

74F125 Quad Buffer (3-STATE)

Features

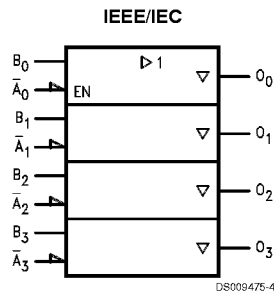
- High impedance base inputs for reduced loading

Ordering Code:

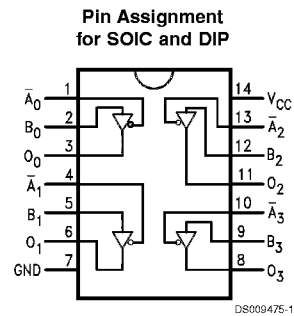
Commercial	Package Number	Package Description
74F125PC	N14A	14-Lead (0.300" Wide) Molded Dual-In-Line
74F125SC (Note 1)	M14A	14-Lead (0.150" Wide) Molded Small Outline, JEDEC
74F125SJ (Note 1)	M14D	14-Lead (0.300" Wide) Molded Small Outline, EIAJ

Note 1: Devices also available in 13" reel. Use suffix = SCX and SJX.

Logic Symbol



Connection Diagram



Unit Loading/Fan Out

Pin Names	Description	74F	
		U.L. HIGH/LOW	Input I_{IH}/I_{IL} Output I_{OH}/I_{OL}
\bar{A}_n, B_n	Inputs	1.0/0.033	20 μA /-20 μA
O_n	Outputs	600/106.6 (80)	-12 mA/64 mA (48 mA)

Function Table

Inputs		Output
\bar{A}_n	B_n	O
L	L	L
L	H	H
H	X	Z

H = High Voltage Level
 L = LOW Voltage Level
 Z = High Impedance
 X = Immaterial

Absolute Maximum Ratings (Note 2)

Storage Temperature	-65°C to +150°C
Ambient Temperature under Bias	-55°C to +125°C
Junction Temperature under Bias	-55°C to +175°C
Plastic	-55°C to +150°C
V _{CC} Pin Potential to Ground Pin	-0.5V to +7.0V
Input Voltage (Note 3)	-0.5V to +7.0V
Input Current (Note 3)	-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)

Recommended Operating Conditions

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

Note 2: 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 3: Either voltage limit or current limit is sufficient to protect inputs.

