

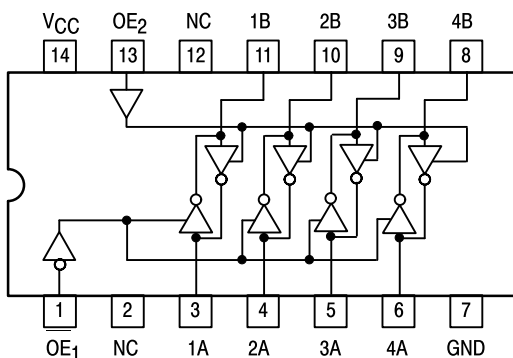


# QUAD BUS TRANCEIVERS WITH 3-STATE OUTPUTS

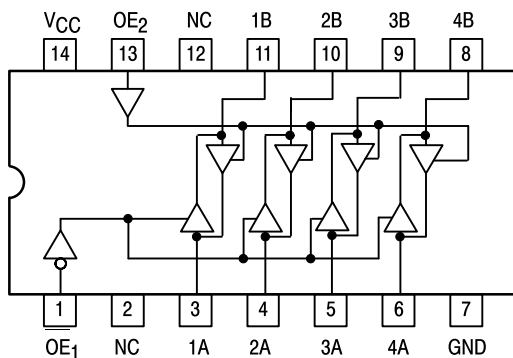
The MC54/74F242 and MC54/74F243 are Quad Bus Transmitters/Receivers designed for 4-line asynchronous 2-way data communication between data buses.

- 2-Way Asynchronous Data Bus Communication
- Input Clamp Diodes Limit High-Speed Termination Effects
- ESD > 4000 Volts

**MC54/74F242 (TOP VIEW)**



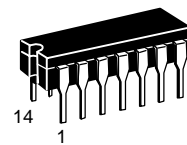
**MC54/74F243 (TOP VIEW)**



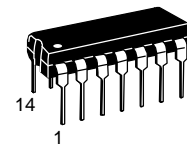
**MC54/74F242  
MC54/74F243**

**QUAD BUS TRANSCIEVERS  
WITH 3-STATE OUTPUTS**

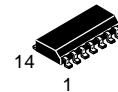
**FAST™ SCHOTTKY TTL**



**J SUFFIX  
CERAMIC  
CASE 632-08**



**N SUFFIX  
PLASTIC  
CASE 646-06**



**D SUFFIX  
SOIC  
CASE 751A-02**

**ORDERING INFORMATION**

MC54FXXXJ Ceramic  
MC74FXXXN Plastic  
MC74FXXXD SOIC

**GUARANTEED OPERATING RANGES**

Symbol	Parameter		Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage	54,74	4.5	5.0	5.5	V
T <sub>A</sub>	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
I <sub>OH</sub>	Output Current — High	54			-12	mA
		74			-15	
I <sub>OL</sub>	Output Current — Low	54			48	mA
		74			64	

# MC54/74F242 • MC54/74F243

**FUNCTION TABLE – MC54/74F242**

Inputs		Output	Inputs		Output
OE <sub>1</sub>	D		OE <sub>2</sub>	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

**FUNCTION TABLE – MC54/74F243**

Inputs		Output	Inputs		Output
OE <sub>1</sub>	D		OE <sub>2</sub>	D	
L	L	L	L	X	Z
L	H	H	L	X	Z
H	X	Z	H	L	L
H	X	Z	H	H	H

H = HIGH Voltage Level; L = LOW Voltage Level ; X = Don't Care; Z = HIGH Impedance

**DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)**

Symbol	Parameter	Limits			Unit	Test Conditions	
		Min	Typ	Max			
V <sub>IH</sub>	Input HIGH voltage	2.0			V	Guaranteed Input HIGH Voltage	
V <sub>IL</sub>	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage	
V <sub>IK</sub>	Input Clamp Diode Voltage			-1.2	V	I <sub>IN</sub> = -18 mA	V <sub>CC</sub> = MIN
V <sub>OH</sub>	Output HIGH Voltage	54	2.0		V	I <sub>OH</sub> = -12 mA	V <sub>CC</sub> = 4.50 V
		74	2.0		V	I <sub>OH</sub> = -15 mA	V <sub>CC</sub> = 4.50 V
		54, 74	2.4		V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.50 V
		74	2.7		V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.75 V
V <sub>OL</sub>	Output LOW Voltage	54		0.55	V	I <sub>OL</sub> = 48 mA	V <sub>CC</sub> = MIN
		74		0.55	V	I <sub>OL</sub> = 64 mA	
I <sub>OZH</sub>	Output Off Current HIGH			70	μA	V <sub>OUT</sub> = 2.7 V	V <sub>CC</sub> = MAX
				1.0	mA	V <sub>OUT</sub> = 5.5 V	
I <sub>OZL</sub>	Output Off Current LOW			-1.6	mA	V <sub>OUT</sub> = 0.5 V	V <sub>CC</sub> = MAX
I <sub>IH</sub>	Input HIGH Current	Enable		20	μA	V <sub>IN</sub> = 2.7 V	V <sub>CC</sub> = MAX
		Data		70	μA	V <sub>IN</sub> = 2.7 V	
		Data		1.0	mA	V <sub>IN</sub> = 5.5 V	
		Enable		0.1	mA	V <sub>IN</sub> = 7.0 V	
I <sub>IL</sub>	Input LOW Current	Enable		-1.0	mA	V <sub>IN</sub> = 0.5 V	V <sub>CC</sub> = MAX
		Data		-1.6	mA	V <sub>IN</sub> = 0.5 V	
I <sub>OS</sub>	Output Short Circuit Current (Note 2)	74	-100	-225	mA	V <sub>OUT</sub> = 0 V	V <sub>CC</sub> = MAX
		54	-100	-275	mA		
I <sub>CCH</sub>	Power Supply Current HIGH	F242		60	mA	Outputs HIGH	V <sub>CC</sub> = MAX
		F243		80	mA		
I <sub>CCL</sub>	Power Supply Current LOW	F242		75	mA	Outputs LOW	V <sub>CC</sub> = MAX
		F243		90	mA		
I <sub>CCZ</sub>	Power Supply Current OFF	F242		75	mA	Outputs OFF	V <sub>CC</sub> = MAX
		F243		90	mA		

**NOTES:**

1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
2. Not more than one output should be shorted at a time, nor for more than 1 second.

## MC54/74F242 • MC54/74F243

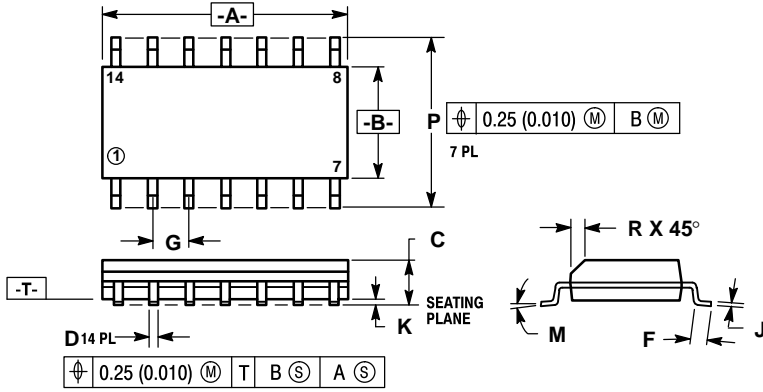
### AC CHARACTERISTICS – MC54/74F242

Symbol	Parameter	54/74F		54F		74F		Unit
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{ V}$ $C_L = 50\text{ pF}$		$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } 70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		
		Min	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay,	2.5	7.0	2.5	9.0	2.5	8.0	ns
t <sub>PHL</sub>	Data to Output	1.5	4.7	1.5	6.0	1.5	5.7	
t <sub>PZH</sub>	Output Enable Time	2.0	4.7	2.0	6.5	2.0	5.7	ns
t <sub>PZL</sub>		4.0	9.0	4.0	12	4.0	10	
t <sub>PHZ</sub>	Output Disable Time	2.0	5.3	2.0	6.5	2.0	6.3	ns
t <sub>PLZ</sub>		1.5	6.5	1.5	12.5	1.5	8.0	

### AC CHARACTERISTICS – MC54/74F243

Symbol	Parameter	54/74F		54F		74F		Unit
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{ V}$ $C_L = 50\text{ pF}$		$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } 70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		
		Min	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay,	2.5	5.2	2.0	6.5	2.0	6.2	ns
t <sub>PHL</sub>	Data to Output	2.5	5.2	2.0	8.5	2.0	6.5	
t <sub>PZH</sub>	Output Enable Time	2.0	5.7	2.0	8.0	2.0	6.7	ns
t <sub>PZL</sub>		2.0	7.5	2.0	10.5	2.0	8.5	
t <sub>PHZ</sub>	Output Disable Time	2.0	6.0	1.5	7.5	1.5	7.0	ns
t <sub>PLZ</sub>		1.5	6.5	2.0	12.5	1.5	7.5	

