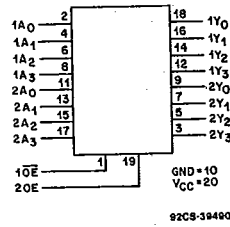


**CD54AC241/3A**  
**CD54ACT241/3A**

T-52-07

The RCA CD54AC241/3A and CD54ACT241/3A are 3-state octal buffer/line drivers that utilize the new RCA ADVANCED CMOS LOGIC technology. These devices have one active-LOW ( $\overline{1OE}$ ) and one active-HIGH (2OE) output enable.

The CD54AC241/3A and CD54ACT241/3A are supplied in 20-lead dual-in-line ceramic packages (F suffix).



**Package Specifications**

See Section 11, Fig. 13

**FUNCTIONAL DIAGRAM & TERMINAL ASSIGNMENT**

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

CHARACTERISTICS	TEST CONDITIONS	$V_{CC}$ (V)	AMBIENT TEMPERATURE ( $T_A$ ) - °C				UNITS	
			+25		-55 to +125			
			MIN.	MAX.	MIN.	MAX.		
3-State Leakage Current $I_{OZ}$	$V_{IH}$ or $V_{IL}$ $V_O = V_{CC}$ or GND	5.5	—	$\pm 0.5\bullet$	—	$\pm 10\bullet$	$\mu A$	
Quiescent Supply Current (MSI) $I_{CC}$	$V_{CC}$ or GND	0	5.5	—	$8\bullet$	—	$160\bullet$	$\mu A$

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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.

**ACT INPUT LOADING TABLE**

INPUT	UNIT LOAD*
nA0 - A3	0.5
$\overline{1OE}$	0.83
2OE	1.67

\*Unit load is  $\Delta I_{CC}$  limit specified in Static Characteristics Chart, e.g., 2.4 mA max. @ 25°C.

**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)
CD54AC/ACT241	3,5,7,9,12,14,16,18	1,2,4,6,8,10,11,13,15,17	19,20	3,5,7,9,12,14,16,18	1,10	2,4,6,8,11,13,15,17,19,20
Dynamic	OPEN	GROUND	$1/2 V_{CC}$ (3V)	$V_{CC}$ (6V)	OSCILLATOR	
CD54AC/ACT241	1,10	3,5,7,9,12,14,16,18	19,20	2,4,6,8,11,13,15,17	50 kHz	25 kHz

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

**CD54AC241/3A**  
**CD54ACT241/3A**

T-52-07

SWITCHING CHARACTERISTICS: AC Series;  $t_r, t_f = 3$  ns,  $C_L = 50$  pF (Worst Case)

CHARACTERISTICS	SYMBOL	$V_{CC}$ (V)	-55 to +125°C		UNITS
			MIN.	MAX.	
Propagation Delays Data to Outputs	$t_{PLH}$	1.5	—	120	ns
	$t_{PHL}$	3.3* 5†	3.8 2.4	16.8 9.6*	
Output Enable and Disable Times	$t_{PLZ}$	1.5	—	167	ns
	$t_{PZL}$	3.3	3.8	23.4	
	$t_{PZH}$	5	2.4	13.4*	
	$t_{PHZ}$				
Power Dissipation Capacitance	$C_{PD}§$	—	95 Typ.		pF
Min. (Valley) $V_{OH}$ During Switching of Other Outputs (Output Under Test Not Switching)	$V_{OHV}$ See Fig. 1	5	4 Typ. @ 25°C		V
Max. (Peak) $V_{OL}$ During Switching of Other Outputs (Output Under Test Not Switching)	$V_{OLP}$ See Fig. 1	5	1 Typ. @ 25°C		V
Input Capacitance	$C_i$	—	—	10	pF
3-State Output Capacitance	$C_o$	—	—	15	pF

SWITCHING CHARACTERISTICS: ACT Series;  $t_r, t_f = 3$  ns,  $C_L = 50$  pF (Worst Case)

CHARACTERISTICS	SYMBOL	$V_{CC}$ (V)	-55 to +125°C		UNITS
			MIN.	MAX.	
Propagation Delays Data to Outputs	$t_{PLH}$	5†	1.8	10.6*	ns
	$t_{PHL}$				
Output Enable and Disable Times	$t_{PLZ}$	5	2.5	14.4*	ns
	$t_{PZL}$				
	$t_{PZH}$				
	$t_{PHZ}$				
Power Dissipation Capacitance	$C_{PD}§$	—	115 Typ.		pF
Min. (Valley) $V_{OH}$ During Switching of Other Outputs (Output Under Test Not Switching)	$V_{OHV}$ See Fig. 1	5	4 Typ. @ 25°C		V
Max. (Peak) $V_{OL}$ During Switching of Other Outputs (Output Under Test Not Switching)	$V_{OLP}$ See Fig. 1	5	1 Typ. @ 25°C		V
Input Capacitance	$C_i$	—	—	10	pF
3-State Output Capacitance	$C_o$	—	—	15	pF

\*3.3 V: min. is @ 3.6 V  
max. is @ 3 V†5 V: min. is @ 5.5 V  
max. is @ 4.5 V

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

§ $C_{PD}$  is used to determine the dynamic power consumption per package.For AC,  $P_D = V_{CC}^2 f_i (C_{PD} + C_L)$ For ACT,  $P_D = V_{CC}^2 f_i (C_{PD} + C_L) + V_{CC} \Delta I_{CC}$  where  $f_i$  = input frequency  
 $C_L$  = output load capacitance  
 $V_{CC}$  = supply voltage