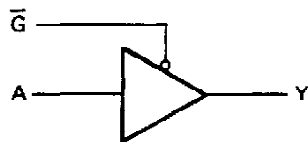


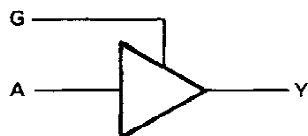
- **Quad Bus Buffers**
- **3-State Outputs**
- **Separate Control for Each Channel**

These bus buffers feature three-state outputs that, when enabled, have the low impedance characteristics of a TTL output with additional drive capability at high logic levels to permit driving heavily loaded bus lines without external pull-up resistors, when disabled, both output transistors are turned off presenting a high-impedance state to the bus so the output will act neither as a significant load nor as a driver. The '125 and 'LS125A outputs are disabled when $\overline{G}$ is high. The '126 and 'LS126A outputs are disabled when G is low.

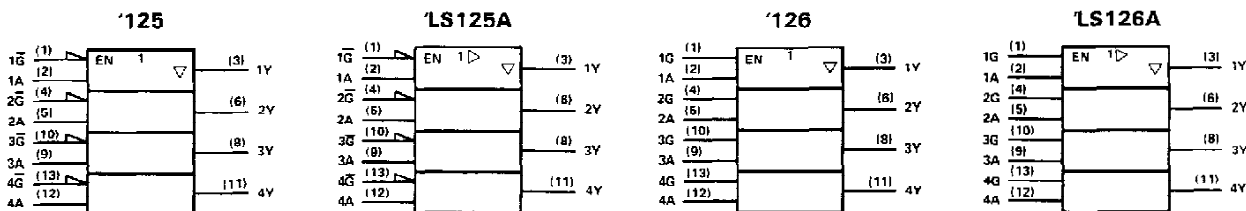
'125. 'LS125A



'126, LS126A



logic symbols[†]



†These symbols are in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12. Pin numbers shown are for D, J, N, and W packages.

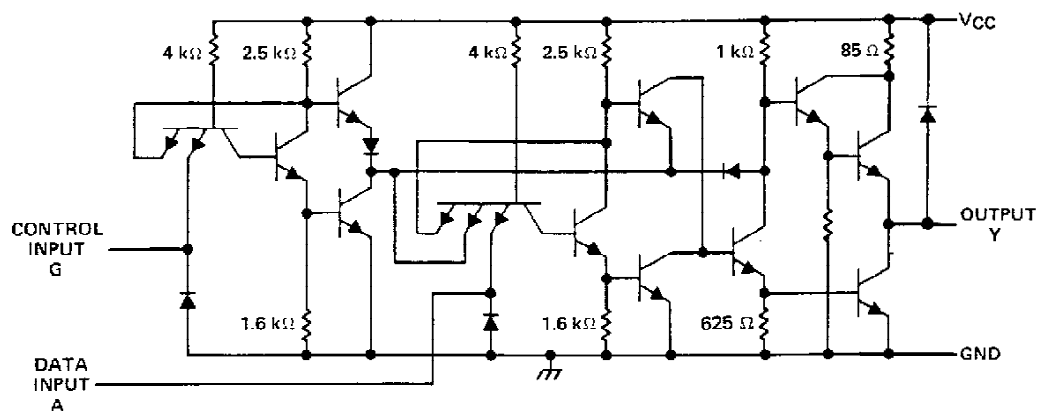
PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texa Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

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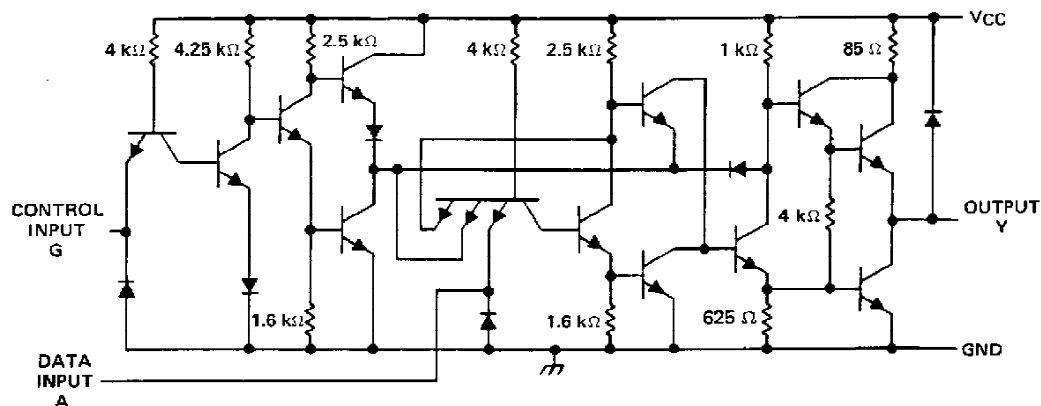
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SN54125, SN54126, SN74125, SN74126 **QUADRUPLE BUS BUFFERS WITH 3-STATE OUTPUTS**

schematics (each gate)



