

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
 - Class Q Military
 - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
 - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

Am29827A/Am29828A

High-Performance Buffers

Am29827A/Am29828A

DISTINCTIVE CHARACTERISTICS

- High-speed buffers and inverters
 - $t_{PD} = 5.0$ ns Typical
- 200-mV minimum input hysteresis on input data ports
- Three-state outputs glitch-free during power-up and power-down
- I_{OL} : 48 mA Commercial, 32 mA Military
- Higher speed, lower power versions of the Am29827/Am29828

GENERAL DESCRIPTION

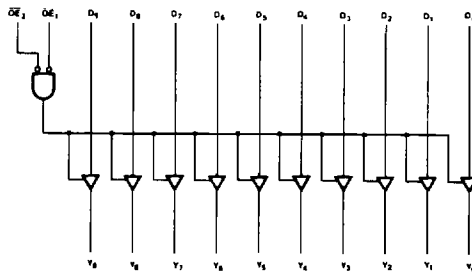
The Am29827A and Am29828A Bus Buffers provide high-performance bus interface buffering for wide address/data paths or buses carrying parity. Both devices feature a 10-bit wide data path and NORed output enables for maximum control flexibility. The Am29827A has non-inverting outputs, while the Am29828A has inverting outputs. Each device features data inputs with 200-mV minimum input hysteresis to provide improved noise immunity. The Am29827A and

Am29828A are produced with AMD's proprietary IMOX* bipolar process, and feature typical propagation delays of 5 ns. Package options include DIPs, PLCCs, LCCs, SOICs, and Flatpacks.

Each member of the Am29800A/Am29900A Bus Interface Family is designed to drive high-capacitive loads while providing low-capacitive bus loading at both inputs and outputs.

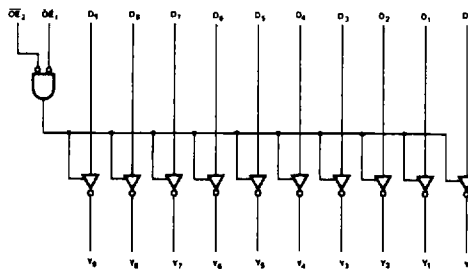
BLOCK DIAGRAMS

Am29827A



BD001092

Am29828A



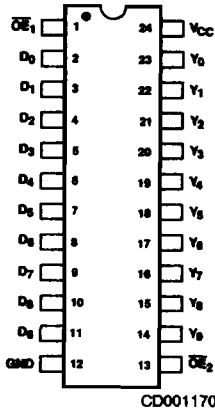
BD001093

Publication #	Rev.	Amendment
07139	C	/0
Issue Date: January 1988		

CONNECTION DIAGRAMS Top View

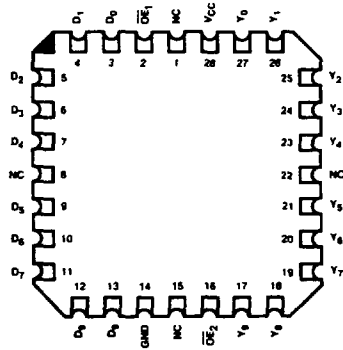
Am29827A/Am29828A

DIPs*



CD001170

LCC**

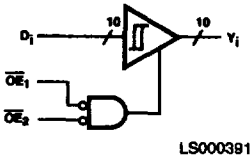


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*Also available in 24-Pin Flatpack and Small Outline Package; pinout identical to DIPs.
**Also available in 28-Pin PLCC; pinout identical to LCC.

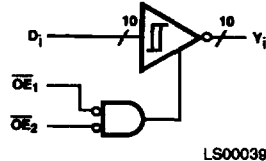
LOGIC SYMBOLS

Am29827A



LS000391

Am29828A



LS000392

FUNCTION TABLES

Am29827A

Inputs			Outputs	Function
OE ₁	OE ₂	D _i	Y _i	
L	L	H	H	Transparent
L	L	L	L	Transparent
X	H	X	Z	Hi-Z
H	X	X	Z	Hi-Z

Am29828A

Inputs			Outputs	Function
OE ₁	OE ₂	D _i	Y _i	
L	L	H	L	Transparent
L	L	L	H	Transparent
X	H	X	Z	Hi-Z
H	X	X	Z	Hi-Z

