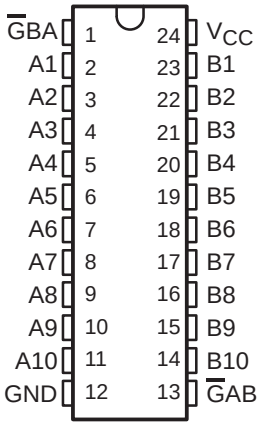
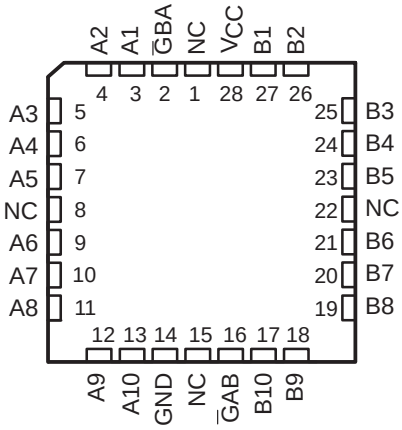
- **Functionally Equivalent to AM29861 and AM29862**
- **Choice of True or Inverting Logic**
- **Power-Up High-Impedance State**
- **Package Options include Plastic Small Outline Packages, Plastic Chip Carriers, and Standard Plastic DIPs**

DW OR NT PACKAGE
(TOP VIEW)



FN PACKAGE
(TOP VIEW)



NC – No internal connection

description

These 10-bit bus transceivers are designed for asynchronous two-way communication between data buses. The control function implementation allows for maximum flexibility in timing.

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

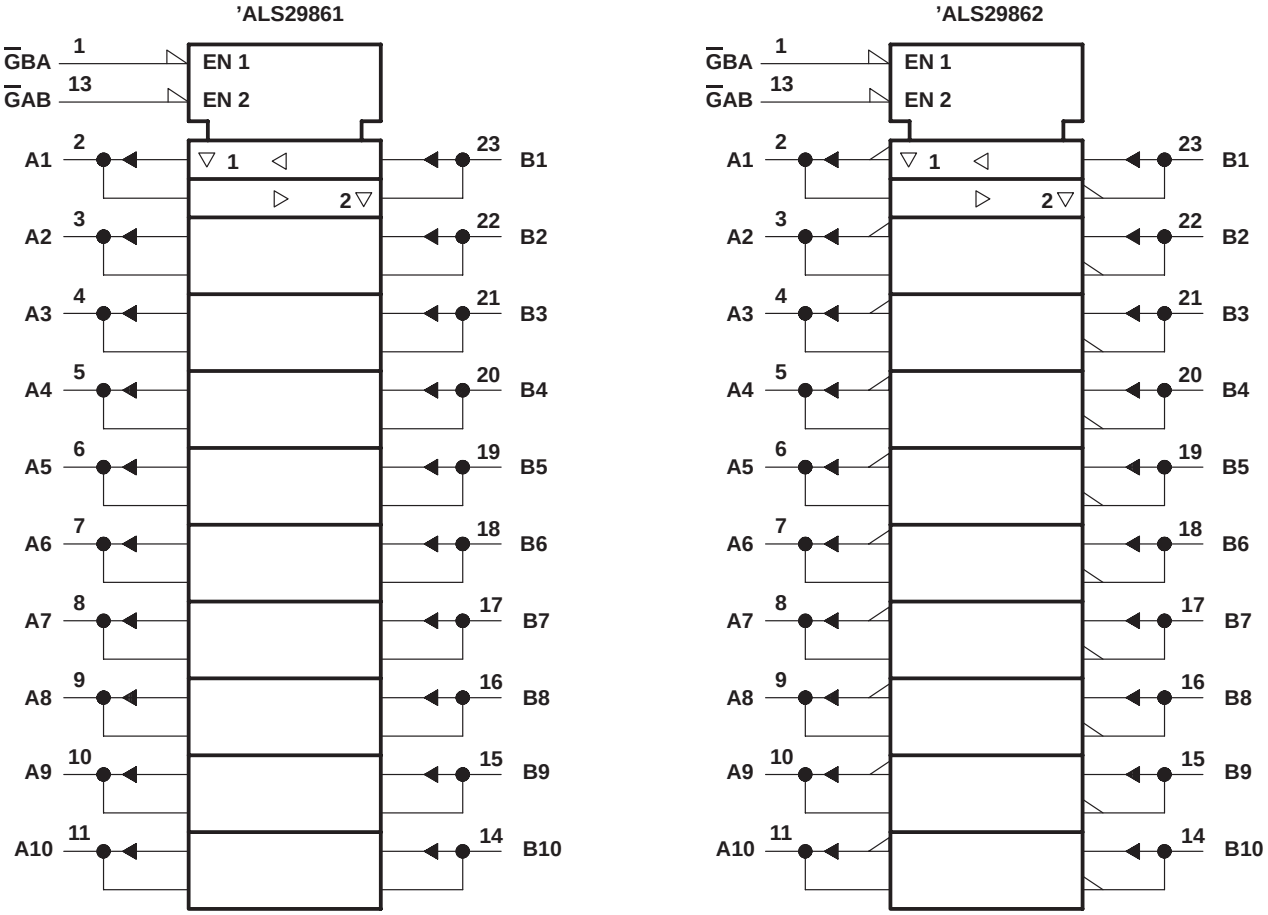
The enable inputs can be used to disable the device so that the buses are effectively isolated.