'125 CIRCUITS



'126 CIRCUITS

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

Supply voltage, V_{CC} (See Note 1)	7 V
Input voltage	5.5 V
Operating free-air temperature range: SN54'	-55°C to 125°C
SN74'	0°C to 70°C
Storage temperature range	-65°C to 150°C

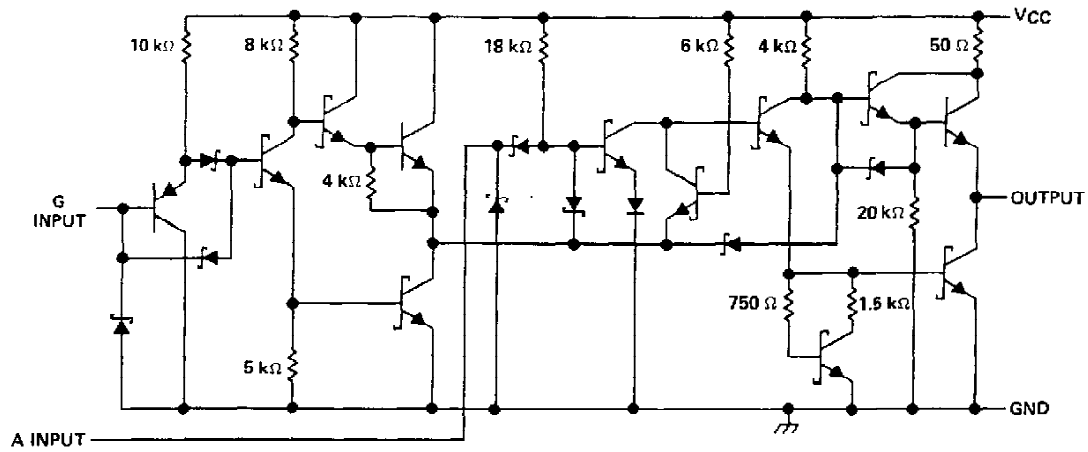
NOTE 1: Voltage values are with respect to network ground terminal.

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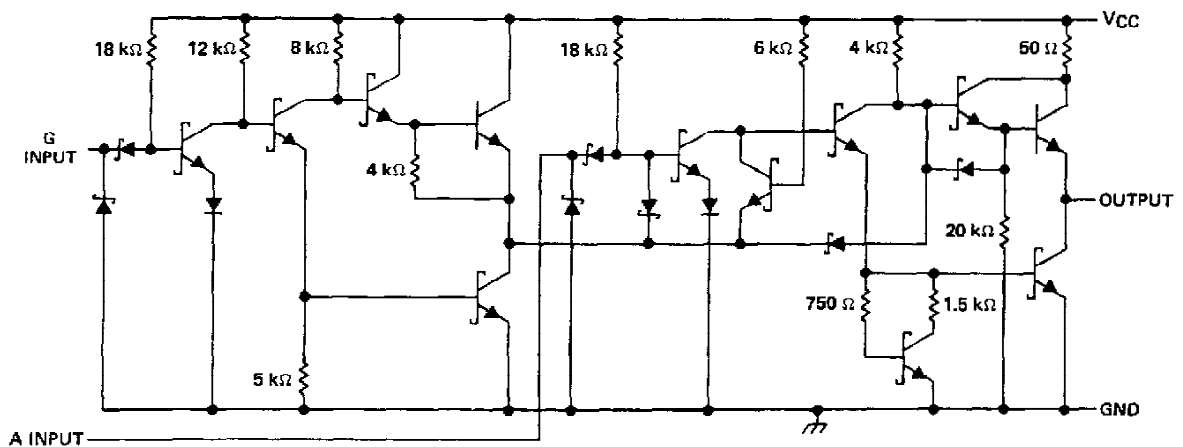
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SN54LS125A, SN54LS126A, SN74LS125A, SN74LS126A **QUADRUPLE BUS BUFFERS WITH 3-STATE OUTPUTS**

schematics (each gate)



'LS125A CIRCUITS



'LS126A CIRCUITS

Resistor values shown are nominal.

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	7 V
Operating free-air temperature range: SN54'	-55°C to 125°C
SN74'	0°C to 70°C
Storage temperature range	-65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminals.

