

## 74F125 Quad Buffer (3-STATE)

### Features

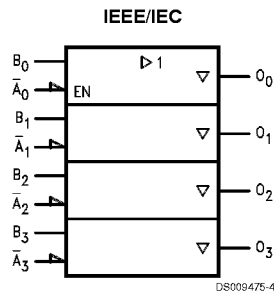
- High impedance base inputs for reduced loading

### Ordering Code:

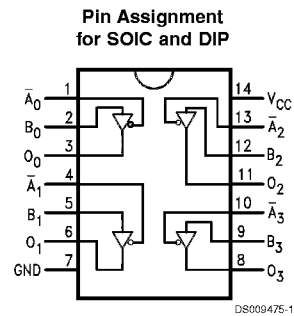
Commercial	Package Number	Package Description
74F125PC	N14A	14-Lead (0.300" Wide) Molded Dual-In-Line
74F125SC (Note 1)	M14A	14-Lead (0.150" Wide) Molded Small Outline, JEDEC
74F125SJ (Note 1)	M14D	14-Lead (0.300" Wide) Molded Small Outline, EIAJ

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 $\mu\text{A}$ /-20 $\mu\text{A}$
$O_n$	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 <sub>CC</sub> 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 <sub>CC</sub> = 0V)	
Standard Output	-0.5V to V <sub>CC</sub>
3-STATE Output	-0.5V to +5.5V
Current Applied to Output in LOW State (Max)	twice the rated I <sub>OL</sub> (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

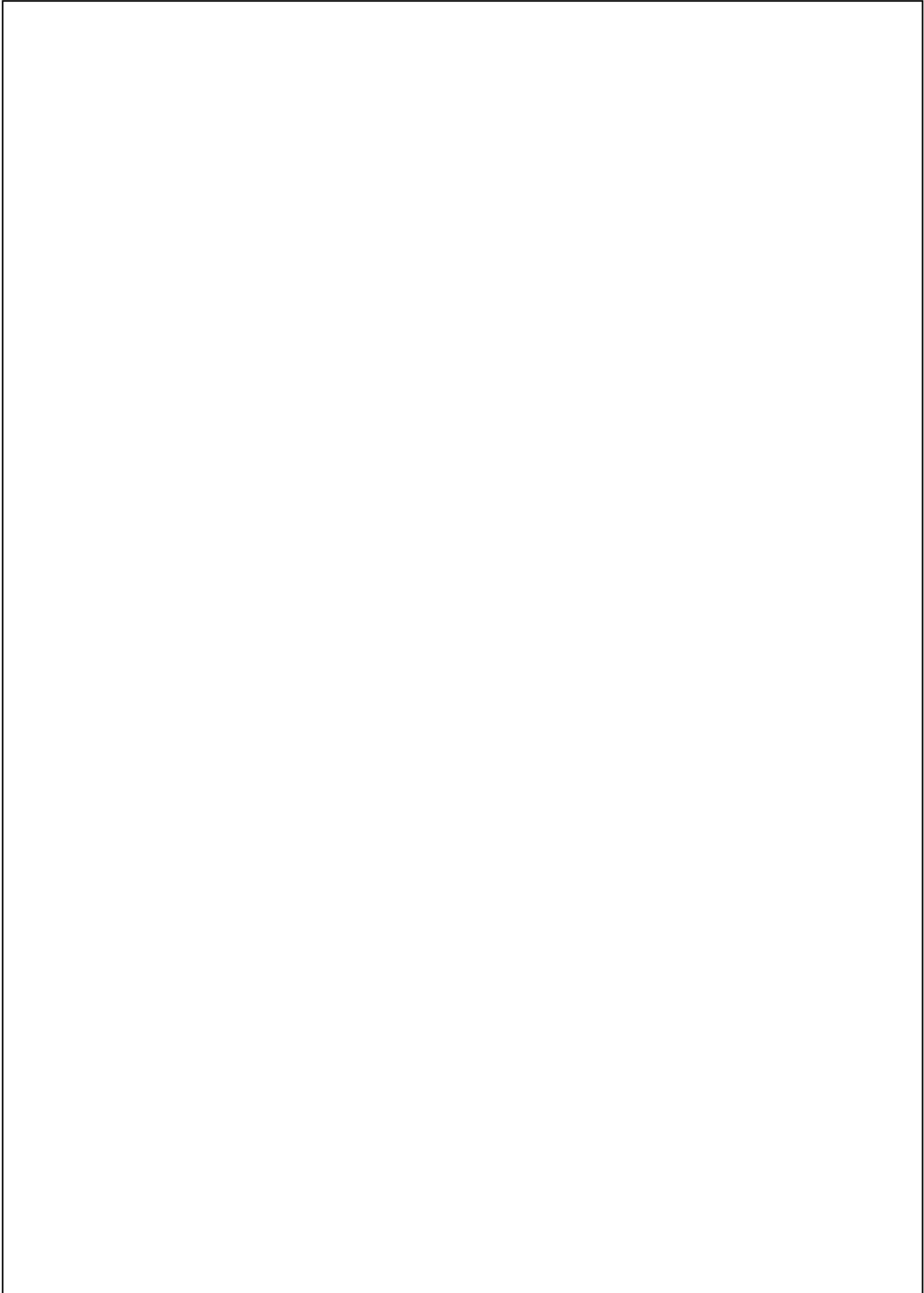
Symbol	Parameter	74F			Units	V <sub>CC</sub>	Conditions
		Min	Typ	Max			
V <sub>IH</sub>	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal
V <sub>IL</sub>	Input LOW Voltage			0.8	V		Recognized as a LOW Signal
V <sub>CD</sub>	Input Clamp Diode Voltage			-1.2	V	Min	I <sub>IN</sub> = -18 mA
V <sub>OH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

