

SN54LS375, SN74LS375

4-BIT BISTABLE LATCHES

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: SN54LS375	-55°C to 125°C
SN74LS375	0°C to 70°C
Storage temperature range	-65°C to 150°C

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

recommended operating conditions

		SN54LS375			SN74LS375			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	-0.4			-0.4			mA		
I_{OL}	Low-level output current	4			8			mA		
t_w	Width of enabling pulse	20			20			ns		
t_{setup}	Setup time	20			20			ns		
t_{hold}	Hold time	0			0			ns		
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 †	SN54LS375			SN74LS375			UNIT
		MIN	TYP ‡	MAX	MIN	TYP ‡	MAX	
V_{IK}	$V_{CC} = \text{MIN.}$ $I_I = -18 \text{ mA}$	-1.5			-1.5			V
V_{OH}	$V_{CC} = \text{MIN.}$ $V_{IH} = 2 \text{ V.}$ $V_{IL} = \text{MAX}$ $I_{OH} = -0.4 \text{ mA}$	2.5	3.5		2.7	3.5		V
V_{OL}	$V_{CC} = \text{MIN.}$ $V_{IH} = 2 \text{ V.}$ $V_{IL} = \text{MAX}$	$I_{OL} = 4 \text{ mA}$		0.25	0.4	0.25		V
		$I_{OL} = 8 \text{ mA}$				0.35	0.5	
I_I	$V_{CC} = \text{MAX.}$ $V_I = 7 \text{ V}$	D input		0.1		0.1		mA
		C input		0.4		0.4		
I_{IH}	$V_{CC} = \text{MAX.}$ $V_I = 2.7 \text{ V}$	D input		20		20		μA
		C input		80		80		
I_{IL}	$V_{CC} = \text{MAX.}$ $V_I = 0.4 \text{ V}$	D input		-0.4		-0.4		mA
		C input		-1.6		-1.6		
I_{OS}	$V_{CC} = \text{MAX.}$	-20		-100	-20		-100	mA
I_{CC}	$V_{CC} = \text{MAX.}$ See Note 2	6.3		12	6.3		12	mA

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

‡ All typical values are at $V_{CC} = 5 \text{ V.}$ $T_A = 25^\circ\text{C.}$

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

NOTE 2: I_{CC} is tested with all inputs grounded and all outputs open.

switching characteristics, $V_{CC} = 5 \text{ V.}$ $T_A = 25^\circ\text{C}$ (see note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	D	O	$R_L = 2 \text{ k}\Omega.$ $C_L = 15 \text{ pF}$	15	27		ns
t_{PHL}				9	17		
t_{PLH}	D	\bar{O}		12	20		ns
t_{PHL}				7	15		
t_{PLH}	C	O		15	27		ns
t_{PHL}				14	25		
t_{PLH}	C	\bar{O}		16	30		ns
t_{PHL}				7	15		

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