

**FAIRCHILD**  
SEMICONDUCTOR™

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## 74F2243 Quad Bus Transceiver with 25Ω Series Resistors in the Outputs

### General Description

The 74F2243 is a quad bus transmitter/receiver which can be used for 4-line asynchronous 2-way data communications between data busses. It is designed to drive the capacitive inputs of MOS memory drivers, address drivers, clock drivers, and bus-oriented transmitters/receivers.

The 25Ω series resistors in the outputs reduce ringing and eliminate the need for external resistors.

### Features

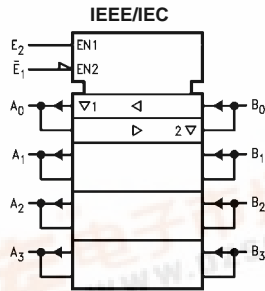
- 25Ω series resistors in outputs eliminate the need for external resistors
- 2-Way asynchronous data bus communication
- 3-STATE outputs
- 12 mA source current
- Designed to drive the capacitive inputs of MOS devices

### Ordering Code:

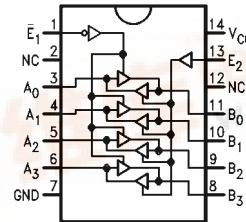
Order Number	Package Number	Package Description
74F2243SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

### Logic Symbol



### Connection Diagram



### Truth Table

Inputs		Inputs/Outputs	
$\bar{E}_1$	$E_2$	$A_n$	$B_n$
L	L	Input	$B = A$
L	H	N/A	N/A
H	L	Z	Z
H	H	$A = B$	Input

H = HIGH Voltage Level  
L = LOW Voltage Level  
Z = High Impedance  
N/A = Not Allowed

### Unit Loading/Fan Out

Pin Names	Description	U.L.	Input $I_{IH}/I_{IL}$
		HIGH/LOW	Output $I_{OH}/I_{OL}$
$\bar{E}_1$	Enable Input (Active LOW)	1.0/1.67	20 $\mu A$ / -1 mA
$E_2$	Enable Input (Active HIGH)	1.0/1.67	20 $\mu A$ / -1 mA
$A_n, B_n$	Inputs	3.5/2.67	70 $\mu A$ / -1.6 mA
	Outputs	750/20	-15 mA / 12 mA



**Absolute Maximum Ratings** (Note 1)

Storage Temperature	-65°C to +150°C
Ambient Temperature under Bias	-55°C to +125°C
Junction Temperature under Bias	-55°C to +150°C
V <sub>CC</sub> Pin Potential to Ground Pin	-0.5V to +7.0V
Input Voltage (Note 2)	-0.5V to +7.0V
Input Current (Note 2)	-30 mA to +5.0 mA
Voltage Applied to Output in HIGH State (with V <sub>CC</sub> = 0V)	
Standard Output	-0.5V to V <sub>CC</sub>
3-STATE Output	-0.5V to +5.5V
Current Applied to Output in LOW State (Max)	twice the rated I <sub>OL</sub> (mA)
ESD Last Passing Voltage (Min)	4000V

