

DESCRIPTION

The 8241/82S41 contains four independent gating structures to perform the Exclusive-OR function on two input variables.

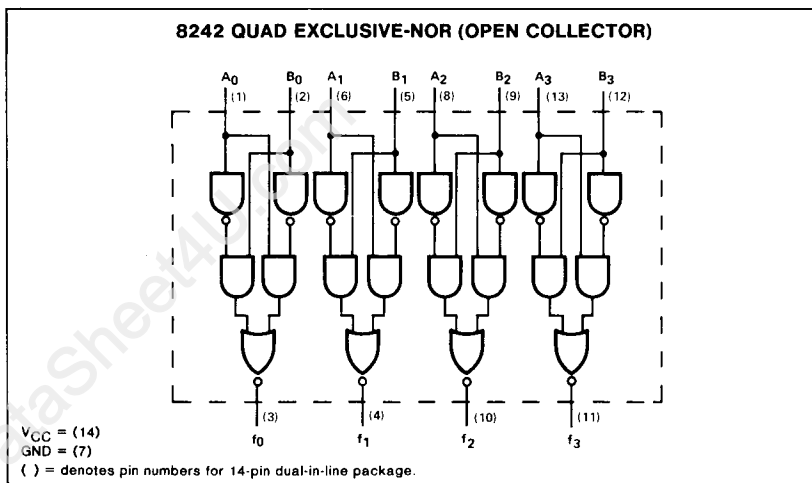
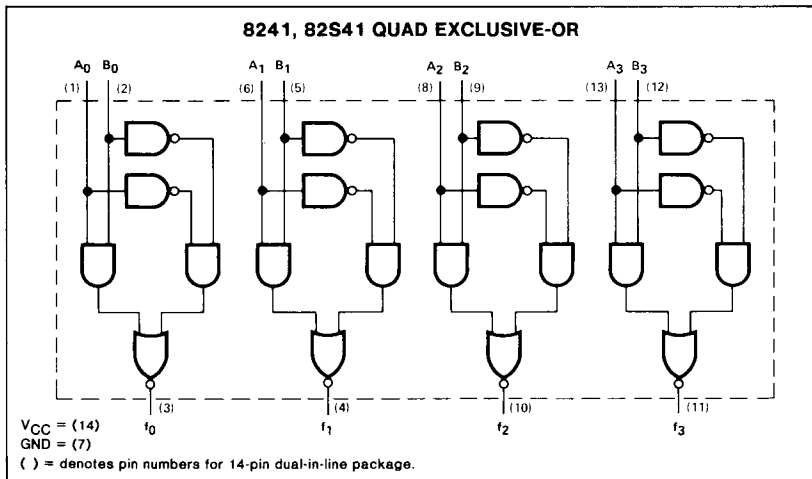
The output of the 8241/82S41 employs the totem-pole structure characteristic of TTL devices.

The 8242/82S42 contains four independent Exclusive-NOR gates which may be used to implement digital comparison functions. The 8242/82S42 outputs are open collector to facilitate implementation of multiple-bit comparisons; a 4-bit comparison is made by connecting the outputs of the four independent gates together.

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

PACKAGES	PIN CONF.	COMMERCIAL RANGES $V_{CC}=5V \pm 5\%$; $T_A=0^\circ C$ to $+75^\circ C$	MILITARY RANGES $V_{CC}=5V \pm 5\%$; $T_A=-55^\circ C$ to $+125^\circ C$
Plastic DIP	Fig. A	N8241N • N8242N	
	Fig. A	N82S41N • N82S42N	
Ceramic DIP	Fig. A	N8241F • N8242F	S8241F • S8242F
	Fig. A	N82S41F • N82S42F	
Flatpak	Fig. B		S8241W • S8242W

