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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

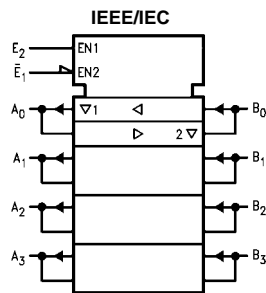
- 25Ω series resistors in outputs eliminate the need for external resistors
- 2-Way asynchronous data bus communication
- 3-STATE outputs
- 12 mA source current
- Designed to drive the capacitive inputs of MOS devices

Ordering Code:

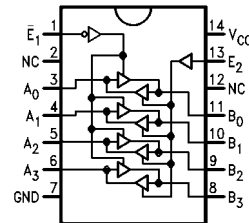
Order Number	Package Number	Package Description
74F2243SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow

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

74F2243 Quad Bus Transceiver

74F2243

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 _{CC} 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 _{CC} = 0V)	
Standard Output	-0.5V to V _{CC}
3-STATE Output	-0.5V to +5.5V
Current Applied to Output in LOW State (Max)	twice the rated I _{OL} (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.

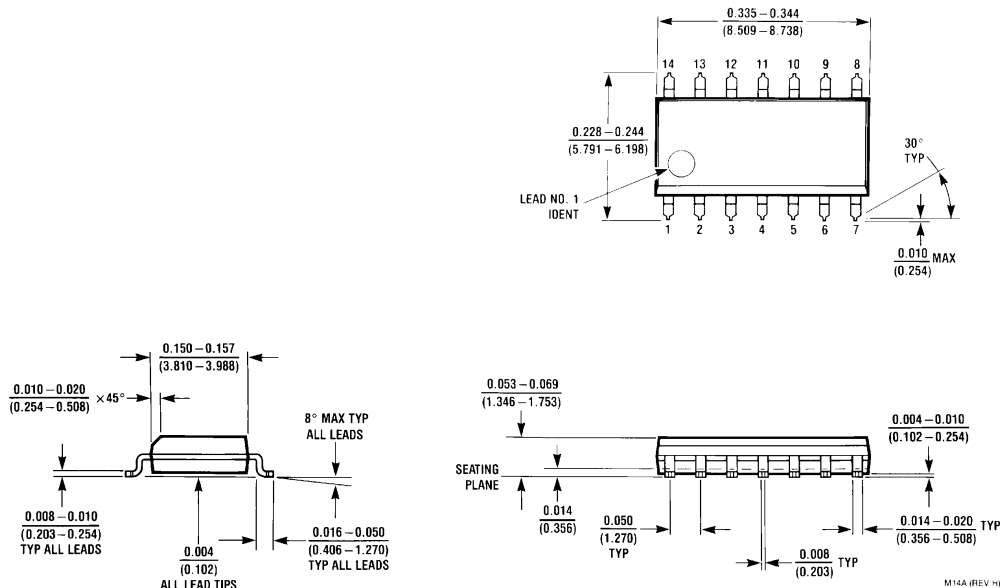
DC Electrical Characteristics

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

AC Electrical Characteristics

Symbol	Parameter	T _A = +25°C V _{CC} = +5.0V C _L = 50 pF			T _A = 0°C to +70°C V _{CC} = +5.0V C _L = 50 pF		Units
		Min	Typ	Max	Min	Max	
		t _{PLH}	Propagation Delay	1.5		7.0	
t _{PHL}	A _n to B _n , B _n to A _n	2.5		8.0	2.0	8.0	
t _{PZH}	Output Enable Time	1.5		9.0	1.0	9.5	ns
t _{PZL}	E ₁ to B _n , E ₂ to A _n	2.5		11.5	2.5	12.0	
t _{PHZ}	Output Disable Time	1.5		9.0	1.0	9.5	
t _{PLZ}	E ₁ to B _n , E ₂ to A _n	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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