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SN54125, SN54126, SN74125, SN74126

QUADRUPLER BUS BUFFERS WITH 3-STATE OUTPUTS

recommended operating conditions

	SN54125, SN54126			SN74125, SN74126			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH} High-level input voltage	2			2			V
V _{IL} Low-level input voltage			0.8			0.8	V
I _{OH} High-level output current			-2			-5.2	mA
I _{OL} Low-level output current			16			16	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 †		SN54125, SN54126			SN74125, SN74126			UNIT
			MIN	TYP ‡	MAX	MIN	TYP ‡	MAX	
V _{IK}	V _{CC} = MIN, I _I = -12 mA				1.5			1.5	V
V _{OH}	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = 0.8 V	I _{OH} = -2 mA	2.4	3.3					V
		I _{OH} = -5.2 mA				2.4	3.1		V
V _{OL}	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = 0.8 V, I _{OL} = 16 mA				0.4			0.4	V
I _{OZ}	V _{CC} = MAX, V _{IH} = 2 V, V _{IL} = 0.8 V	V _O = 2.4 V			40			40	μA
		V _O = 0.4 V			-40			-40	μA
I _I	V _{CC} = MAX, V _I = 6.5 V			1			1		mA
I _{IH}	V _{CC} = MAX, V _I = 2.4 V			40			40		μA
I _{IL}	V _{CC} = MAX, V _I = 0.4 V			-1.6			-1.6		mA
I _{OS} §	V _{CC} = MAX		-30		-70	-28		-70	mA
I _{CC}	V _{CC} = MAX, (see Note 2)	'125		32	54		32	54	mA
		'126		36	62		36	62	mA

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

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

§ Not more than one output should be shorted at a time.

NOTE 2: Data inputs = 0 V; output control = 4.5 V for '125 and 0 V for '126.

switching characteristics, V_{CC} = 5 V, T_A = 25°C (see note 3)

PARAMETER	TEST CONDITIONS		SN54/74125			SN54/74126			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
t _{PLH}	R _L = 400 Ω, C _L = 50 pF		8		13	8		13	ns
t _{PHL}			12		18	12		18	ns
t _{PZH}			11		17	11		18	ns
t _{PZL}			16		25	16		25	ns
t _{PHZ}	R _L = 400 Ω, C _L = 5 pF		5		8	10		16	ns
t _{PLZ}			7		12	12		18	ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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SN54LS125A, SN54LS126A, SN74LS125A, SN74LS126A QUADRUPLER BUS BUFFERS WITH 3-STATE OUTPUTS

recommended operating conditions

		SN54LS125A SN54LS126A			SN74LS125A SN74LS126A			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH}	High-level input voltage	2			2			V
V _{IL}	Low-level input voltage			0.7			0.8	V
I _{OH}	High-level output current			-1			-2.6	mA
I _{OL}	Low-level output current			12			24	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 †		SN54LS125A SN54LS126A			SN74LS125A SN74LS126A			UNIT
			MIN	TYP ‡	MAX	MIN	TYP ‡	MAX	
V _{IK}	V _{CC} = MIN, I _I = -18 mA				-1.5			-1.5	V
V _{OH}	V _{CC} = MIN, V _{IH} = 2 V	V _{IL} = 0.7 V, I _{OH} = -1 mA	2.4						V
		V _{IL} = 0.8 V, I _{OH} = -2.6 mA				2.4			
V _{OL}	V _{CC} = MIN, V _{IH} = 2 V	V _{IL} = 0.7 V, I _{OL} = 12 mA		0.25	0.4				V
		V _{IL} = 0.8 V, I _{OL} = 12 mA				0.25	0.4		
		V _{IL} = 0.8 V, I _{OL} = 24 mA				0.35	0.5		
I _{OZ}	V _{CC} = MAX, V _{IH} = 2 V	V _{IL} = 0.7 V	V _O = 2.4 V		20				µA
			V _O = 0.4 V		-20				
		V _{IL} = 0.8 V	V _O = 2.4 V			20			
			V _O = 0.4 V			-20			
I _I	V _{CC} = MAX, V _I = 7 V			0.1				0.1	mA
I _{IH}	V _{CC} = MAX, V _I = 2.7 V			20				20	µA
I _{IL}	V _{CC} = MAX, V _I = 0.4 V	'LS125A-G inputs		-0.2				-0.2	mA
		'LS125A-A inputs; 'LS126A All inputs		-0.4				-0.4	mA
I _{OS} §	V _{CC} = MAX		-40		-225	-40		-225	mA
I _{CC}	V _{CC} = MAX, (see Note 2)	'LS125A		11	20		11	20	mA
		'LS126A		12	22		12	22	

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

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

§ Not more than one output should be shorted at a time, and duration of the short circuit should not exceed one second.

NOTE 2: Data inputs = 0 V; Output controls = 4.5 V for 'LS125A and 0 V for 'LS126A.

switching characteristics; V_{CC} = 5 V, T_A = 25°C (see note 3)

PARAMETER	TEST CONDITIONS	SN54/74LS125A			SN54/74LS126A			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
t _{PLH}	R _L = 667 Ω, C _L = 45 pF		9	15		9	15	ns
t _{PHL}			7	18		8	18	ns
t _{PZH}			12	20		16	25	ns
t _{PZL}			15	25		21	35	ns
t _{PHZ}	R _L = 667 Ω, C _L = 5 pF			20			25	ns
t _{PLZ}				20			25	ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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