

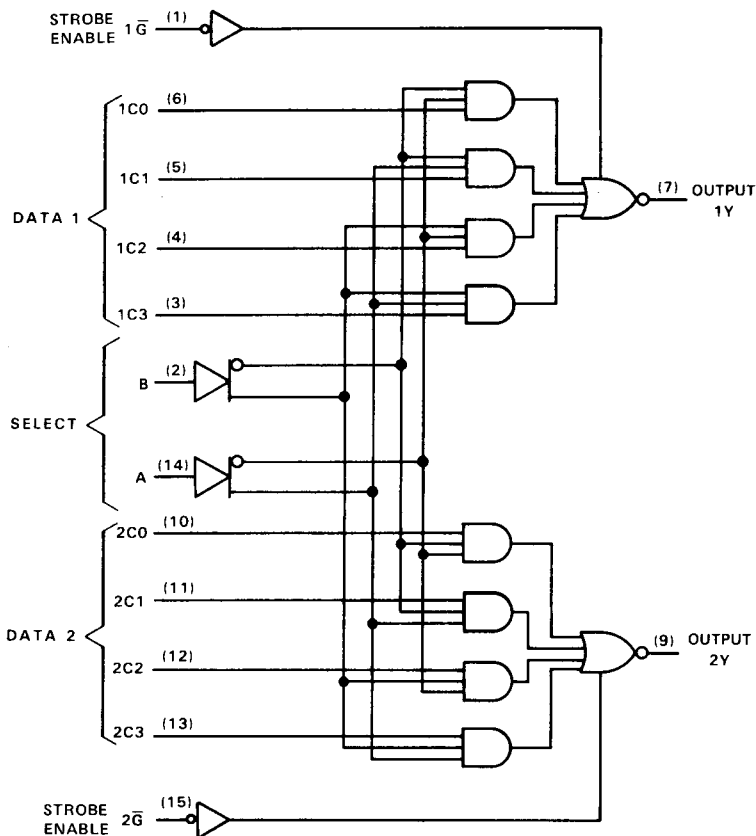
D2661, APRIL 1982—REVISED MAY 1986

- SN54ALS353, SN54AS353A . . . J PACKAGE
SN74ALS353, SN74AS353A . . . D OR N PACKAGE
(TOP VIEW)



SN54ALS353, SN54AS353A, SN74ALS353, SN74AS353A
DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS
WITH 3-STATE OUTPUTS

logic diagram (positive logic)



Pin numbers shown are for D, J, and N packages.

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Voltage applied to a disabled 3-state output	5.5 V
Operating free-air temperature range: SN54ALS353, SN54AS353A	-55 °C to 125 °C
SN74ALS353, SN74AS353A	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

SN54ALS353, SN74ALS353

DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS

WITH 3-STATE OUTPUTS

recommended operating conditions

		SN54ALS353			SN74ALS353			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
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	SN54ALS353			SN74ALS353			UNIT
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX	
V _{IK}	V _{CC} = 4.5 V, I _I = -18 mA			-1.5			-1.5	V
V _{OH}	V _{CC} = 4.5 V to 5.5 V, I _{OH} = -0.4 mA	V _{CC} - 2			V _{CC} - 2			V
	V _{CC} = 4.5 V, I _{OH} = -1 mA	2.4	3.3					
	V _{CC} = 4.5 V, I _{OH} = -2.6 mA				2.4	3.2		
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} = 24 mA					0.35	0.5	
I _{OZH}	V _{CC} = 5.5 V, V _O = 2.7 V			20			20	μA
I _{OZL}	V _{CC} = 5.5 V, V _O = 0.4 V			-20			-20	μA
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 _{O[‡]}	V _{CC} = 5.5 V, V _O = 2.25 V	-30		-112	-30		-112	mA
I _{CC}	disabled		8	13		8	13	mA
	enabled		7	12		7	12	

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

[‡]The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	VCC = 4.5 V to 5.5 V, CL = 50 pF, R1 = 500 Ω, R2 = 500 Ω, TA = MIN to MAX				UNIT
			SN54ALS353		SN74ALS353		
			MIN	MAX	MIN	MAX	
tPLH	A or B	Y	5	32	5	24	ns
tPHL			5	24	5	21	
tPLH	Data (Any C)	Y	4	24	4	18	ns
tPHL			3	15	3	13	
tPZH	0	Y	3	18	3	13	ns
tPZL			3	20	2	16	
tPHZ	0	Y	2	12	2	10	ns
tPLZ			2	22	2	14	

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

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ALS and AS Circuits

SN54AS353A, SN74AS353A

DUAL 1-OF-4 DATA SELECTORS/MULTIPLEXERS

WITH 3-STATE OUTPUTS

recommended operating conditions

		SN54AS353A			SN74AS353A			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
I _{OH}	High-level output current	-12			-15			mA
I _{OL}	Low-level output current	32			48			mA
T _A	Operating free-air temperature	-55			0			°C

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

PARAMETER		TEST CONDITIONS		SN54AS353A			SN74AS353A			UNIT
				MIN	TYP†	MAX	MIN	TYP†	MAX	
V _{IK}		V _{CC} = 4.5 V, I _I = -18 mA		-1.2			-1.2			V
V _{OH}		V _{CC} = 4.5 V to 5.5 V, I _{OH} = -2 mA		V _{CC} - 2			V _{CC} - 2			V
		V _{CC} = 4.5 V, I _{OH} = -12 mA		2.4 3.2						
		V _{CC} = 4.5 V, I _{OH} = -15 mA					2.4 3.3			
V _{OL}		V _{CC} = 4.5 V, I _{OL} = 32 mA		0.25 0.5						V
		V _{CC} = 4.5 V, I _{OL} = 48 mA					0.35 0.5			
I _{OZH}		V _{CC} = 5.5 V, V _O = 2.7 V		50			50			μA
I _{OZL}		V _{CC} = 5.5 V, V _O = 0.4 V		-50			-50			μA
I _I	A, B	V _{CC} = 5.5 V, V _I = 7 V		0.2			0.2			mA
	0.1			0.1						
I _{IH}	A, B	V _{CC} = 5.5 V, V _I = 2.7 V		40			40			μA
	20			20						
I _{IL}	A, B	V _{CC} = 5.5 V, V _I = 0.4 V		-1			-1			mA
	-0.5			-0.5						
I _{O[±]}		V _{CC} = 5.5 V, V _O = 2.25 V		-30 -112			-30 -112			mA
I _{CC}		V _{CC} = 5.5 V		Outputs high		15 24		15 24		mA
				Outputs low		19 31		19 31		
				Outputs disabled		18 30		18 30		

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

[‡]The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R ₁ = 500 Ω, R ₂ = 500 Ω, T _A = MIN to MAX				UNIT
			SN54AS353A		SN74AS353A		
			MIN	MAX	MIN	MAX	
t _{PLH}	A or B	Y	3	10	3	9	ns
t _{PHL}			4	14	4	12	
t _{PLH}	Data (Any C)	Y	3	8.5	3	7.5	ns
t _{PHL}			2	6.5	2	6	
t _{PZH}	Strobe	Y	3	8.5	3	7.5	ns
t _{PZL}			4	13.5	4	12.5	
t _{PHZ}	Strobe	Y	2	6.5	2	5.5	ns
t _{PLZ}			3	9	3	7.5	

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