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TEXAS INSTRUMENTS - SN74AC14N - INVERTER, SCHMITT TRIGGER

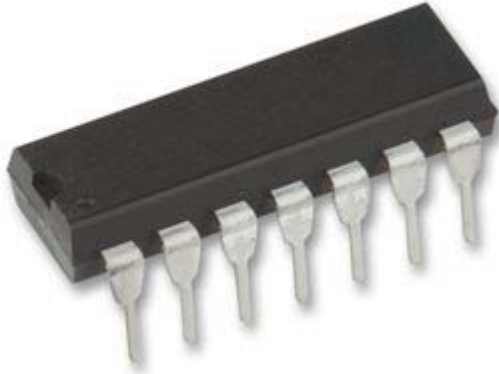


Image non contractuelle -
Seulement à titre
d'illustration.
Veuillez vous reporter au
descriptif technique.

Fabricant: TEXAS INSTRUMENTS

Code commande: 1470853

Référence fabricant: SN74AC14N

[Conformité RoHS](#) :  Oui

Description

- INVERTER, SCHMITT TRIGGER
- Type de boîtier CI logique: DIP
- Nombre de broches: 14
- Température de fonctionnement: -40°C à +85°C
- SVHC: No SVHC
- Type de boîtier: DIP
- Courant, sortie max.: 24mA
- Famille Circuit logique: AC
- Fonction logique: Hex Schmitt Trigger Inverter
- Numéro de base de la fonction logique: 7414
- Racine de la référence: 7414
- Tension, alimentation maxi: 6V
- Tension, alimentation mini: 2V
- Type de terminaison: Traversant

[Afficher les Equivalents](#)[Afficher les Accessoires](#)

Disponibilité

Disponibilité: 547

Prix Pour: 1 Pièce

Quantité minimum

Multiple de commande

Prix Unitaire HT: 0

Qté

Prix

Qté




1 - 9

10 - 99







100 - 249

250 - 499

500+

DESCRIPTION TECHNIQUE	ATTRIBUTS TECHNIQUES	EQUIVALENT
 Certificat de conformité RoHS  Technical Data Sheet (695.83KB) EN 	<p>poids (kg): 0.0001</p> <p>Tarif Douanier: 85411000</p> <p>Pays d'origine: US États-Unis <i>Pays dans lequel la dernière étape de production majeure est intervenue</i></p>	<input type="checkbox"/> Type de boîtier <input type="checkbox"/> Nombre de broches <input type="checkbox"/> Température de fonctionnement <input type="checkbox"/> SVHC: No SVHC Trouver un équivalent

Produits équivalents

Image	Code Commande	Fabricant Réf. fab.	Description	Données techniques	Conformité RoHS	Pièces en stock.	Prix pour	P U
	1014022	FAIRCHILD SEMICONDUCTOR 74AC14PC	CIRCUIT LOGIQUE SERIE 74AC CMOS Nombre d'entrées: 1; Type de boîtier CI logique: DIP; Nombre de broches: 14; Température de fonctionnement: -40°C à +85°C; SVHC: Cobalt dichloride; Type de boîtier: DIP; Courant, sortie max.: 24;	   	 Oui	2258	1 Pièce	
Equivalence Disponible Accessoire								

Accessoires

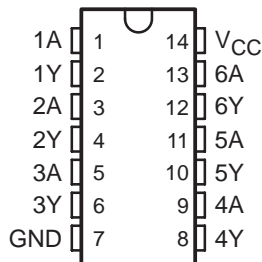
Image	Code	Fabricant	Description	Données	Conformité	Pièces	Prix	P
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SN54AC14, SN74AC14 HEX SCHMITT-TRIGGER INVERTERS

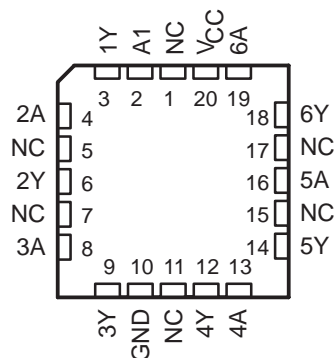
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- 2-V to 6-V V_{CC} Operation
- Inputs Accept Voltages to 6 V
- Max t_{pd} of 9.5 ns at 5 V

SN54AC14 ... J OR W PACKAGE
SN74AC14 ... D, DB, N, NS, OR PW PACKAGE
(TOP VIEW)



SN54AC14 ... FK PACKAGE
(TOP VIEW)



NC – No internal connection

description/ordering information

These Schmitt-trigger devices contain six independent inverters. They perform the Boolean function $Y = \bar{A}$. Because of the Schmitt action, they have different input threshold levels for positive-going (V_{T+}) and for negative-going (V_{T-}) signals.