LOGIC DIAGRAMS



PIN CONFIGURATION

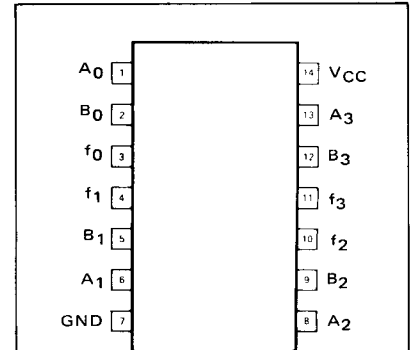


Figure A

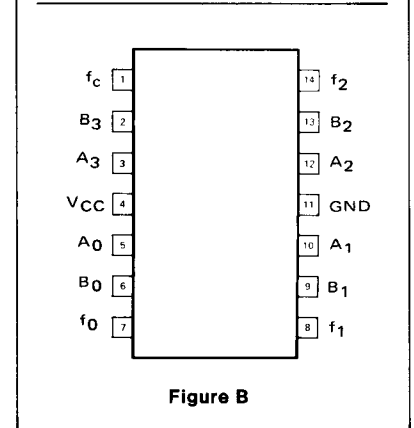


Figure B

TRUTH TABLE

TYPE	INPUTS		OUTPUT
	A	B	f
8241/82S41	L	L	L
	H	L	H
	L	H	H
8242/82S42	L	H	L
	H	L	L
	H	H	H

NOTE
 H = HIGH voltage level
 L = LOW voltage level

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

PARAMETER	TEST CONDITIONS	8241		8242		82S41		82S42		UNIT
		Min	Max	Min	Max	Min	Max	Min	Max	
V _{OH} Output HIGH voltage	V _{CC} =4.75V	I _{OH} =-800μA	2.6							V
		I _{OH} =-1.0mA					2.7			V
V _{OL} Output LOW voltage	V _{CC} =4.75V	I _{OL} =16mA		0.4						V
		I _{OL} =20mA					0.5			V
		I _{OL} =25mA				0.4			0.5	V
I _{OH} Output HIGH current	V _{CC} = 5.25V V _{OUT} =5.0V				25				250	μA
I _{IH} Input HIGH current	V _{CC} = 5.25V V _{IN} = 4.5V		80		80		10		10	μA
I _{IL} Input LOW current	V _{CC} = 5.25V V _{IN} = 0.4V	-0.1	-3.2	-0.1	-3.2		-0.8		-0.8	mA
V _{BD} Input breakdown voltage	V _{CC} = 5.25V I _{IN} = 10mA	5.5		5.5						V
V _{CD} Input clamp voltage	V _{CC} = 4.75V I _{IN} =-18mA						-1.2		-1.2	V
I _{OS} Output short circuit current	V _{CC} = 5.25V V _{OUT} = 0V	-20	-70			-40	-100			V
I _{CC} Supply current	V _{CC} = 5.25V		57		47.5		55		62	mA

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AC CHARACTERISTICS: T_A 25°C $V_{CC} = 5.25V$ (See Section 4 for Waveforms and Conditions)

PARAMETER	TEST CONDITIONS	8241		8242		82S41		82S42		UNIT
		$C_L = 30pF$		$C_L = 30pF$ $R_1 = \infty$ $R_2 = 84.2\Omega$		$C_L = 15pF$ $R_L = 280\Omega$		$C_L = 15pF$ $R_L = 280\Omega$		
		Min	Max	Min	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation delay Inverting path		17 23		23 20		10 10		14 14	ns
t_{PLH} t_{PHL}	Propagation delay Non-inverting path		17 23		28 21		10 10		14 14	ns

AC WAVEFORMS

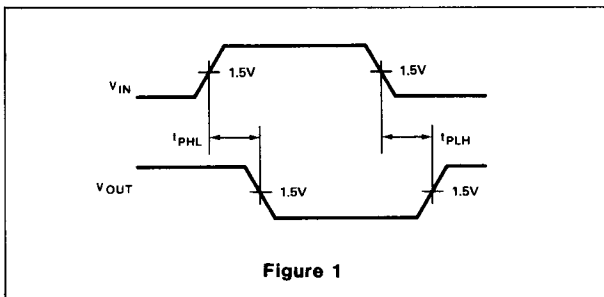


Figure 1

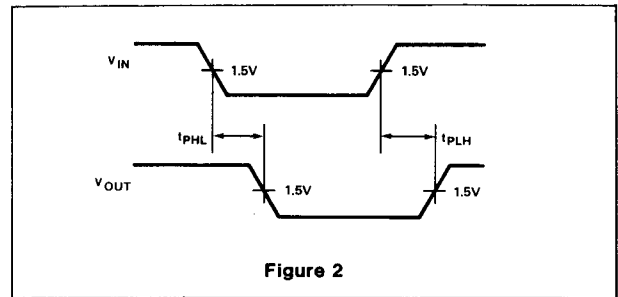


Figure 2

AC TEST FIGURE

