

TYPES SN54AS758, SN54AS759, SN74AS758, SN74AS759 QUADRUPLE BUS TRANSCEIVERS WITH OPEN-COLLECTOR OUTPUTS

DECEMBER 1983

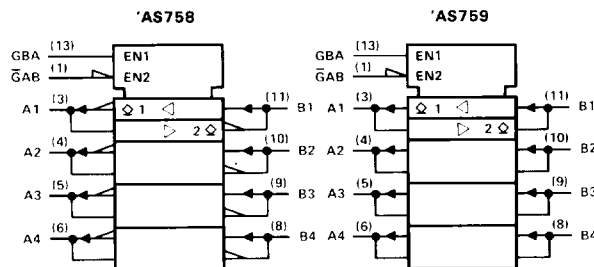
- **2-Way Asynchronous Communication Between Data Buses**
- **P-N-P Inputs Reduce Loading**
- **Dependable Texas Instruments Quality and Reliability**
- **Open-Collector Versions of 'AS242, 'AS243**

description

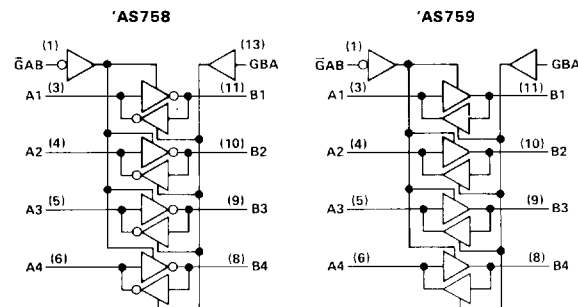
These four-data-line transceivers are designed for asynchronous two-way communications between data buses.

The SN54' family is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74' family is characterized for operation from 0°C to 70°C .

logic symbol

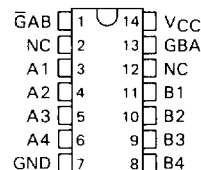


logic diagrams (positive logic)

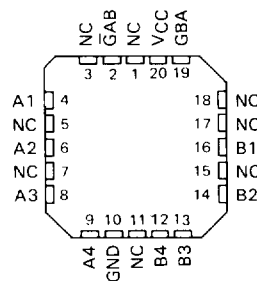


Pin numbers shown are for J and N packages.

SN54' . . . J PACKAGE
SN74' . . . N PACKAGE
(TOP VIEW)



SN54' . . . FH PACKAGE
SN74' . . . FN PACKAGE
(TOP VIEW)



NC—No Internal connection

FUNCTION TABLE

INPUTS		'AS758	'AS759
GAB	GBA		
L	L	A to B	A to B
H	H	B to A	B to A
H	L	Isolation	Isolation
L	H	Latch A and B (A = B)	Latch A and B (A = B)

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ALS AND AS CIRCUITS

PRODUCT PREVIEW

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TYPES SN54AS758, SN54AS759, SN74AS758, SN74AS759 **QUADRUPLE BUS TRANSCEIVERS WITH OPEN-COLLECTOR OUTPUTS**

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

Supply voltage, V_{CC}	7 V
Input voltage: All inputs and I/O ports	7 V
Operating free-air temperature range: SN54AS758, SN54AS759	– 55 °C to 125 °C
SN74AS758, SN74AS759	0 °C to 70 °C
Storage temperature range	– 65 °C to 150 °C

recommended operating conditions

		SN54AS758 SN54AS759			SN74AS758 SN74AS759			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
V_{OH}	High-level output voltage			5.5			5.5	V
I_{OL}	Low-level output current			48			64	mA
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		SN54AS758 SN54AS759			SN74AS758 SN74AS759			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
I_{OH}		$V_{CC} = 4.5 \text{ V}$,	$V_{OH} = 5.5 \text{ V}$			0.1			0.1	mA
V_{OL}		$V_{CC} = 4.5 \text{ V}$,	$I_{OL} = 48 \text{ mA}$			0.55				V
		$V_{CC} = 4.5 \text{ V}$,	$I_{OL} = 64 \text{ mA}$						0.55	
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‡									
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_{CC}	AS758	$V_{CC} = 5.5 \text{ V}$	Outputs high			18			18	mA
			Outputs low			34			34	
	AS759		Outputs high			28			28	
			Outputs low			34			34	

†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.

Additional information on these products can be obtained from the factory as it becomes available.

TYPES SN54AS758, SN54AS759, SN74AS758, SN74AS759
QUADRUPLE BUS TRANSCEIVERS WITH OPEN-COLLECTOR OUTPUTS

'AS758 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω, T _A = MIN to MAX						UNIT
			SN54AS758			SN74AS758			
			MIN	TYP†	MAX	MIN	TYP†	MAX	
t _{PLH}	A or B	B or A	20			20			ns
t _{PHL}			6			6			
t _{PLH}	GBA	A	23			23			ns
t _{PHL}			9			9			
t _{PLH}	\bar{G} AB	B	22			22			ns
t _{PHL}			8			8			

'AS759 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω, T _A = MIN to MAX						UNIT
			SN54AS759			SN74AS759			
			MIN	TYP†	MAX	MIN	TYP†	MAX	
t _{PLH}	A or B	B or A	20			20			ns
t _{PHL}			6			6			
t _{PLH}	GBA	A	23			23			ns
t _{PHL}			9			9			
t _{PLH}	\bar{G} AB	B	22			22			ns
t _{PHL}			8			8			

†All typical values are at V_{CC} = 5 V, T_A = 25°C.

NOTE 1: For load circuit and voltage waveforms, see page 1-12.

Additional information on these products can be obtained from the factory as it becomes available.