

3-INPUT 4-BIT DIGITAL MULTIPLEXER

8263/64

DESCRIPTION

The 8263/8264 3-Input, 4-Bit Multiplexer is a gating array whose function is analogous to that of a 4-pole, 3-position switch. Four bits of digital data are selected from one of three inputs. A 2-bit channel-selection code determines which input is to be active.

The Data Complement input controls the conditional complement circuit at the Multiplexer output to effect either inverting or non-inverting data flow.

The 8263 employs active output structures to effect minimum delays: the 8264 utilizes bare collector outputs for expansion of input terms.

The 8264 may be expanded by connecting its outputs to the outputs of another 8264. Provision is made for use of a 3-bit code to determine which Multiplexer is selected; thus, eight Multiplexers may be commoned to effect a 4-pole, 24-position switch.

PIN CONFIGURATIONS

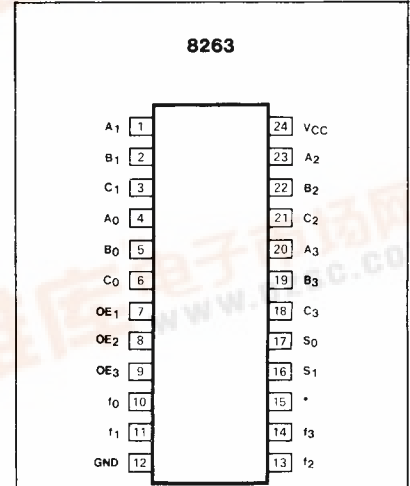


Figure A

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

PACKAGES	PIN CONF.	COMMERCIAL RANGES	MILITARY RANGES
		V _{CC} =5V ± 5%; T _A =0°C to +75°C	V _{CC} =5V ± 5%; T _A =-55°C to +125°C
Plastic DIP	Fig.A Fig.B	N8263N N8264N	
Ceramic DIP	Fig.A Fig.B	N8263F N8264F	S8263F S8264F
Flatpak	Fig.A Fig.B		S8263Q S8264Q