## AC Electrical Characteristics

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

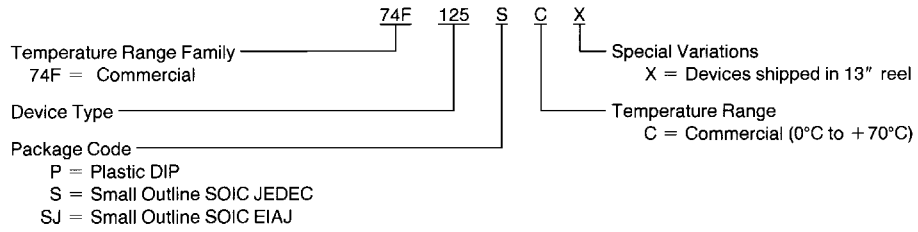
## AC Electrical Characteristics (Continued)

Symbol	Parameter	74F			74F		Units
		T <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0V C <sub>L</sub> = 50 pF			T <sub>A</sub> , V <sub>CC</sub> = Com C <sub>L</sub> = 50 pF		
		Min	Typ	Max	Min	Max	
t <sub>PHZ</sub>	Output Disable Time	1.5	3.9	5.5	1.5	6.0	ns
t <sub>PLZ</sub>		1.5	4.0	6.0	1.5	6.5	



