

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

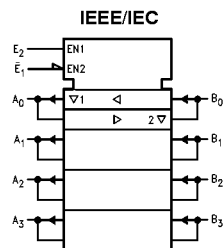
- 2-Way asynchronous data bus communication
- Input clamp diodes limit high-speed termination effects

Ordering Code:

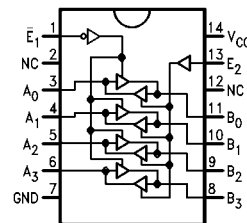
Order Code	Package Number	Package Description
74F243SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow

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
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	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.

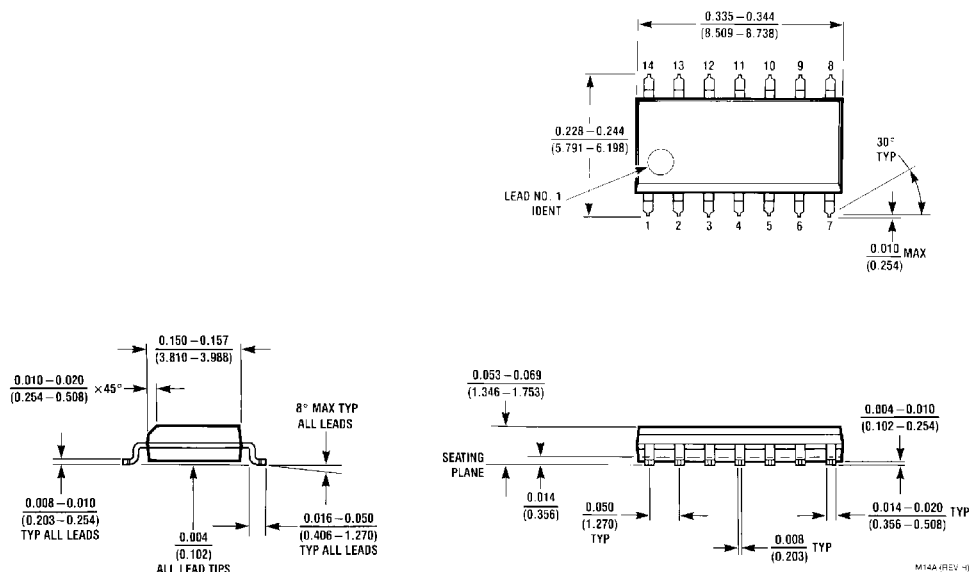
DC Electrical Characteristics

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	10% V _{CC}	2.4		V	Min	I _{OH} = –3 mA (A _n , B _n)
	Voltage	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 ($\bar{E}_1$, 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 ($\bar{E}_1$, 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 _{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 = -55°C to +125°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	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}	$\overline{E}_1$ 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}	$\overline{E}_1$ 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

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