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.

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

PACKAGES	PIN CONF.	COMMERCIAL RANGES V_{CC}=5V ± 5%; T_A=0°C to +75°C	MILITARY RANGES 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

TRUTH TABLE

DATA INPUT A_n	B_n	C_n	CHANNEL SELECT S_0	S_1	DATA COMPLEMENT	OUTPUT ENABLE (8264)	DATA OUTPUTS
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	$\overline{A}_n$
X	B_n	X	L	H	H	H	$\overline{B}_n$
X	X	C_n	H	L	H	H	$\overline{C}_n$
X	X	X	L	L	H	H	H
X	X	X	X	X	X	L	H

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

PIN CONFIGURATIONS

8263

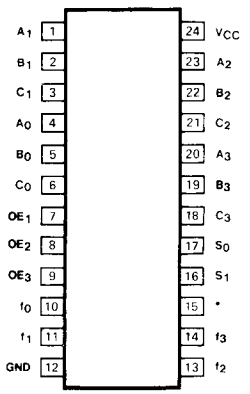


Figure A

8264

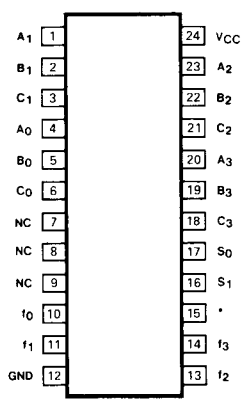
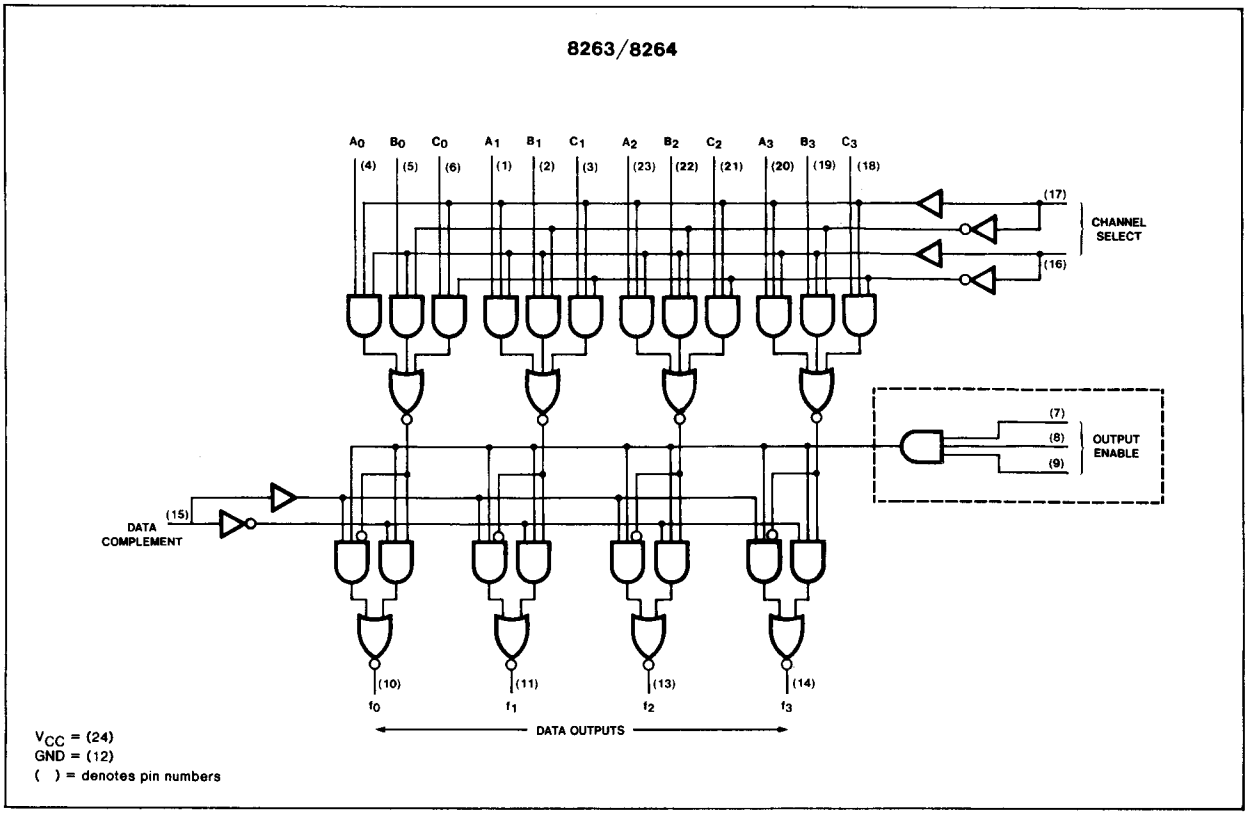


Figure B

*Data complement

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 8263 8264	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} = OV	−20	−70			mA
I_{CC}	Supply current	V_{CC} = 5.25V		80		90.4	mA

AC CHARACTERISTICS: T_A = 25°C (See Section 4 for Waveforms and Conditions)

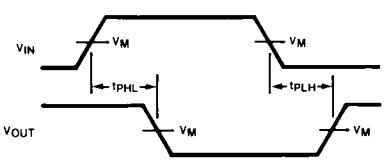
PARAMETER		TEST CONDITIONS	8263 C_L = 18pF R_1 = ∞Ω R_2 = 150Ω		8264 C_L = 30pF R_1 = 360Ω R_2 = 440Ω		UNIT
			Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation delay A_n to f_n	Figures 1 & 2		26 26		36 36	ns ns
t_{PLH} t_{PHL}	Propagation delay S_0, S_1 to f_n	Figures 1 & 2		36 36		36 36	ns ns
t_{PLH} t_{PHL}	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

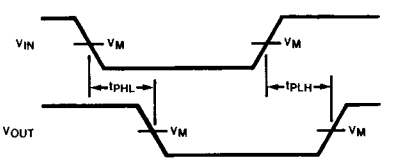
WAVEFORM FOR INVERTING OUTPUTS



V_M = 1.5V

Figure 1

WAVEFORM FOR NON-INVERTING OUTPUTS



V_M = 1.5V

Figure 2

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