DC Electrical Characteristics

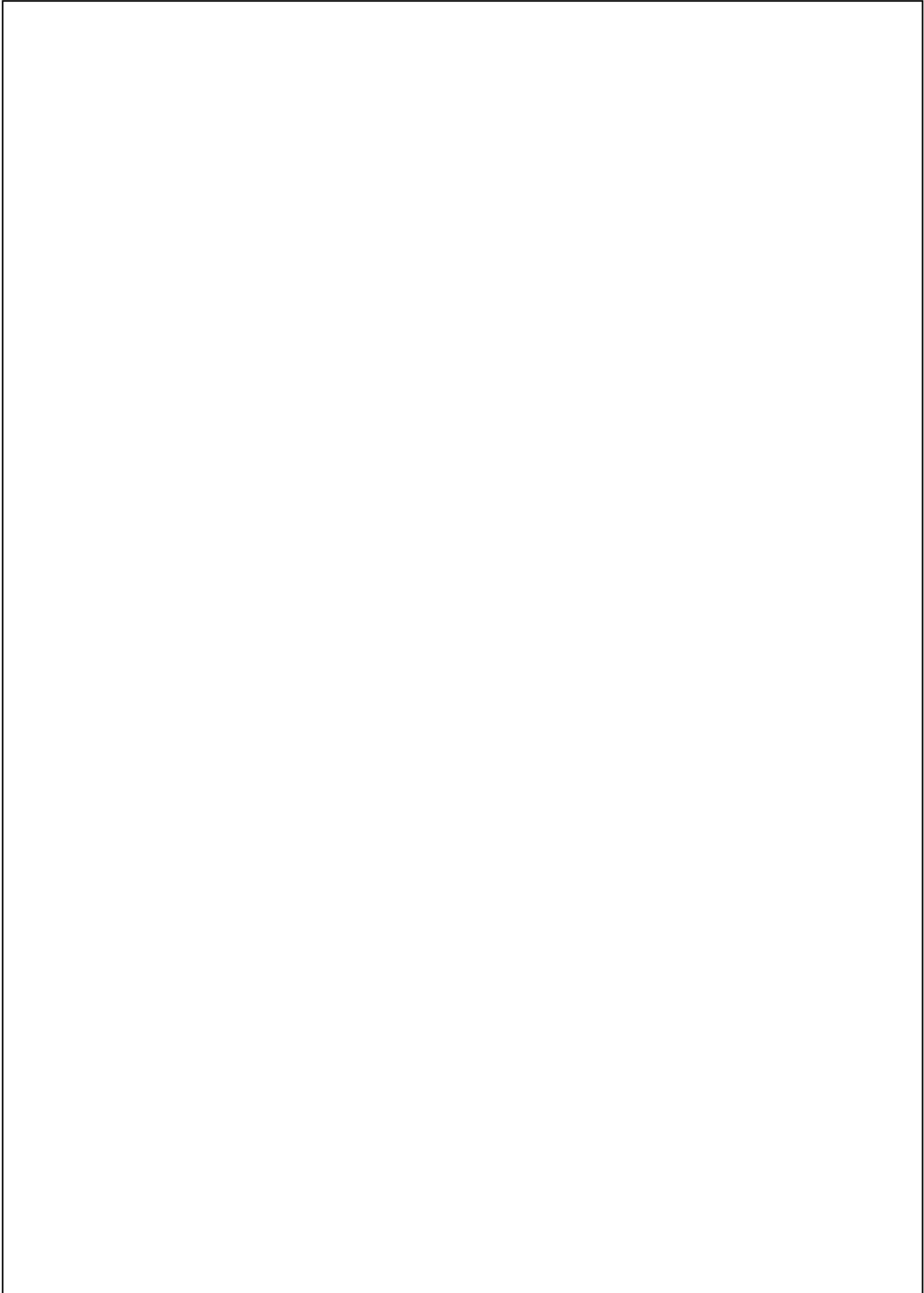
Symbol	Parameter	74F			Units	V _{CC}	Conditions
		Min	Typ	Max			
V _{IH}	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal
V _{IL}	Input LOW Voltage			0.8	V		Recognized as a LOW Signal
V _{CD}	Input Clamp Diode Voltage			-1.2	V	Min	I _{IN} = -18 mA
V _{OH}	Output HIGH Voltage	74F 10% V _{CC}	2.4		V	Min	I _{OH} = -3 mA
		74F 10% V _{CC}	2.0				I _{OH} = -12 mA
		74F 5% V _{CC}	2.7				I _{OH} = -3 mA
		74F 5% V _{CC}	2.0				I _{OH} = -15 mA
V _{OL}	Output LOW Voltage			0.55	V	Min	I _{OL} = 64 mA
I _{IH}	Input HIGH Current			20	μA	Max	V _{IN} = 2.7V
I _{BVI}	Input HIGH Current Breakdown Test			100	μA	0.0V	V _{IN} = 7.0V
I _{IL}	Input LOW Current			-20.0	μA	Max	V _{IN} = 0.5V
I _{OZH}	Output Leakage Current			50	μA	Max	V _{OUT} = 2.7V
I _{OZL}	Output Leakage Current			-50	μA	Max	V _{OUT} = 0.5V
I _{OS}	Output Short-Circuit Current	-100		-225	mA	Max	V _{OUT} = 0V
I _{CEx}	Output HIGH Leakage Current			250	μA	Max	V _{OUT} = V _{CC}
I _{ZZ}	Buss Drainage Test			500	μA	0.0V	V _{OUT} = 5.25V
I _{CCH}	Power Supply Current		18.5	24.0	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current		31.7	40.0	mA	Max	V _O = LOW
I _{CCZ}	Power Supply Current		27.6	35.0	mA	Max	V _O = HIGH Z

