

- 3-State Outputs Drive Bus Lines Directly
- P-N-P Inputs Reduce DC Loading

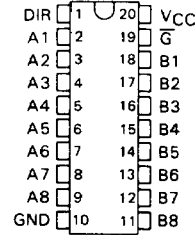
description

These octal bus transceivers are designed for synchronous two-way communication between data buses. The control function implementation minimizes external timing requirements.

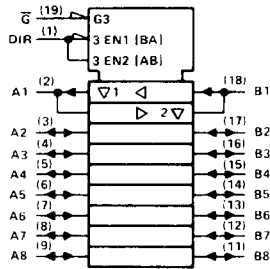
The devices allow data transmission from the A bus to the B bus or from the B bus to the A bus depending upon the logic level at the direction control (DIR) input. The enable input (\bar{G}) can be used to disable the device so that the buses are effectively isolated.

The SN54ALS245 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS245 is characterized for operation from 0°C to 70°C .

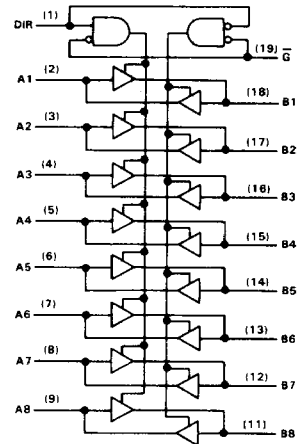
(TOP VIEW)



J Suffix—Case 732-03 (Ceramic)
N Suffix—Case 738-01 (Plastic)

logic symbol


Pin numbers shown are for J and N packages.

logic diagram (positive logic)


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TYPES SN54ALS245, SN74ALS245 OCTAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC}	7 V
Input voltage: All inputs	7 V
I/O ports	5.5 V
Operating free-air temperature range: SN54ALS245	-55 °C to 125 °C
SN74ALS245	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

		SN54ALS245			SN74ALS245			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{OH}	High-level output current			-12			-15	mA
I_{OL}	Low-level output current			12			24	mA
T_A	Operating free-air temperature	-55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	SN54ALS245			SN74ALS245			UNIT
		MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}	$V_{CC} = 4.5$ V, $I_I = -18$ mA			-1.5			-1.5	V
V_{OH}	$V_{CC} = 4.5$ V, $I_{OH} = -3$ mA	2.4	3.2		2.4	3.2		V
	$V_{CC} = 4.5$ V, $I_{OH} = -12$ mA	2						
	$V_{CC} = 4.5$ V, $I_{OH} = -15$ mA				2			
V_{OL}	$V_{CC} = 4.5$ V, $I_{OL} = 12$ mA	0.25	0.4		0.25	0.4		V
	$V_{CC} = 4.5$ V, $I_{OL} = 24$ mA				0.35	0.5		
I_I	Control inputs			0.1			0.1	mA
	A or B ports			0.1			0.1	
I_{IH}	Control inputs			20			20	µA
	A or B ports▲			20			20	
I_{IL}	Control inputs			-0.1			-0.1	mA
	A or B ports▲			-0.1			-0.1	
I_{O*}	$V_{CC} = 5.5$ V, $V_O = 2.25$ V	-30		-112	-30		-112	mA
I_{CC}	$V_{CC} = 5.5$ V	Outputs high		35			35	mA
		Outputs low		45			45	
		Outputs disabled		47.5			47.5	

†All typical values are at $V_{CC} = 5$ V, $T_A = 25$ °C.

*The current produced by grounding the outputs is approximately twice that produced with 2.25 V on the outputs.

▲For I/O ports, the parameters I_{IH} and I_{IL} include the off-state output current.

TYPES SN54ALS245, SN74ALS245
OCTAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

switching characteristics

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V.}$ $C_L = 50 \text{ pF.}$ $R_1 = 500 \Omega,$ $R_2 = 500 \Omega.$ $T_A = \text{MIN to MAX}$				UNIT
			SN54ALS245		SN74ALS245		
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	3	16	3	12	ns
t_{PHL}			3	14	3	12	
t_{PZH}	\bar{G}	A or B	7	20	8	17	ns
t_{PZL}			10	22	10	20	
t_{PHZ}	\bar{G}	A or B	3	16	3	14	ns
t_{PLZ}			4	23	4	20	