

74F827 • 74F828 10-Bit Buffers/Line Drivers

General Description

The 74F827 and 74F828 10-bit bus buffers provide high performance bus interface buffering for wide data/address paths or buses carrying parity. The 10-bit buffers have NOR output enables for maximum control flexibility.

The 74F828 is an inverting version of the 74F827.

Features

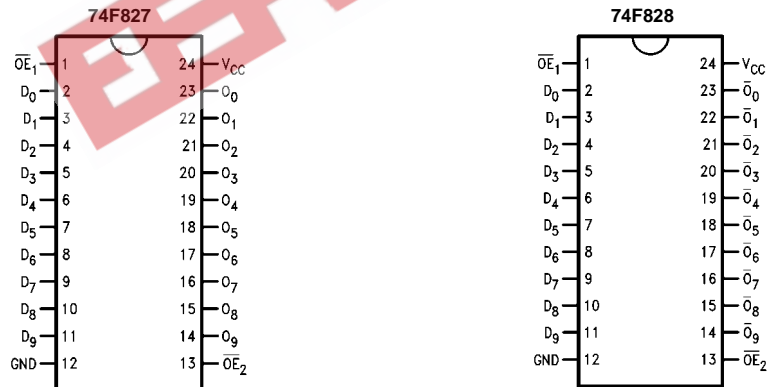
- 3-STATE output
- 74F828 is inverting

Ordering Code:

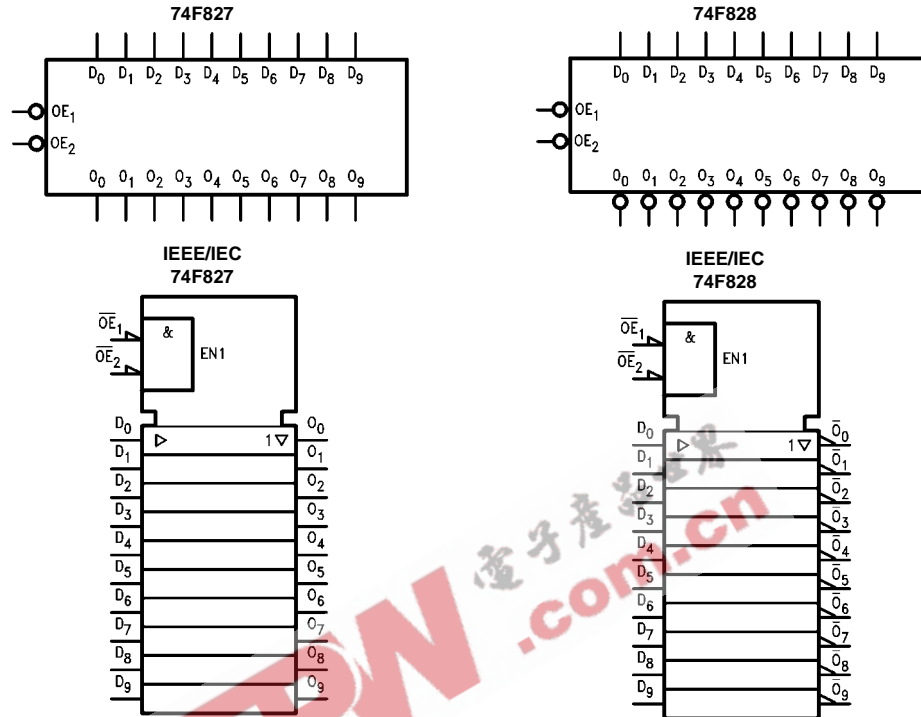
Order Number	Package Number	Package Description
74F827SC (Note 1)	M24B	24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
74F827SPC	N24C	24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide
74F828SC	M24B	24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
74F828SPC (Note 1)	N24C	24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide

Note 1: Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Connection Diagrams



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	1.0/1.0	20 μ A/-0.6 mA
D ₀ -D ₇	Data Inputs	1.0/1.0	20 μ A/-0.6 mA
O ₀ -O ₇	Data Outputs, 3-STATE	600/106.6 (80)	-12 mA/64 mA (48 mA)

