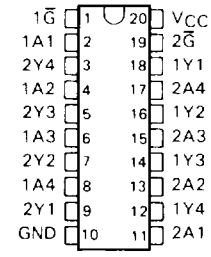
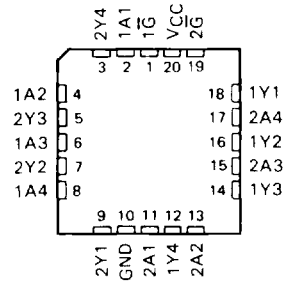
- **Buffers/Line Drivers for Driving MOS Devices**
- **I/O Ports Have 25-Ω Series Resistors, So No External Resistors Are Required**
- **Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs**
- **Dependable Texas Instruments Quality and Reliability**

SN54ALS2240 . . . J PACKAGE
SN74ALS2240 . . . DW OR N PACKAGE
(TOP VIEW)



SN54ALS2240 . . . FK PACKAGE
(TOP VIEW)

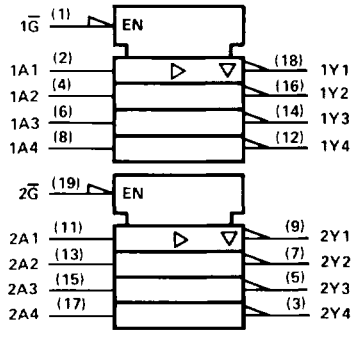


description

These octal buffers and line drivers are designed to drive the capacitive inputs of MOS devices and to improve both the performance and density of three-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters. These devices feature high fan-out and improved fan-in.

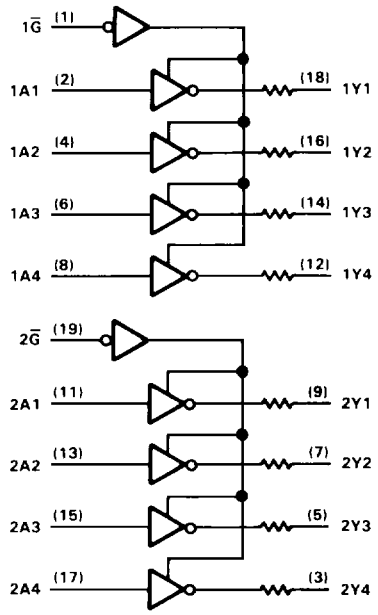
The SN54ALS2240 is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74ALS2240 is characterized for operation from 0°C to 70°C.

logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



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: SN54ALS2240 . . . . . −55°C to 125°C
SN74ALS2240 . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

recommended operating conditions

		SN54ALS2240			SN74ALS2240			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			0.7			0.8	V
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		SN54ALS2240			SN74ALS2240			UNIT
			MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}	V_{CC} = 4.5 V,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	V_{CC} = 4.5 V to 5.5 V,	I_{OH} = −0.4 mA	V_{CC} − 2			V_{CC} − 2			V
V_{OL}	V_{CC} = 4.5 V,	I_{OL} = 1 mA		0.15	0.5		0.15	0.5	V
	V_{CC} = 4.5 V,	I_{OL} = 12 mA		0.35	0.8		0.35	0.8	
I_{OZH}	V_{CC} = 5.5 V,	V_O = 2.7 V			20			20	μA
I_{OZL}	V_{CC} = 5.5 V,	V_O = 0.4 V			−20			−20	μA
I_I	V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}	V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	μA
I_{IL}	V_{CC} = 5.5 V,	V_I = 0.4 V			−0.1			−0.1	mA
I_O‡	V_{CC} = 5.5 V,	V_O = 2.25 V	−30		−112	−30		−112	mA
I_{OH}	V_{CC} = 4.5 V,	V_O = 2 V	−15			−15			mA
I_{OL}	V_{CC} = 4.5 V,	V_O = 2 V	15			15			mA
I_{CC}	V_{CC} = 5.5 V	Outputs high		6	11		6	11	mA
		Outputs low		13	23		13	23	
		Outputs disabled		12	20		12	20	

† All typical values are at V_{CC} = 5 V, T_A = 25°C.
‡ The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 5 V, C_L = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_A = 25°C	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_A = MIN to MAX				UNIT
			'ALS2240	SN54ALS2240		SN74ALS2240		
			TYP	MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	6	2	14	2	10	ns
t_{PHL}			6	2	14	2	10	
t_{PZH}	$\overline{G}$	Y	10	5	20	5	17	ns
t_{PZL}			12	7	25	7	20	
t_{PHZ}	$\overline{G}$	Y	7	2	12	2	10	ns
t_{PLZ}			9	4	20	4	15	

NOTE 1: Load circuit and voltage waveforms are shown in Section 1.