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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

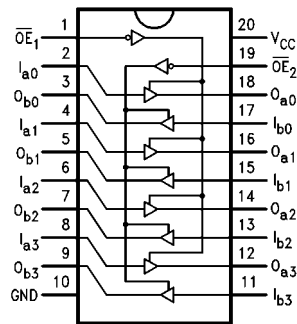
- 3-STATE outputs drive bus lines or buffer memory address registers
- 12 mA source current
- 25Ω series resistors in outputs eliminate the need for external resistors.
- Designed to drive the capacitive inputs of MOS devices
- Guaranteed 4000V minimum ESD protection

Ordering Code:

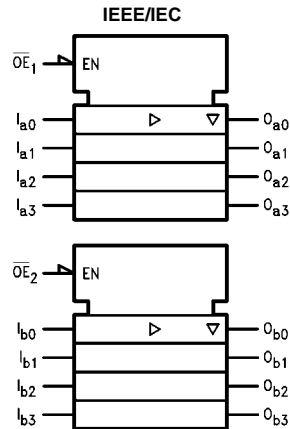
| Order Number | Package Number | Package Description |
|--------------|----------------|---|
| 74F2244SC | M20B | 20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide |
| 74F2244MSA | MSA20 | 20-Lead Shrink Small Outline Package (SSOP), EIAJ TYPE II, 5.3mm Wide |
| 74F2244PC | N20A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

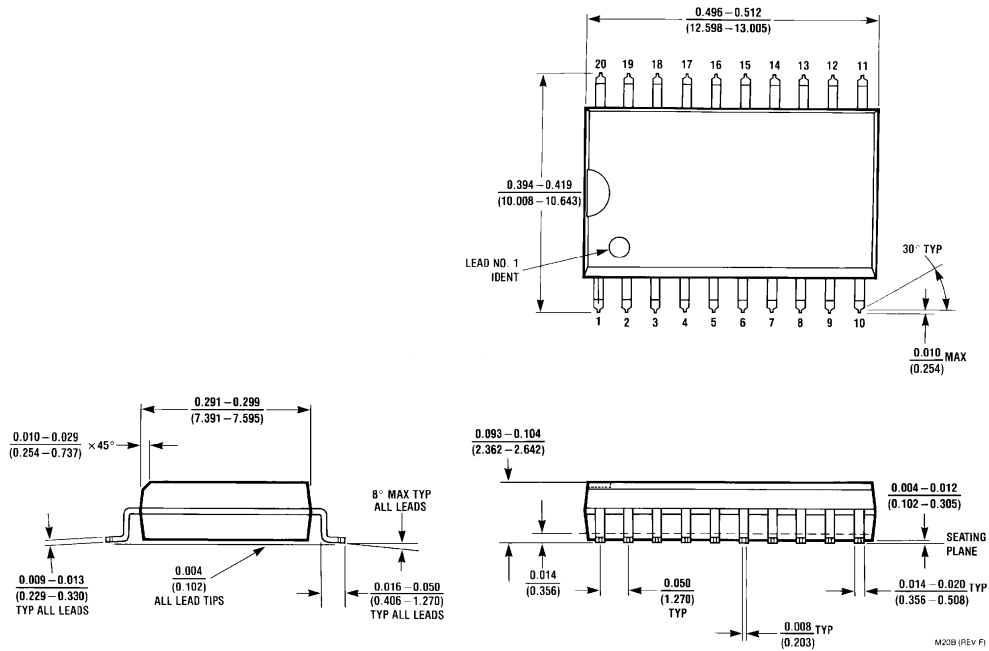
DC Electrical Characteristics

| 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 | 2.4 | | | V | Min | I _{OH} = -3 mA 10% V _{CC} I _{OH} = -15 mA 5% V _{CC} 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 (OE ₁ , 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 |

