

74F366•74F368 Hex Inverter Buffer with TRI-STATE® Outputs

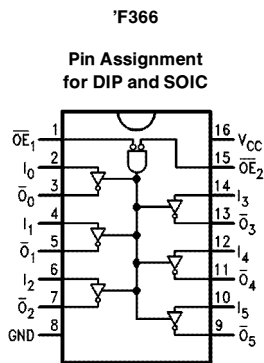
Features

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

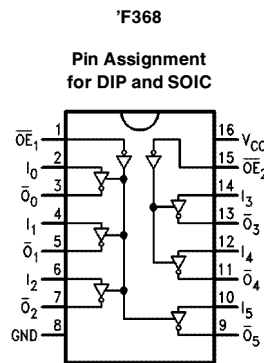
Commercial	Package Number	Package Description
74F366PC	N16E	16-Lead (0.300" Wide) Molded Dual-in-Line
74F366SC (Note 1)	M16A	16-Lead (0.150" Wide) Molded Small Outline, JEDEC
74F368PC	N16E	16-Lead (0.300" Wide) Molded Dual-in-Line
74F368SC (Note 1)	M16A	16-Lead (0.150" Wide) Molded Small Outline, JEDEC
74F368SJ (Note 1)	M16D	16-Lead (0.300" Wide) Molded Small Outline, EIAJ

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

Connection Diagrams



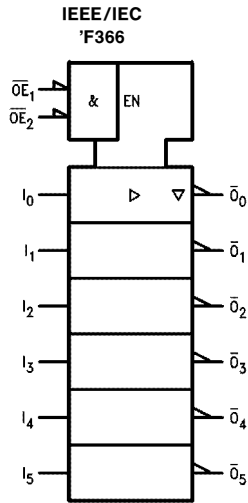
TL/F/9521-2



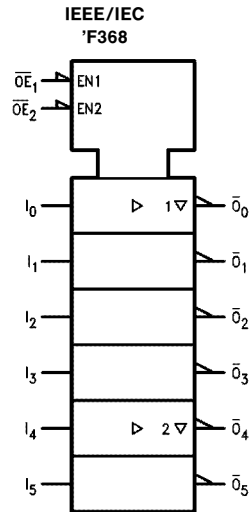
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TRI-STATE® is a registered trademark of National Semiconductor Corporation.

Logic Symbols



TL/F/9521-5



TL/F/9521-6

Unit Loading/Fan Out

Pin Names	Description	74F	
		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

'F366

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

'F368

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

L = LOW Voltage Level
H = HIGH Voltage Level
X = Immaterial
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 +175°C
Plastic	-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}
TRI-STATE Output	-0.5V to +5.5V
Current Applied to Output in LOW State (Max)	twice the rated I _{OL} (mA)

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.

Recommended Operating Conditions

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

DC Electrical Characteristics

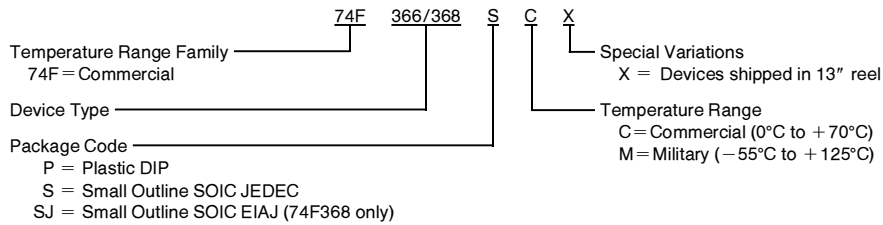
Symbol	Parameter	74F			Units	V _{CC}	Conditions
		Min	Typ	Max			
V _{IH}	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal
V _{IL}	Input LOW Voltage			0.8	V		Recognized as a LOW Signal
V _{CD}	Input Clamp Diode Voltage			-1.2	V	Min	I _{IN} = -18 mA
V _{OH}	Output HIGH Voltage 74F 10% V _{CC}	2.0			V	Min	I _{OH} = -15 mA
V _{OL}	Output LOW Voltage 74F 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

