

### **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.

# SN54AS2620, SN54AS2623, SN74AS2620, SN74AS2623 OCTAL BUS TRANSCEIVERS/MOS DRIVERS

DECEMBER 1983 - REVISED MAY 1986

- Octal Bus Transceivers for Driving MOS Devices
- I/O Ports Have 25-Ω Series Resistors, So No External Resistors Are Required
- Local Bus-Latch Capability
- Choice of True or Inverting Logic
- Package Options Include Plastic "Small Outline" Packages, Plastic and Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

## description

These octal bus transceivers are designed to drive the capacitive input characteristics of MOS devices and allow asynchronous two-way communication between data buses. The control function implementation allows for maximum flexibility in timing.

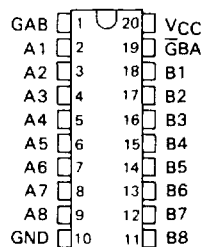
These devices allow data transmission from A bus to the B bus or from the B bus to the A bus depending upon the logic levels at the enable inputs ( $\bar{G}BA$  and  $GAB$ ).

The enable inputs can be used to disable the device so that the buses are effectively isolated.

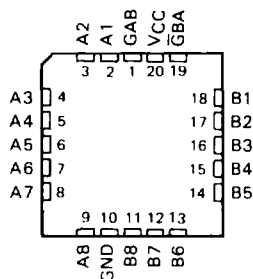
The dual-enable configuration gives the 'AS2620 or 'AS2623 the capability to store data by simultaneous enabling of  $\bar{G}BA$  and  $GAB$ . Each output reinforces its input in this transceiver configuration. Thus, when both control inputs are enabled and all other data sources to the two sets of bus lines are at high impedance, both sets of bus lines (16 in all) will remain at their last states. The 8-bit codes appearing on the two sets of buses will be identical for the 'AS2623 or complementary for the 'AS2620.

The SN54AS2620 and SN54AS2623 are characterized for operation over the full military temperature range of -55 °C to 125 °C. The SN74AS2620 and SN74AS2623 are characterized for operation from 0 °C to 70 °C.

SN54AS' . . . J PACKAGE  
SN74AS' . . . DW OR N PACKAGE  
(TOP VIEW)



SN54AS' . . . FK PACKAGE  
(TOP VIEW)



FUNCTION TABLE

ENABLE INPUTS		OPERATION	
$\bar{G}BA$	$GAB$	'AS2620	'AS2623
L	L	$\bar{B}$ data to A bus	B data to A bus
H	H	$\bar{A}$ data to B bus	A data to B bus
H	L	Isolation	Isolation
L	H	$\bar{B}$ data to A bus, $\bar{A}$ data to B bus	B data to A bus, A data to B bus

PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS  
INSTRUMENTS**

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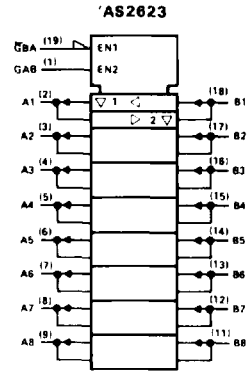
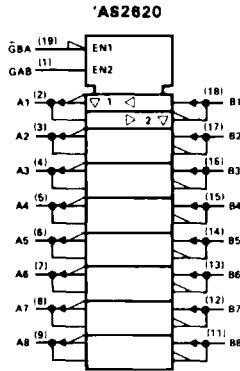
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# SN54AS2620, SN54AS2623, SN74AS2620, SN74AS2623 OCTAL BUS TRANSCEIVERS/MOS DRIVERS

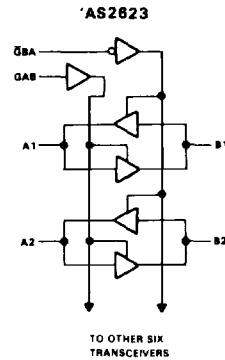
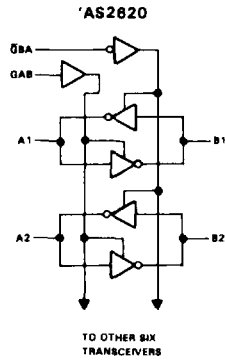
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logic symbols†



†These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagrams (positive logic)



# SN54AS2620, SN54AS2623, SN74AS2620, SN74AS2623 OCTAL BUS TRANSCEIVERS/MOS DRIVERS

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**absolute maximum ratings over operating free-air temperature range (unless otherwise noted)**

Supply voltage, $V_{CC}$ .....	7 V
Input voltage: All inputs .....	7 V
I/O ports .....	5.5 V
Operating free-air temperature range: SN54AS2620, SN54AS2623 .....	-55 °C to 125 °C
SN74AS2620, SN74AS2623 .....	0 °C to 70 °C
Storage temperature range .....	-65 °C to 150 °C

**recommended operating conditions**

		SN54AS2620 SN54AS2623			SN74AS2620 SN74AS2623			UNIT		
		MIN	NOM	MAX	MIN	NOM	MAX			
$V_{CC}$	Supply voltage	4.5	5	5.5	4.5	5	5.5	V		
$V_{IH}$	High-level input voltage	2			2			V		
$V_{IL}$	Low-level input voltage	0.8			0.8			V		
$T_A$	Operating free-air temperature	-55			125			0	70	°C

**electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)**

PARAMETER	TEST CONDITIONS	SN54AS2620 SN54AS2623			SN74AS2620 SN74AS2623			UNIT
		MIN	TYP†	MAX	MIN	TYP†	MAX	
$V_{IK}$	$V_{CC} = 4.5 \text{ V}$ , $I_I = -18 \text{ mA}$	-1.2			-1.2			V
$V_{OH}$	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$ , $I_{OH} = -2 \text{ mA}$	$V_{CC}-2$			$V_{CC}-2$			V
$V_{OL}$	$V_{CC} = 4.5 \text{ V}$ , $I_{OL} = 1 \text{ mA}$	0.15 0.4			0.15 0.4			V
	$V_{CC} = 4.5 \text{ V}$ , $I_{OL} = 12 \text{ mA}$	0.35 0.7			0.35 0.7			
$I_I$	Control inputs	$V_{CC} = 5.5 \text{ V}$ , $V_I = 7 \text{ V}$			0.1			mA
	A or B ports	$V_{CC} = 5.5 \text{ V}$ , $V_I = 5.5 \text{ V}$			0.1			
$I_{IH}$	Control inputs	$V_{CC} = 5.5 \text{ V}$ , $V_I = 2.7 \text{ V}$			20			$\mu\text{A}$
	A or B ports‡				70			
$I_{IL}$	Control inputs	$V_{CC} = 5.5 \text{ V}$ , $V_I = 0.4 \text{ V}$			-0.5			mA
	A or B ports‡				0.75			
$I_O^{\S}$	$V_{CC} = 5.5 \text{ V}$ , $V_O = 2.25 \text{ V}$	-50	150	-50	150	mA		
$I_{OH}$	$V_{CC} = 4.5 \text{ V}$ , $V_O = 2 \text{ V}$	-35			-35			mA
$I_{OL}$	$V_{CC} = 4.5 \text{ V}$ , $V_O = 2 \text{ V}$	35			35			mA
$I_{CC}$	'AS2620	$V_{CC} = 5.5 \text{ V}$	Outputs high	62	100	62	100	mA
			Outputs low	74	121	74	121	
			Outputs disabled	48	77	48	77	
	'AS2623	$V_{CC} = 5.5 \text{ V}$	Outputs high	57	93	57	93	
			Outputs low	116	189	116	189	
			Outputs disabled	72	116	72	116	

†All typical values are at  $V_{CC} = 5 \text{ V}$ ,  $T_A = 25^\circ\text{C}$

‡For I/O ports, the parameters  $I_{IH}$  and  $I_{IL}$  include the off-state output current.

§The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current,  $I_{OS}$ .



# SN54AS2620, SN54AS2623, SN74AS2620, SN74AS2623

## OCTAL BUS TRANSCEIVERS/MOS DRIVERS

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### AS2620 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V},$ $C_L = 50 \text{ pF},$ $R_1 = 500 \Omega,$ $R_2 = 500 \Omega,$ $T_A = \text{MIN to MAX}$				UNIT
			SN54AS2620		SN74AS2620		
			MIN	MAX	MIN	MAX	
$t_{PLH}$	A	B	1	9.5	1	8	ns
$t_{PHL}$			1	7.5	1	6.5	
$t_{PLH}$	B	A	1	9.5	1	8	ns
$t_{PHL}$			1	7.5	1	6.5	
$t_{PZH}$	$\bar{G}BA$	A	1	11	1	10	ns
$t_{PZL}$			1	12	1	11	
$t_{PHZ}$	$\bar{G}BA$	A	1	7.5	1	6	ns
$t_{PLZ}$			1	15	1	12	
$t_{PZH}$	GAB	B	1	9	1	8	ns
$t_{PZL}$			1	9	1	8	
$t_{PHZ}$	GAB	B	1	12	1	11	ns
$t_{PLZ}$			1	12	1	11	

### AS2623 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V},$ $C_L = 50 \text{ pF},$ $R_1 = 500 \Omega,$ $R_2 = 500 \Omega,$ $T_A = \text{MIN to MAX}$				UNIT
			SN54AS2623		SN74AS2623		
			MIN	MAX	MIN	MAX	
$t_{PLH}$	A	B	1	9.5	1	8.5	ns
$t_{PHL}$			1	8.5	1	7.5	
$t_{PLH}$	B	A	1	10	1	9	ns
$t_{PHL}$			1	9	1	7.5	
$t_{PZH}$	$\bar{G}BA$	A	1	12.5	1	11	ns
$t_{PZL}$			1	12	1	11	
$t_{PHZ}$	$\bar{G}BA$	A	1	8.5	1	7.5	ns
$t_{PLZ}$			1	13	1	12	
$t_{PZH}$	GAB	B	1	13	1	12	ns
$t_{PZL}$			1	13.5	1	12	
$t_{PHZ}$	GAB	B	1	7.5	1	7	ns
$t_{PLZ}$			1	14.5	1	12.5	

NOTE 1: Load circuit and voltage waveforms are shown in Section 1.

