

FAIRCHILD
SEMICONDUCTOR™

October 1988
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74F2244

Octal Buffer/Line Driver with 25Ω Series Resistors in Outputs

General Description

The F2244 is an octal buffer/line driver designed to drive the capacitive inputs of MOS memory drivers, address drivers, clock drivers and bus-oriented transmitters/receivers.

The 25Ω series resistors in the outputs reduce ringing and eliminate the need for external resistors.

Features

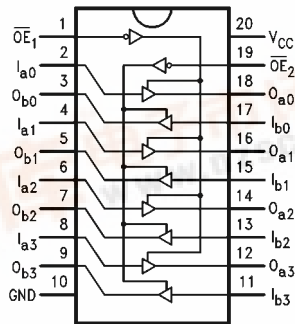
- 3-STATE outputs drive bus lines or buffer memory address registers
- 12 mA source current
- 25Ω series resistors in outputs eliminate the need for external resistors.
- Designed to drive the capacitive inputs of MOS devices
- Guaranteed 4000V minimum ESD protection

Ordering Code:

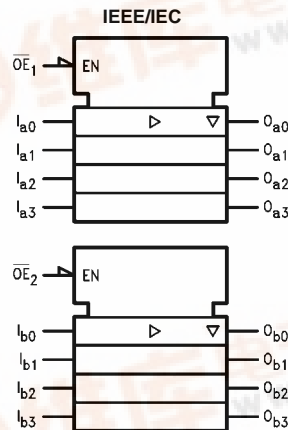
Order Number	Package Number	Package Description
74F2244SC	M20B	20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide
74F2244MSA	MSA20	20-Lead Shrink Small Outline Package (SSOP), EIAJ TYPE II, 5.3mm Wide
74F2244PC	N20A	20-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

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

Connection Diagram



Logic Symbol



74F2244 Octal Buffer/Line Driver with 25Ω Series Resistors in Outputs



Unit Loading/Fan Out

Pin Names	Description	U.L. HIGH/LOW	Input I_{IH}/I_{IL} Output I_{OH}/I_{OL}
$\overline{OE}_1, \overline{OE}_2$	3-STATE Output Enable Input (Active LOW)	1.0/1.667	20 μ A/-1 mA
OE_2	3-STATE Output Enable Input (Active HIGH)	1.0/1.667	20 μ A/-1 mA
I_{an}, I_{bn}	Inputs	1.0/2.667 (Note 1)	20 μ A/-1.6 mA
O_{an}, O_{bn}	Outputs	750/20	-15 mA/12 mA

Note 1: Worst-case F2244 disabled

Truth Table

\overline{OE}_1	I_{an}	O_{an}	\overline{OE}_2	I_{bn}	O_{bn}
H	X	Z	H	X	Z
L	H	H	L	H	H
L	L	L	L	L	L

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

Absolute Maximum Ratings(Note 2)

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 3)	-0.5V to +7.0V
Input Current (Note 3)	-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 2: 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 3: Either voltage limit or current limit is sufficient to protect inputs.

DC Electrical Characteristics

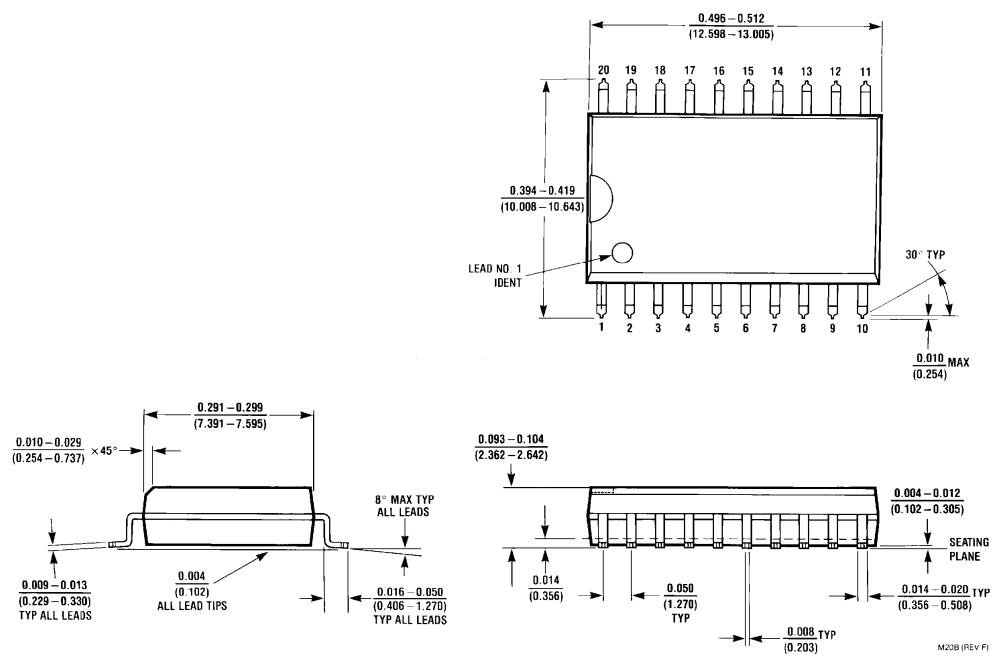
Symbol	Parameter	Min	Typ	Max	Units	V _{CC}	Conditions
V _{IH}	Input HIGH Voltage	2.0			V		Recognized as a HIGH Signal
V _{IL}	Input LOW Voltage			0.8	V		Recognized as a LOW Signal
V _{CD}	Input Clamp Diode Voltage			-1.2	V	Min	I _{IN} = -18 mA
V _{OH}	Output HIGH Voltage	10% V _{CC} 10% V _{CC} 5% V _{CC}	2.4 2.0 2.7		V	Min	I _{OH} = -3 mA I _{OH} = -15 mA I _{OH} = -3 mA
V _{OL}	Output LOW Voltage		0.50 0.75		V	Min	I _{OL} = 1 mA I _{OL} = 12 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			-1.0 -1.6	mA	Max	V _{IN} = 0.5V ($\overline{OE}_1, \overline{OE}_2, OE_2$) V _{IN} = 0.5V (I _n)
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 _{CCH}	Power Supply Current		40	60	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current		60	90	mA	Max	V _O = LOW
I _{CCZ}	Power Supply Current		60	90	mA	Max	V _O = HIGH Z

