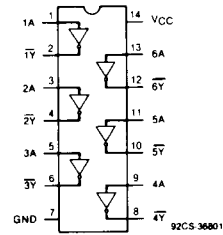


CD54HC04/3A CD54HCT04/3A

Hex Inverter

The RCA-CD54HC04 and CD54HCT04 hex inverters utilize silicon-gate CMOS technology to achieve operating speeds similar to LSTTL gates with the low power consumption of standard CMOS integrated circuits. All devices have the ability to drive 10 LSTTL loads. The 54HCT logic family is functionally as well as pin compatible with the standard 54LS logic family.



FUNCTIONAL DIAGRAM

Package Specifications

See Section 11, Fig. 10

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

CHARACTERISTICS		TEST CONDITIONS							LIMITS		UNITS	
		HC/HCT				V _{IN}		MIN.				MAX.
		V _{DD}	V _O	I _O	V _{CC} or GND	V _{IL} or V _{IH}	V _{IL} or V _{IH}					
Quiescent Device Current	25°C	6	—	—	6, 0	—	—	—	2•	μA		
I _{CC}	-55°C	6	—	—	6, 0	—	—	—	40•			
	+125°C	6	—	—	6, 0	—	—	—	40•			

HCT INPUT LOADING TABLE

INPUT	UNIT LOAD*
All	1.2

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.

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

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

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS V _{CC} V	LIMITS								UNITS
			25°C				-55°C to +125°C				
			HC		HCT		54HC		54HCT		
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Propagation Delay Input to Output	t _{PLH}	2	—	85	—	—	—	130	—	—	ns
	t _{PHL}	4.5	—	17•	—	19•	—	26•	—	29•	
		6	—	14	—	—	—	22	—	—	
Transition Times	t _{TLH}	2	—	75	—	—	—	110	—	—	ns
	t _{THL}	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/HCT04	2,4,6,8,10,12	1,3,5,7,9,11,13	14	2,4,6,8,10,12	7	1,3,5,9,11,13,14
Dynamic	OSCILLATOR			V _{CC} (6V)	OSCILLATOR	
	OPEN	GROUND	1/2 V _{CC} (3V)		50 kHz	25 kHz
CD54HC/HCT04	—	7	2,4,6,8,10,12	14	1,3,5,7,9,11,13	—

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