

# NLB6274

NEL  
SELIC

## 15, 7 stage Scrambler

### Description

The NLB6274 is an ultra high-speed monolithic ECL Data Scrambler with variable bit length.

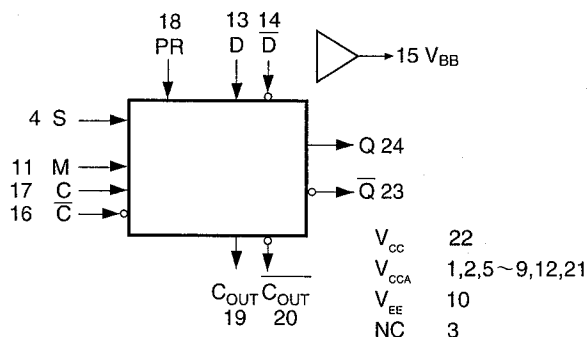
Select switch M selects a mode, 'scrambler' or 'M-code sequence generator'. In scrambler mode, input data is converted into a pseudo-random data sequence. The pseudo-random data can be reconverted into the original input data by a Descrambler such as the NLB6275. In M-code sequence generator mode, the IC generates a pseudo-random number sequence.

Select inputs S select a bit length.

### Features

- Typical clock rate up to 2.6GHz.
- Variable bit length : 15, 7  
(bit length is in accordance with ITU-T)
- Internal pull down resistors on input pins (C, D, M, S, PR) to maintain logic LOW level with the pins left open.
- Internal pull up resistors on input pins ( $\bar{C}$ ,  $\bar{D}$ ) to maintain logic HIGH level with the pins left open.
- ECL100K compatible I/O levels
- Differential input and output

### Logic Symbol



### Stage select

| S | Operation                 |
|---|---------------------------|
| L | 15 stage ( $2^{15} - 1$ ) |
| H | 7 stage ( $2^7 - 1$ )     |

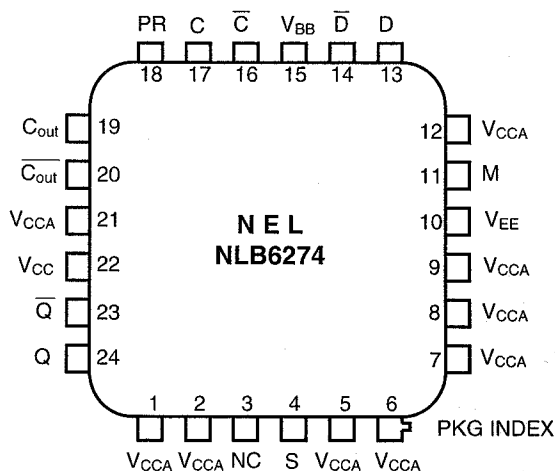
### Function select

| M | Operation                       |
|---|---------------------------------|
| H | Maximal code sequence generator |
| L | Data scrambler                  |

H : High voltage level

L : Low voltage level

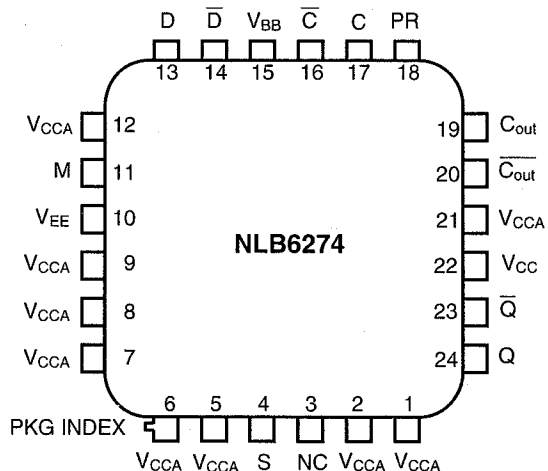
### Pin Assignment Top View (Ceramic)



### Pin Name

|                                    |                                       |
|------------------------------------|---------------------------------------|
| D, $\bar{D}$                       | Data input in scrambler mode          |
| M                                  | Mode select input                     |
| S                                  | Stage select input                    |
| C, $\bar{C}$                       | Clock input (positive edge trigger)   |
| Q, $\bar{Q}$                       | Data output                           |
| C <sub>out</sub> , $\bar{C}_{out}$ | Buffered clock output                 |
| PR                                 | Preset                                |
| V <sub>BB</sub>                    | Reference voltage output              |
| V <sub>CC</sub>                    | Circuit GND                           |
| V <sub>CCA</sub>                   | Circuit GND for outputs               |
| V <sub>EE</sub>                    | -4.5V                                 |
| NC                                 | No connection (It must be left open.) |

### Back View (Metal Cap)



# NLB6274 15, 7 stage Scrambler

## DC Characteristics

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

| Characteristics      | Symbol   | Min. | Typ. | Max. | Unit |
|----------------------|----------|------|------|------|------|
| Power supply current | $I_{EE}$ | 115  | 210  | 310  | 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    | Min. | Typ. | Max. | Unit |
|----------------------------------|-----------|-------|-----------|------|------|------|------|
| Propagation delay time to output | $t_{PLH}$ | C     | $C_{out}$ |      | 400  | 535  | ps   |
|                                  | $t_{PHL}$ |       |           |      | 390  | 520  |      |
| Rise time 20% to 80%             | $t_r$     |       | Q         |      | 160  | 215  |      |
| Fall time 20% to 80%             | $t_f$     |       |           |      | 160  | 215  |      |
| Rise time 20% to 80%             | $t_r$     |       | $C_{out}$ |      | 125  | 170  |      |
| Fall time 20% to 80%             | $t_f$     |       |           |      | 130  | 175  |      |
| Setup time                       |           | C,D   | Q         | 110  | 70   |      |      |
| Hold time                        |           |       |           | 250  | 180  |      |      |
| Maximum operating frequency      | $f_{max}$ | C     | Q         |      | 2.6  |      | GHz  |

## Notice

PR (Pin No.18) must be H level input at first.