The SN74' family is characterized for operation from 0°C to 70°C.

FUNCTION TABLE

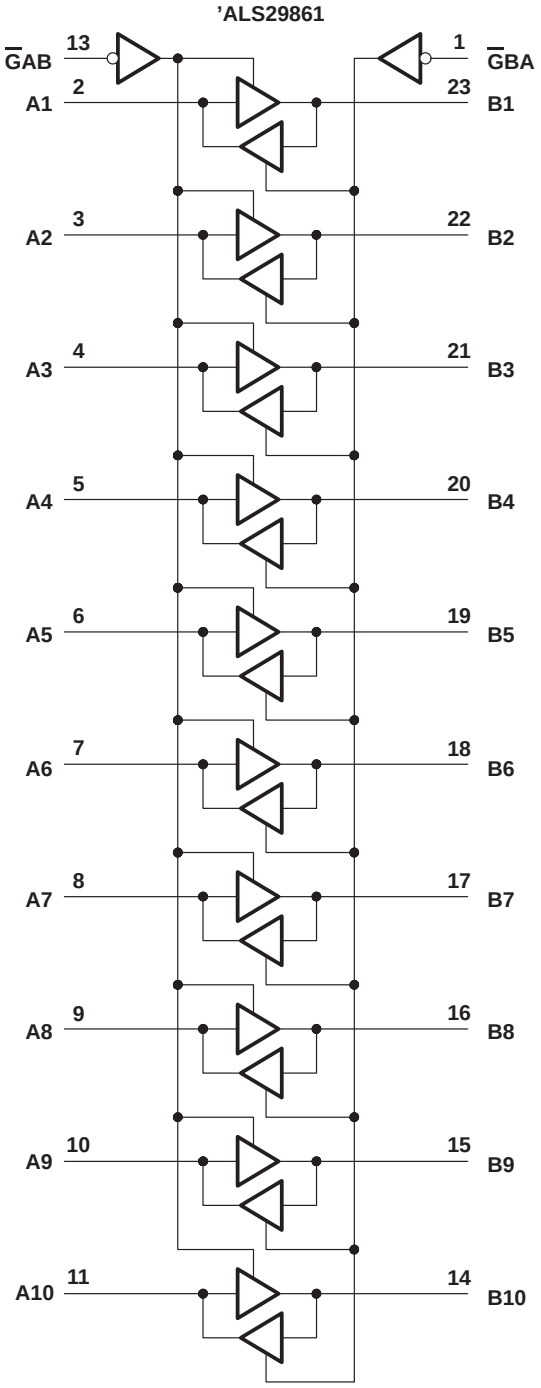
INPUTS		OPERATION	
$\overline{G}$AB	$\overline{G}$BA	ALS29861	ALS29862
L	H	A to B	$\overline{A}$ to B
H	L	B to A	$\overline{B}$ to A
H	H	Isolation	Isolation
L	L	Latch A and B (A = B)	Latch A and B (A = $\overline{B}$)

