

FAIRCHILD
SEMICONDUCTOR™

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74F32 Quad 2-Input OR Gate

General Description

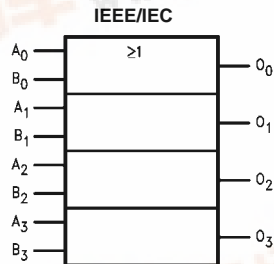
This device contains four independent gates, each of which performs the logic OR function.

Ordering Code:

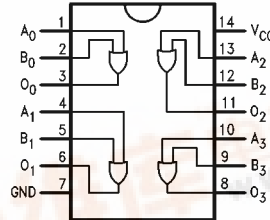
Order Number	Package Number	Package Description
74F32SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow
74F32SJ	M14D	14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74F32MTC	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74F32PC	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}
A_n, B_n	Inputs	1.0/1.0	20 μ A/-0.6 mA
O_n	Outputs	50/33.3	-1 mA/20 mA

74F32 Quad 2-Input OR Gate



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)
ESD Last Passing Voltage (Min)	4000V

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.

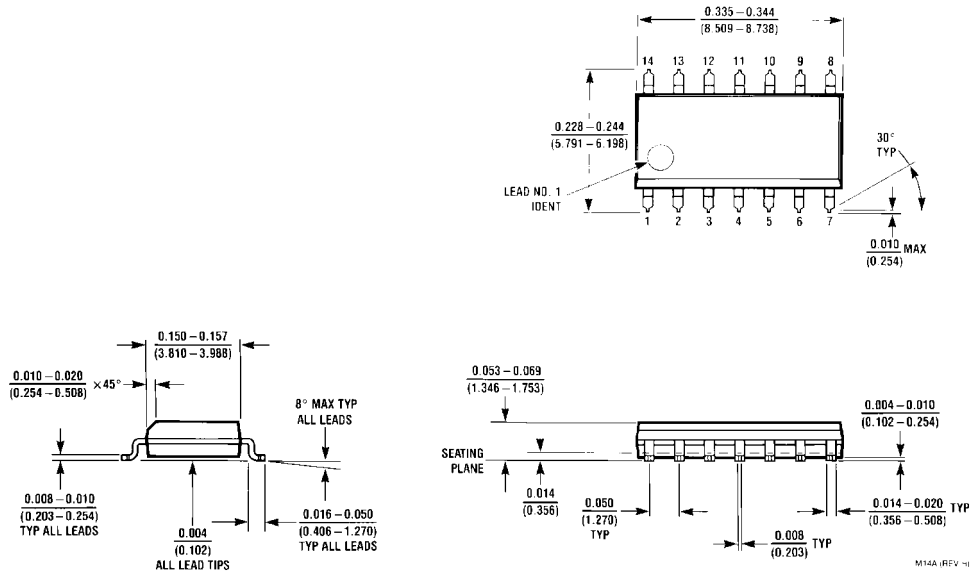
DC Electrical Characteristics

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}	2.5		V	Min	I _{OH} = -1 mA
		5% V _{CC}	2.7				I _{OH} = -1 mA
V _{OL}	Output LOW Voltage	10% V _{CC}		0.5	V	Min	I _{OL} = 20 mA
I _{IH}	Input HIGH Current			5.0	μA	Max	V _{IN} = 2.7V
I _{BVI}	Input HIGH Current Breakdown Test			7.0	μA	Max	V _{IN} = 7.0V
I _{CEX}	Output HIGH Leakage Current			50	μA	Max	V _{OUT} = V _{CC}
V _{ID}	Input Leakage Test	4.75			V	0.0	I _{ID} = 1.9 μA All Other Pins Grounded
I _{OD}	Output Leakage Circuit Current			3.75	μA	0.0	V _{IOD} = 150 mV All Other Pins Grounded
I _{IL}	Input LOW Current			-0.6	mA	Max	V _{IN} = 0.5V
I _{OS}	Output Short-Circuit Current	-60		-150	mA	Max	V _{OUT} = 0V
I _{CCH}	Power Supply Current		6.1	9.2	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current		10.3	15.5	mA	Max	V _O = LOW

AC Electrical Characteristics

Symbol	Parameter	T _A = +25°C			T _A = -55°C to +125°C		T _A = 0°C to +70°C		Units
		V _{CC} = +5.0V			V _{CC} = +5.0V		V _{CC} = +5.0V		
		C _L = 50 pF			C _L = 50 pF		C _L = 50 pF		
		Min	Typ	Max	Min	Max	Min	Max	
t _{PLH}	Propagation Delay	3.0	4.2	5.6	3.0	7.5	3.0	6.6	ns
t _{PHL}	A _n , B _n to O _n	3.0	4.0	5.3	2.5	7.5	3.0	6.3	