**Recommended Operating Conditions**

Free Air Ambient Temperature	0°C to +70°C
Supply Voltage	+4.5V to +5.5V

**Note 1:** Absolute maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.

**Note 2:** Either voltage limit or current limit is sufficient to protect inputs.

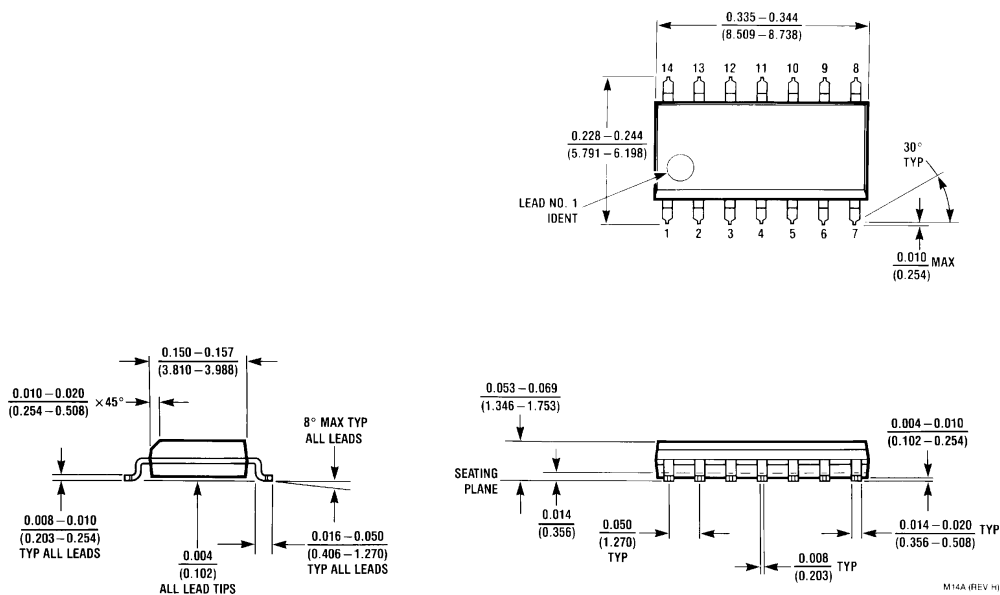
**DC Electrical Characteristics**

Symbol	Parameter	Min	Typ	Max	Units	V <sub>CC</sub>	Conditions	
V <sub>IH</sub>	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal	
V <sub>IL</sub>	Input LOW Voltage			0.8	V		Recognized as a LOW Signal	
V <sub>CD</sub>	Input Clamp Diode Voltage			-1.2	V	Min	I <sub>IN</sub> = -18 mA	
V <sub>OH</sub>	Output HIGH Voltage	10% V <sub>CC</sub>	2.4			V	Min	I <sub>OH</sub> = -3 mA (A <sub>n</sub> , B <sub>n</sub> )
		10% V <sub>CC</sub>	2.0		I <sub>OH</sub> = -15 mA (A <sub>n</sub> , B <sub>n</sub> )			
		5% V <sub>CC</sub>	2.7		I <sub>OH</sub> = -3 mA (A <sub>n</sub> , B <sub>n</sub> )			
V <sub>OL</sub>	Output LOW Voltage			0.50		V	Min	I <sub>OL</sub> = 1 mA (A <sub>n</sub> , B <sub>n</sub> )
				0.75				I <sub>OL</sub> = 12 mA (A <sub>n</sub> , B <sub>n</sub> )
I <sub>IH</sub>	Input HIGH Current			20	μA	Max	V <sub>IN</sub> = 2.7V (E <sub>1</sub> , E <sub>2</sub> )	
I <sub>BVI</sub>	Input HIGH Current Breakdown Test			100	μA	Max	V <sub>IN</sub> = 7.0V (E <sub>1</sub> , E <sub>2</sub> )	
I <sub>BVIT</sub>	Input HIGH Current Breakdown Test (I/O)			1.0	mA	Max	V <sub>IN</sub> = 5.5V (A <sub>n</sub> , B <sub>n</sub> )	
I <sub>IL</sub>	Input LOW Current			-1.0	mA	Max	V <sub>IN</sub> = 0.5V (E <sub>1</sub> , E <sub>2</sub> )	
I <sub>IH</sub> + I <sub>OZH</sub>	Output Leakage Current			70	μA	Max	V <sub>OUT</sub> = 2.7V (A <sub>n</sub> , B <sub>n</sub> )	
I <sub>IL</sub> + I <sub>OZL</sub>	Output Leakage Current			-1.6	mA	Max	V <sub>OUT</sub> = 0.5V (A <sub>n</sub> , B <sub>n</sub> )	
I <sub>OS</sub>	Output Short-Circuit Current	-100		-225	mA	Max	V <sub>OUT</sub> = 0V (A <sub>n</sub> , B <sub>n</sub> )	
I <sub>CEX</sub>	Output HIGH Leakage Current			250	μA	Max	V <sub>OUT</sub> = V <sub>CC</sub>	
I <sub>CCH</sub>	Power Supply Current		64	80	mA	Max	V <sub>O</sub> = HIGH	
I <sub>CCL</sub>	Power Supply Current		64	90	mA	Max	V <sub>O</sub> = LOW	
I <sub>CCZ</sub>	Power Supply Current		71	90	mA	Max	V <sub>O</sub> = HIGH Z	

**AC Electrical Characteristics**

Symbol	Parameter	T <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0V C <sub>L</sub> = 50 pF			T <sub>A</sub> = 0°C to +70°C V <sub>CC</sub> = +5.0V C <sub>L</sub> = 50 pF		Units
		Min	Typ	Max	Min	Max	
		t <sub>PLH</sub>	Propagation Delay	1.5		7.0	
t <sub>PHL</sub>	A <sub>n</sub> to B <sub>n</sub> , B <sub>n</sub> to A <sub>n</sub>	2.5		8.0	2.0	8.0	
t <sub>PZH</sub>	Output Enable Time	1.5		9.0	1.0	9.5	ns
t <sub>PZL</sub>	E <sub>1</sub> to B <sub>n</sub> , E <sub>2</sub> to A <sub>n</sub>	2.5		11.5	2.5	12.0	
t <sub>PHZ</sub>	Output Disable Time	1.5		9.0	1.0	9.5	
t <sub>PLZ</sub>	E <sub>1</sub> to B <sub>n</sub> , E <sub>2</sub> to A <sub>n</sub>	1.5		8.5	1.5	9.5	

**Physical Dimensions** inches (millimeters) unless otherwise noted



**14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow  
Package Number M14A**

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