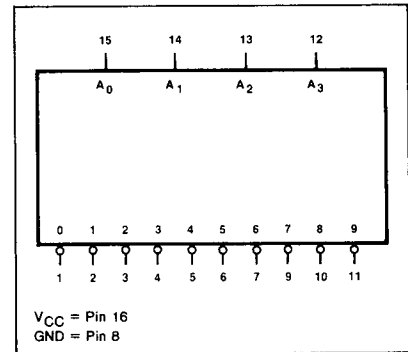


54/7443

DESCRIPTION

The "43" is a TTL MSI array utilized in decoding and logic conversion applications. The "43" decodes excess-3 code numbers to 1-of-10 outputs.

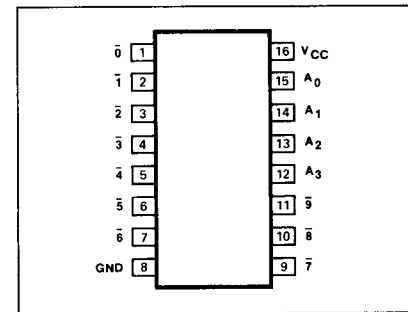
LOGIC SYMBOL



ORDERING CODE (See Section 9 for further Package and Ordering Information)

PACKAGES	COMMERCIAL RANGES	MILITARY RANGES
	$V_{CC}=5V \pm 5\%$; $T_A=0^\circ C$ to $+70^\circ C$	$V_{CC}=5V \pm 10\%$; $T_A=-55^\circ C$ to $+125^\circ C$
Plastic DIP	N7443N	
Ceramic DIP	N7443F	S5443F
Flatpak		S5443W

PIN CONFIGURATION



INPUT AND OUTPUT LOADING AND FAN-OUT TABLE^(a)

PINS	DESCRIPTION		54/74	54S/74S	54LS/74LS
$A_0 - A_3$	Address inputs	I_{IH} (μA) I_{IL} (mA)	40 -1.6		
$\bar{0} - \bar{9}$	Active LOW inputs	I_{OH} (μA) I_{OL} (mA)	-800 16		

NOTE

a. The slashed numbers indicate different parametric values for Military/Commercial temperature ranges respectively.



FUNCTIONAL DESCRIPTION

The "43" is an Excess-3 to 1-of-10 decoder that accepts excess-3 coded inputs (binary range three through 12) and generates ten mutually-exclusive active LOW outputs.

The excess-3 code is used in decimal arithmetic because of its self-complementing feature (the bit-wise complement of a number is also the nine's complement) which simplifies subtraction.

TRUTH TABLE

INPUTS				OUTPUTS									
A ₃	A ₂	A ₁	A ₀	$\bar{0}$	$\bar{1}$	$\bar{2}$	$\bar{3}$	$\bar{4}$	$\bar{5}$	$\bar{6}$	$\bar{7}$	$\bar{8}$	$\bar{9}$
L	L	H	H	L	H	H	H	H	H	H	H	H	H
L	H	L	L	H	L	H	H	H	H	H	H	H	H
L	H	L	H	H	H	L	H	H	H	H	H	H	H
L	H	H	L	H	H	H	L	H	H	H	H	H	H
L	H	H	H	H	H	H	H	L	H	H	H	H	H
H	L	L	L	H	H	H	H	H	L	H	H	H	H
H	L	L	H	H	H	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	H	L	H	H
H	L	H	H	H	H	H	H	H	H	H	H	L	H
H	H	L	L	H	H	H	H	H	H	H	H	H	L
H	H	L	H	H	H	H	H	H	H	H	H	H	H
H	H	H	L	H	H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	H	H	H	H	H	H	H	H	H
L	L	L	H	H	H	H	H	H	H	H	H	H	H
L	L	H	L	H	H	H	H	H	H	H	H	H	H
L	L	H	H	H	H	H	H	H	H	H	H	H	H

H = HIGH voltage level
L = LOW voltage level

AC WAVEFORM

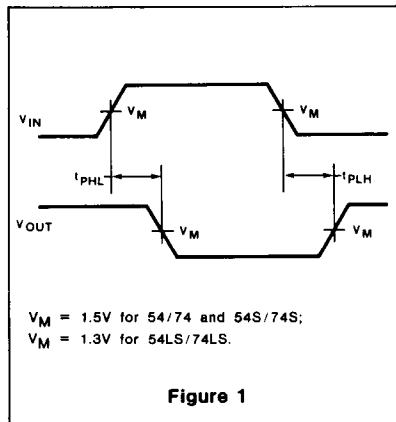
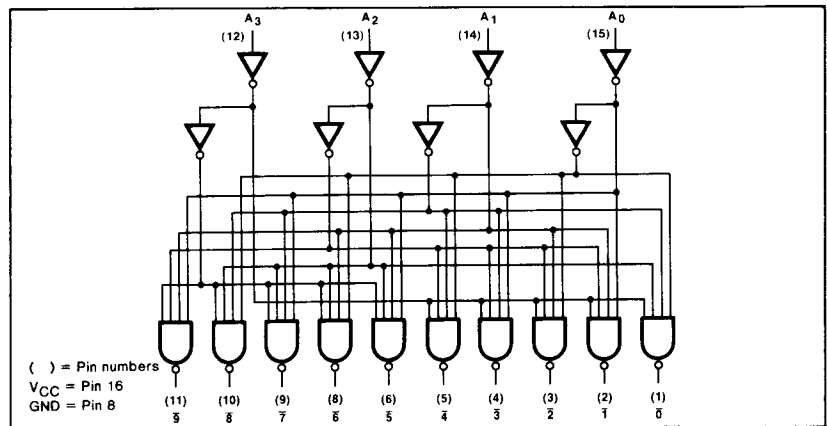


Figure 1

LOGIC DIAGRAM



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE^(b)

PARAMETER	TEST CONDITIONS	54/74		54S/74S		54LS/74LS		UNIT
		Min	Max	Min	Max	Min	Max	
I_{CC} Supply current	$V_{CC} = \text{Max}$	Mil	41					mA
		Com	56					mA

AC CHARACTERISTICS: $T_A = 25^\circ C$ (See Section 4 for Test Circuits and Conditions)

PARAMETER	TEST CONDITIONS	54/74		54S/74S		54LS/74LS		UNIT
		$C_L = 15pF$ $R_L = 400\Omega$						
		Min	Max	Min	Max	Min	Max	
t_{PLH} Propagation delay	Figure 1		35					ns
t_{PHL} Address to output			35					ns

NOTE
b. For family dc Characteristics, see inside front cover for 54/74 and 54H/74H, and see inside back cover for 54S/74S and 54LS/74LS specifications.