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

ORDERING INFORMATION

Standard Products

AMD products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of:

- a. Device Number
- b. Speed Option (if applicable)
- c. Package Type
- d. Temperature Range
- e. Optional Processing

AM29827A

P

C

B

e. **OPTIONAL PROCESSING**
 Blank = Standard processing
 B = Burn-in

d. **TEMPERATURE RANGE**
 C = Commercial (0 to +70°C)
 E = Extended Commercial (-55 to +125°C)

c. **PACKAGE TYPE**
 P = 24-Pin Slim Plastic DIP (PD3024)
 D = 24-Pin Slim Ceramic DIP (CD3024)
 S = 24-Pin Plastic Small Outline Package (SO 024)
 J = 28-Pin Plastic Leaded Chip Carrier (PL 028)
 L = 28-Pin Ceramic Leadless Chip Carrier (CL 028)

b. **SPEED OPTION**
 Not Applicable

a. **DEVICE NUMBER/DESCRIPTION**
 Am29827A 10-Bit Buffers (Noninverting)
 Am29828A 10-Bit Buffers (Inverting)

Valid Combinations	
AM29827A	PC, PCB, DC, DCB,
AM29828A	DE, SC, JC, LC

Valid Combinations

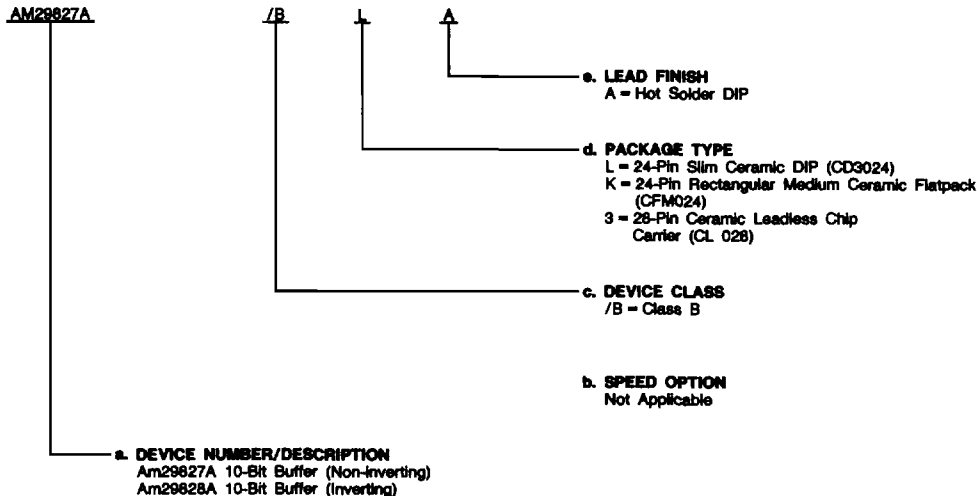
Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, to check on newly released valid combinations, and to obtain additional data on AMD's standard military grade products.

ORDERING INFORMATION (Cont'd.)

APL Products

AMD products for Aerospace and Defense applications are available in several packages and operating ranges. APL (Approved Products List) products are fully compliant with MIL-STD-883C requirements. The order number (Valid Combination) for APL products is formed by a combination of:

- a. Device Number
- b. Speed Option (if applicable)
- c. Device Class
- d. Package Type
- e. Lead Finish



Valid Combinations	
AM29827A	/BLA, /BKA, /B3A
AM29828A	

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations or to check for newly released valid combinations.

Group A Tests

Group A tests consist of Subgroups
 1, 2, 3, 7, 8, 9, 10, 11.

PIN DESCRIPTION

OE_i Output Enables (Input, Active LOW)
 When both Output Enables are LOW, the outputs are enabled. When either one or both are HIGH, the outputs are Hi-Z.

D_i Data Inputs (Input)
 D_i are the 10-bit data inputs.

Y_i Data Outputs (Output)
 Y_i are the 10-bit data outputs.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150°C
Ambient Temperature with Power Applied	-55 to +125°C
Supply Voltage to Ground Potential Continuous	-0.5 V to +7.0 V
DC Voltage Applied to Outputs for High Output State	-0.5 V to +5.5 V
DC Input Voltage	-1.5 V to +6.0 V
Output Current, into Outputs	100 mA
DC Input Current	-30 mA to +5.0 mA

Stresses above those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent device failure. Functionality at or above these limits is not implied. Exposure to absolute maximum ratings for extended periods may affect device reliability.