Functional Description

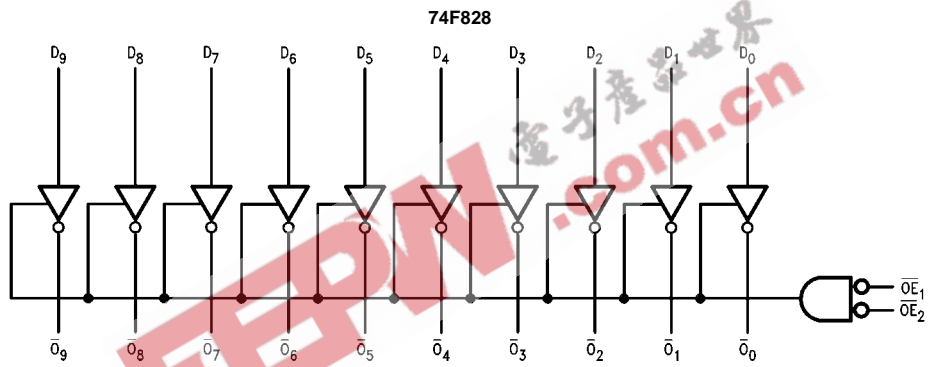
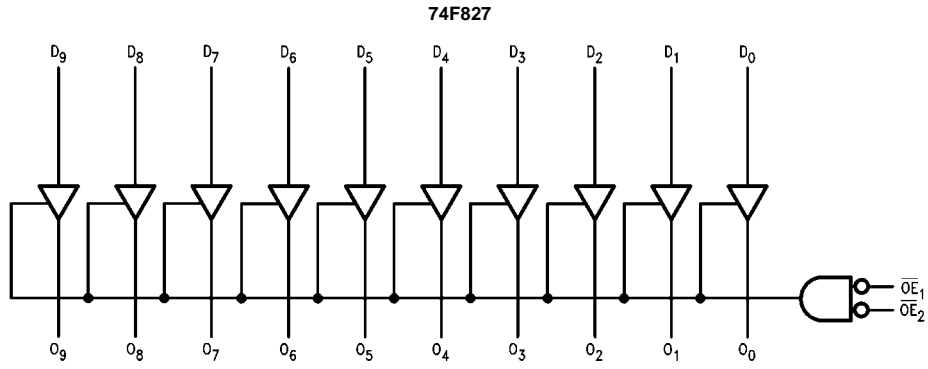
The 74F827 and 74F828 are line drivers designed to be employed as memory address drivers, clock drivers and bus-oriented transmitters/receivers which provide improved PC board density. The devices have 3-STATE outputs controlled by the Output Enable (\overline{OE}) pins. The outputs can sink 64 mA and source 15 mA. Input clamp diodes limit high-speed termination effects.

Function Table

Inputs		Outputs		Function
\overline{OE}	D _n	O _n		
		74F827	74F828	
L	H	H	L	Transparent
L	L	L	H	Transparent
H	X	Z	Z	High Z

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

Logic Diagrams



Please note that these diagrams are provided only for the understanding of logic operations and should not be used to estimate propagation delays.

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)

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.

