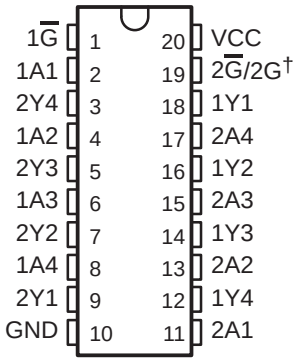
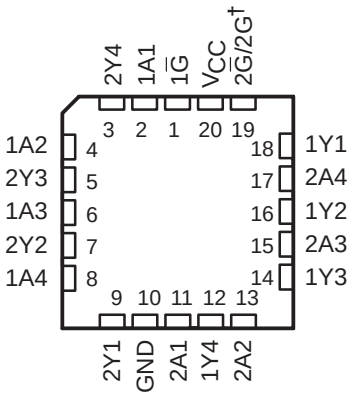
- **Package Options include Plastic Small Outline Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs**
- **'ALS762 and 'AS762 Have True and Complementary Outputs**
- **'ALS763 and 'AS763 Have Complementary G and $\overline{G}$ Inputs**
- **Open-Collector Outputs Drive Bus Lines or Buffer Memory Address Registers**
- **Eliminates the Need for 3-State Overlap Protection**
- **Current Sinking Capability Up to 64 mA**
- **Dependable Texas Instruments Quality and Reliability**

SN54ALS', SN54AS' . . . J PACKAGE
SN74ALS', SN74AS' . . . DW OR N PACKAGE
(TOP VIEW)



SN54ALS', SN54AS' . . . FK PACKAGE
(TOP VIEW)



†$2\overline{G}$ for 'ALS762, 'AS762 and 2G 'ALS763, 'AS763

description

These octal buffers and line drivers are designed specifically to improve the performance of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters by eliminating the need for 3-state overlap protection. The designer has a choice of selected combinations of inverting and noninverting outputs, symmetrical $\overline{G}$ (active-low output control) inputs, and complementary G and $\overline{G}$ inputs.

The -1 versions of the SN74ALS' parts are identical to their standard versions except that the recommended maximum I_{OL} is increased to 48-mA. There are no -1 versions of the SN54ALS' parts.

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.

This document contains information on products in more than one phase of development. The status of each device is indicated on the page(s) specifying its electrical characteristics.

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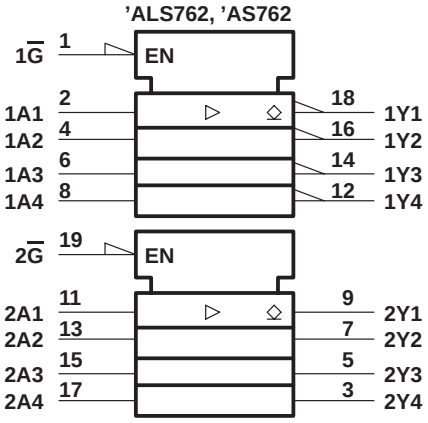
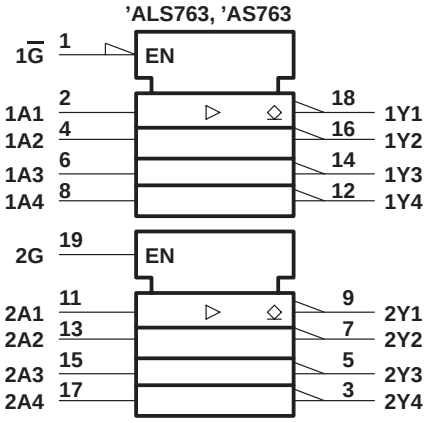
5BASIC