OPERATING RANGES

Commercial (C) Devices	
Temperature (T _A)	0 to +70°C
Supply Voltage (V _{CC})	+4.5 V to +5.5 V
Military (M) and Extended Commercial (E) Devices	
Temperature (T _C)	-55 to +125°C
Supply Voltage (V _{CC})	+4.5 V to +5.5 V

Operating ranges define those limits between which the functionality of the device is guaranteed.

DC CHARACTERISTICS over operating range unless otherwise specified (for APL Products, Group A, Subgroups 1, 2, 3 are tested unless otherwise noted)

Parameter Symbol	Parameter Description	Test Conditions		Min.	Max.	Units
V _{OH}	Output HIGH Voltage	V _{CC} = 4.5 V	I _{OH} = -15 mA	2.4		V
		V _{IN} = V _{IH} or V _{IL}	I _{OH} = -24 mA	2.0		
V _{OL}	Output LOW Voltage	V _{CC} = 4.5 V	MIL, I _{OL} = 32 mA		0.5	V
		V _{IN} = V _{IH} or V _{IL}	COM'L, I _{OL} = 48 mA		0.5	
V _{IH}	Input HIGH Voltage	Guaranteed Input Logical HIGH Voltage for All Inputs (Note 1)		2.0		V
V _{IL}	Input LOW Voltage	Guaranteed Input Logical LOW Voltage for All Inputs (Note 1)			0.8	V
					0.7	
V _I	Input Clamp Voltage	V _{CC} = 4.5 V, I _{IN} = -18 mA			-1.2	V
V _{HYST}	Input Hysteresis			200		mV
I _{IL}	Input LOW Current	V _{CC} = 5.5 V, V _{IN} = 0.4 V			-0.5	mA
I _{IH}	Input HIGH Current	V _{CC} = 5.5 V, V _{IN} = 2.7 V			50	μA
I _I	Input HIGH Current	V _{CC} = 5.5 V, V _{IN} = 5.5 V			100	μA
I _{OZH}	Output Off-State Current (High Impedance)	V _{CC} = 5.5 V, V _O = 2.7 V			50	μA
I _{OZL}		V _{CC} = 5.5 V, V _O = 0.4 V			-50	μA
I _{SC}	Output Short-Circuit Current	V _{CC} = 5.5 V, V _{OUT} = 0 V (Note 2)		-75	-250	mA
I _{OFF}	Bus Leakage Current	V _{CC} = 0 V, V _{OUT} = 2.9 V			100	μA
I _{CC}	Supply Current	V _{CC} = 5.5 V				mA
		Outputs Unloaded		Outputs LOW	80	
				Outputs HIGH	55	
				Outputs Hi-Z	70	

- Notes:** 1. Input thresholds are tested during DC parameter testing, and may be tested in combination with other DC parameters.
2. Not more than one output shorted at a time. Duration of the short-circuit test should not exceed one second.

SWITCHING CHARACTERISTICS over operating range unless otherwise specified (for APL Products, Group A, Subgroups 9, 10, 11 are tested unless otherwise noted)

Parameter Symbol	Parameter Description	Test Conditions*	COMMERCIAL		MILITARY		Units
			Min.	Max.	Min.	Max.	
t _{PLH}	Data (Di) to Output (Yi)	C _L = 50 pF R ₁ = 500 Ω R ₂ = 500 Ω		8		9	ns
t _{PHL}	Am29827A (Noninverting)			8		9	ns
t _{PLH}	Data (Di) to Output (Yi)			7		8	ns
t _{PHL}	Am29828A (Inverting)			9		10	ns
t _{ZH}	Output Enable Time \overline{OE} to Y _i			11		12	ns
t _{ZL}	Output Enable Time \overline{OE} to Y _i			12		13	ns
t _{HZ}	Output Disable Time \overline{OE} to Y _i			10		10	ns
t _{LZ}	Output Disable Time \overline{OE} to Y _i			10		10	ns

*See Test Circuit and Waveforms.