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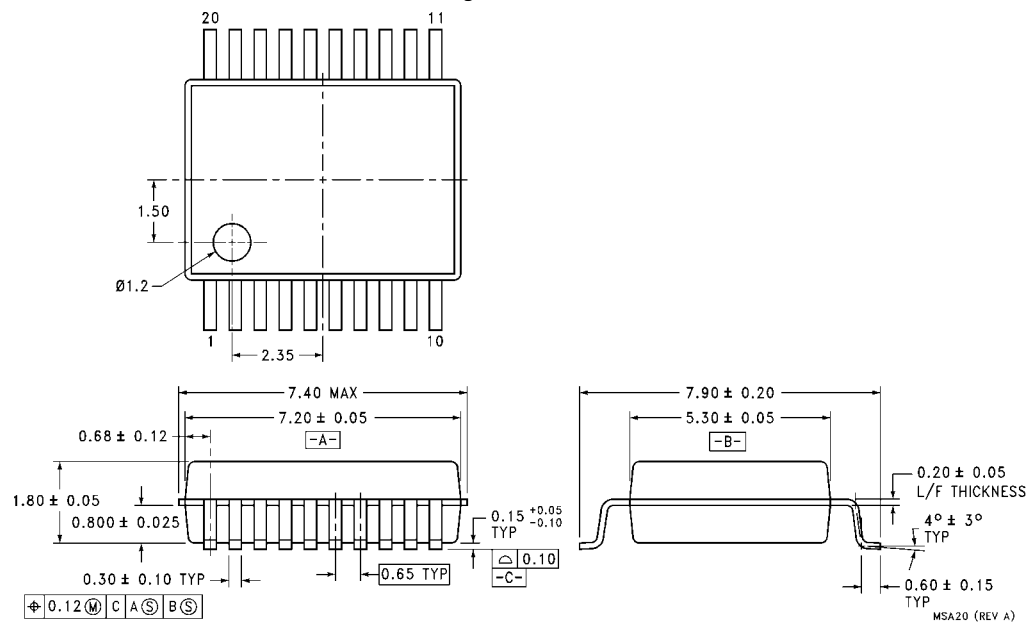
AC Electrical Characteristics

Symbol	Parameter	$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{ pF}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $C_L = 50\text{ pF}$		Units
		Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}	Propagation Delay	1.5		7.0	2.0	6.5	1.5	7.0	ns
t_{PHL}	Data to Output	2.5		8.0	2.0	7.0	2.0	8.0	
t_{PZH}	Output Enable Time	1.5		9.0	2.0	7.0	1.0	9.5	ns
t_{PZL}		2.5		11.5	2.0	8.5	2.5	12.0	
t_{PHZ}	Output Disable Time	1.5		9.0	2.0	7.0	1.0	9.5	
t_{PLZ}		1.5		8.5	2.0	7.5	1.5	9.5	

Physical Dimensions inches (millimeters) unless otherwise noted

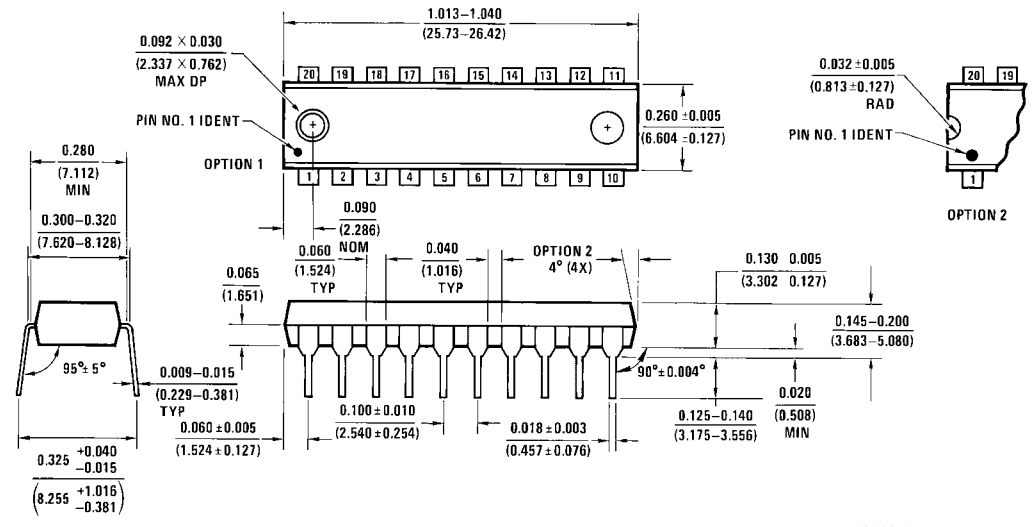


20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide Package Number M20B



20-Lead Shrink Small Outline Package (SSOP), EIAJ TYPE II, 5.3mm Wide Package Number MSA20

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



20-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide Package Number N20A

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