

9318 011204 ✓
93L18 016620 ✓
8-INPUT PRIORITY ENCODER

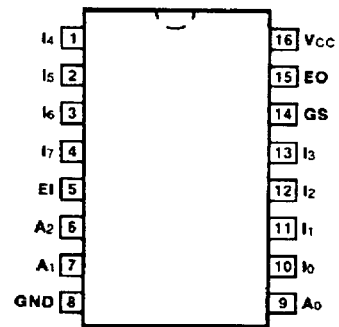
DESCRIPTION — The '18 multipurpose encoders are designed to accept eight inputs and produce a binary weighted code of the highest order input.

- **MULTIFUNCTION CAPABILITY**
 CODE CONVERSIONS
 MULTI-CHANNEL D/A CONVERTER
 DECIMAL TO BCD CONVERTER
- **CASCADING FOR PRIORITY ENCODING OF N BITS**
- **INPUT ENABLE CAPABILITY**
- **PRIORITY ENCODING — AUTOMATIC SELECTION OF HIGHEST PRIORITY INPUT LINE**
- **OUTPUT ENABLE — ACTIVE LOW WHEN ALL INPUTS HIGH**
- **GROUP SIGNAL OUTPUT — ACTIVE WHEN ANY INPUT IS LOW**

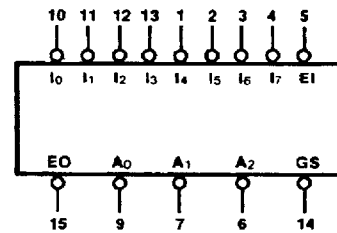
ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V _{CC} = +5.0 V ±5%, T _A = 0°C to +70°C	V _{CC} = +5.0 V ±10%, T _A = -55°C to +125°C	
Plastic DIP (P)	A	9318PC, 93L18PC		9B
Ceramic DIP (D)	A	9318DC, 93L18DC	9318DM, 93L18DM	6B
Flatpak (F)	A	9318FC, 93L18FC	9318FM, 93L18FM	4L

