

CD54HC393/3A

CD54HCT393/3A

Switching Speed (Limits with black dots (•) are tested 100%.)

SWITCHING CHARACTERISTICS ($C_L = 50$ pF, Input $t_r, t_f = 6$ ns)

CHARACTERISTIC	SYMBOL	V_{CC} V	25°C				-55°C to +125°C				UNITS
			HC		HCT		54HC		54HCT		
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Propagation Delay Time Q_n to Q_{n+1}		2	—	45	—	—	—	70	—	—	ns
		4.5	—	9	—	12	—	14	—	18	
		6	—	8	—	—	—	12	—	—	
\overline{nCP} to $nQ0$	t_{PLH}	2	—	150	—	—	—	225	—	—	
		4.5	—	26•	—	32•	—	45•	—	48•	
		6	—	26	—	—	—	38	—	—	
\overline{nCP} to $nQ1$	t_{PHL}	2	—	195	—	—	—	295	—	—	
		4.5	—	38	—	32	—	59	—	66	
		6	—	33	—	—	—	50	—	—	
\overline{nCP} to $nQ2$		2	—	240	—	—	—	360	—	—	
		4.5	—	48	—	50	—	72	—	84	
		6	—	41	—	—	—	61	—	—	
\overline{nCP} to $nQ3$		2	—	285	—	—	—	430	—	—	
		4.5	—	57•	—	62•	—	86•	—	102•	
		6	—	48	—	—	—	73	—	—	
MR to Q_n		2	—	135	—	—	—	205	—	—	
		4.5	—	27•	—	32•	—	41•	—	48•	
		6	—	23	—	—	—	35	—	—	
Output Transition Time	t_{THL} t_{TLH}	2	—	75	—	—	—	110	—	—	
		4.5	—	15	—	15	—	22	—	22	
		6	—	13	—	—	—	19	—	—	
Input Capacitance	C_i	—	—	10	—	10	—	10	—	10	pF

Burn-In Test-Circuit Connections (Use Static II for /3A burn-in and Dynamic for Life Test.)

Static	STATIC BURN-IN I			STATIC BURN-IN II		
	OPEN	GROUND	V_{CC} (6V)	OPEN	GROUND	V_{CC} (6V)
CD54HC/HCT393	3-6,8-11	1,2,7,12,13	14	3-6,8-11	7	1,2,12-14
Dynamic	OPEN	GROUND	1/2 V_{CC} (3V)	V_{CC} (6V)	OSCILLATOR	
CD54HC/HCT393	—	7	3-6,8-11	2,12,14	50 kHz	25 kHz
					1,13	—

NOTE: Each pin except V_{CC} and Gnd will have a resistor of 2k-47k ohms.

CD54HC423/3A

CD54HCT423/3A

Dual Retriggerable Monostable Multivibrator w/RESET

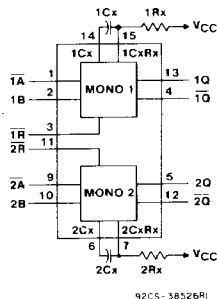
The RCA-CD54HC423 and CD54HCT423 are dual monostable multivibrators with resets. They are retriggerable. An external resistor (R_x) and an external capacitor (C_x) control the timing and accuracy for the circuit. Adjustment of R_x and C_x provides a wide range of output pulse widths from the Q and \overline{Q} terminals. Pulse triggering on the A and B inputs occur at a particular voltage level and is not related to the rise and fall times of the trigger pulses.

Once triggered, the output pulse width may be extended by retriggering inputs A and B. The output pulse can be

terminated by a LOW level on the Reset (\overline{R}) pin. Trailing-edge triggering (A) and leading-edge triggering (B) inputs are provided for triggering from either edge of the input pulse. If either Mono is not used, each input on the unused device (\overline{A} , B and \overline{R}) must be terminated high or low.

The minimum value of external resistance, R_x is typically 500 Ω . The minimum value external capacitance, C_x , is 0 pF. The calculation for the pulse width is $t_w = 0.45 R_x C_x$ at $V_{CC} = 5$ V.

CD54HC423/3A CD54HCT423/3A



FUNCTIONAL DIAGRAM

Package Specifications

See Section 11, Fig. 11

HCT INPUT LOADING TABLE

INPUT	UNIT LOAD*
All	0.35

*Unit load is ΔI_{CC} limit specified in Static Characteristics Chart, e.g., 360 μA max. @ 25°C.

Static Electrical Characteristics (Limits with black dots (•) are tested 100%)

CHARACTERISTICS	TEST CONDITIONS								UNITS
	HC/HCT				V_{IN}		LIMITS		
	V_{DD}	V_O	I_O	V_{CC} or GND	V_{IL} or V_{IH}	V_{IL} or V_{IH}	MIN.	MAX.	
Quiescent	6	—	—	6, 0	—	—	—	8•	μA
Device Current	6	—	—	6, 0	—	—	—	160•	
I_{CC}	6	—	—	6, 0	—	—	—	160•	

The complete static electrical test specification consists of the above by-type static tests combined with the standard static tests in the beginning of this section.

Switching Speed (Limits with black dots (•) are tested 100%.)

SWITCHING CHARACTERISTICS ($C_L = 50$ pF, Input $t_r = 6$ ns)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS								UNITS
			25°C				-55°C to +125°C				
			HC		HCT		54HC		54HCT		
V_{CC}	V	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
Trigger Propagation Delay \bar{A}, B, \bar{R} to Q	t_{PLH}	2	—	300	—	—	—	450	—	—	ns
		4.5	—	60•	—	60•	—	90•	—	90•	
		6	—	51	—	—	—	76	—	—	
\bar{A}, B, \bar{R} to \bar{Q}	t_{PHL}	2	—	320	—	—	—	480	—	—	ns
		4.5	—	64•	—	68•	—	96•	—	102•	
		6	—	54	—	—	—	82	—	—	
Reset Propagation Delay \bar{R} to Q or \bar{Q}	t_{PHL} t_{PLH}	2	—	215	—	—	—	325	—	—	ns
		4.5	—	43•	—	48•	—	65•	—	72•	
		6	—	37	—	—	—	55	—	—	
Output Transition Time	t_{TLH} t_{THL}	2	—	75	—	—	—	110	—	—	ns
		4.5	—	15	—	15	—	22	—	22	
		6	—	13	—	—	—	19	—	—	
Input Capacitance	C_i	—	—	10	—	10	—	10	—	10	pF

Burn-In Test-Circuit Connections (Use Static II for /3A burn-in and Dynamic for Life Test.)

Static	STATIC BURN-IN I			STATIC BURN-IN II		
	OPEN	GROUND	V_{CC} (6V)	OPEN	GROUND	V_{CC} (6V)
CD54HC/HCT423	4,5,12,13	1-3,6-11,14,15	16	4,5,12,13	8	1-3,6-7,9-11,14-16
Dynamic	OPEN	GROUND	1/2 V_{CC} (3V)	V_{CC} (6V)	OSCILLATOR	
CD54HC/HCT423	—	2,6,8,10,14	4,5,12,13	7,15,16	50 kHz	25 kHz
					1,9	3,11

NOTE: Each pin except V_{CC} and Gnd will have a resistor of 2k-47k ohms.