
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.

SN54ALS2242, SN74ALS2242 QUADRUPE BUS TRANSCEIVERS/MOS DRIVER

MAY 1985 - REVISED MAY 1986

- Bidirectional Quadruple Bus Transceivers For Driving MOS Devices
- I/O Ports Have 25 Ohm Series Resistors so No External Resistors are Required
- 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 quadruple 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 (GBA and $\bar{G}AB$).

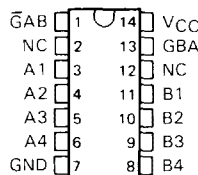
The enable inputs can be used to disable the device so that the buses are effectively isolated.

The dual-enable configuration gives the 'ALS2242 the capability to store data by simultaneous enabling of GBA and $\bar{G}AB$. 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 complementary.

The SN54ALS2242 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS2242 is characterized for operation from 0°C to 70°C .

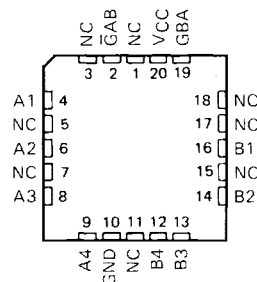
SN54ALS2242 . . . J PACKAGE
SN74ALS2242 . . . D OR N PACKAGE

(TOP VIEW)



SN54ALS2242 . . . FK PACKAGE

(TOP VIEW)



NC - No internal connection

2

ALS and AS Circuits

PRODUCTION DATA

This document contains 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

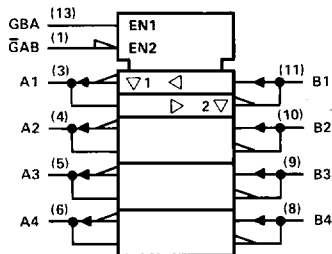
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2-913

SN54ALS2242, SN74ALS2242 QUADRUPLE BUS TRANSCEIVERS/MOS DRIVER

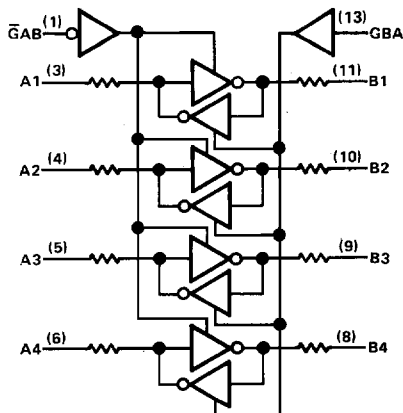
logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for D, J, and N packages.

logic diagrams (positive logic)



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: SN54ALS2242	-55°C to 125°C
SN74ALS2242	0°C to 70°C
Storage temperature range	-65°C to 150°C

recommended operating conditions

	SN54ALS2242			SN74ALS2242			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			0.7			0.8	V
T_A Operating free-air temperature	-55		125	0		70	°C

SN54ALS2242, SN74ALS2242

QUADRUPLE BUS TRANSCEIVERS/MOS DRIVER

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

PARAMETER		TEST CONDITIONS	SN54ALS2242			SN74ALS2242			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}		$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$, $I_{OH} = 0.4 \text{ mA}$	$V_{CC} - 2$			$V_{CC} - 2$			V
V_{OL}		$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 1 \text{ mA}$		0.15	0.5		0.15	0.5	V
		$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 12 \text{ mA}$		0.35	0.8		0.35	0.8	
I_I	Control inputs	$V_{CC} = 5.5 \text{ V}$, $V_I = 7 \text{ V}$			0.1			0.1	mA
	A or B ports	$V_{CC} = 5.5 \text{ V}$, $V_I = 5.5 \text{ V}$			0.1			0.1	
I_{IH}	Control inputs	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$			20			20	μA
	A or B ports [‡]				20			20	
I_{IL}	Control inputs	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.4 \text{ V}$			0.1			0.1	mA
	A or B ports [‡]				0.1			0.1	
$I_O^{\S}$		$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	-30		112	30		112	mA
I_{OH}		$V_{CC} = 4.5 \text{ V}$, $V_O = 2 \text{ V}$		15			15		mA
I_{OL}		$V_{CC} = 4.5 \text{ V}$, $V_O = 2 \text{ V}$		30			30		mA
I_{CC}		$V_{CC} = 5.5 \text{ V}$							mA
		Outputs high		10	20		10	16	
		Outputs low		14	26		14	21	
		Outputs disabled		13	24		13	19	

[†]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} .

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5 \text{ V}$, $C_L = 50 \text{ pF}$, $R_1 = 500 \Omega$, $R_2 = 500 \Omega$, $T_A = 25^\circ\text{C}$		$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$, $C_L = 50 \text{ pF}$, $R_1 = 500 \Omega$, $R_2 = 500 \Omega$, $T_A = \text{MIN to MAX}$		UNIT					
			'ALS2242		SN54ALS2242			SN74ALS2242				
			TYP		MIN			MAX		MIN		MAX
t_{PLH}	A or B	B or A	5		2		15		2		11	ns
t_{PHL}			5		2		14		2		10	
t_{PZH}	$\overline{G}AB$	B	8		3		18		3		16	ns
t_{PZL}			11		5		22		5		20	
t_{PHZ}	$\overline{G}AB$	B	6		2		12		2		10	ns
t_{PLZ}			6		2		18		2		12	
t_{PZH}	GBA	A	10		3		18		3		16	ns
t_{PZL}			12		5		22		5		20	
t_{PHZ}	GBA	A	6		2		12		2		10	ns
t_{PLZ}			6		2		18		2		14	

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

2

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