

DESCRIPTION

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

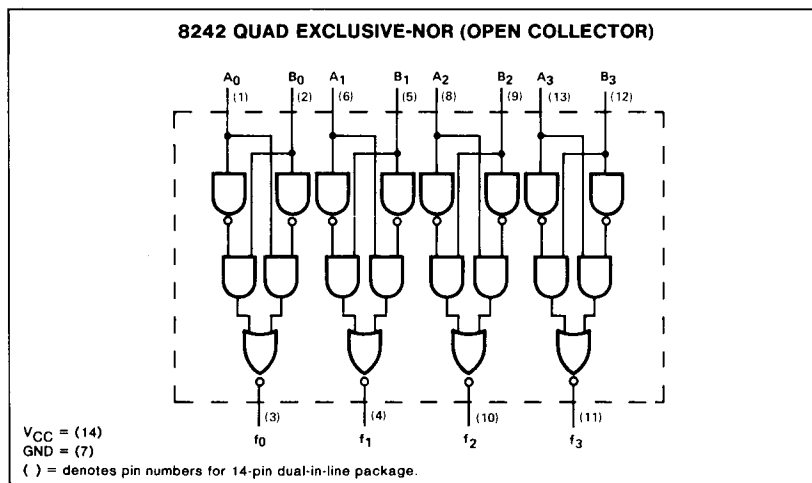
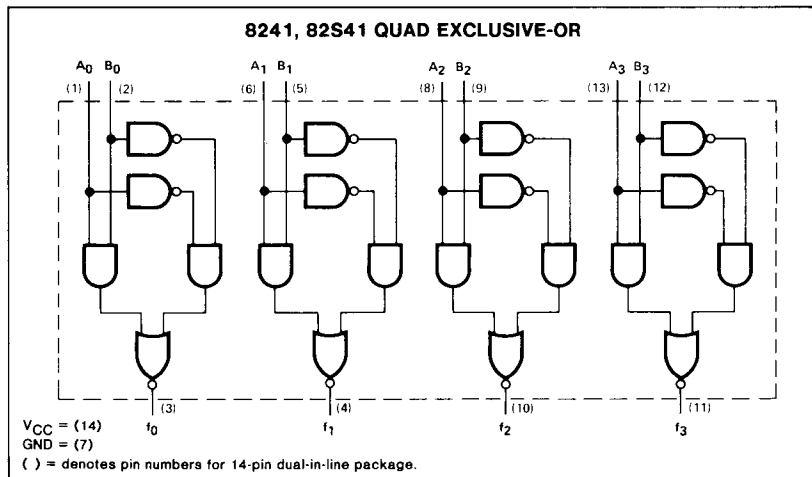
The output of the 8241/82S41 employs the totem-pole structure characteristic of TTL devices.

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

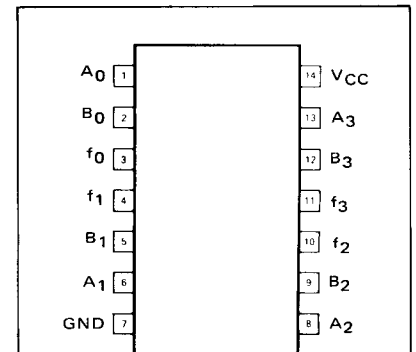


Figure A

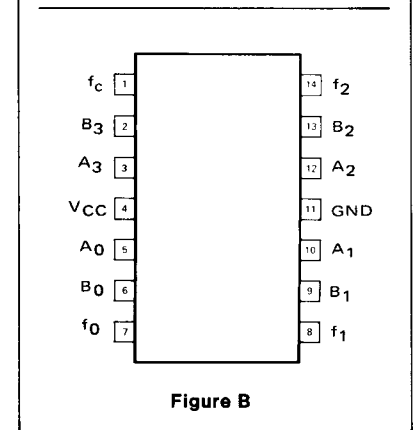


Figure B

TRUTH TABLE

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

NOTE
 H = HIGH voltage level
 L = LOW voltage level

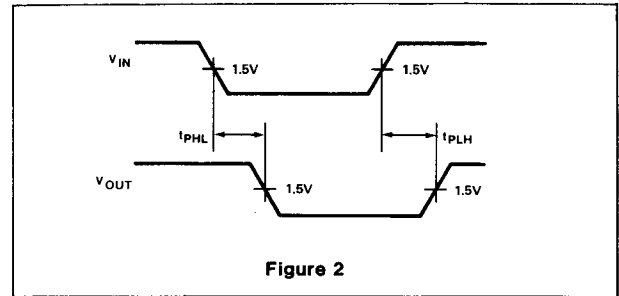
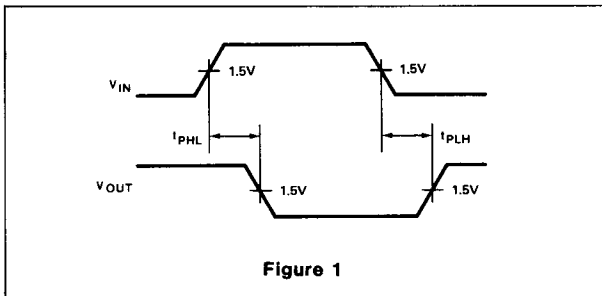
DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

PARAMETER	TEST CONDITIONS	8241		8242		82S41		82S42		UNIT
		Min	Max	Min	Max	Min	Max	Min	Max	
V_{OH} Output HIGH voltage	$V_{CC}=4.75V$ $I_{OH}=-800\mu A$	2.6								V
						2.7				V
V_{OL} Output LOW voltage	$V_{CC}=4.75V$ $I_{OL}=16mA$		0.4							V
							0.5			V
					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

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
			$C_L = 30\text{pF}$		$C_L = 30\text{pF}$ $R_1 = \infty$ $R_2 = 84.2\Omega$		$C_L = 15\text{pF}$ $R_L = 280\Omega$		$C_L = 15\text{pF}$ $R_L = 280\Omega$		
			Min	Max	Min	Max	Min	Max	Min	Max	
tPLH	Propagation delay	Figures 1, 3 & 4		17		23		10		14	ns
tPHL	Inverting path			23		20		10		14	ns
tPLH	Propagation delay	Figures 2, 3 & 4		17		28		10		14	ns
tPHL	Non-inverting path			23		21		10		14	ns

AC WAVEFORMS



AC TEST FIGURE

