

# SERIES EL519 ECL (10K COMPATIBLE) PROGRAMMABLE DELAY MODULES (8-BIT)

- 8-Bit ECL Programmable Delay Line • 48 Pin DIP Package
- ECL Input and Output Levels • 70 ECL DC Fan-out Capacity

## Specifications:

- Supply Voltage :  $-5.2\text{VDC}$  to Vee
- Logic 1 Voltage :  $-.96\text{v}$  Min
- Logic 1 Current :  $265\mu\text{A}$  Max
- Logic 0 Voltage :  $-1.65\text{v}$  Max
- Logic 0 Current :  $.5\mu\text{A}$  Min
- Output Rise Time<sup>(2)</sup> :  $5\text{NSEC}$  Typ.
- Storage Temperature :  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$
- Operating Temperature :  $-30^\circ\text{C}$  to  $+85^\circ\text{C}$
- Temperature Coefficient :  $100\text{ PPM}/^\circ\text{C}$
- Power Dissipation :  $925\text{mW}$  Typ.



## Test Conditions:

- Input Pulse-Width : 150% of Total Delay
- Input Pulse Rise Time :  $2\text{NSEC}$  Max
- Input Pulse Voltage :  $1\text{v}$  ( $-0.75\text{vH}$  to  $-1.75\text{vL}$ )
- Vee Supply Voltage :  $-5.2\text{VDC}$

## Truth Table

| Enable<br>Eo | Address Bit No. |   |   |   |   |   |   |   | Total<br>Delay |
|--------------|-----------------|---|---|---|---|---|---|---|----------------|
|              | 8               | 7 | 6 | 5 | 4 | 3 | 2 | 1 |                |
| 0            | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1D             |
| 0            | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1D+1T          |
| 0            | 0               | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1D+2T          |
| 0            | 0               | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1D+4T          |
| 0            | 0               | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1D+8T          |
| 0            | 0               | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1D+15T         |
| 0            | 0               | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1D+32T         |
| 0            | 0               | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1D+64T         |
| 0            | 0               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1D+127T        |
| 0            | 1               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1D+128T        |
| 0            | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1D+255T        |

1 = High 0 = Low

When Eo is 1, no output

1D = Inherent Delay

T = Multiplier of Incremental Delay  
(Delay change per step)

For simplicity, all 256 programmable steps  
are not shown in this Truth Table.

## Electrical Specifications at $25^\circ\text{C}$

| Part Number  | Inherent Delay Time (NS) (1) | Incremental Delay Per Step (NS) (1) | Max Delay Time (NS) (1) |
|--------------|------------------------------|-------------------------------------|-------------------------|
| EL519-12-0.5 | $12 \pm 1$                   | $0.5 \pm 0.3$                       | $139.5 \pm 2$           |
| EL519-12-1   | $12 \pm 1$                   | $1 \pm 0.5$                         | $267 \pm 5$             |
| EL519-12-2   | $12 \pm 1$                   | $2 \pm 0.8$                         | $522 \pm 10$            |
| EL519-12-3   | $12 \pm 1$                   | $3 \pm 1.0$                         | $777 \pm 15$            |
| EL519-12-4   | $12 \pm 1$                   | $4 \pm 1.0$                         | $1032 \pm 20$           |
| EL519-12-5   | $12 \pm 1$                   | $5 \pm 1.5$                         | $1287 \pm 25$           |
| EL519-12-6   | $12 \pm 1$                   | $6 \pm 1.5$                         | $1542 \pm 30$           |
| EL519-12-7   | $12 \pm 1$                   | $7 \pm 1.5$                         | $1797 \pm 35$           |
| EL519-12-8   | $12 \pm 1$                   | $8 \pm 2.0$                         | $2052 \pm 40$           |
| EL519-12-9   | $12 \pm 1$                   | $9 \pm 2.0$                         | $2307 \pm 50$           |
| EL519-12-10  | $12 \pm 1$                   | $10 \pm 2.0$                        | $2562 \pm 60$           |
| EL519-15-0.5 | $15 \pm 1$                   | $0.5 \pm 0.3$                       | $142.5 \pm 2$           |
| EL519-15-1   | $15 \pm 1$                   | $1 \pm 0.5$                         | $270 \pm 5$             |
| EL519-15-2   | $15 \pm 1$                   | $2 \pm 0.8$                         | $525 \pm 10$            |
| EL519-15-3   | $15 \pm 1$                   | $3 \pm 1.0$                         | $780 \pm 15$            |
| EL519-15-4   | $15 \pm 1$                   | $4 \pm 1.0$                         | $1035 \pm 20$           |
| EL519-15-5   | $15 \pm 1$                   | $5 \pm 1.5$                         | $1290 \pm 25$           |
| EL519-15-6   | $15 \pm 1$                   | $6 \pm 1.5$                         | $1545 \pm 30$           |
| EL519-15-7   | $15 \pm 1$                   | $7 \pm 1.5$                         | $1800 \pm 35$           |
| EL519-15-8   | $15 \pm 1$                   | $8 \pm 2.0$                         | $2055 \pm 40$           |
| EL519-15-9   | $15 \pm 1$                   | $9 \pm 2.0$                         | $2310 \pm 50$           |
| EL519-15-10  | $15 \pm 1$                   | $10 \pm 2.0$                        | $2565 \pm 60$           |

Note: (1) Measured at  $-1.3\text{v}$  level leading edge.

(2) Measured from 20% to 80% Pulse Amplitude.

(3) Outputs terminated through 270 ohms to  $-5.2\text{VDC}$ .