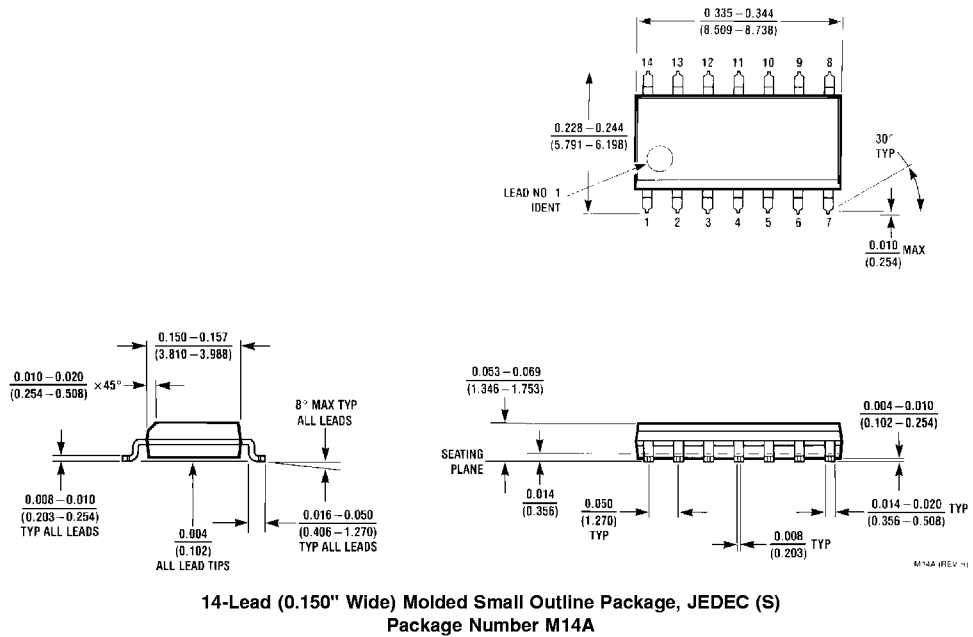
## Ordering Information

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

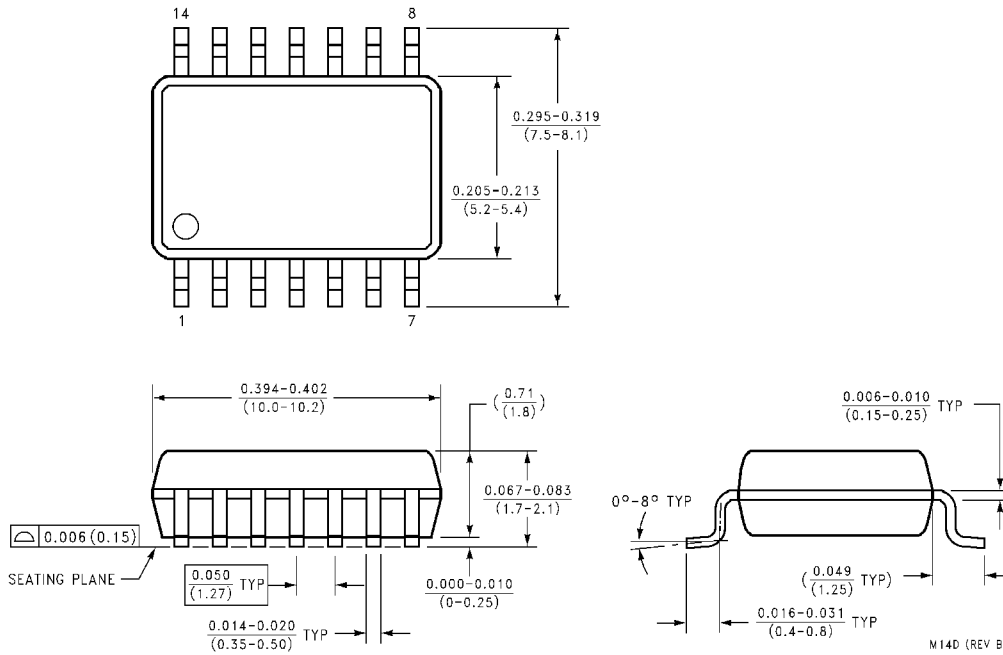


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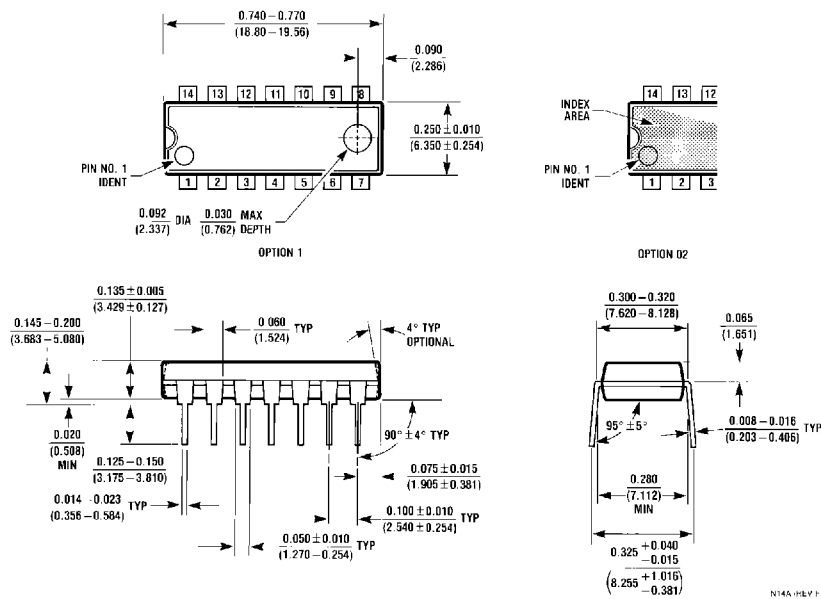
## Physical Dimensions inches (millimeters) unless otherwise noted



**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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