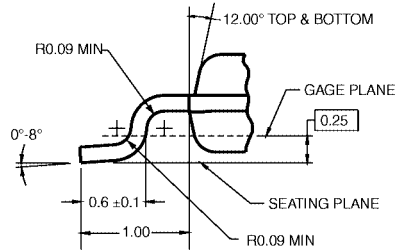
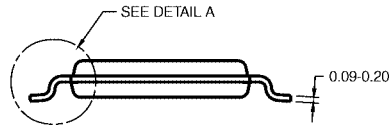
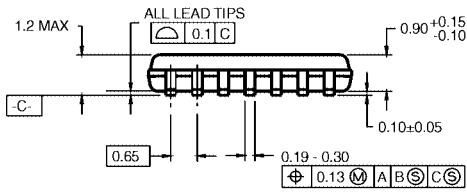
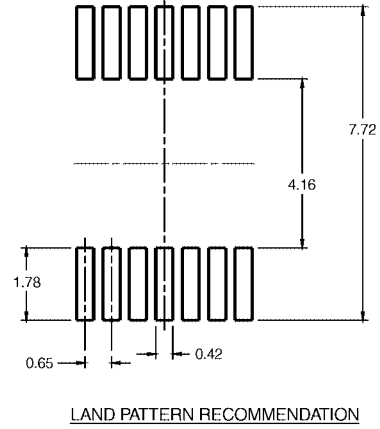
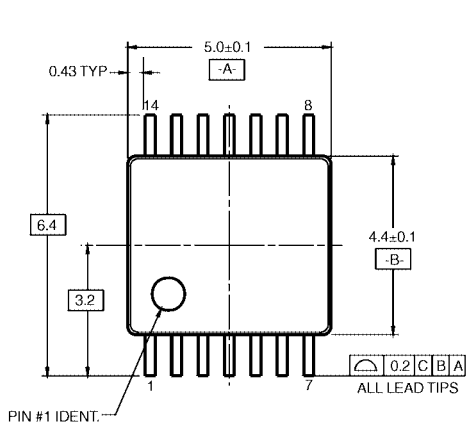
Physical Dimensions inches (millimeters) unless otherwise noted



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

M14A (REV. 1)

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



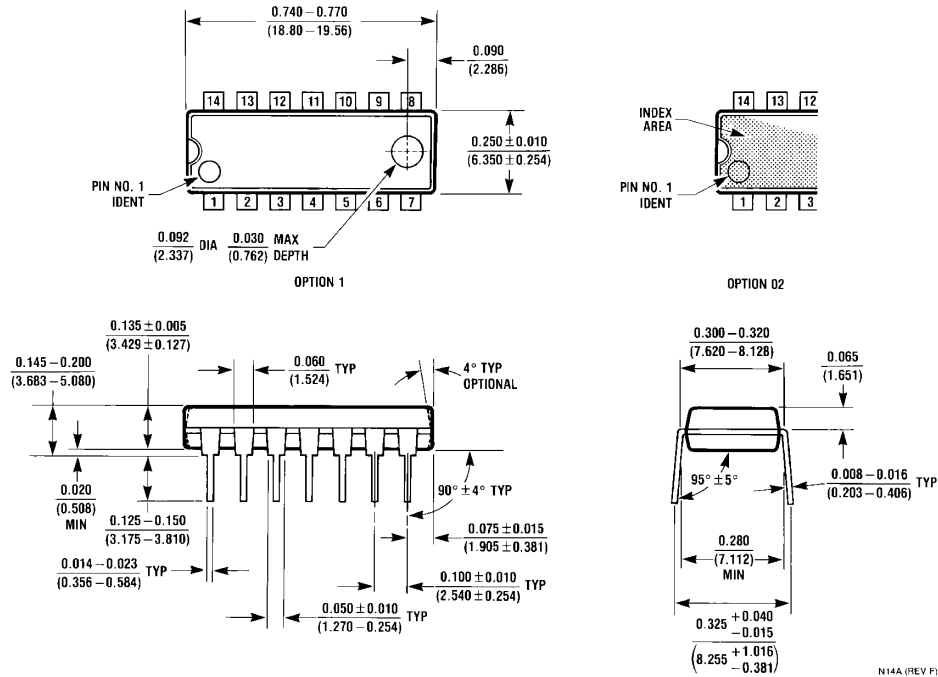
- NOTES:
- A. CONFORMS TO JEDEC REGISTRATION MO-153, VARIATION AB, REF NOTE 6, DATE 7/93.
 - B. DIMENSIONS ARE IN MILLIMETERS.
 - C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
 - D. DIMENSIONS AND TOLERANCES PER ANSI Y14.5M, 1982.

MTC14RevC3

DETAIL A

**14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
Package Number MTC14**

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

N14A (REV F)

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