## NOTES:

1.  $V_{IN}$  pulse has the following characteristics:  $t_r = t_f \leq 2.5$  ns, PRR = 1.0 MHz.
2.  $C_L = 50$  pF  $\pm 10\%$  including scope probe, wiring and stray capacitance, without package in test fixture.
3. Voltage measurements are to be made with respect to network ground terminal.
4.  $R_1 = R_2 = 500$   $\Omega \pm 5.0\%$ .
5. Terminal condition (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V, or open).

MOTOROLA MILITARY FAST/LS/TTL DATA

4-112