

74F125 Quad Buffer (3-STATE)

Features

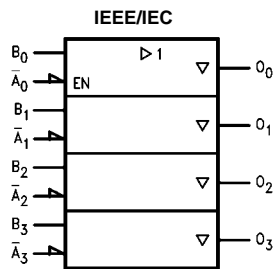
- High impedance base inputs for reduced loading

Ordering Code:

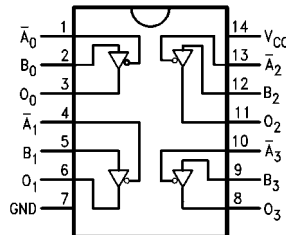
| Order Number | Package Number | Package Description |
|--------------|----------------|---|
| 74F125SC | M14A | 14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow |
| 74F125SJ | M14D | 14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide |
| 74F125PC | N14A | 14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide |

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Logic Symbol



Connection Diagram



Unit Loading/Fan Out

| Pin Names | Description | U.L. HIGH/LOW | Input I_H/I_L Output I_{OH}/I_{OL} |
|------------------|-------------|------------------|---|
| \bar{A}_n, B_n | Inputs | 1.0/0.033 | 20 μ A/-20 μ 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 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) |

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} 10% V _{CC} 5% V _{CC} 5% V _{CC} | 2.4 2.0 2.7 2.0 | | V | Min | I _{OH} = -3 mA I _{OH} = -12 mA I _{OH} = -3 mA I _{OH} = -15 mA |
| V _{OL} | Output LOW Voltage | 10% V _{CC} | | 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

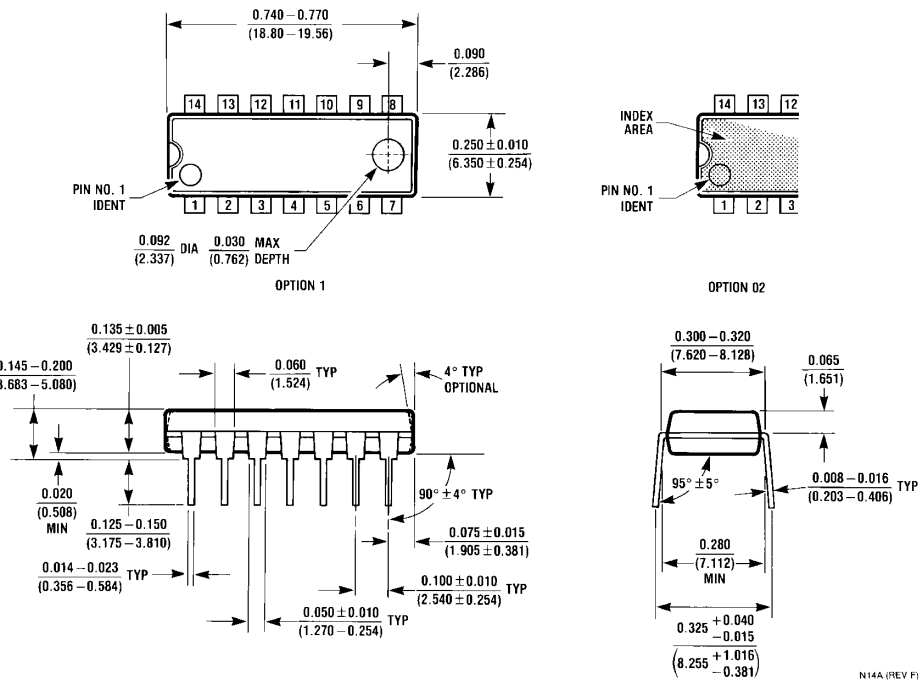
| Symbol | Parameter | T _A = +25°C V _{CC} = +5.0V C _L = 50 pF | | | T _A = 0°C to +70°C V _{CC} = +5.0V C _L = 50 pF | | Units |
|------------------|---------------------|---|-----|-----|--|-----|-------|
| | | Min | Typ | Max | Min | Max | |
| t _{PLH} | Propagation Delay | 2.0 | 4.0 | 6.0 | 2.0 | 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 | |
| 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 | |

Physical Dimensions inches (millimeters) unless otherwise noted



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

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



14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide Package Number N14A

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