

150

T-66-21-53

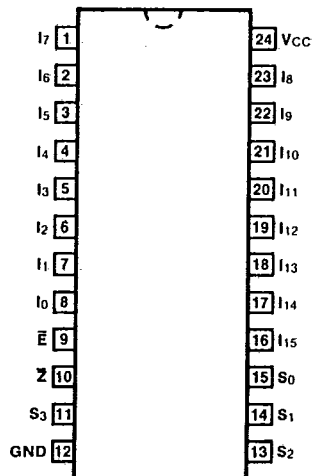
CONNECTION DIAGRAM  
PINOUT A

54/74150  
16-INPUT MULTIPLEXER

**DESCRIPTION** — Signals applied to the Select ( $S_0$  —  $S_3$ ) inputs determine which of the data inputs ( $I_0$  —  $I_{15}$ ) is routed through to the output. Data from the selected input appears at the output ( $Z$ ) in inverted form. When the active-LOW Enable input is HIGH, the output will be HIGH, regardless of other input conditions.

ORDERING CODE: See Section 9

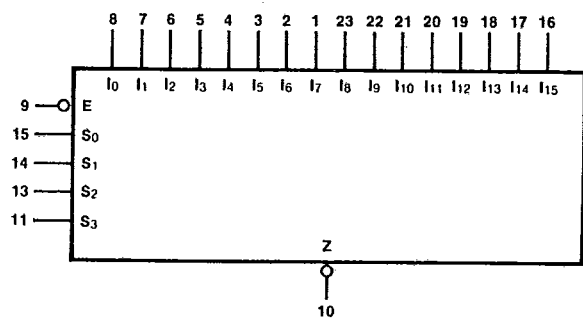
| PKGS            | PIN OUT | COMMERCIAL GRADE                                                                     | MILITARY GRADE                                                                          | PKG TYPE |
|-----------------|---------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------|
|                 |         | $V_{CC} = +5.0 \text{ V} \pm 5\%$ ,<br>$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ | $V_{CC} = +5.0 \text{ V} \pm 10\%$ ,<br>$T_A = -55^\circ\text{C to } +70^\circ\text{C}$ |          |
| Plastic DIP (P) | A       | 74150PC                                                                              |                                                                                         | 9N       |
| Ceramic DIP (D) | A       | 74150DC                                                                              | 54150DM                                                                                 | 6N       |
| Flatpak (F)     | A       | 74150FC                                                                              | 54150FM                                                                                 | 4M       |



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

| PIN NAMES        | DESCRIPTION               | 54/74 (U.L.) HIGH/LOW |
|------------------|---------------------------|-----------------------|
| $I_0$ — $I_{15}$ | Data Inputs               | 1.0/1.0               |
| $S_0$ — $S_3$    | Select Inputs             | 1.0/1.0               |
| $\bar{E}$        | Enable Input (Active LOW) | 1.0/1.0               |
| $Z$              | Inverted Data Output      | 20/10                 |

LOGIC SYMBOL

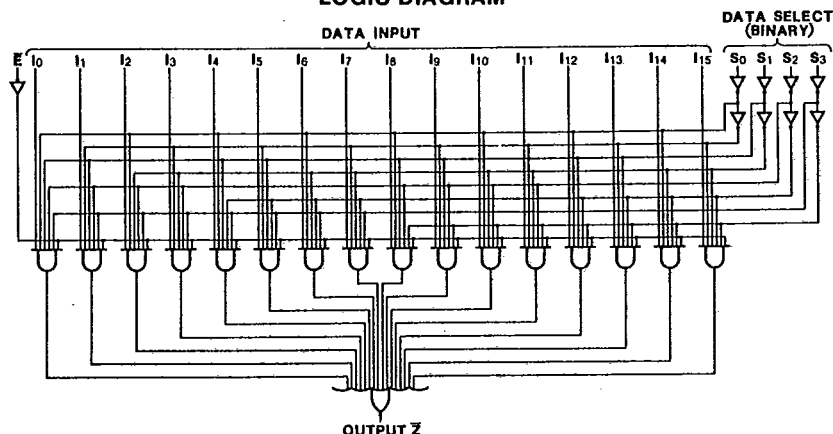


$V_{CC}$  = Pin 24  
 $GND$  = Pin 12

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150

## LOGIC DIAGRAM



## TRUTH TABLE

| INPUTS         |                |                |                |   | OUTPUT          |
|----------------|----------------|----------------|----------------|---|-----------------|
| S <sub>3</sub> | S <sub>2</sub> | S <sub>1</sub> | S <sub>0</sub> | E | Z               |
| X              | X              | X              | X              | H | H               |
| L              | L              | L              | L              | L | I <sub>0</sub>  |
| L              | L              | L              | H              | L | I <sub>1</sub>  |
| L              | L              | H              | L              | L | I <sub>2</sub>  |
| .              | .              | .              | .              | . | .               |
| H              | H              | L              | L              | L | I <sub>12</sub> |
| H              | H              | L              | H              | L | I <sub>13</sub> |
| H              | H              | H              | L              | L | I <sub>14</sub> |
| H              | H              | H              | H              | L | I <sub>15</sub> |

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

## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| SYMBOL          | PARAMETER                    |    | 54/74 |     | UNITS | CONDITIONS                                    |
|-----------------|------------------------------|----|-------|-----|-------|-----------------------------------------------|
|                 |                              |    | Min   | Max |       |                                               |
| I <sub>OS</sub> | Output Short Circuit Current | XM | -20   | -55 | mA    | V <sub>CC</sub> = Max                         |
|                 |                              | XC | -18   | -55 |       |                                               |
| I <sub>CC</sub> | Power Supply Current         |    |       | 68  | mA    | V <sub>CC</sub> = Max, V <sub>IN</sub> = 4.5V |

AC CHARACTERISTICS: V<sub>CC</sub> = +5.0 V, T<sub>A</sub> = +25°C (See Section 3 for waveforms and load configurations)

| SYMBOL                               | PARAMETER                                                   | 54/74                                            |          | UNITS | CONDITIONS      |
|--------------------------------------|-------------------------------------------------------------|--------------------------------------------------|----------|-------|-----------------|
|                                      |                                                             | C <sub>L</sub> = 15 pF<br>R <sub>L</sub> = 400 Ω |          |       |                 |
|                                      |                                                             | Min                                              | Max      |       |                 |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay<br>S <sub>n</sub> to $\bar{Z}$ , 3 Levels |                                                  | 35<br>33 | ns    | Figs. 3-1, 3-20 |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay<br>I <sub>n</sub> to $\bar{Z}$            |                                                  | 20<br>14 | ns    | Figs. 3-1, 3-4  |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay<br>$\bar{E}$ to $\bar{Z}$                 |                                                  | 24<br>30 | ns    | Figs. 3-1, 3-5  |