

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

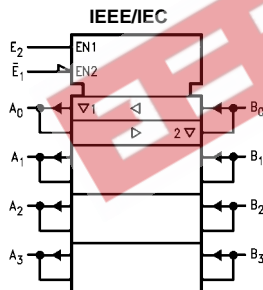
- 25Ω series resistors in outputs eliminate the need for external resistors
- 2-Way asynchronous data bus communication
- 3-STATE outputs
- 12 mA source current
- Designed to drive the capacitive inputs of MOS devices

Ordering Code:

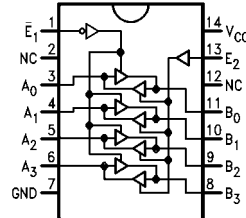
Order Number	Package Number	Package Description
74F2243SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow

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

Absolute Maximum Ratings (Note 1)		Recommended Operating Conditions	
Storage Temperature	-65°C to +150°C	Free Air Ambient Temperature	0°C to +70°C
Ambient Temperature under Bias	-55°C to +125°C	Supply Voltage	+4.5V to +5.5V
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		

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.

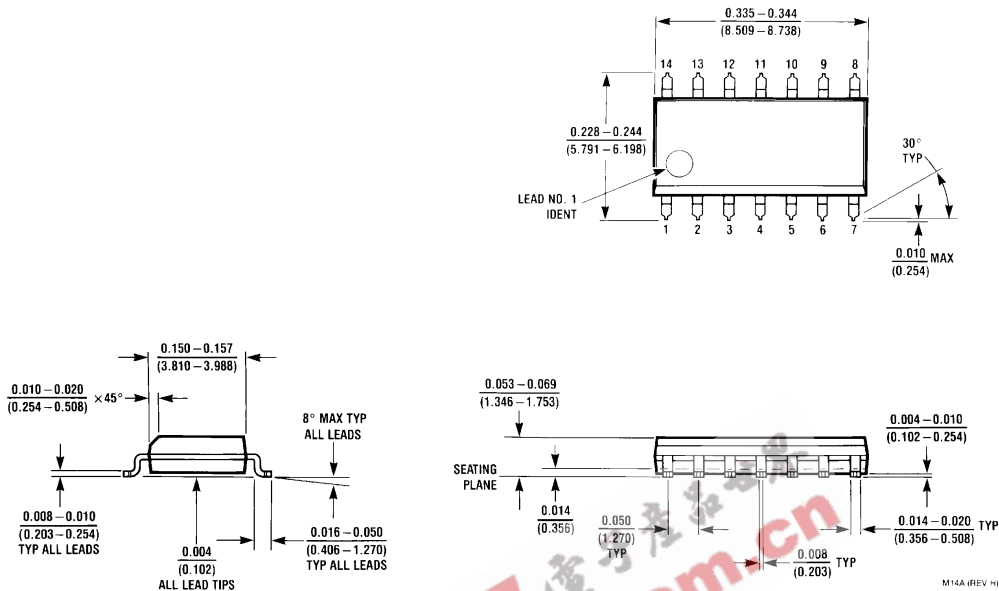
DC Electrical Characteristics

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 10% V _{CC} 2.0 5% V _{CC} 2.7			V	Min	I _{OH} = -3 mA (A _n , B _n) I _{OH} = -15 mA (A _n , B _n) I _{OH} = -3 mA (A _n , B _n)
V _{OL}	Output LOW Voltage			0.50 0.75	V	Min	I _{OL} = 1 mA (A _n , B _n) I _{OL} = 12 mA (A _n , B _n)
I _{IH}	Input HIGH Current			20	μA	Max	V _{IN} = 2.7V (\bar{E}_1, \bar{E}_2)
I _{BVI}	Input HIGH Current Breakdown Test			100	μA	Max	V _{IN} = 7.0V (\bar{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 (\bar{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	1.5	7.0	ns
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}	\bar{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}	\bar{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

Fairchild does not assume any responsibility for use of any circuitry described, no circuit patent licenses are implied and Fairchild reserves the right at any time without notice to change said circuitry and specifications.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

www.fairchildsemi.com