AC Electrical Characteristics

Symbol	Parameter	74F			74F		Units
		T _A = +25°C V _{CC} = +5.0V C _L = 50 pF			T _A , V _{CC} = Com C _L = 50 pF		
		Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay	2.0	4.0	6.0	2.0	6.5	ns
t _{PHL}		3.0	4.6	7.5	3.0	8.0	
t _{PZH}	Output Enable Time	3.5	4.7	7.5	3.0	8.5	ns
t _{PZL}		3.5	5.3	8.0	3.5	9.0	

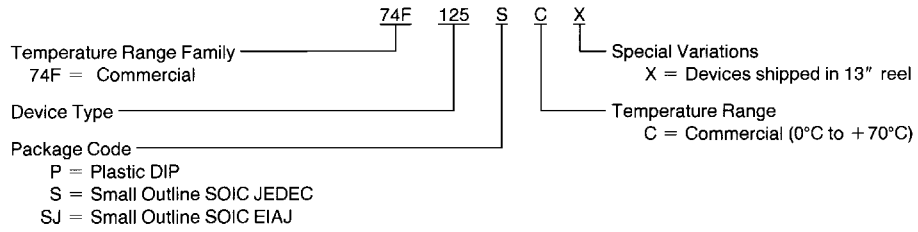
AC Electrical Characteristics (Continued)

Symbol	Parameter	74F			74F		Units
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{ pF}$			$T_A, V_{CC} = \text{Com}$ $C_L = 50\text{ pF}$		
		Min	Typ	Max	Min	Max	
t_{PHZ}	Output Disable Time	1.5	3.9	5.5	1.5	6.0	ns
t_{PLZ}		1.5	4.0	6.0	1.5	6.5	



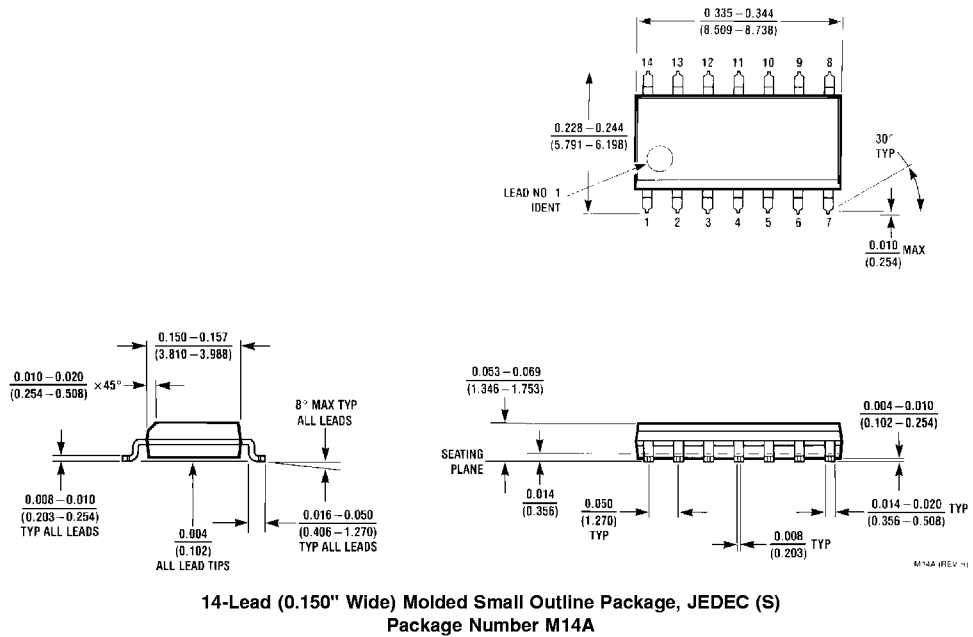
Ordering Information

The device number is used to form part of a simplified purchasing code where the package type and temperature range are defined as follows:

