

74F243

Quad Bus Transceiver with 3-STATE Outputs

General Description

The 74F243 is a quad bus transmitter/receiver designed for 4-line asynchronous 2-way data communications between data busses.

Features

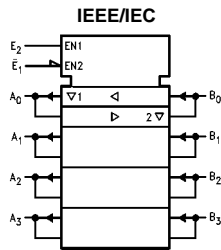
- 2-Way asynchronous data bus communication
- Input clamp diodes limit high-speed termination effects

Ordering Code:

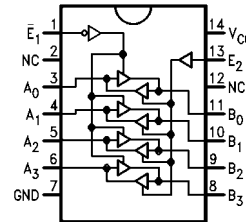
Order Code	Package Number	Package Description
74F243SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow

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 Z = High Impedance
L = LOW Voltage Level 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	600/106.6 (80)	-12 mA/64 mA (48 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 _{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.

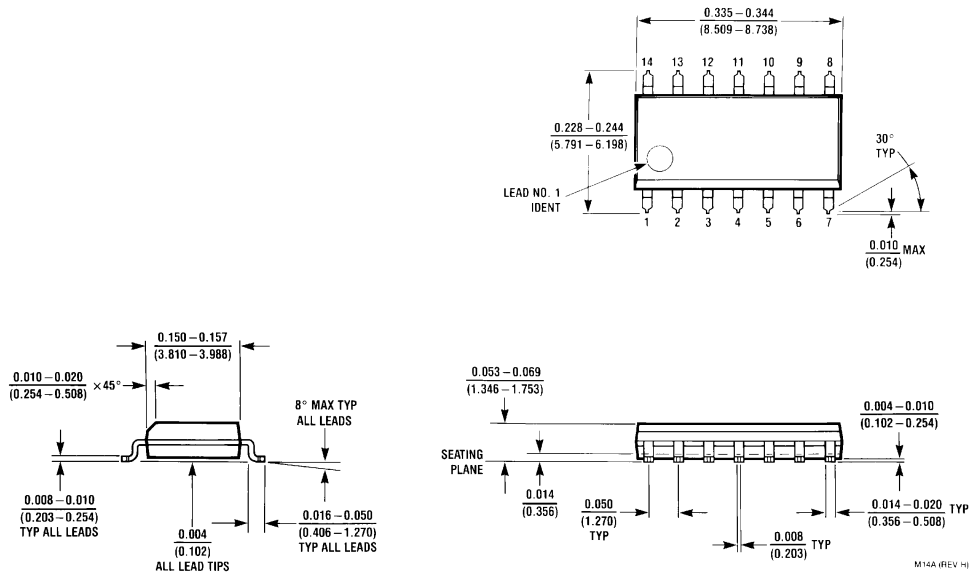
DC Electrical Characteristics

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	10% V _{CC}		0.55	V	Min	I _{OL} = 64 mA (A _n , B _n)
I _{IH}	Input HIGH Current			5.0	μA	Max	V _{IN} = 2.7V
I _{BVI}	Input HIGH Current Breakdown Test			7.0	μA	Max	V _{IN} = 7.0V (E ₁ , E ₂)
I _{BVIT}	Input HIGH Current Breakdown (I/O)			0.5	mA	Max	V _{IN} = 5.5V (A _n , B _n)
I _{CEX}	Output HIGH Leakage Current			50	μA	Max	V _{OUT} = V _{CC}
V _{ID}	Input Leakage Test	4.75			V	0.0	I _{ID} = 1.9 μA All Other Pins Grounded
I _{OD}	Output Leakage Circuit Current			3.75	μA	0.0	V _{IOD} = 150 mV All Other Pins Grounded
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 _{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	$T_A = +25^\circ\text{C}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$		Units
		$V_{CC} = +5.0\text{V}$			$V_{CC} = 5.0\text{V}$		$V_{CC} = 5.0\text{V}$		
		$C_L = 50\text{ pF}$			$C_L = 50\text{ pF}$		$C_L = 50\text{ pF}$		
		Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}	Propagation Delay	2.5	4.0	5.2	2.0	6.5	2.0	6.2	ns
t_{PHL}	A_n to B_n , B_n to A_n	2.5	4.0	5.2	2.0	8.5	2.0	6.5	
t_{PZH}	Output Enable Time	2.0	4.3	5.7	2.0	8.0	2.0	6.7	ns
t_{PZL}	\bar{E}_1 to B_n , E_2 to A_n	2.0	5.8	7.5	2.0	10.5	2.0	8.5	
t_{PHZ}	Output Disable Time	2.0	4.5	6.0	1.5	7.5	1.5	7.0	
t_{PLZ}	\bar{E}_1 to B_n , E_2 to A_n	2.0	4.5	6.0	2.0	8.5	2.0	7.0	

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