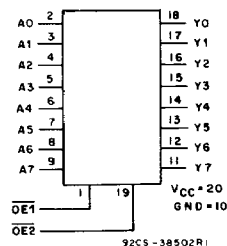


CD54HC541/3A

CD54HCT541/3A

Octal Buffer/Line Driver, 3-State

The RCA CD54HC541 and CD54HCT541 are Non-Inverting Octal Buffers and Line Drivers with three-state Outputs that can drive 15 LSTTL loads. The Output Enables ($\overline{OE}1$) and ($\overline{OE}2$) control the 3-State Outputs. If either $\overline{OE}1$ or $\overline{OE}2$ is HIGH the outputs will be in the high impedance state. For data output $\overline{OE}1$ and $\overline{OE}2$ both must be LOW.



Package Specifications

See Section 11, Fig. 13

FUNCTIONAL DIAGRAM

5

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

CHARACTERISTICS		TEST CONDITIONS							LIMITS	UNITS
		HC/HCT				V _{IN}				
						HC	HCT			
		V _{DD}	V _O	I _O	V _{CC} or GND	V _{IL} or V _{IH}	V _{IL} or V _{IH}	MIN.	MAX.	
Output High (Source) Current I _{OH} Min. - TTL Load	25°C	4.5	3.98	—	—	0, 4.5	0, 4.5	-6•	—	mA
	-55°C	4.5	3.70	—	—	0, 4.5	0, 4.5	-6•	—	
	+125°C	4.5	3.70	—	—	0, 4.5	0, 4.5	-6•	—	
Output Low (Sink) Current I _{OL} Min. - TTL Load	25°C	4.5	0.26	—	—	0, 4.5	0, 4.5	6•	—	
	-55°C	4.5	0.40	—	—	0, 4.5	0, 4.5	6•	—	
	+125°C	4.5	0.40	—	—	0, 4.5	0, 4.5	6•	—	
High Level Output Voltage V _{OH} - TTL Load	25°C	4.5	—	-6	—	1.35, 3.15	0.8, 2.0	3.98•	—	V
	-55°C	4.5	—	-6	—	1.35, 3.15	0.8, 2.0	3.70•	—	
	+125°C	4.5	—	-6	—	1.35, 3.15	0.8, 2.0	3.70•	—	
Low Level Output Voltage V _{OL} - TTL Load	25°C	4.5	—	6	—	1.35, 3.15	0.8, 2.0	—	0.26•	
	-55°C	4.5	—	6	—	1.35, 3.15	0.8, 2.0	—	0.40•	
	+125°C	4.5	—	6	—	1.35, 3.15	0.8, 2.0	—	0.40•	
Quiescent Device Current I _{CC}	25°C	6	—	—	6, 0	—	—	—	8•	μA
	-55°C	6	—	—	6, 0	—	—	—	160•	
	+125°C	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.

HCT INPUT LOADING TABLE

INPUT	UNIT LOAD*
$A_0 - A_7$	0.4
$\overline{OE}2$	0.75
$\overline{OE}1$	1.15

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

CD54HC541/3A

CD54HCT541/3A

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 Data to Outputs	t _{PLH} t _{PHL}	2	—	115	—	—	—	175	—	—	ns
		4.5	—	23•	—	28•	—	35•	—	42•	
		6	—	20	—	—	—	30	—	—	
Propagation Delay Output Enable and Disable to Outputs	t _{PZH} , t _{PZL} , t _{PHZ} , t _{PLZ}	2	—	160	—	—	—	240	—	—	
		4.5	—	32•	—	35•	—	48•	—	53•	
		6	—	27	—	—	—	41	—	—	
Output Transition Time	t _{TLH} t _{THL}	2	—	60	—	—	—	90	—	—	
		4.5	—	12	—	12	—	18	—	18	
		6	—	10	—	—	—	15	—	—	
Input Capacitance	C _i	—	—	10	—	10	—	10	—	10	pF
3-State Output Capacitance	C _o	—	—	20	—	20	—	20	—	20	

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/HCT541	11-18	1-10, 19	20	11-18	10	1-9, 19, 20
Dynamic	OPEN	GROUND	$1/2 V_{CC}$ (3V)	V_{CC} (6V)	OSCILLATOR	
					50 kHz	25 kHz
CD54HC/HCT541	—	10	11-18	20	1, 19	2-9

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

CD54HC563/3A

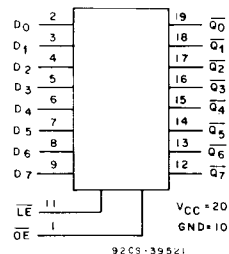
CD54HCT563/3A

Octal Transparent Latch, 3-State, Inverting

The RCA CD54HC/HCT563 are high-speed Octal Transparent Latches manufactured with silicon gate CMOS technology. They possess the low power consumption of standard CMOS integrated circuits, as well as the ability to drive 15 LSTTL devices.

The outputs are transparent to the inputs when the latch enable (LE) is high. When the latch enable (LE) goes low the data is latched. The output enable (OE) controls the three-state outputs. When the output enable (OE) is high the outputs will be in the high impedance state. The latch operation is independent of the state of the output enable.

The CD54HC533 and CD54HCT533 are identical in function to the CD54HC563 and CD54HCT563 but have different pinouts. The CD54HC533 and CD54HCT533 are similar to the CD54HC373 and CD54HCT373; the latter are non-inverting types.



FUNCTIONAL DIAGRAM

Package Specifications

See Section 11, Fig. 13