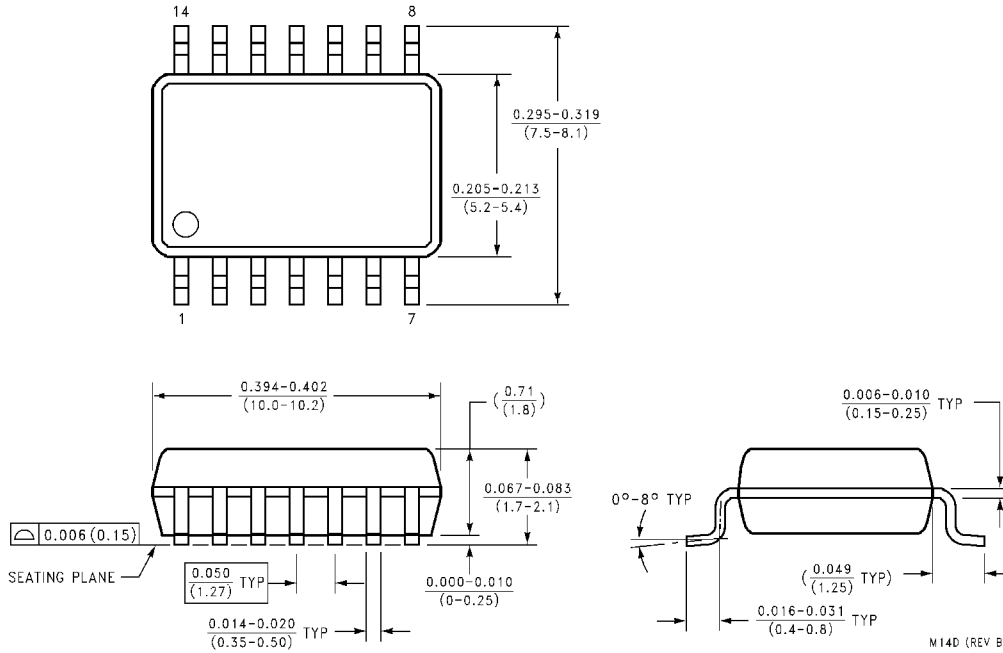


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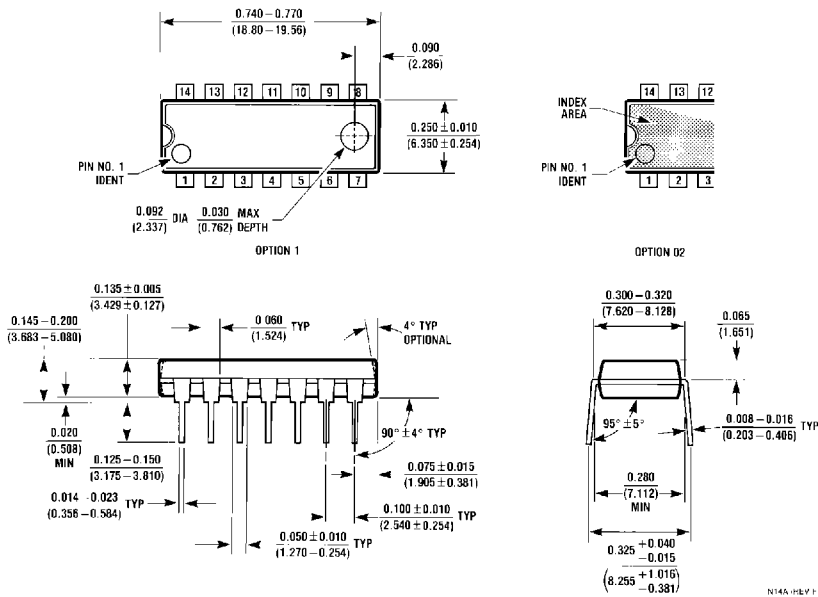
Physical Dimensions inches (millimeters) unless otherwise noted



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



**14-Lead (0.300" Wide) Molded Small Outline Package, EIAJ (SJ)
Package Number M14D**



**14-Lead (0.300" Wide) Molded Dual-In-Line Package (P)
Package Number N14A**

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