

description

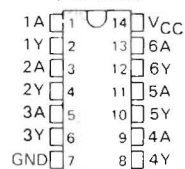
These devices contain six independent inverters. They perform the boolean function $Y = \bar{A}$.

The SN54ALS04 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS04 is characterized for operation from 0°C to 70°C .

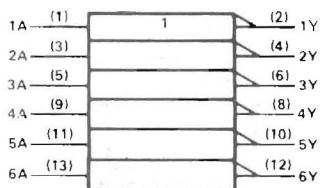
FUNCTION TABLE
(each inverter)

INPUT A	OUTPUT Y
H	L
L	H

(TOP VIEW)



J Suffix—Case 632-07 (Ceramic)
N Suffix—Case 646-05 (Plastic)

logic symbol


Pin numbers shown are for J and N packages.

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TYPES SN54ALS04, SN74ALS04 **HEX INVERTERS**

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Operating free-air temperature range: SN54ALS04	-55 °C to 125 °C
SN74ALS04	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

		SN54ALS04			SN74ALS04			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			-0.4			-0.4	mA
I_{OL}	Low-level output current			4			8	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		SN54ALS04			SN74ALS04			UNIT
			MIN	TYP*	MAX	MIN	TYP*	MAX	
V_{IK}	$V_{CC} = 4.5 \text{ V}$, $I_I = -18 \text{ mA}$				-1.5			-1.5	V
V_{OH}	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = -0.4 \text{ mA}$		$V_{CC}-2$			$V_{CC}-2$			V
V_{OL}	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 4 \text{ mA}$		0.25		0.4	0.25		0.4	V
	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 8 \text{ mA}$					0.35		0.5	
I_I	$V_{CC} = 5.5 \text{ V}$, $V_I = 7 \text{ V}$				0.1			0.1	mA
I_{IH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$				20			20	μA
I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.4 \text{ V}$				-0.1			-0.1	mA
I_{O*}	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$		-30		-112	-30		-112	mA
I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$				1.2			1.2	mA
I_{CCL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 4.5 \text{ V}$				3.3			3.3	mA

*All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$.

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

switching characteristics

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5 \text{ V},$ $C_L = 15 \text{ pF},$ $R_L = 500 \Omega,$ $T_A = 25^\circ\text{C}$	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V},$ $C_L = 50 \text{ pF},$ $R_L = 500 \Omega,$ $T_A = \text{MIN to MAX}$				UNIT
			ALS04	SN54ALS04		SN74ALS04		
			TYP	MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	4	3	15	3	14	ns
t_{PHL}	A	Y	3	2	10	2	10	ns