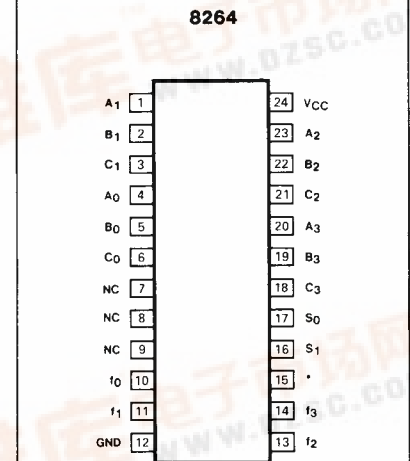


Figure B

*Data complement

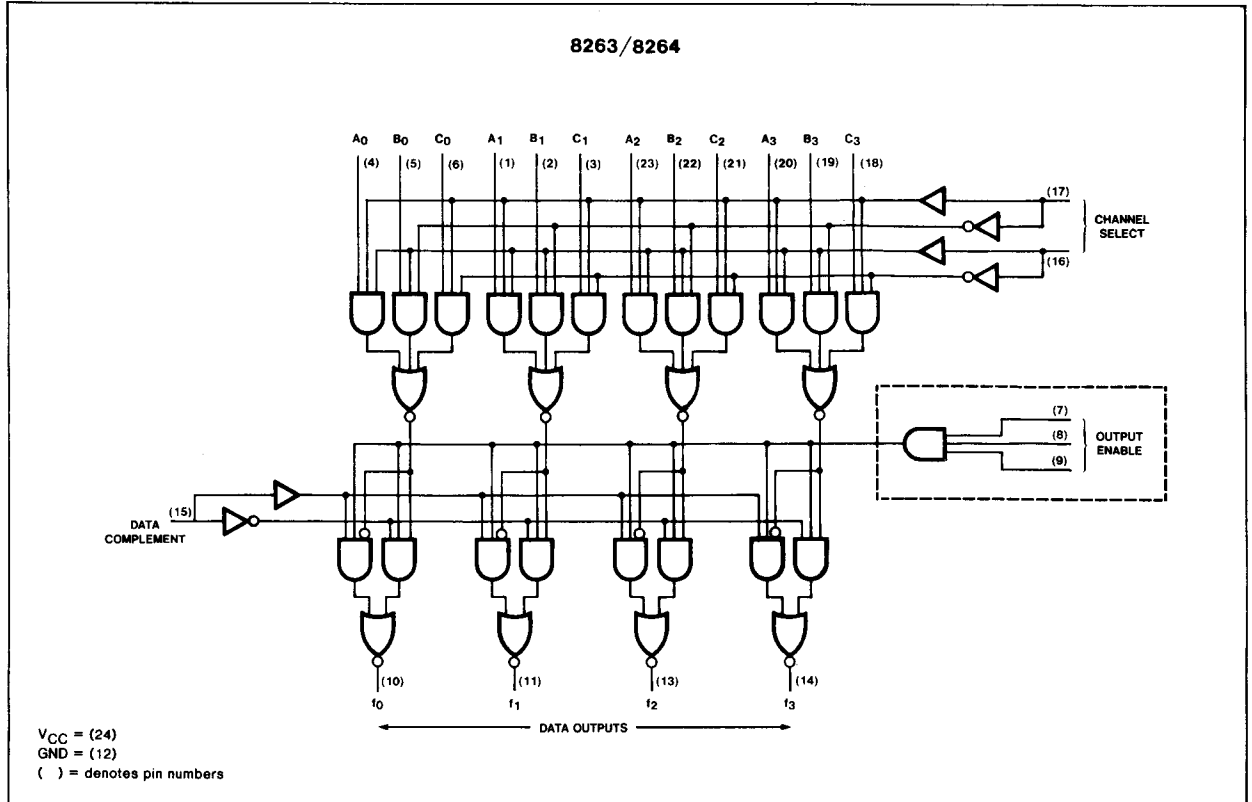
TRUTH TABLE

DATA INPUT			CHANNEL SELECT		DATA COMPLEMENT	OUTPUT ENABLE (8264)	DATA OUTPUTS
A _n	B _n	C _n	S ₀	S ₁			
A _n	X	X	H	H	L	H	A _n
X	B _n	X	L	H	L	H	B _n
X	X	C _n	H	L	L	H	C _n
X	X	X	L	L	L	H	0
A _n	X	X	H	H	H	H	\bar{A}_n
X	B _n	X	L	H	H	H	\bar{B}_n
X	X	C _n	H	L	H	H	\bar{C}_n
X	X	X	L	L	H	H	H
X	X	X	X	X	X	L	H

H = HIGH
L = LOW
X = Don't care



LOGIC DIAGRAM



DC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	8263		8264		UNIT
		Min	Max	Min	Max	
V _{OH} Output HIGH voltage	V _{CC} = 4.75V, I _{OH} = -800μA	2.6				V
I _{OH} Output HIGH current	V _{CC} = 4.75V, V _{OUT} = 2.0V				200	μA
V _{OL} Output LOW voltage	V _{CC} = 4.75V, I _{OL} = 9.6mA I _{OL} = 16.mA		0.4		0.4	V
I _{IL} Input LOW current A _n , B _n , C _n , OE, DC S ₀ , S ₁	V _{CC} = 5.25V, V _{IN} = 4.5V		-1.6 -3.2		-1.6 -3.2	mA mA
I _{IH} Input HIGH current A _n , B _n , C _n , OE, DC S ₀ , S ₁	V _{CC} = 5.25V, V _{IN} = 4.5V		40 80		40 80	μA μA
I _{OS} Output short circuit current	V _{CC} = 5V, V _{OUT} = 0V	-20	-70			mA
I _{CC} Supply current	V _{CC} = 5.25V		80		90.4	mA

AC CHARACTERISTICS: $T_A = 25^\circ\text{C}$ (See Section 4 for Waveforms and Conditions)

PARAMETER	TEST CONDITIONS	8263		8264		UNIT
		$C_L = 18\text{pF}$ $R_1 = \infty\Omega$ $R_2 = 150\Omega$		$C_L = 30\text{pF}$ $R_1 = 360\Omega$ $R_2 = 440\Omega$		
		Min	Max	Min	Max	
t_{PLH} t_{PHL} Propagation delay A_n to f_n	Figures 1 & 2		26 26		36 36	ns ns
t_{PLH} t_{PHL} Propagation delay S_0, S_1 to f_n	Figures 1 & 2		36 36		36 36	ns ns
t_{PLH} t_{PHL} Propagation delay DC to f_n	Figures 1 & 2		26 26		30 30	ns ns
t_{PLH} t_{PHL} Propagation delay OE to f_n	Figure 1				30 30	ns 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.

AC WAVEFORMS