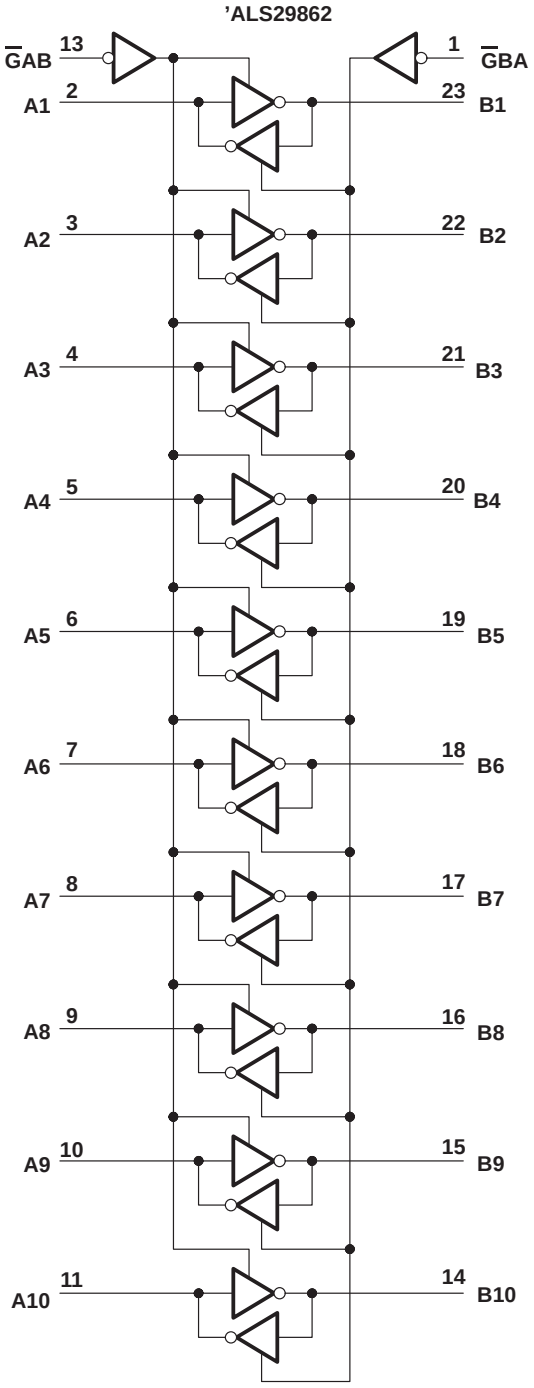
logic symbols†



† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
‡ Pin numbers shown are for DW and NT packages.

logic diagrams





Pin numbers shown are for DW and NT packages.

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 . . . . . 5.5 V
Operating free-air temperature range . . . . . 0°C to 70°C
Storage temperature range . . . . . –65°C to 150°C

recommended operating conditions

		MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage	4.75	5	5.25	V
V_{IH}	High-level input Voltage	2			V
V_{IL}	Low-level input Voltage			0.8	V
I_{OH}	High-level output current			–24	mA
I_{OL}	Low-level output current			48	mA
T_A	Operating free-air temperature	0		70	°C

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

PARAMETER		TEST CONDITIONS		MIN	TYP †	MAX	UNIT
V_{IK}		V_{CC} = 4.75 V,	I_I = –18 mA			–1.2	V
V_{OH}		V_{CC} = 4.75 V,	I_{OH} = –15 mA	2.4			V
		V_{CC} = 4.75 V,	I_{OH} = –24 mA	2			
V_{OL}		V_{CC} = 4.75 V,	I_{OL} = 48 mA		0.35	0.5	V
I_I		V_{CC} = 5.25 V,	V_I = 5.5 V			0.1	mA
I_{IH}	Control inputs	V_{CC} = 5.25 V,	V_I = 2.7 V			20	µA
	A or B ports‡					20	
I_{IL}	Control inputs	V_{CC} = 5.25 V,	V_I = 0.4 V			–0.1	mA
	A or B ports‡					–0.1	
I_{OS}§		V_{CC} = 5.25 V,	V_O = 0 V	–75		–250	mA
I_{CC}	’ALS29861	V_{CC} = 5.25 V			40	65	mA
	’ALS29862				40	65	

† All typical values are at V_{CC} = 5 V, T_A = 25°C
‡ For I/O ports, the parameters I_{IH} and I_{IL} include the off-state output current.
§ Not more than one output should be shorted at a time and duration of the short circuit should not exceed one second.

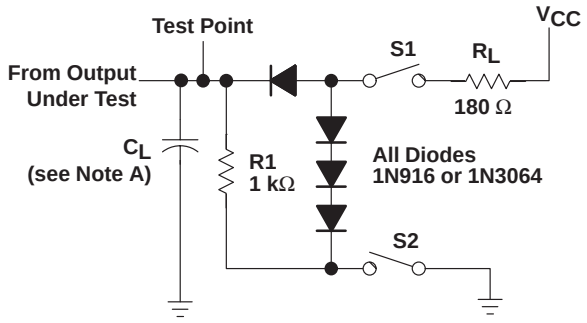
SN74ALS29861 switching characteristics

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS See Figure 1	V_{CC} = 5 V, T_A = 25°C			V_{CC} = 4.75 V to 5.25 V, T_A = 0°C to 70°C		UNIT
				MIN	TYP	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	C_L = 300 pF		8	11		15	ns
t_{PHL}					11	14		15	
t_{PLH}			C_L = 50 pF		4.8	6		8	
t_{PHL}					5.2	6.2		8	
t_{PZH}	$\overline{G}AB$ or $\overline{G}BA$	A or B	C_L = 300 pF		11	17		20	ns
t_{PZL}					17	21		23	
t_{PZH}			C_L = 50 pF		6.5	12		15	
t_{PZL}					9.5	12		15	
t_{PHZ}	$\overline{G}AB$ or $\overline{G}BA$	A or B	C_L = 50 pF		11.2	16		17	ns
t_{PLZ}					4.5	9		12	
t_{PHZ}			C_L = 5 pF		3.5	8		9	
t_{PLZ}					3.5	8		9	