These circuits are temperature compensated and can be triggered from the slowest of input ramps and still give clean, jitter-free output signals. They also have a greater noise margin than conventional inverters.

ORDERING INFORMATION

T_A	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
–40°C to 85°C	PDIP – N	Tube	SN74AC14N	SN74AC14N
	SOIC – D	Tube	SN74AC14D	AC14
		Tape and reel	SN74AC14DR	
	SOP – NS	Tape and reel	SN74AC14NSR	AC14
	SSOP – DB	Tape and reel	SN74AC14DBR	AC14
–55°C to 125°C	TSSOP – PW	Tube	SN74AC14PW	AC14
		Tape and reel	SN74AC14PWR	
	CDIP – J	Tube	SNJ54AC14J	SNJ54AC14J
	CFP – W	Tube	SNJ54AC14W	SNJ54AC14W
	LCCC – FK	Tube	SNJ54AC14FK	SNJ54AC14FK

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



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On products compliant to MIL-PRF-38535, all parameters are tested unless otherwise noted. On all other products, production processing does not necessarily include testing of all parameters.

SN54AC14, SN74AC14

HEX SCHMITT-TRIGGER INVERTERS

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FUNCTION TABLE
(each inverter)

INPUT A	OUTPUT Y
H	L
L	H

logic diagram, each inverter (positive logic)



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

Supply voltage range, V_{CC}	–0.5 V to 7 V
Input voltage range, V_I (see Note 1)	–0.5 V to $V_{CC} + 0.5$ V
Output voltage range, V_O (see Note 1)	–0.5 V to $V_{CC} + 0.5$ V
Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$)	±20 mA
Output clamp current, I_{OK} ($V_O < 0$ or $V_O > V_{CC}$)	±20 mA
Continuous output current, I_O ($V_O = 0$ to V_{CC})	±50 mA
Continuous current through V_{CC} or GND	±200 mA
Package thermal impedance, θ_{JA} (see Note 2):	
D package	86°C/W
DB package	96°C/W
N package	80°C/W
NS package	76°C/W
PW package	113°C/W
Storage temperature range, T_{stg}	–65°C to 150°C

[†] Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
2. The package thermal impedance is calculated in accordance with JESD 51-7.

recommended operating conditions (see Note 3)

			SN54AC14		SN74AC14		UNIT
			MIN	MAX	MIN	MAX	
V _{CC}	Supply voltage		2	6	2	6	V
V _I	Input voltage		0	V _{CC}	0	V _{CC}	V
V _O	Output voltage		0	V _{CC}	0	V _{CC}	V
I _{OH}	High-level output current	V _{CC} = 3 V	–12		–12		mA
		V _{CC} = 4.5 V	–24		–24		
		V _{CC} = 5.5 V	–24		–24		
I _{OL}	Low-level output current	V _{CC} = 3 V	12		12		mA
		V _{CC} = 4.5 V	24		24		
		V _{CC} = 5.5 V	24		24		
T _A	Operating free-air temperature		–55	125	–40	85	°C

NOTE 3: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

SN54AC14, SN74AC14 HEX SCHMITT-TRIGGER INVERTERS

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

PARAMETER	TEST CONDITIONS	V _{CC}	T _A = 25°C			SN54AC14		SN74AC14		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V _{T+} Positive-going threshold		3 V	0.8	1.8	2.2	0.8	2.2	0.8	2.2	V
		4.5 V	1.5	2.6	3.2	1.5	3.2	1.5	3.2	
		5.5 V	1.6	3.2	3.9	1.6	3.9	1.6	3.9	
V _{T–} Negative-going threshold		3 V	0.5	0.8	1	0.5	1.2	0.5	1	V
		4.5 V	0.9	1.4	1.8	0.9	1.8	0.9	1.8	
		5.5 V	1.1	1.8	2.3	1.1	2.3	1.1	2.3	
ΔV _T Hysteresis (V _{T+} – V _{T–})		3 V	0.3	1	1.2	0.3	1.2	0.3	1.2	V
		4.5 V	0.4	1.2	1.4	0.4	1.4	0.4	1.4	
		5.5 V	0.5	1.4	1.6	0.5	1.6	0.5	1.6	
V _{OH}	I _{OH} = –50 μA	3 V	2.9			2.9		2.9		V
		4.5 V	4.4			4.4		4.4		
		5.5 V	5.4			5.4		5.4		
	I _{OH} = –12 mA	3 V	2.56			2.4		2.48		
	I _{OH} = –24 mA	4.5 V	3.86			3.7		3.8		
		5.5 V	4.86			4.7		4.8		
	I _{OH} = –50 mA [†]	5.5 V				3.85				
	I _{OH} = –75 mA [†]	5.5 V						3.85		
V _{OL}	I _{OL} = 50 μA	3 V	0.002			0.1		0.1		V
		4.5 V	0.001			0.1		0.1		
		5.5 V	0.001			0.1		0.1		
	I _{OL} = 12 mA	3 V	0.36			0.5		0.44		
	I _{OL} = 24 mA	4.5 V	0.36			0.5		0.44		
		5.5 V	0.36			0.5		0.44		
	I _{OL} = 50 mA [†]	5.5 V				1.65				
	I _{OL} = 75 mA [†]	5.5 V						1.65		
I _I	V _I = V _{CC} or GND	5.5 V	±0.1			±1		±1		μA
I _{CC}	V _I = V _{CC} or GND, I _O = 0	5.5 V	2			40		20		μA
C _i	V _I = V _{CC} or GND	5 V	4.5							pF

