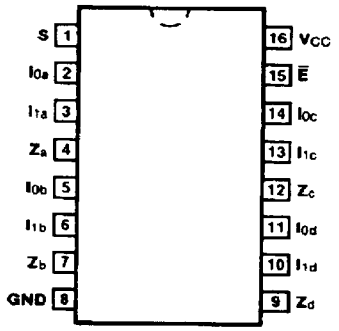
9322
93L22

QUAD 2-INPUT MULTIPLEXER

DESCRIPTION — The '22 quad 2-input digital multiplexers consist of four multiplexing circuits with common select and enable logic; each circuit contains two inputs and one output.

- **MULTIFUNCTION CAPABILITY**
- **ON-CHIP SELECT LOGIC DECODING**
- **FULLY BUFFERED OUTPUTS**

CONNECTION DIAGRAM
PINOUT A



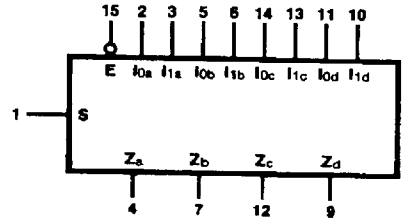
ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE V_{CC} = +5.0 V ±5%, T_A = 0°C to +70°C	MILITARY GRADE V_{CC} = +5.0 V, ±10%, T_A = -55°C to +125°C	PKG TYPE
Plastic DIP (P)	A	9322PC, 93L22PC		9B
Ceramic DIP (D)	A	9322DC, 93L22DC	9322DM, 93L22DM	6B
Flatpak (F)	A	9322FC, 93L22FC	9322FM, 93L22FM	4L

INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	93XX (U.L.) HIGH/LOW	93L (U.L.) HIGH/LOW
S	Common Select Input	1.0/1.0	0.5/0.25
Ē	Enable Input (Active LOW)	1.0/1.0	0.5/0.25
I_{0a} — I_{0d}, I_{1a} — I_{1d}	Multiplexer Inputs	1.0/1.0	0.5/0.25
Z_a — Z_d	Multiplexer Outputs	20/10	10/5.0 (3.0)

LOGIC SYMBOL



V_{CC} = Pin 16
GND = Pin 8

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FUNCTIONAL DESCRIPTION — The '22 quad 2-input multiplexer provides the ability to select four bits of either data or control from two sources, in one package. The Enable input ($\overline{E}$) is active LOW. When not activated all outputs (Z_n) are LOW regardless of all other inputs.

The '22 quad 2-input multiplexer is the logical implementation of a four-pole, two position switch, with the position of the switch being set by the logic levels supplied to the one select input. The logic equations for the outputs are shown below:

$$Z_a = E \bullet (I_{1a} \bullet S + I_{0a} \bullet \overline{S}) \qquad Z_b = E \bullet (I_{1b} \bullet S + I_{0b} \bullet \overline{S})$$
$$Z_c = E \bullet (I_{1c} \bullet S + I_{0c} \bullet \overline{S}) \qquad Z_d = E \bullet (I_{1d} \bullet S + I_{0d} \bullet \overline{S})$$

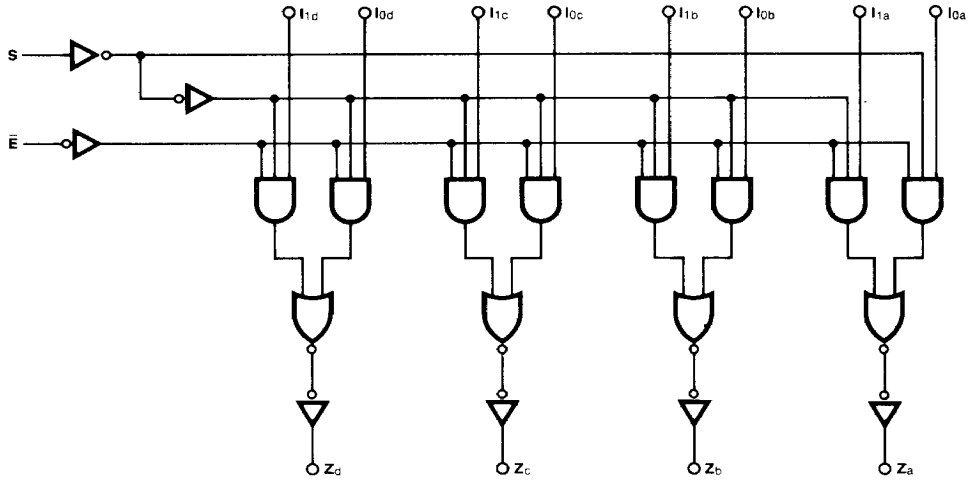
A common use of the '22 is the moving of data from a group of registers to four common output busses. The particular register from which the data comes is determined by the state of the select input. A less obvious use is as a function generator. The '22 can generate four functions of two variables with one variable common. This is useful for implementing random gating functions.

TRUTH TABLE

INPUTS				OUTPUT
$\overline{E}$	S	I_{0n}	I_{1n}	Z_n
H	X	X	X	L
L	H	X	L	L
L	H	X	H	H
L	L	L	X	L
L	L	H	X	H

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

LOGIC DIAGRAM



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DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	93XX		93L		UNITS	CONDITIONS
		Min	Max	Min	Max		
I_{OS}	Output Short Circuit Current	-20	-70			mA	V_{CC} = Max, V_{OUT} = 0 V
I_{CC}	Power Supply Current		47		13.2	mA	V_{CC} = Max

AC CHARACTERISTICS: V_{CC} = +5.0 V, T_A = +25° C (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	93XX		93L		UNITS	CONDITIONS
		C_L = 15 pF R_L = 400 Ω		C_L = 15 pF			
		Min	Max	Min	Max		
t_{PLH} t_{PHL}	Propagation Delay S to Z_n		23 27		36 49	ns	Figs. 3-1, 3-20
t_{PLH} t_{PHL}	Propagation Delay I_0 or I_1 to Z_n		14 14		22 30	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay $\overline{E}$ to Z_n		20 21		27 27	ns	Figs. 3-1, 3-4

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