SN74ALS29862 switching characteristics

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS See Figure 1	V_{CC} = 5 V, T_A = 25°C			V_{CC} = 4.75 V to 5.25 V, T_A = 0°C to 70°C		UNIT
				MIN	TYP	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	C_L = 300 pF		7.3	10		14	ns
t_{PHL}					10.5	12.9		14	
t_{PLH}			C_L = 50 pF		4	5.2		7	
t_{PHL}					4.9	5.9		7.5	
t_{PZH}	$\overline{G}AB$ or $\overline{G}BA$	A or B	C_L = 300 pF		11	17		20	ns
t_{PZL}					17	21		23	
t_{PZH}			C_L = 50 pF		6.5	12		15	
t_{PZL}					9.5	12		15	
t_{PHZ}	$\overline{G}AB$ or $\overline{G}BA$	A or B	C_L = 50 pF		11.2	16		17	ns
t_{PLZ}					4.5	9		12	
t_{PHZ}			C_L = 5 pF		3.5	8		9	
t_{PLZ}					3.5	8		9	

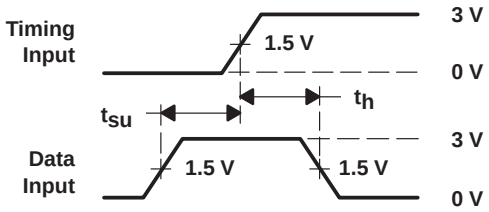
PARAMETER MEASUREMENT INFORMATION



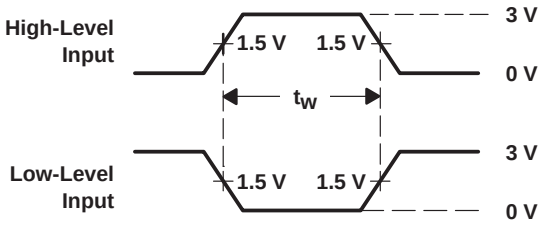
LOAD CIRCUIT

SWITCH POSITION TABLE

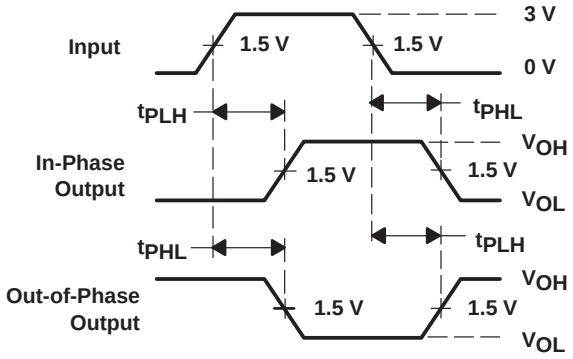
TEST	S1	S2
t_{PLH}	Closed	Closed
t_{PHL}	Closed	Closed
t_{PZH}	Open	Closed
t_{PZL}	Closed	Open
t_{PHZ}	Closed	Closed
t_{PLZ}	Closed	Closed



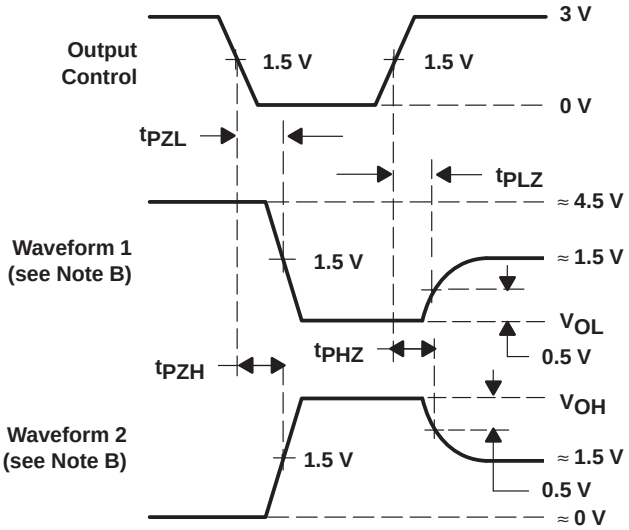
VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS
PULSE DURATIONS



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES, 3-STATE OUTPUTS

NOTES: A. C_L includes probe and jig capacitance.
B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
C. All input pulses are supplied by generators having the following characteristics: PRR ≤ 10 MHz, Z_O = 50 Ω, t_r ≤ 2.5 ns, t_f ≤ 2.5 ns.

Figure 1

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