

74F366 • 74F368 Hex Inverter/Buffer with 3-STATE Outputs

Features

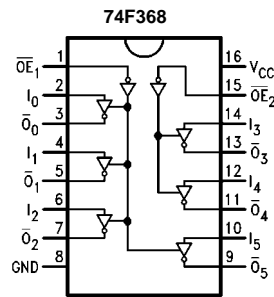
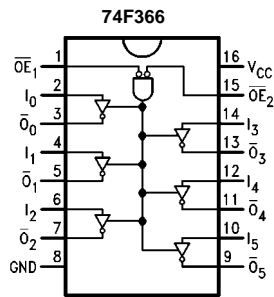
- 3-STATE buffer outputs sink 64 mA
- High-speed
- Bus-oriented
- High impedance npn base inputs for reduced loading

Ordering Code:

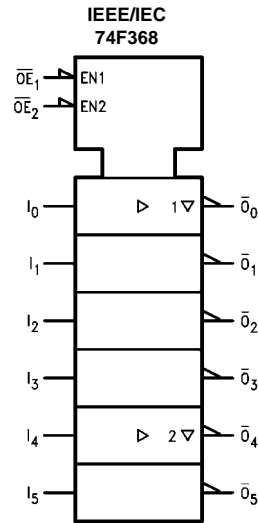
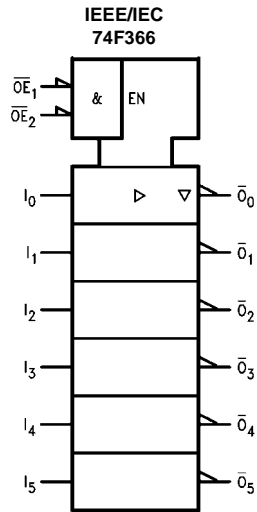
| Order Number | Package Number | Package Description |
|--------------|----------------|---|
| 74F366SC | M16A | 16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow |
| 74F366PC | N16E | 16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide |
| 74F368SC | M16A | 16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow |
| 74F368SJ | M16D | 16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide |
| 74F368PC | N16E | 16-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.

Connection Diagrams



Logic Symbols



Unit Loading/Fan Out

| Pin Names | Description | U.L. HIGH/LOW | Input I_{IH}/I_{IL} Output I_{OH}/I_{OL} |
|------------------------------------|----------------------------------|------------------|---|
| $\overline{OE}_1, \overline{OE}_2$ | Output Enable Input (Active LOW) | 1.0/0.033 | 20 μ A/-20 μ A |
| I_n | Input | 1.0/0.033 | 20 μ A/-20 μ A |
| O_n, \overline{O}_n | Outputs | 600/106.6 (80) | -12 mA/64 mA (48 mA) |

Function Tables

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| Inputs | | | Output |
|-------------------|-------------------|---|----------------|
| \overline{OE}_1 | \overline{OE}_2 | I | \overline{O} |
| L | L | L | H |
| L | L | H | L |
| X | H | X | Z |
| H | X | X | Z |

74F368

| Inputs | | Output |
|-----------------|---|----------------|
| \overline{OE} | I | \overline{O} |
| L | L | H |
| L | H | L |
| H | X | Z |

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

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.