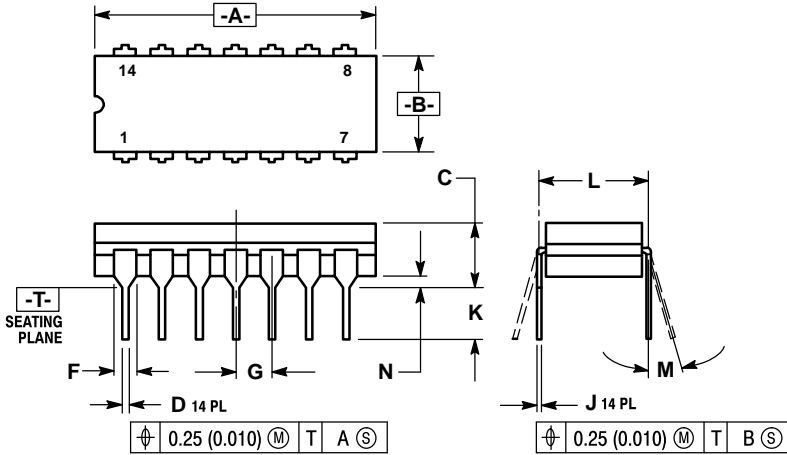
**Case 751A-02 D Suffix  
14-Pin Plastic  
SO-14**



- NOTES:
1. DIMENSIONS "A" AND "B" ARE DATUMS AND "T" IS A DATUM SURFACE.
  2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  3. CONTROLLING DIMENSION: MILLIMETER.
  4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
  5. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  6. 751A-01 IS OBSOLETE, NEW STANDARD 751A-02.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.55	8.75	0.337	0.344
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

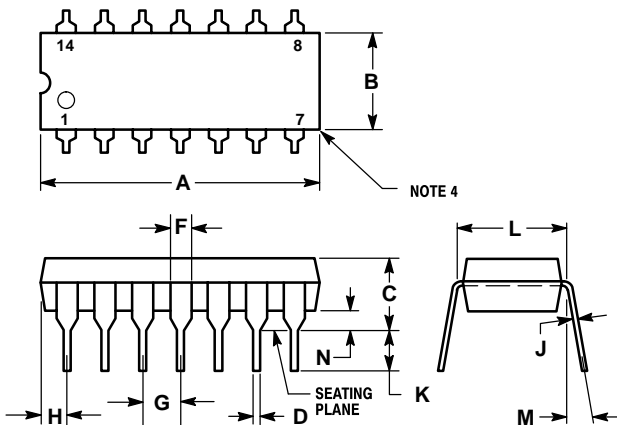
**Case 632-08 J Suffix  
14-Pin Ceramic Dual In-Line**



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
  4. DIM F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.
  5. 632-01 THRU -07 OBSOLETE, NEW STANDARD 632-08.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	19.05	19.94	0.750	0.785
B	6.23	7.11	0.245	0.280
C	3.94	5.08	0.155	0.200
D	0.39	0.50	0.015	0.020
F	1.40	1.65	0.055	0.065
G	2.54 BSC		0.100 BSC	
J	0.21	0.38	0.008	0.015
K	3.18	4.31	0.125	0.170
L	7.62 BSC		0.300 BSC	
M	0°	15°	0°	15°
N	0.51	1.01	0.020	0.040

**Case 646-06 N Suffix  
14-Pin Plastic**



- NOTES:
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
  2. DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.
  3. DIMENSION "B" DOES NOT INCLUDE MOLD FLASH.
  4. ROUNDED CORNERS OPTIONAL.
  5. 646-05 OBSOLETE, NEW STANDARD 646-06.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.16	19.56	0.715	0.770
B	6.10	6.60	0.240	0.260
C	3.69	4.69	0.145	0.185
D	0.38	0.53	0.015	0.021
F	1.02	1.78	0.040	0.070
G	2.54 BSC		0.100 BSC	
H	1.32	2.41	0.052	0.095
J	0.20	0.38	0.008	0.015
K	2.92	3.43	0.115	0.135
L	7.62 BSC		0.300 BSC	
M	0°	10°	0°	10°
N	0.39	1.01	0.015	0.039

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