

recommended operating conditions

	54 FAMILY 74 FAMILY	SERIES 54 SERIES 74	SERIES 54H SERIES 74H	SERIES 54L SERIES 74L	SERIES 54LS SERIES 74LS	SERIES 54S SERIES 74S	UNIT
		'00, '04, '10, '20, '30	'H00, 'H04, 'H10, 'H20, 'H30	'L00, 'L04, 'L10, 'L20, 'L30	'LS00, 'LS04, 'LS10, 'LS20, 'LS30	'S00, 'S04, 'S10, 'S20, 'S30, 'S133	
		MIN NOM MAX	MIN NOM MAX	MIN NOM MAX	MIN NOM MAX	MIN NOM MAX	
Supply voltage, V_{CC}	54 Family 74 Family	4.5 5 5.5 4.75 5 5.25	4.5 5 5.5 4.75 5 5.25	4.5 5 5.5 4.75 5 5.25	4.5 5 5.5 4.75 5 5.25	4.5 5 5.5 4.75 5 5.25	V
High-level output current, I_{OH}	54 Family 74 Family	-400 -400	-500 -500	-100 -200	-400 -400	-1000 -1000	μ A
Low-level output current, I_{OL}	54 Family 74 Family	16 16	20 20	2 3.6	4 8	20 20	mA
Operating free-air temperature, T_A	54 Family 74 Family	-55 125 0 70	-55 125 0 70	-55 125 0 70	-55 125 0 70	-55 125 0 70	$^{\circ}$ C

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

PARAMETER	TEST FIGURE	TEST CONDITIONS†	SERIES 54 SERIES 74	SERIES 54H SERIES 74H	SERIES 54L SERIES 74L	SERIES 54LS SERIES 74LS	SERIES 54S SERIES 74S	UNIT	
			'00, '04, '10, '20, '30	'H00, 'H04, 'H10, 'H20, 'H30	'L00, 'L04, 'L10, 'L20, 'L30	'LS00, 'LS04, 'LS10, 'LS20, 'LS30	'S00, 'S04, 'S10, 'S20, 'S30, 'S133		
			MIN TYP‡ MAX	MIN TYP‡ MAX	MIN TYP‡ MAX	MIN TYP‡ MAX	MIN TYP‡ MAX		
V_{IH} High-level input voltage	1, 2		2	2	2	2	2	V	
V_{IL} Low-level input voltage	1, 2		54 Family 74 Family	0.8 0.8	0.8 0.8	0.7 0.7	0.7 0.8	0.8 0.8	V
V_{IK} Input clamp voltage	3	$V_{CC} = \text{MIN}, I_I = \S$		-1.5	-1.5		-1.5	-1.2	V
V_{OH} High-level output voltage	1	$V_{CC} = \text{MIN}, V_{IL} = V_{IL \text{ max}}, I_{OH} = \text{MAX}$	54 Family 74 Family	2.4 3.4 2.4 3.4	2.4 3.5 2.4 3.5	2.4 3.3 2.4 3.2	2.5 3.4 2.7 3.4	2.5 3.4 2.7 3.4	V
V_{OL} Low-level output voltage	2	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V}$	54 Family 74 Family	0.2 0.4 0.2 0.4	0.2 0.4 0.2 0.4	0.15 0.3 0.2 0.4	0.25 0.4 0.25 0.5	0.5 0.5	V
I_I Input current at maximum input voltage	4	$V_{CC} = \text{MAX}$	$V_I = 5.5 \text{ V}$	1	1	0.1		1	mA
			$V_I = 7 \text{ V}$				0.1		
I_{IH} High-level input current	4	$V_{CC} = \text{MAX}$	$V_{IH} = 2.4 \text{ V}$	40	50	10		50	μ A
			$V_{IH} = 2.7 \text{ V}$				20		
I_{IL} Low-level input current	5	$V_{CC} = \text{MAX}$	$V_{IL} = 0.3 \text{ V}$			-0.18			
			$V_{IL} = 0.4 \text{ V}$	-1.6	-2		-0.4		
			$V_{IL} = 0.5 \text{ V}$					-2	
I_{OS} Short-circuit output current*	6	$V_{CC} = \text{MAX}$	54 Family 74 Family	-20 -55 -18 -55	-40 -100 -40 -100	-3 -15 -3 -15	-20 -100 -20 -100	-40 -100 -40 -100	mA
			I_{CC} Supply current	7	$V_{CC} = \text{MAX}$				

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

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

§ $I_I = -12 \text{ mA}$ for SN54'/SN74', -8 mA for SN54H'/SN74H', and -18 mA for SN54LS'/SN74LS' and SN54S'/SN74S'.

* Not more than one output should be shorted at a time, and for SN54H'/SN74H', SN54LS'/SN74LS', and SN54S'/SN74S', duration of short-circuit should not exceed 1 second.

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