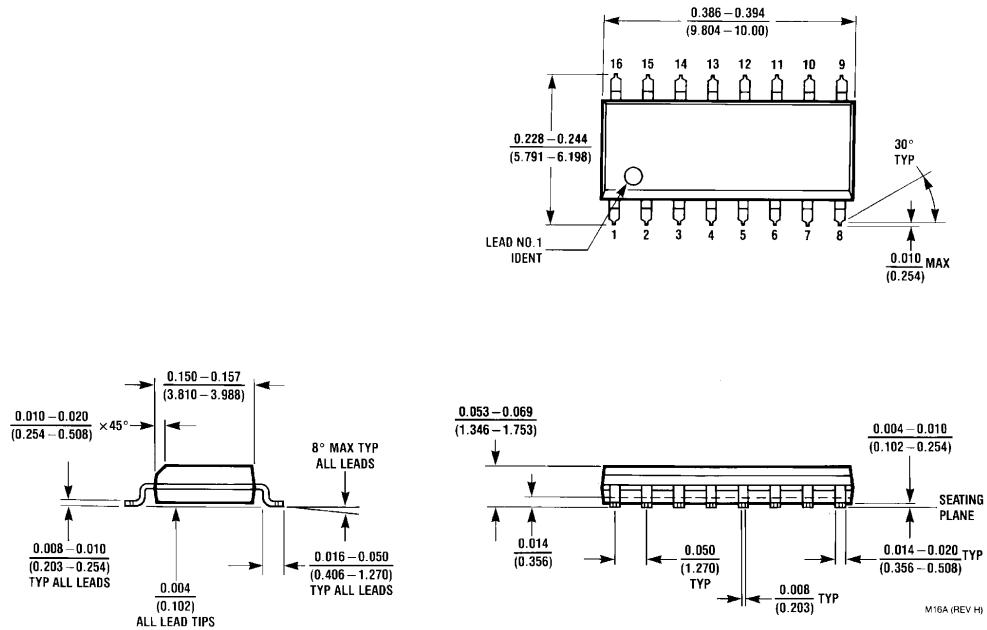
DC Electrical Characteristics

| 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} | 2.0 | | V | Min | 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 | Max | V _{IN} = 7.0V |
| I _{IL} | Input LOW Current | | | -20 | 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} | Bus Drainage Test | | | 500 | μA | 0.0V | V _{OUT} = 5.25V |
| I _{CCH} | Power Supply Current | | 20 | 25 | mA | Max | V _O = HIGH |
| I _{CCL} | Power Supply Current | | 49 | 62 | mA | Max | V _O = LOW |
| I _{CCZ} | Power Supply Current | | 35 | 48 | mA | Max | V _O = HIGH Z |

AC Electrical Characteristics

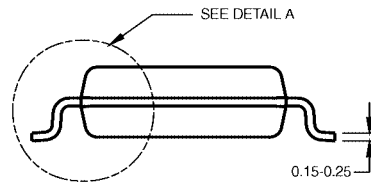
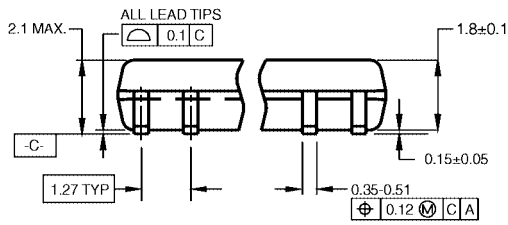
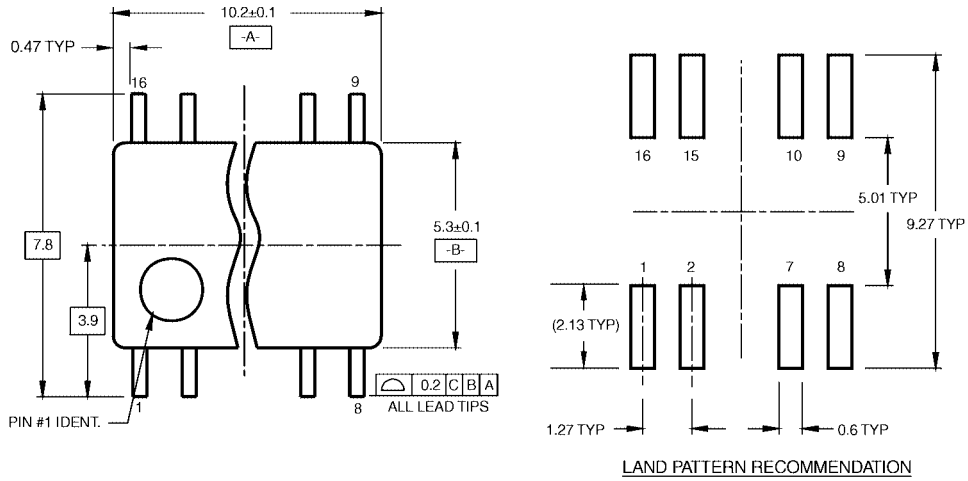
| Symbol | Parameter | T _A = +25°C V _{CC} = +5.0V C _L = 50 pF | | | T _A = 0°C to +70°C C _L = 50 pF C _L = 50 pF | | Units |
|------------------|----------------------|---|-----|-----|---|------|-------|
| | | Min | Typ | Max | Min | Max | |
| t _{PLH} | Propagation Delay | 2.5 | 4.0 | 6.5 | 2.0 | 7.5 | ns |
| t _{PHL} | | 1.0 | 1.8 | 5.0 | 1.0 | 5.5 | |
| t _{PZH} | Enable Time (74F366) | 2.5 | 4.2 | 9.5 | 2.5 | 10.0 | ns |
| t _{PZL} | | 2.5 | 4.2 | 9.0 | 2.5 | 9.5 | |
| t _{PZH} | Enable Time (74F368) | 2.5 | 4.2 | 7.5 | 2.0 | 8.5 | ns |
| t _{PZL} | | 3.0 | 5.6 | 8.5 | 3.0 | 9.0 | |
| t _{PHZ} | Disable Time | 2.0 | 3.3 | 6.5 | 2.0 | 7.0 | ns |
| t _{PLZ} | | 2.0 | 4.1 | 6.5 | 2.0 | 7.0 | |