[†] Not more than one output should be tested at a time, and the duration of the test should not exceed 10 ms.

switching characteristics over recommended operating free-air temperature range,
V_{CC} = 3.3 V \pm 0.3 V (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	T _A = 25°C			SN54AC14		SN74AC14		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{PLH}	A	Y	1.5	6	13.5	1	16	1.5	15	ns
t _{PHL}			1.5	6	11.5	1	14	1.5	13	

SN54AC14, SN74AC14 HEX SCHMITT-TRIGGER INVERTERS

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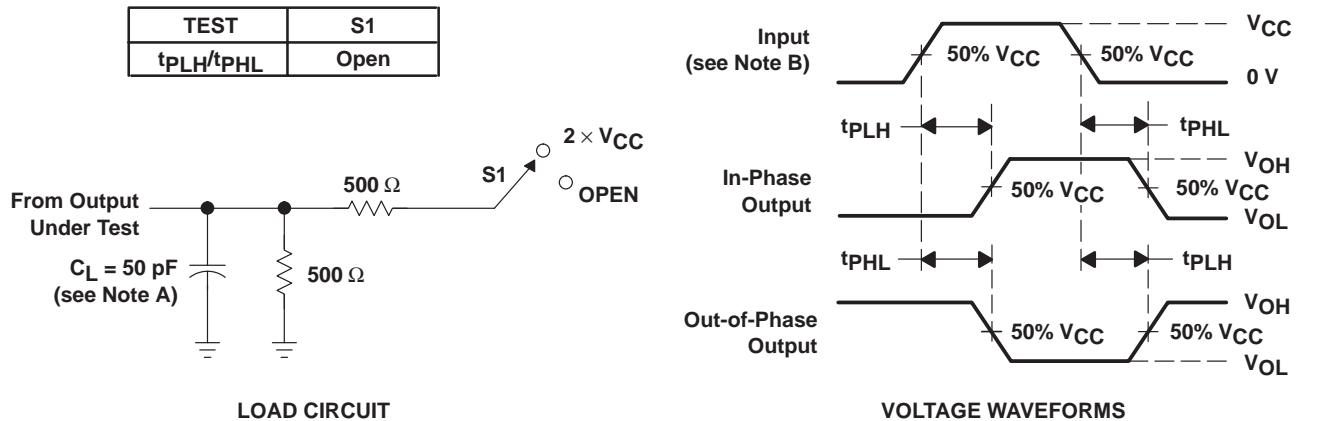
switching characteristics over recommended operating free-air temperature range,
 $V_{CC} = 5\text{ V} \pm 0.5\text{ V}$ (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^{\circ}\text{C}$			SN54AC14		SN74AC14		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	1.5	5	10	1.5	12	1.5	11	ns
t_{PHL}			1.5	5	8.5	1.5	10	1.5	9.5	

operating characteristics, $V_{CC} = 5\text{ V}$, $T_A = 25^{\circ}\text{C}$

PARAMETER	TEST CONDITIONS	TYP	UNIT
C_{pd} Power dissipation capacitance	$C_L = 50\text{ pF}$, $f = 1\text{ MHz}$	25	pF

PARAMETER MEASUREMENT INFORMATION



NOTES: A. C_L includes probe and jig capacitance.
 B. All input pulses are supplied by generators having the following characteristics: $PRR \leq 1\text{ MHz}$, $Z_O = 50\text{ }\Omega$, $t_r \leq 2.5\text{ ns}$, $t_f \leq 2.5\text{ ns}$.
 C. The outputs are measured one at a time with one input transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms