MOTOROLA

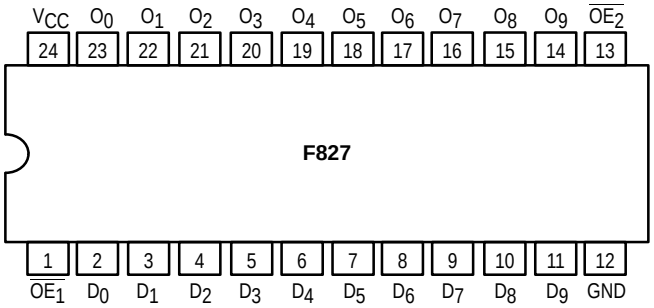
10-BIT BUFFERS/LINE DRIVERS (WITH 3-STATE OUTPUTS)

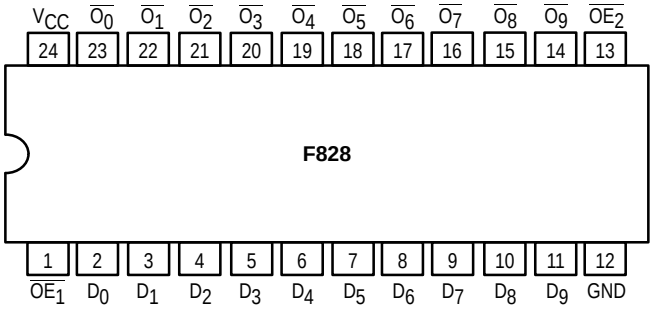
The MC54/74F827 and MC54/74F828 10-bit bus buffers provide high performance bus interface buffering for wide data/address paths or buses carrying parity. The 10-bit buffers have NOR output enables for maximum control flexibility.

The F827 and F828 are functionally and pin compatible to AMD's 29827 and 29828. The F828 is an inverting version of the F827.

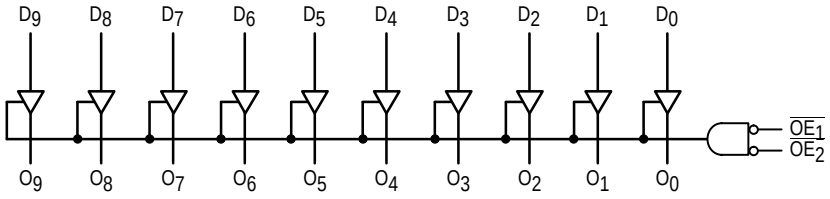
- 3-State Outputs Drive Memory Address, Bus and Clock Lines
- Outputs Sink 64 mA
- 15 mA Source Current
- Flow Through Pinout Architecture for Microprocessor Oriented Applications

CONNECTION DIAGRAMS (TOP VIEW)





LOGIC DIAGRAM

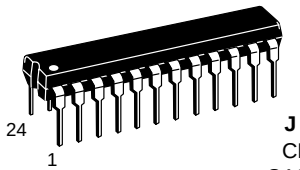


Please note that this diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

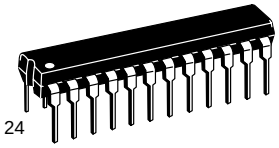
MC54/74F827
MC54/74F828

10-BIT BUFFERS/LINE DRIVERS (WITH 3-STATE OUTPUTS)

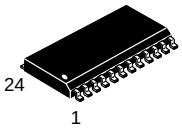
FAST™ SCHOTTKY TTL



J SUFFIX
CERAMIC
CASE 758-01



N SUFFIX
PLASTIC
CASE 724-03



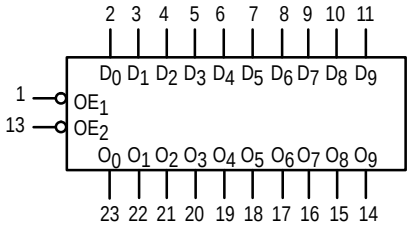
DW SUFFIX
SOIC
CASE 751E-03

ORDERING INFORMATION

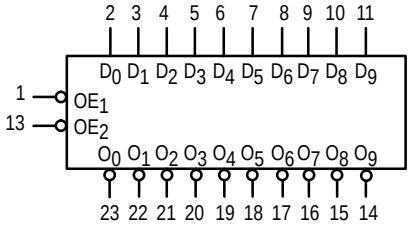
MC54FXXXJ	Ceramic
MC74FXXXN	Plastic
MC74FXXXDW	SOIC