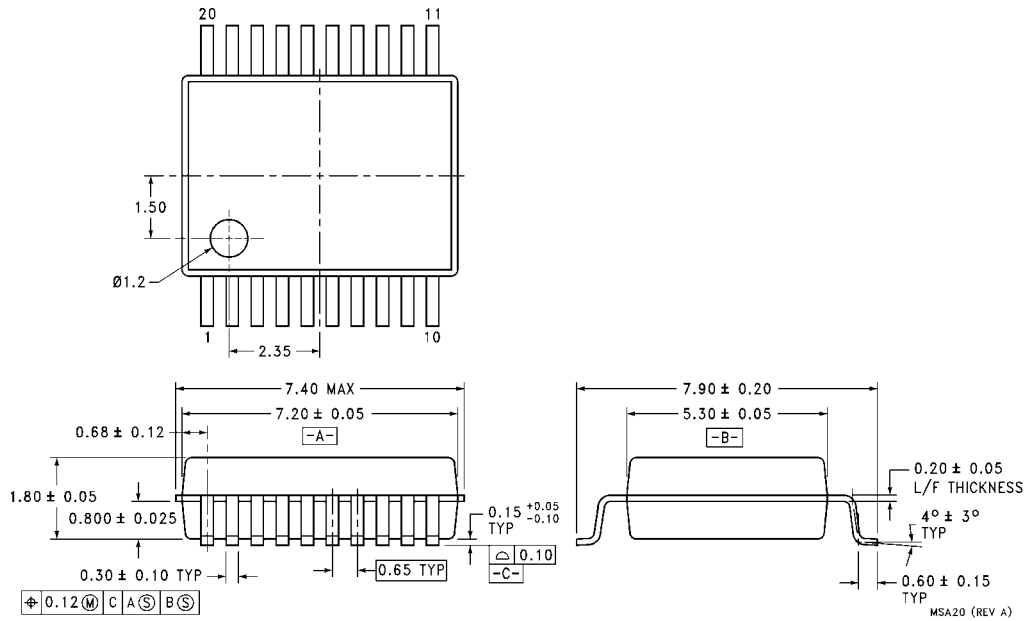
AC Electrical Characteristics

| Symbol | Parameter | T _A = +25°C V _{CC} = +5.0V C _L = 50 pF | | | T _A = -55°C to +125°C C _L = 50 pF | | T _A = 0°C to +70°C C _L = 50 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

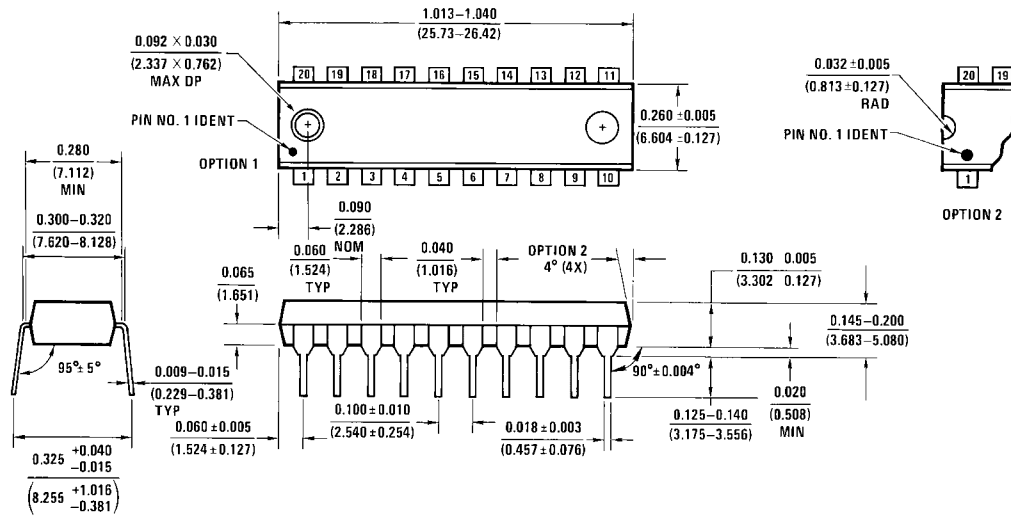


20-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300 Wide Package Number M20B



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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