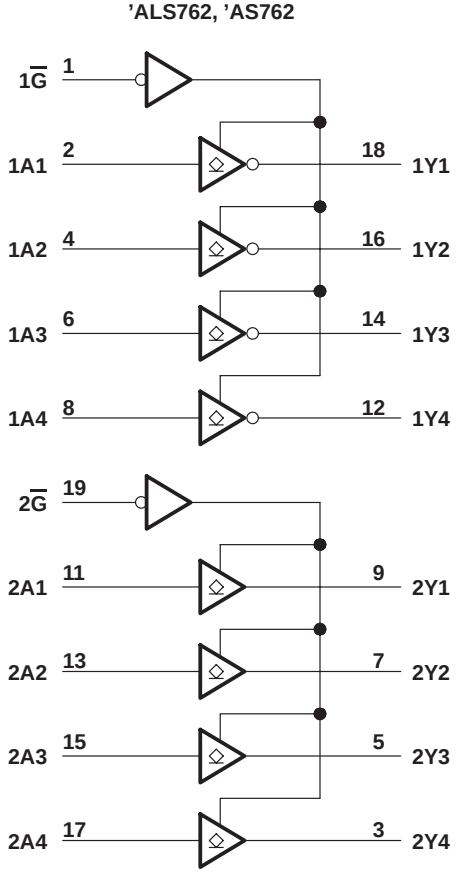
logic symbols†

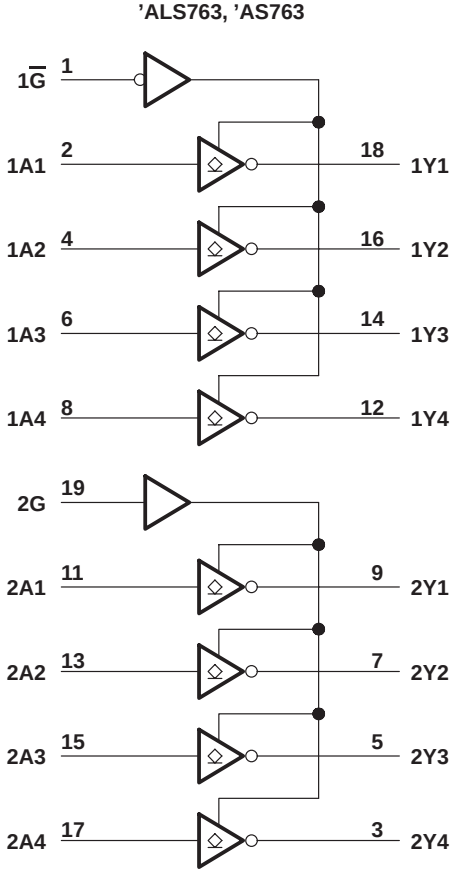




† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagrams (positive logic)





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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Off-state output voltage . . . . . 7 V
Operating free-air temperature range: SN54ALS762 . . . . . –55°C to 125°C
SN74ALS762 . . . . . 0°C to 70°C
Storage temperature range . . . . . –65°C to 150°C

recommended operating conditions

		SN54ALS762			SN74ALS762			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
V_{OH}	High-level output voltage			5.5			5.5	mA
I_{OL}	Low-level output current			12			24	mA
							48†	
T_A	Operating free-air temperature	–55		125	0		70	°C

† The extended limits apply only if V_{CC} is maintained between 4.75 V and 5.25 V. The 48-mA limit applies for the SN74ALS762-1 only.

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

PARAMETER		TEST CONDITIONS		SN54ALS762			SN74ALS762			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}		V_{CC} = 4.5 V,	I_I = –18 mA			–1.2			–1.2	V
I_{OH}		V_{CC} = 4.5 V,	V_{OH} = 5.5 V			0.1			0.1	mA
V_{OL}		V_{CC} = 4.5 V,	I_{OL} = 12 mA		0.25	0.4		0.25	0.4	V
		V_{CC} = 4.5 V, (I_{OL} = 48 mA for -1 versions)	I_{OL} = 24 mA					0.35	0.55	
I_I		V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}		V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	µA
I_{IL}		V_{CC} = 5.5 V,	V_I = 0 .4 V			–0.1			–0.1	mA
I_{CC}	’ALS762	V_{CC} = 5.5 V	Outputs high		11			11		mA
			Outputs low		18			18		

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

’ALS762 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 5.5 V, C_L = 50 pF, R_L = 680 Ω, T_A = 25°C	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 680 Ω, T_A = MIN to MAX§				UNIT
			’ALS762	SN54ALS762		SN74ALS762		
			TYP	MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	17					ns
t_{PHL}			6					
t_{PLH}	$\overline{G}$	Y	14					ns
t_{PHL}			18					

§ The conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
NOTE 1: Load circuit and voltage waveforms are shown in Section 1.

PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Off-state output voltage . . . . . 7 V
Operating free-air temperature range: SN54ALS763 . . . . . –55°C to 125°C
SN74ALS763 . . . . . 0°C to 70°C
Storage temperature range . . . . . –65°C to 150°C

recommended operating conditions

		SN54ALS763			SN74ALS763			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
V_{OH}	High-level output voltage			5.5			5.5	V
I_{OL}	Low-level output current			12			24	mA
							48†	
T_A	Operating free-air temperature	–55		125	0		70	°C

† The extended limits apply only if V_{CC} is maintained between 4.75 V and 5.25 V. The 48-mA limit applies for the SN74ALS763–1 only.

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

PARAMETER		TEST CONDITIONS		SN54ALS763			SN74ALS763			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}		V_{CC} = 4.5 V,	I_I = –18 mA			–1.2			–1.2	V
I_{OH}		V_{CC} = 4.5 V,	V_{OH} = 5.5 V			0.1			0.1	mA
V_{OL}		V_{CC} = 4.5 V,	I_{OL} = 12 mA		0.25	0.4		0.25	0.4	V
		V_{CC} = 4.5 V, (I_{OL} = 48 mA for -1 versions)	I_{OL} = 24 mA					0.35	0.5	
I_I		V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}		V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	µA
I_{IL}		V_{CC} = 5.5 V,	V_I = 0.4 V			–0.1			–0.1	mA
I_{CC}	'ALS763	V_{CC} = 5.5 V	Outputs high		7	11		7	11	mA
			Outputs low		14	22		14	22	

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

'ALS763 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 5.5 V, C_L = 50 pF, R_L = 680 Ω, T_A = 25°C	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 680 Ω, T_A = MIN to MAX§				UNIT
			'ALS763	SN54ALS763		SN74ALS763		
			TYP	MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	16	7	28	7	25	ns
t_{PHL}			5	2	11	2	9	
t_{PLH}	$\overline{G}$	Y	18	8	28	9	25	ns
t_{PHL}			13	5	25	5	21	
t_{PLH}	G	Y	18	8	28	9	25	ns
t_{PHL}			13	5	25	5	21	

§ The conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
NOTE 1: Load circuit and voltage waveforms are shown in Section 1.

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Off-state output voltage . . . . . 7 V
Operating free-air temperature range: SN54AS762, SN54AS763 . . . . . –55°C to 125°C
SN74AS762, SN74AS763 . . . . . 0°C to 70°C
Storage temperature range . . . . . –65°C to 150°C

recommended operating conditions

		SN54AS762 SN54AS763			SN74AS762 SN74AS763			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		SN54AS762 SN54AS763			SN74AS762 SN74AS763			UNIT
				MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}		V_{CC} = 4.5 V,	I_I = –18 mA			–1.2			–1.2	V
I_{OH}		V_{CC} = 4.5 V,	V_{OH} = 5.5 V			0.1			0.1	mA
V_{OL}		V_{CC} = 4.5 V,	I_{OL} = 48 mA			0.55				V
		V_{CC} = 4.5 V,	I_{OL} = 64 mA						0.55	
I_I		V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}		V_{CC} = 5.5 V,	V_O = 2.7 V			20			20	µA
I_{IL}	’AS762 2A Inputs only	V_{CC} = 5.5 V,	V_I = 0 .4 V			–1			–1	mA
	All others					–0.5			–0.5	
I_{CC}	’AS762	V_{CC} = 5.5 V	Output high		15	23		15	23	mA
			Output low		55	87		55	87	
	’AS763	V_{CC} = 5.5 V	Output high		10	16		10	16	
			Output low		52	82		52	82	

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

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'AS762 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
			SN54AS762		SN74AS762		
			MIN	MAX	MIN	MAX	
t_{PLH}	1A	1Y	3	20	3	19	ns
t_{PHL}			1	7	1	6	
t_{PLH}	2A	2Y	3	19.5	3	18.5	ns
t_{PHL}			1	7	1	6	
t_{PLH}	$\overline{G}$	1Y	3	22	3	19.5	ns
t_{PHL}			1	8	1	7.5	
t_{PLH}	$\overline{G}$	2Y	3	20	3	19	ns
t_{PHL}			1	8	1	7	

'AS763 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
			SN54AS763		SN74AS763		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	3	20	3	19	ns
t_{PHL}			1	7	1	6	
t_{PLH}	$\overline{G}$	Y	3	22	3	19.5	ns
t_{PHL}			1	8.5	1	7.5	
t_{PLH}	G	Y	3	22	3	20	ns
t_{PHL}			1	8.5	1	8	

† The conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

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

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