

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.

**SN54AS2640, SN54AS2645
SN74AS2640, SN74AS2645
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
- Choice of True or Inverting Logic
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

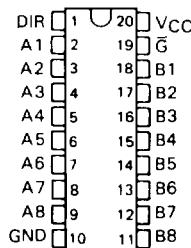
description

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.

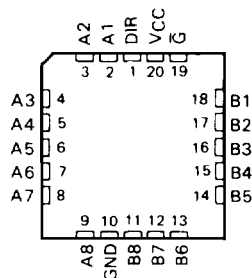
The devices transmit data from the A bus to the B bus or from the B bus to the A bus depending upon the level at the direction control (DIR) input. The enable input (\bar{G}) can be used to disable the device so the buses are effectively isolated.

The SN54AS' family is characterized for operation over the full military temperature range of -55°C to 125°C. The SN74AS' family is 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

CONTROL INPUTS		OPERATION	
		'AS2640	'AS2645
\bar{G}	DIR		
L	L	\bar{B} data to A bus	B data to A bus
L	H	\bar{A} data to B bus	A data to B bus
H	X	Isolation	Isolation

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.

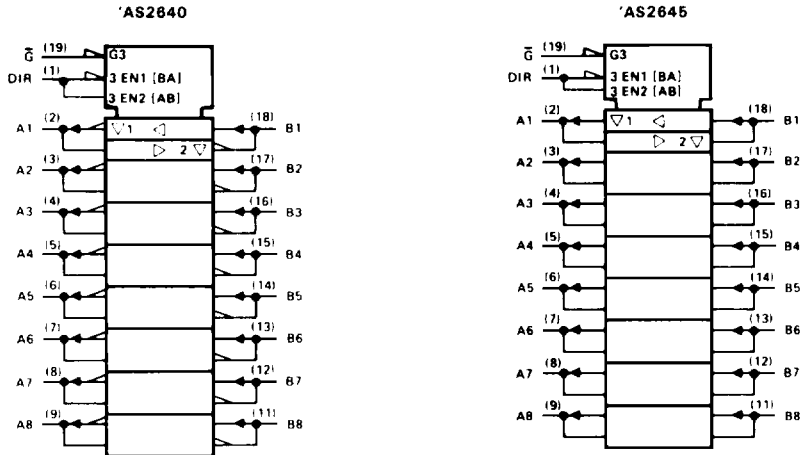


POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

Copyright © 1986, Texas Instruments Incorporated

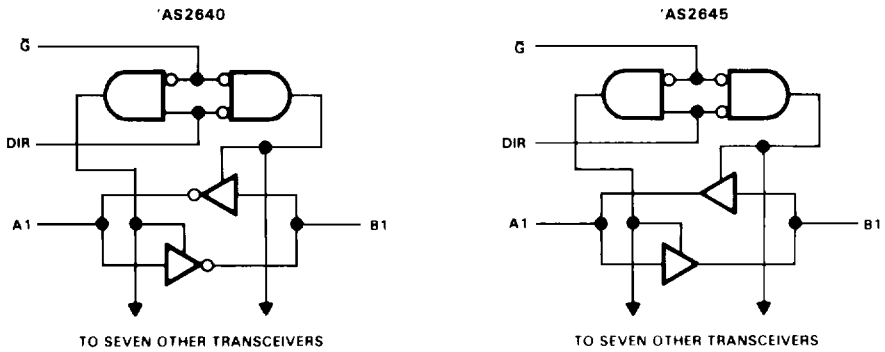
SN54AS2640, SN54AS2645
SN74AS2640, SN74AS2645
OCTAL BUS TRANSCEIVERS/MOS DRIVERS
 DECEMBER 1983 - REVISED MAY 1986

logic symbols †



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

functional block diagrams (positive logic)



SN54AS2640, SN54AS2645
SN74AS2640, SN74AS2645
OCTAL BUS TRANSCEIVERS/MOS DRIVERS
 DECEMBER 1983—REVISED MAY 1986

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: SN54AS2640, SN54AS2645	-55°C to 125°C
SN74AS2640, SN74AS2645	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

		SN54AS2640			SN74AS2640			UNIT
		SN54AS2645			SN74AS2645			
		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	SN54AS ¹			SN74AS ¹			UNIT
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX	
V_{IK}	$V_{CC} = 4.5$ V, $I_I = -18$ mA			-1.2			-1.2	V
V_{OH}	$V_{CC} = 4.5$ V to 5.5 V, $I_{OH} = -2$ mA	V_{CC}^2			V_{CC}^2			V
V_{OL}	$V_{CC} = 4.5$ V, $I_{OL} = 1$ mA		0.15	0.4		0.15	0.4	V
	$V_{CC} = 4.5$ V, $I_{OL} = 12$ mA		0.35	0.7		0.35	0.7	
I_I	Control inputs	$V_{CC} = 5.5$ V, $V_I = 7$ V		0.1		0.1		mA
	A or B ports	$V_{CC} = 5.5$ V, $V_I = 5.5$ V		0.1		0.1		
I_{IH}	Control inputs	$V_{CC} = 5.5$ V, $V_I = 2.7$ V		20		20		μ A
	A or B ports [‡]			70		70		
I_{IL}	Control inputs	$V_{CC} = 5.5$ V, $V_I = 0.4$ V		-0.5		-0.5		mA
	A or B ports [‡]			-0.75		0.75		
$I_{O\ S}^{\S}$	$V_{CC} = 5.5$ V, $V_O = 2.25$ V	-50		-150	50		150	mA
I_{OH}	$V_{CC} = 4.5$ V, $V_O = 2$ V	-35			-35			mA
I_{OL}	$V_{CC} = 4.5$ V, $V_{OL} = 2$ V	35			35			mA
I_{CC}	'AS2640	$V_{CC} = 5.5$ V	Outputs high	37	58	37	58	mA
			Outputs low	78	123	78	123	
	Outputs disabled		51	80	51	80		
	'AS2645		Outputs high	58	95	58	95	
			Outputs low	95	155	95	155	
	Outputs disabled		73	119	73	119		

[†]All typical values are at $V_{CC} = 5$ 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, $I_{O\ S}$.



SN54AS2640, SN54AS2645
SN74AS2640, SN74AS2645
OCTAL BUS TRANSCEIVERS/MOS DRIVERS
 DECEMBER 1983—REVISED MAY 1986

'AS2640 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
			SN54AS2640		SN74AS2640		
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	1	9.5	1	7.5	ns
t_{PHL}			1	7	1	6.5	
t_{PZH}	\bar{G}	A or B	2	11	2	9	ns
t_{PZL}			2	12	2	10	
t_{PHZ}	\bar{G}	A or B	1	8	1	7	ns
t_{PLZ}			2	15	2	13	

'AS2645 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
			SN54AS2645		SN74AS2645		
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	1	12	1	10	ns
t_{PHL}			1	11	1	9.5	
t_{PZH}	\bar{G}	A or B	1	13	1	11.5	ns
t_{PZL}			1	13	1	10.5	
t_{PHZ}	\bar{G}	A or B	1	9	1	8	ns
t_{PLZ}			1	13	1	12	

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