

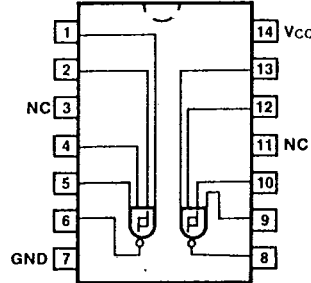
**54/7413**  
**54LS/74LS13**

**DUAL 4-INPUT SCHMITT TRIGGER**

**CONNECTION DIAGRAM**  
**PINOUT A**

ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		$V_{CC} = +5.0\text{ V} \pm 5\%$ , $T_A = 0^\circ\text{ C to } +70^\circ\text{ C}$	$V_{CC} = +5.0\text{ V} \pm 10\%$ , $T_A = -55^\circ\text{ C to } +125^\circ\text{ C}$	
Plastic DIP (P)	A	7413PC, 74LS13PC		9A
Ceramic DIP (D)	A	7413DC, 74LS13DC	5413DM, 54LS13DM	6A
Flatpak (F)	A	7413FC, 74LS13FC	5413FM, 54LS13FM	3I



INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PINS	54/74 (U.L.) HIGH/LOW	54/74LS (U.L.) HIGH/LOW
Inputs	1.0/1.0	0.5/0.25
Outputs	20/10	10/5.0 (2.5)

DC AND AC CHARACTERISTICS: See Section 3\*

SYMBOL	PARAMETER	54/74		54/74LS		UNITS	CONDITIONS
		Min	Max	Min	Max		
$V_{T+}$	Positive-going Threshold Voltage	1.5	2.0	1.5	2.0	V	$V_{CC} = +5.0\text{ V}$
$V_{T-}$	Negative-going Threshold Voltage	0.6	1.1	0.6	1.1	V	$V_{CC} = +5.0\text{ V}$
$V_{T+} - V_{T-}$	Hysteresis Voltage	0.4		0.4		V	$V_{CC} = +5.0\text{ V}$
$I_{T+}$	Input Current at Positive-going Threshold	-0.65**		-0.14**		mA	$V_{CC} = +5.0\text{ V}, V_{IN} = V_{T+}$
$I_{T-}$	Input Current at Negative-going Threshold	-0.85**		-0.18**		mA	$V_{CC} = +5.0\text{ V}, V_{IN} = V_{T-}$
$I_{OS}$	Output Short Circuit Current	-18 -55		-20 -100		mA	$V_{CC} = \text{Max}$
$I_{CCH}$	Power Supply Current	23		6.0		mA	$V_{CC} = \text{Max}$
$I_{CCL}$		32		7.0			
$t_{PLH}$ $t_{PHL}$	Propagation Delay	27		22		ns	Fig. 3-1, 3-15
		22		27			

\*DC limits apply over operating temperature range; AC limits apply at  $T_A = +25^\circ\text{ C}$  and  $V_{CC} = +5.0\text{ V}$ . \*\*Typical Value