

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 QUADRUPLE 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.

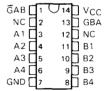
These devices allow data transmission from A bus to the B bus or from the B bus to the A bus depending upon the logic levels at the enable inputs (GBA and $\overline{G}AB$).

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

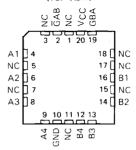
The dual-enable configuration gives the 'ALS2242 the capability to store data by simultaneous enabling of GBA and $\overline{G}AB$. Each output reinforces its input in this transceiver configuration. Thus, when both control inputs are enabled and all other data sources to the two sets of bus lines are 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)

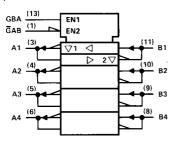


SN54ALS2242 . . . FK PACKAGE



NC- No internal connection

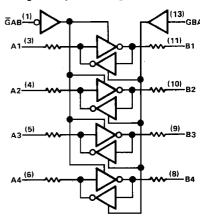
logic symbol†



 † 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, VCC		7 V
I/O ports		. 5.5 V
Operating free-air temperature range:	SN54ALS2242 55 °C t	o 125°C
	SN74ALS2242 0°C	to 70°C
Storage temperature range	-65°C t	o 150°C

recommended operating conditions

			SN54ALS2242			SN74ALS2242			UNIT
			MIN	NOM	MAX	MIN	NOM	MAX	Civil
Vcc	Supply voltage	·	4.5	5	5.5	4.5	5	5.5	V
VIH	High-level input voltage		2			2			V
VIL	Low-level input voltage				0.7			0.8	V
TΔ	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				SN54	ALS2242	SN74ALS2242			UNIT
	PARAMETER	TEST COM	VOITIONS	MIN T	YP [†] MAX	MIN	TYP [†]	MAX	ONIT
VIK		V _{CC} 4.5 V,	lj = -18 mA		1.2			- 1.2	V
Vон		V _{CC} 4.5 V to 5.5	5 V, I _{OH} 0.4 mA	V _{CC} 2		Vcc	2		V
1/		V _{CC} + 4.5 V,	I _{OL} 1 mA	C	0.15 0.5		0.15	0.5	V
VOL		V _{CC} 4.5 V,	I _{OL} - 12 mA		0.35 0.8		0.35	0.8	1 *
1.	Control inputs	V _{CC} - 5.5 V,	V _I 7 V		0.1			0.1	_
1	A or B ports	V _{CC} - 5.5 V,	V _I - 5.5 V		0.1			0.1	mA
	Control inputs	V _{CC} · 5.5 V.	N 0.7 N		20			20	μΑ
'IH	A or B ports‡		V ₁ 2.7 V		20			20	
1(1	Control inputs	V _{CC} = 5.5 V,	1/ 041/		0.1			0.1	
11	A or B ports:		V _I 0.4 V		0.1			0.1	mA
lo §		V _{CC} · 5.5 V,	V _O - 2.25 V	30	112	30		- 112	mΑ
ЮН		V _{CC} = 4.5 V,	V ₀ 2 V	15		15			mA
IOL		V _{CC} 4.5 V,	V _O 2 V	30		30			mA
	•		Outputs high		10 20		10	16	
Icc		V _{CC} 5.5 V	Outputs low		14 26		14	21	mA
			Outputs disabled		13 24		13	19	

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5 \text{ V}.$ $C_L = 50 \text{ pF}.$ $R_1 = 500 \Omega,$ $R_2 = 500 \Omega,$ $T_A = 25 ^{\circ}\text{C}$ 'ALS2242	$\begin{array}{c} V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}, \\ C_L = 50 \text{ pF}, \\ R_1 = 500 \ \Omega, \\ R_2 = 500 \ \Omega, \\ T_A = \text{MIN to MAX} \\ \\ \hline SN54ALS2242 \qquad SN74ALS224 \end{array}$				UNIT
			TYP	MIN	MAX	MIN	MAX	
t _{PLH}	A or B	B or A	5	2	15	2	11	ns
[†] PHL	AUIB		5	2	14	2	10	115
tPZH	ĞАВ	В	8	3	18	3	16	ns
^t PZL	- GAB	В	11	5	22	5	20	115
^t PHZ	ĞАВ	В	6	2	12	2	10	ns
tPLZ		Ь	6	2	18	2	12	1115
tpzH	GBA	GBA A	10	3	18	3	16	ns
t _{PZL}			12	5	22	5	20	1 115
^t PHZ	GBA	A	6	2	12	2	10	ns
tPLZ			6	2	18	2	14] "'5

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

 $[^]TAII$ typical values are at VCC $^{-1}$ 5 V, TA $^{-1}$ 25 °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, IOS-