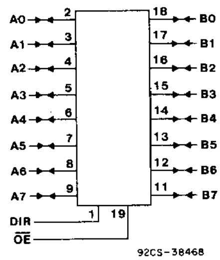
CD54AC245/3A
CD54ACT245/3A

Octal-Bus Transceiver, 3-State Non-Inverting

The RCA CD54AC245/3A and CD54ACT245/3A are octal-bus tranceivers that utilize the new RCA ADVANCED CMOS LOGIC technology. They are non-inverting 3-state bidirectional tranceiver-buffers intended for two-way transmission from "A" bus to "B" bus or "B" bus to "A" bus. The logic level present on the direction input (DIR) determines the data direction. When the output enable input ($\overline{OE}$) is HIGH, the outputs are in the high-impedance state.

The CD54AC245/3A and CD54ACT245/3A are supplied in 20-lead dual-in-line ceramic packages (F suffix).



FUNCTIONAL DIAGRAM & TERMINAL ASSIGNMENT

Package Specifications

See Section 11, Fig. 13

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		
	V_I (V)	I_O (mA)		MIN.	MAX.	MIN.	MAX.	
3-State Leakage Current I_{OZ}	V_{IH} or V_{IL} $V_O = V_{CC}$ or GND		5.5	—	±0.5•	—	±10•	μA
Quiescent Supply Current (MSI) I_{CC}	V_{CC} or GND	0	5.5	—	8•	—	160•	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*
An, Bn	0.83
$\overline{OE}$	0.64
DIR	0.15

*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/ACT245	2-9	1,10-19	20	11-18	10,19	1-9,20
Dynamic	OPEN	GROUND	1/2 V_{CC} (3V)	V_{CC} (6V)	OSCILLATOR 50 kHz	OSCILLATOR 25 kHz
CD54AC/ACT245	—	10	11-18	1,20	2-9	19

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

CD54AC245/3A
CD54ACT245/3A

SWITCHING CHARACTERISTICS: AC Series; t_r, t_f = 3 ns, C_L = 50 pF (Limits with black dots (•) are tested 100%.)

CHARACTERISTICS	SYMBOL	V_{CC} (V)	-55 to +125°C		UNITS
			MIN.	MAX.	
Propagation Delays Data to Output	t_{PLH} t_{PHL}	1.5 3.3* 5†	— 3.6 2.6	106 11.9 8.5•	ns
Output Disable to Output	t_{PLZ} t_{PHZ}	1.5 3.3 5	— 5.3 4.2	175 17.5 14•	ns
Output Enable to Output	t_{PZL} t_{PZH}	1.5 3.3 5	— 6.3 4.2	175 21 14•	ns
Power Dissipation Capacitance	C_{PD}§	—	57 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 (Limits with black dots (•) are tested 100%.)

CHARACTERISTICS	SYMBOL	V_{CC} (V)	-55 to +125°C		UNITS
			MIN.	MAX.	
Propagation Delays Data to Output	t_{PLH} t_{PHL}	5†	3	10•	ns
Output Disable to Output	t_{PLZ} t_{PHZ}	5	4.2	14•	ns
Output Enable to Output	t_{PZH} t_{PZL}	5	4.3	14.4•	ns
Power Dissipation Capacitance	C_{PD}§	—	57 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

§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