

# NLB6257

NEL  
SELIC

## 4 bit Demultiplexer

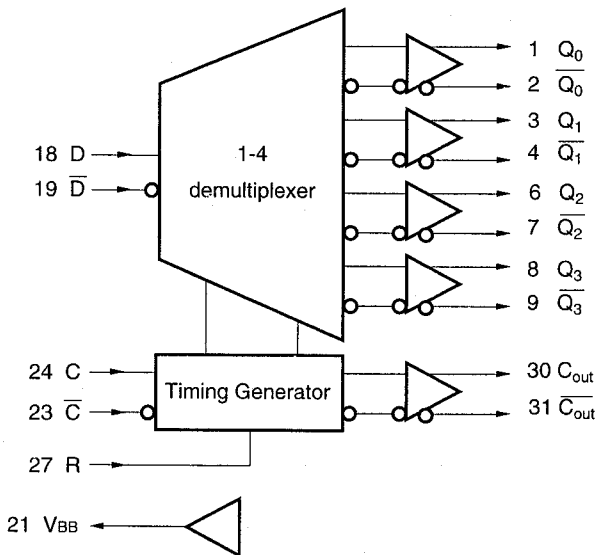
### Description

The NLB6257 is an ultra high-speed monolithic 4 bit demultiplexer.

### Features

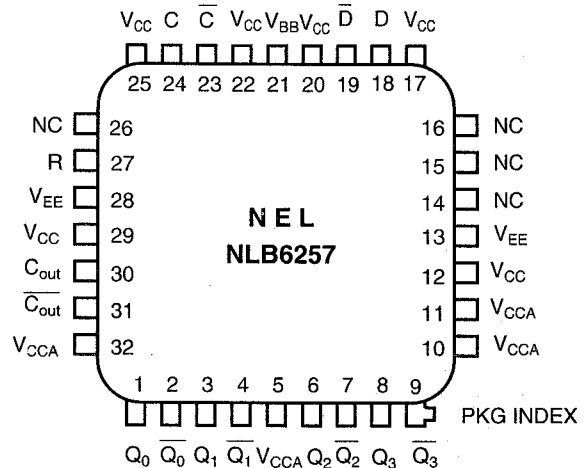
- Typical AC characteristics  
Clock rate up to 3 GHz.  
 $t_r = 165\text{ps}$   
 $t_f = 165\text{ps}$
- Internal pull down resistors on input pins (R, D, C) to maintain logic LOW level with the pins left open.
- Internal pull up resistors on input pins ( $\overline{D}$ ,  $\overline{C}$ ) to maintain logic HIGH level with the pins left open.
- ECL 100K compatible I/O levels.
- Differential outputs.

### Logic Symbol



|           |                        |
|-----------|------------------------|
| $V_{CC}$  | 12, 17, 20, 22, 25, 29 |
| $V_{CCA}$ | 5, 10, 11, 32          |
| $V_{EE}$  | 13, 28                 |
| NC        | 14 ~ 16, 26            |

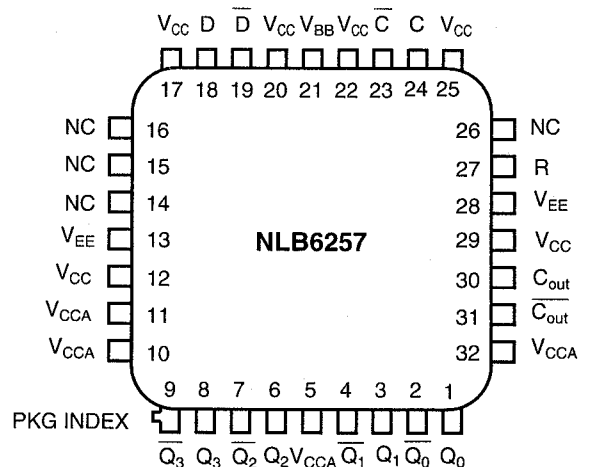
### Pin Assignment Top View (Ceramic)



### Pin Name

|                               |                                     |
|-------------------------------|-------------------------------------|
| D, $\overline{D}$             | Serial data input                   |
| R                             | Reset input                         |
| C, $\overline{C}$             | Clock input (positive edge trigger) |
| $Q_n, \overline{Q}_n$         | Parallel data output                |
| $C_{out}, \overline{C}_{out}$ | 1/4 clock output                    |
| $V_{BB}$                      | Reference voltage output            |
| $V_{CC}$                      | Circuit GND                         |
| $V_{CCA}$                     | Circuit GND for outputs             |
| $V_{EE}$                      | -4.5V                               |

### Back View (Metal Cap)



# NLB6257 4 bit Demultiplexer

## DC Characteristics

$V_{EE} = -4.5V \pm 0.3V$ ,  $V_{CC} = V_{CCA} = GND$ ,  $V_{TT} = -2V$ ,  $T_C = 0^\circ C$  to  $+85^\circ C$

| Characteristics      | Symbol   | Min. | Typ. | Max. | Unit |
|----------------------|----------|------|------|------|------|
| Power supply current | $I_{EE}$ | 110  | 190  | 270  | mA   |

## AC Characteristics

$V_{EE} = -4.5V \pm 0.3V$ ,  $V_{CC} = V_{CCA} = GND$ ,  $V_{TT} = -2V$ ,  $T_C = 0^\circ C$  to  $+85^\circ C$ ,  $R_T = 50\Omega$  to  $V_{TT}$

| Characteristics             | Symbol    | Input | output | Test Condition | Min. | Typ. | Max. | Unit |
|-----------------------------|-----------|-------|--------|----------------|------|------|------|------|
| Propagation delay time      | $t_{pd}$  | C     | Qn     |                |      | 900  | 1200 | ps   |
|                             |           |       | Cout   |                |      | 600  | 800  |      |
| Set up time                 | $t_s$     | D,C   | Qn     | R=Low          |      | 90   |      |      |
| Hold time                   | $t_h$     |       |        | R=Low          |      | 250  |      |      |
| Release time                | $t_R$     | R,C   |        |                |      | 70   |      |      |
| Minimum pulse width         | $t_{pw}$  | R     |        |                | 385  | 300  |      |      |
| Rise time                   | $t_r$     | C     | Cout   | 20 to 80%      |      | 165  | 220  |      |
| Fall time                   | $t_f$     |       | Qn     |                |      | 165  | 220  |      |
|                             |           |       | Cout   |                |      | 165  | 220  |      |
|                             |           |       |        |                |      |      |      |      |
| Maximum operating frequency | $f_{max}$ | D,C   | Qn     |                | 2.6  | 3.0  |      | GHz  |

## Timing Chart

