

FAIRCHILD
SEMICONDUCTOR™

April 1988
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74F366•74F368 Hex Inverter Buffer with 3-STATE Outputs

Features

■ 3-STATE buffer outputs sink 64 mA

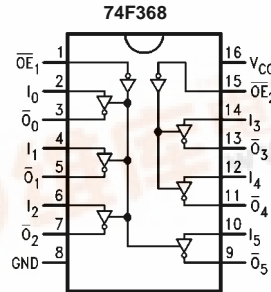
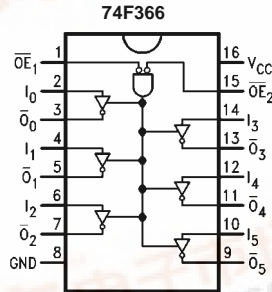
- High-speed
- Bus-oriented
- High impedance npn base inputs for reduced loading

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.

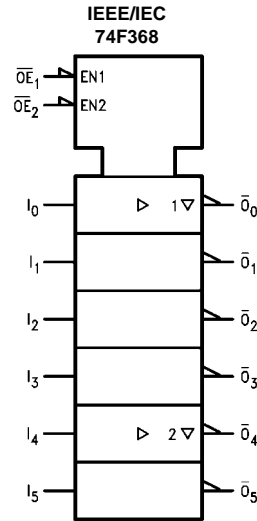
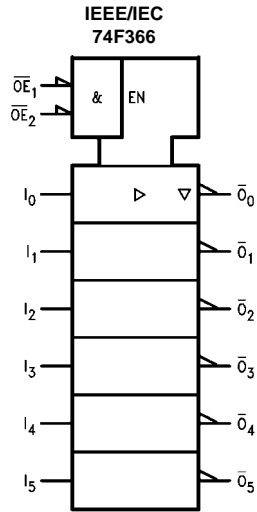
Connection Diagrams



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



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

74F366

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.

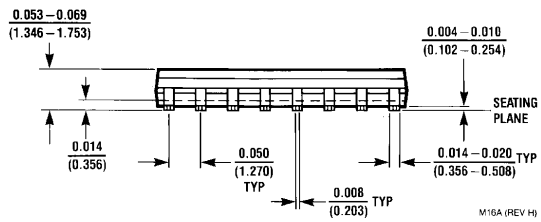
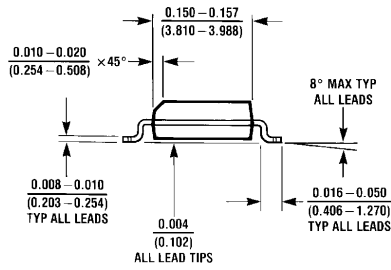
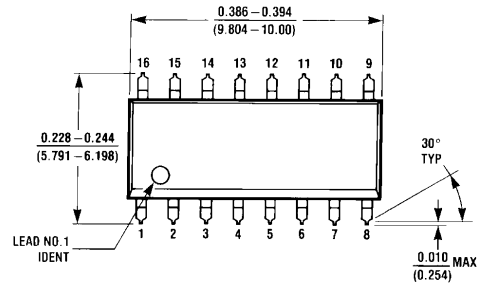
DC Electrical Characteristics

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

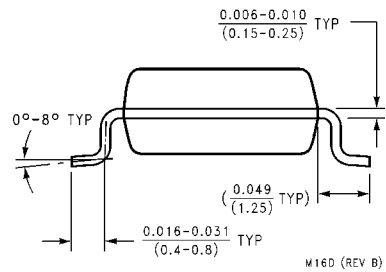
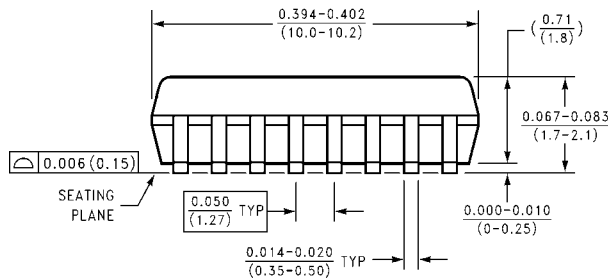
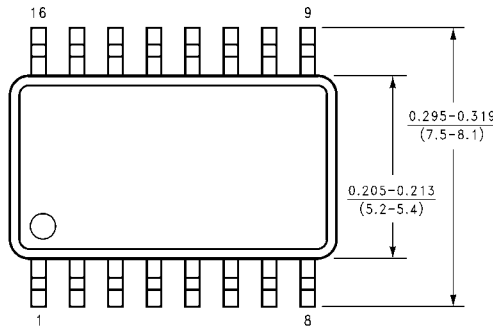
AC Electrical Characteristics

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

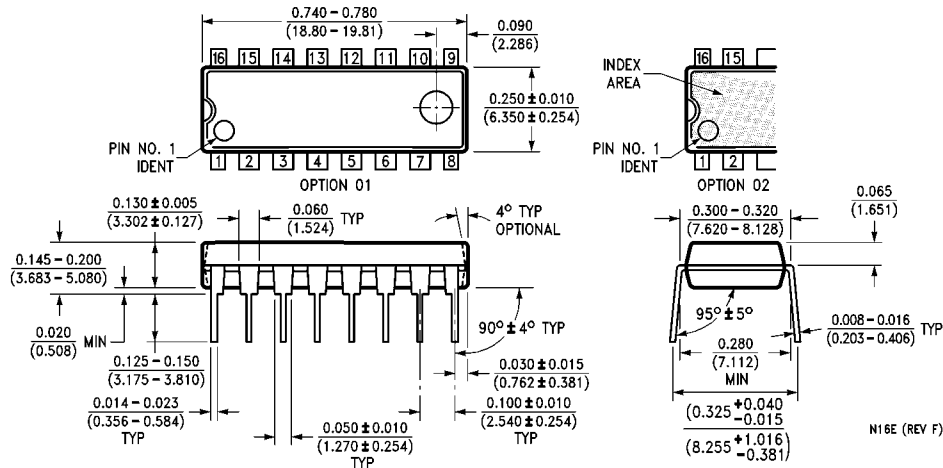


16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
Package Number M16A



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

N16E (REV F)

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