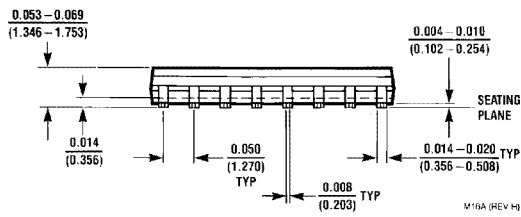
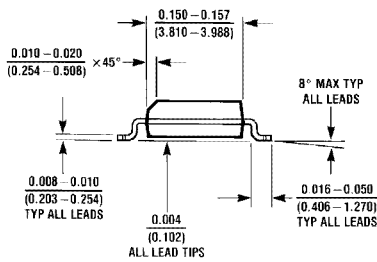
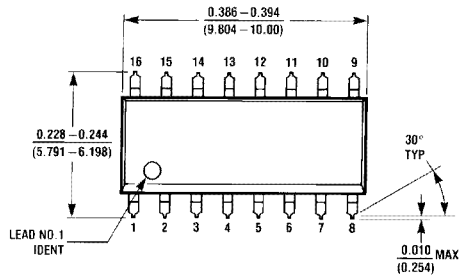
Symbol	Parameter	74F			74F		Units
		T _A = +25°C V _{CC} = +5.0V C _L = 50 pF			T _A , V _{CC} = Com C _L = 50 pF		
		Min	Typ	Max	Min	Max	
t _{PLH} t _{PHL}	Propagation Delay	2.5 1.0	4.0 1.8	6.5 5.0	2.0 1.0	7.5 5.5	ns
t _{PZH} t _{PZL}	Enable Time ('F366)	2.5 2.5	4.2 4.2	9.5 9.0	2.5 2.5	10.0 9.5	ns
t _{PZH} t _{PZL}	Enable Time ('F368)	2.5 3.0	4.2 5.6	7.5 8.5	2.0 3.0	8.5 9.0	ns
t _{PHZ} t _{PLZ}	Disable Time	2.0 2.0	3.3 4.1	6.5 6.5	2.0 2.0	7.0 7.0	ns

Ordering Information

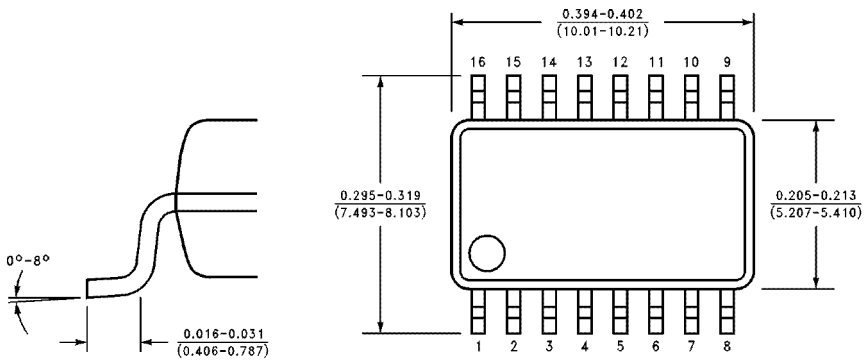
The device number is used to form part of a simplified purchasing code where the package type and temperature range are defined as follows:



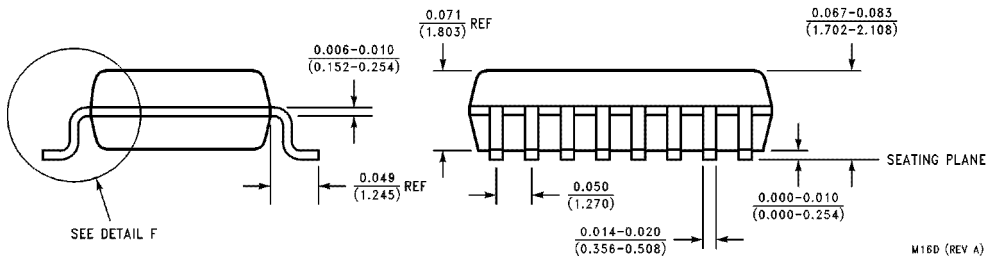
Physical Dimensions inches (millimeters)



**16-Lead Small Outline Integrated Circuit (S)
NS Package Number M16A**

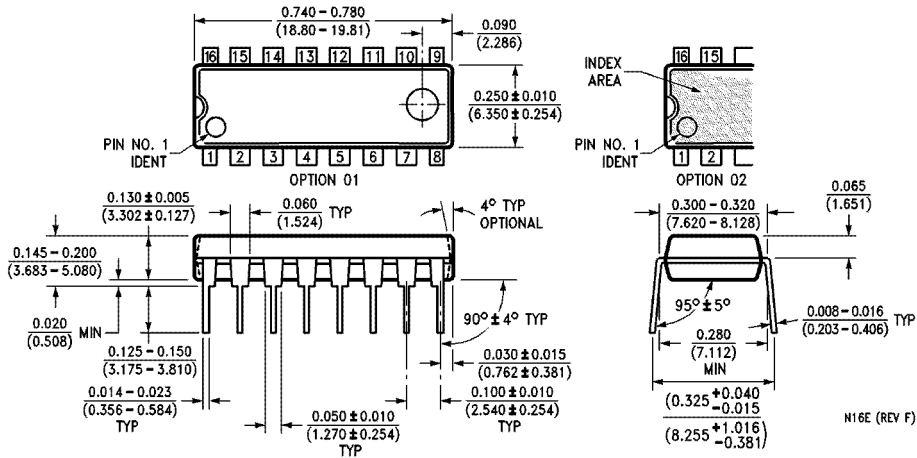


DETAIL F



**16-Lead (0.300" Wide) Molded Small Outline Package, EIAJ (SJ)
NS Package Number M16D**

Physical Dimensions inches (millimeters) (Continued)



**16-Lead (0.300" Wide) Molded Dual-In-Line Package (P)
NS Package Number N16E**

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