LOGIC SYMBOL

F827



F828



GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
V_{CC}	Supply Voltage*	54, 74	4.5	5.0	5.5	V
T_A	Operating Ambient Temperature Range	54	–55	25	125	°C
		74	0	25	70	
I_{OH}	Output Current — High	54	—	—	–12	mA
		74	—	—	–15	
I_{OL}	Output Current — Low	54	—	—	48	mA
		74	—	—	64	

FUNCTION TABLE

Inputs		Outputs		
		O_n		
$\overline{OE}$	D_n	F827	F828	Function
L	H	H	L	Transparent
L	L	L	H	Transparent
H	X	Z	Z	High Z

H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care
Z = High Impedance

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter		Limits Min	Limits Typ	Limits Max	Unit	Test Conditions	
V_{IH}	Input HIGH Voltage		2.0	—	—	V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage		—	—	0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage		—	—	–1.2	V	I_{IN} = –18 mA	V_{CC} = MIN
V_{OH}	Output HIGH Voltage	54	2.0	—	—	V	I_{OH} = –12 mA	V_{CC} = MIN
		74	2.0	—	—	V	I_{OH} = –15 mA	
		54, 74	2.4	—	—	V	I_{OH} = –3.0 mA	
		74	2.7	—	—	V	I_{OH} = –3.0 mA	V_{CC} = 4.75 V
V_{OL}	Output LOW Voltage	54	—	—	0.55	V	I_{OL} = 48 mA	V_{CC} = MIN
		74	—	—	0.55	V	I_{OL} = 64 mA	
I_{OZH}	Output Off Current HIGH		—	—	50	µA	V_{OUT} = 2.7 V	V_{CC} = MAX
I_{OZL}	Output Off Current LOW		—	—	–50	µA	V_{OUT} = 0.5 V	V_{CC} = MAX
I_{IH}	Input HIGH Current		—	—	20	µA	V_{IN} = 2.7 V	V_{CC} = 0 V
			—	—	100	µA	V_{IN} = 7.0 V	
I_{IL}	Input LOW Current		—	—	–20	µA	V_{IN} = 0.5 V	V_{CC} = MAX
I_{OS}	Output Short Circuit Current (Note 2)		–100	—	–225	mA	V_{OUT} = 0 V	V_{CC} = MAX
I_{CCH}	Power Supply Current HIGH	F827	—	—	70	mA	Outputs HIGH	V_{CC} = MAX
		F828	—	—	45	mA		
I_{CCL}	Power Supply Current LOW	F827	—	—	100	mA	Outputs LOW	V_{CC} = MAX
		F828	—	—	85	mA		
I_{CCZ}	Power Supply Current OFF	F827	—	—	90	mA	Outputs OFF	V_{CC} = MAX
		F828	—	—	70	mA		

NOTES:
1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
2. Not more than one output should be shorted at a time, nor for more than 1 second.

AC CHARACTERISTICS

Symbol	Parameter		54/74F T_A = +25°C, V_{CC} = +5.0 V, C_L = 50 pF Min	54/74F Max	54F T_A = – 55°C to +125°C, V_{CC} = 5.0 V ± 10%, C_L = 50 pF Min	54F Max	74F T_A = 0°C to 70°C, V_{CC} = 5.0 V ± 10%, C_L = 50 pF Min	74F Max	Unit
t_{PLH} t_{PHL}	Propagation Delay, Data to Output	F827	2.0	8.5	2.0	10	2.0	9.0	ns
			2.0	8.5	2.0	10	2.0	9.0	
t_{PZH} t_{PZL}	Output Enable Time		3.5	9.5	3.5	11	3.5	10	ns
			4.0	9.0	4.0	10.5	4.0	9.5	
t_{PHZ} t_{PLZ}	Output Disable Time		2.0	8.0	2.0	9.5	2.0	8.5	ns
			1.5	8.0	1.5	9.5	1.5	8.5	
t_{PLH} t_{PHL}	Propagation Delay, Data to Output	F828	2.0	9.0	2.0	11	2.0	10	ns
			1.0	8.0	1.0	10	1.0	9.0	
t_{PZH} t_{PZL}	Output Enable Time		3.5	9.5	3.5	11	3.5	10	ns
			4.0	9.0	4.0	10.5	4.0	9.5	
t_{PHZ} t_{PLZ}	Output Disable Time		2.0	8.5	2.0	10	2.0	9.0	ns
			1.5	7.0	1.5	9.0	1.5	8.0	