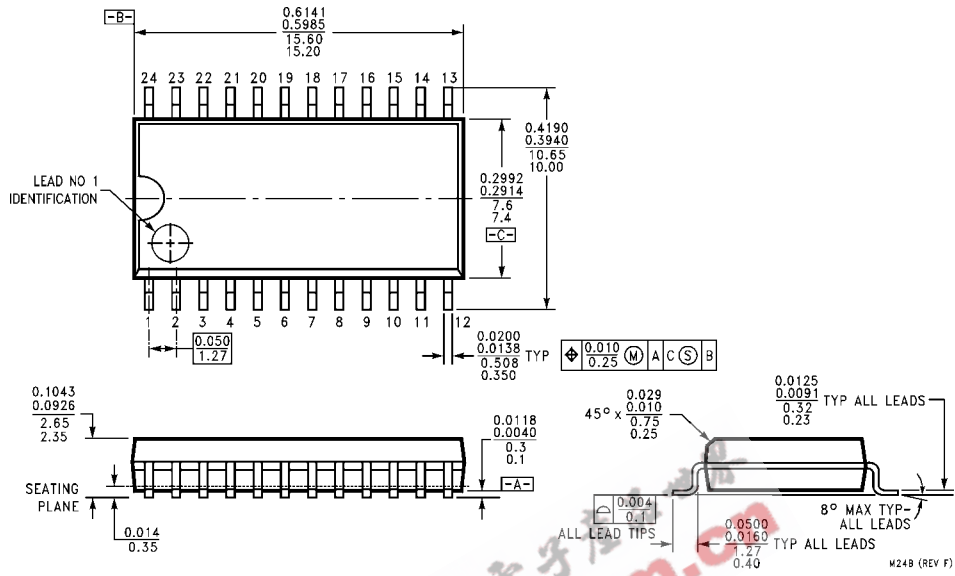
DC Electrical Characteristics

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}	2.4				I _{OH} = -3 mA
		10% V _{CC}	2.0		V	Min	I _{OH} = -15 mA
		5% V _{CC}	2.7				I _{OH} = -3 mA
V _{OL}	Output LOW Voltage	10% V _{CC}		0.55	V	Min	I _{OL} = 64 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 _{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 _{ZZ}	Bus Drainage Test			500	μA	0.0V	V _{OUT} = 5.25V
I _{CCH}	Power Supply Current (74F827)		30	45	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current (74F827)		60	90	mA	Max	V _O = LOW
I _{CCZ}	Power Supply Current (74F827)		40	60	mA	Max	V _O = HIGH Z
I _{CCH}	Power Supply Current (74F828)		14	20	mA	Max	V _O = HIGH
I _{CCL}	Power Supply Current (74F828)		56	85	mA	Max	V _O = LOW
I _{CCZ}	Power Supply Current (74F828)		35	50	mA	Max	V _O = HIGH Z

AC Electrical Characteristics									
Symbol	Parameter	$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{ pF}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = +5.0\text{V}$ $C_L = 50\text{ pF}$		Units
		Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}	Propagation Delay	1.0	3.0	5.5	1.0	7.5	1.0	6.5	ns
t_{PHL}	Data to Output (74F827)	1.5	3.3	5.5	1.5	7.0	1.5	6.0	
t_{PLH}	Propagation Delay	1.0	3.0	5.0			1.0	5.5	ns
t_{PHL}	Data to Output (74F828)	1.0	2.0	4.0			1.0	4.0	
t_{PZH}	Output Enable Time	3.0	5.7	9.0	2.5	10.0	2.5	9.5	ns
t_{PZL}	\overline{OE} to O_n	3.5	6.8	11.5	3.0	12.5	3.0	12.0	
t_{PHZ}	Output Disable Time	1.5	3.3	8.0	1.5	9.0	1.5	8.5	ns
t_{PLZ}	\overline{OE} to O_n	1.0	3.5	8.0	1.0	9.0	1.0	8.5	

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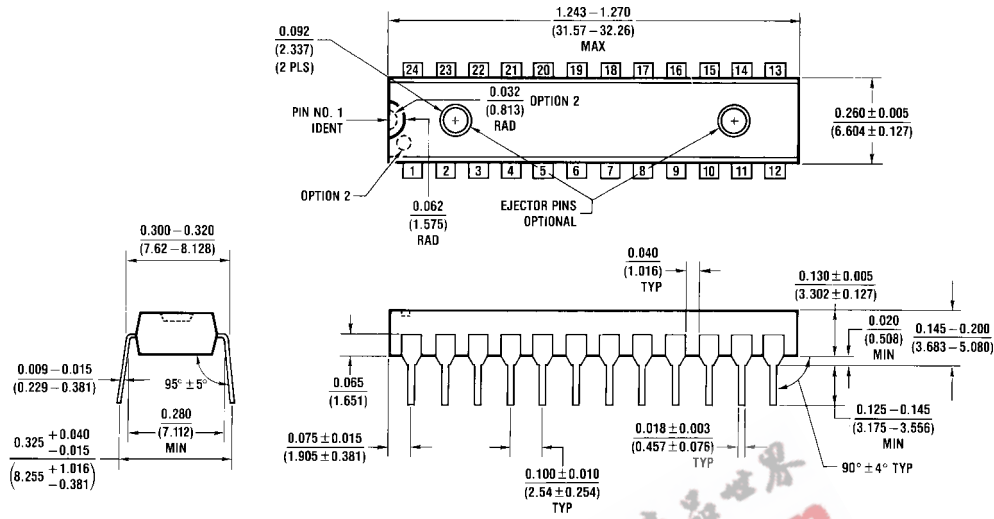
Physical Dimensions inches (millimeters) unless otherwise noted



**24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
Package Number M24B**

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



24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide Package Number N24C

N24C (REV F)

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