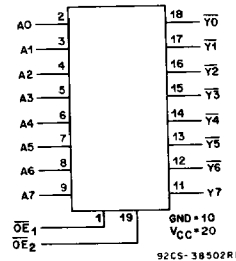


**CD54AC540/3A
CD54ACT540/3A**

Octal Buffer/Line Drivers, 3-State Inverting

The RCA CD54AC540/3A and CD54ACT540/3A are octal buffer/line drivers that utilize the new RCA ADVANCED CMOS LOGIC technology. The CD54AC/ACT540/3A are inverting 3-state buffers having two active-LOW output enables.

The CD54AC540/3A and CD54ACT540/3A 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%.)

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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	—	$\pm 0.5\bullet$	—	$\pm 10\bullet$	μA
Quiescent Supply Current (MSI) I_{CC}	V_{CC} or GND	5.5	—	$8\bullet$	—	$160\bullet$	μA

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*
DATA	1.42
OE1, OE2	1.3

*Unit load is ΔI_{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/ACT540	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	
CD54AC/ACT540	—	10	11-18	20	1,19	2-9

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

CD54AC540/3A

CD54ACT540/3A

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 Output	t_{PLH} t_{PHL}	1.5	—	85	ns
		3.3* 5†	2.4 1.7	9.5 6.8•	
Enable, Disable to Output	t_{PZL} t_{PZH}	1.5	—	150	ns
		3.3 5	4.5 3.0	18 12•	
	t_{PLZ} t_{PHZ}	1.5	—	150	ns
		3.3 5	3.8 3.0	15 12•	
Power Dissipation Capacitance	$C_{PD}\S$	—	60 Typ.		pF
Min. (Valley) V_{OH} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OHV}	5	4 Typ. @ 25°C		V
Max. (Peak) V_{OL} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OLP}	5	1 Typ. @ 25°C		V
Input Capacitance	C_i	—	—	10	pF
3-State Output Capacitance	C_o	—	—	15	pF

SWITCHING CHARACTERISTICS: AOT 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 Output	t_{PLH} t_{PHL}	5†	1.8	7.2•	ns
Enable, Disable to Output	t_{PLZ} t_{PZL} t_{PZH} t_{PHZ}	5	3.4	13.4•	ns
Power Dissipation Capacitance	$C_{PD}\S$	—	60 Typ.		pF
Min. (Valley) V_{OH} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OHV}	5	4 Typ. @ 25°C		V
Max. (Peak) V_{OL} During Switching of Other Outputs (Output Under Test Not Switching)	V_{OLP}	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 channel.

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