Physical Dimensions inches (millimeters) unless otherwise noted



16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow Package Number M16A

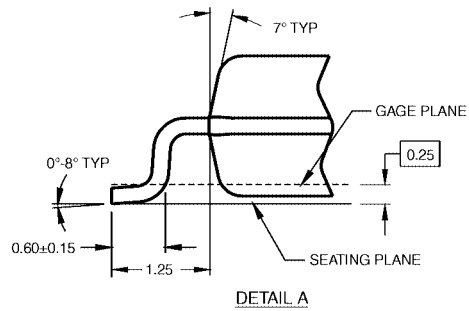
Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



DIMENSIONS ARE IN MILLIMETERS

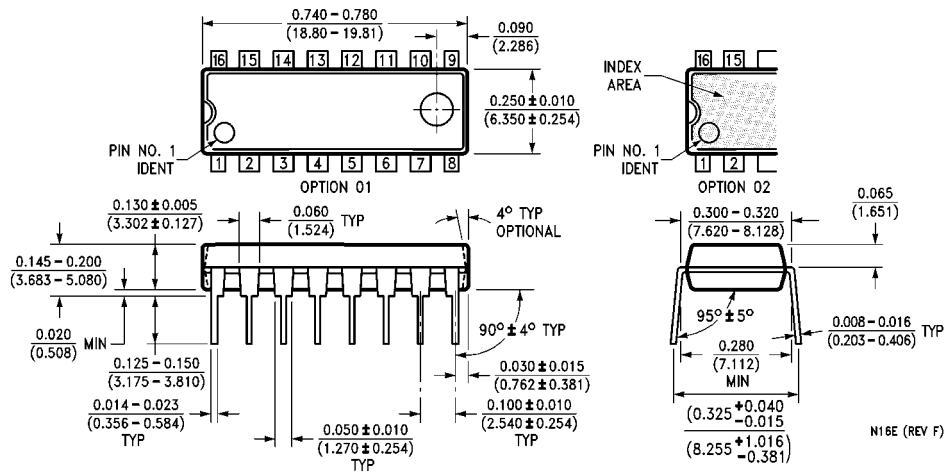
- NOTES:
 A. CONFORMS TO EIAJ EDR-7320 REGISTRATION, ESTABLISHED IN DECEMBER, 1998.
 B. DIMENSIONS ARE IN MILLIMETERS.
 C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

M16DRevB1



**16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
 Package Number M16D**

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



16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide Package Number N16E

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