CONNECTION DIAGRAM PINOUT A



LOGIC SYMBOL



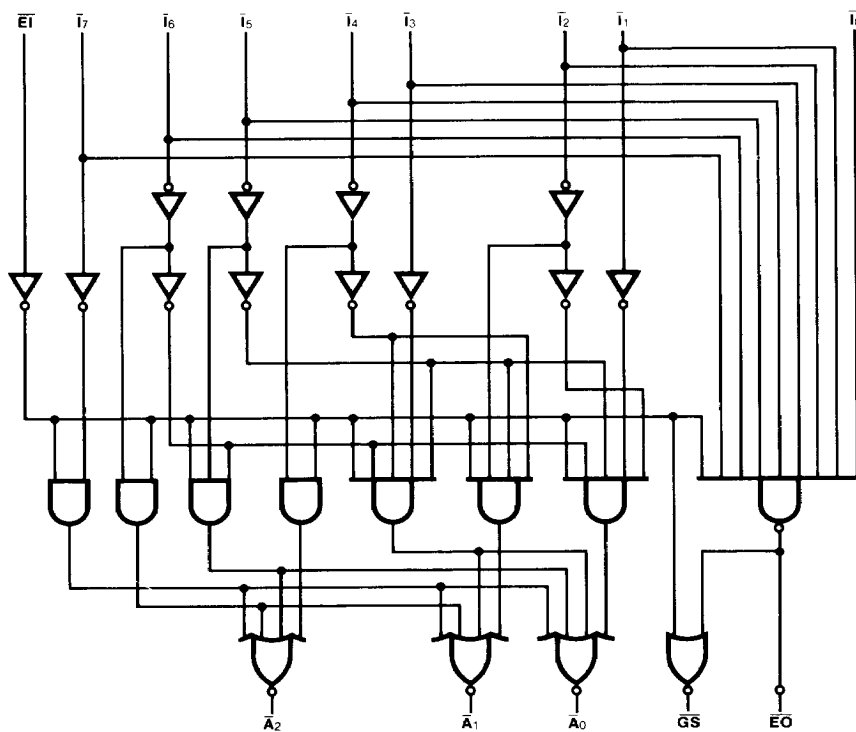
V_{CC} = Pin 16
 GND = Pin 8

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

PIN NAMES	DESCRIPTION	93XX (U.L.) HIGH/LOW	93L (U.L.) HIGH/LOW
I ₀	Priority Input (Active LOW)	1.0/1.0	0.5/0.25
I ₁ — I ₇	Priority Inputs (Active LOW)	2.0/2.0	1.0/0.5
EI	Enable Input (Active LOW)	2.0/2.0	1.0/0.5
EO	Enable Output (Active LOW)	20/10	10/5.0 (3.0)
GS	Group Select Output (Active LOW)	20/10	10/5.0 (3.0)
A ₀ — A ₂	Address Outputs (Active LOW)	20/10	10/5.0 (3.0)

FUNCTIONAL DESCRIPTION — The '18 8-input priority encoder accepts data from eight active LOW inputs and provides a binary representation on the three active LOW outputs. A priority is assigned to each input so that when two or more inputs are simultaneously active, the input with the highest priority is represented on the output, with input line 7 having the highest priority. A HIGH on the Enable Input ($\bar{E}1$) will force all outputs to the inactive (HIGH) state and allow new data to settle without producing erroneous information at the outputs. A Group Signal output ($\bar{G}S$) and Enable Output ($\bar{E}O$) are provided with the three data outputs. The $\bar{G}S$ is active LOW when any input is LOW; this indicates when any input is active. The $\bar{E}O$ is active LOW when all inputs are HIGH. Using the output enable along with the input enable allows priority encoding of N input signals. Both $\bar{E}O$ and $\bar{G}S$ are in the inactive HIGH state when the input enable is HIGH.

LOGIC DIAGRAM



6

TRUTH TABLE

INPUTS									OUTPUTS				
\overline{EI}	$\overline{T_0}$	$\overline{T_1}$	$\overline{T_2}$	$\overline{T_3}$	$\overline{T_4}$	$\overline{T_5}$	$\overline{T_6}$	$\overline{T_7}$	\overline{GS}	$\overline{A_0}$	$\overline{A_1}$	$\overline{A_2}$	\overline{EO}
H	X	X	X	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	L	H	L	L	H
L	X	X	X	X	L	H	H	H	L	H	H	L	H
L	X	X	X	L	H	H	H	H	L	L	L	H	H
L	X	X	L	H	H	H	H	H	L	H	L	H	H
L	X	L	H	H	H	H	H	H	L	L	H	H	H
L	L	H	H	H	H	H	H	H	L	H	H	H	H

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

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	93XX		93L		UNITS	CONDITIONS
		Min	Max	Min	Max		
I_{IH}	Input HIGH Current $I_0 - \overline{T_7}, \overline{EI}$		1.0			mA	$V_{CC} = \text{Max},$ $V_{IN} = 5.5 \text{ V}$
I_{OS}	Output Short Circuit Current	-20	-70			mA	$V_{CC} = \text{Max}, V_{OUT} = 0 \text{ V}$
I_{CC}	Power Supply Current		77		22	mA	$V_{CC} = \text{Max}$

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

SYMBOL	PARAMETER	93XX		93L		UNITS	CONDITIONS
		$C_L = 15 \text{ pF}$		$C_L = 15 \text{ pF}$			
		Min	Max	Min	Max		
t_{PLH} t_{PHL}	Propagation Delay $\overline{T_n}$ to \overline{EO}	10	18	18	50	ns	Figs. 3-1, 3-4
t_{PLH} t_{PHL}	Propagation Delay \overline{EI} to \overline{GS}	14	16	20	28	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay \overline{EI} to \overline{EO}	14	22	20	36	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay \overline{EI} to $\overline{A_n}$	17	17	33	26	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay $\overline{T_n}$ to \overline{GS}	14	16	60	26	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay $\overline{T_n}$ to $\overline{A_n}$	21	21	36	36	ns	Figs. 3-1, 3-20