

**Triple Fan-Out Buffer with Common Enable and Differential Output**

**Description**

The CXB1105Q is an ultra high speed monolithic ECL IC, which contains three Line Drivers. Each driver has two pairs of differential output pins ( $Q_n$ ,  $Q_{nB}$ ,  $Q_nA$ ,  $Q_{nB}$ ).

Enable ( $\bar{E}$ ) input enables data (D1-D3) input. With D1-D3 maintained LOW,  $\bar{E}$  acts as a fan-out buffer with six differential outputs.

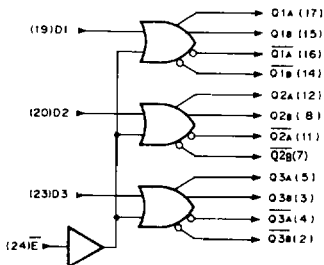
**Features**

- Typical propagation delay time:  
 $T_{pd}=620ps$  (Dn to  $Q_nA$ ,  $Q_nB$ )
- Small time skew: 50ps ( $\bar{E}$  to  $Q_nA$ ,  $Q_nB$ )
- Enable input
- Six differential fan-out capability
- Internal pull down resistors on input pins to maintain logic LOW level with the pins left open
- ECL 100K compatible I/O levels
- Differential output.

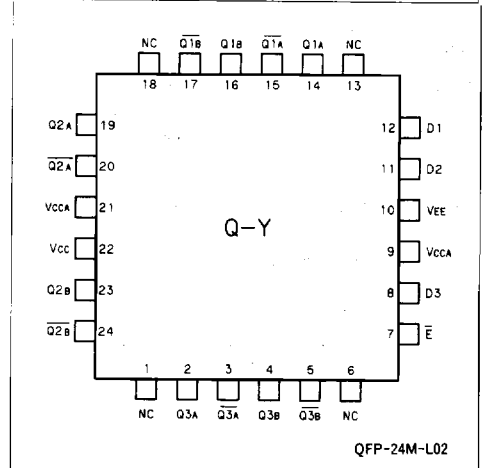
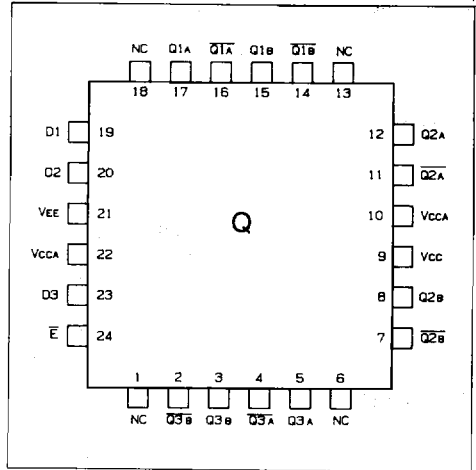
**Pin Names**

|                                   |                            |
|-----------------------------------|----------------------------|
| Dn                                | Data inputs                |
| $Q_nA$ , $Q_nA$ , $Q_nB$ , $Q_nB$ | Data outputs               |
| $\bar{E}$                         | Data enable (active LOW)   |
| VCC                               | Circuit ground             |
| VCCA                              | Circuit ground for outputs |
| VEE                               | Negative power supply      |

**Logic Symbol**



**Pin Assignment**



**Truth Table**

| Input     | Output |    |       |
|-----------|--------|----|-------|
| $\bar{E}$ | Dn     | Qn | $Q_n$ |
| L         | L      | L  | H     |
| L         | H      | H  | L     |
| H         | X      | H  | L     |

Note: H; HIGH voltage level  
 L; LOW voltage level  
 X; Don't care

**DC Characteristics**

$V_{EE} = -4.5 \pm 0.3V$ ,  $V_{CC} = V_{CCA} = GND$ ,  $V_{TT} = -2.0V$ ,  $T_c = 0^\circ C$  to  $+85^\circ C$

| Item                 | Symbol   | Test Condition | Min. | Typ. | Max. | Unit |
|----------------------|----------|----------------|------|------|------|------|
| Power supply current | $I_{EE}$ |                | -164 | -120 | -84  | mA   |

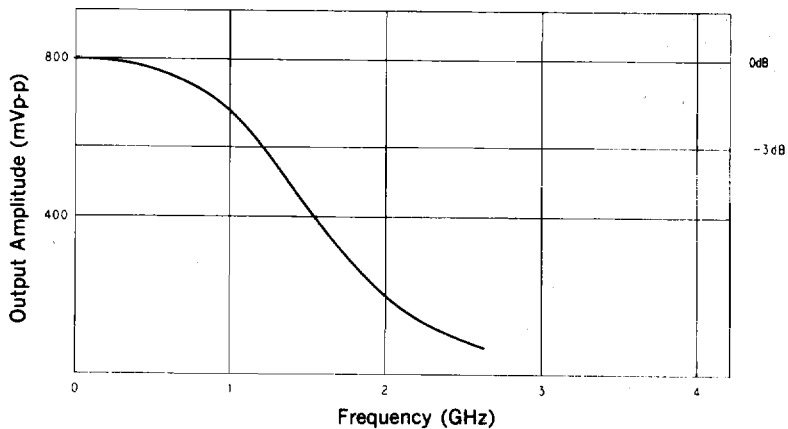
Note: Other DC characteristics; See pages 3-3 and 3-4.

**AC Characteristics**

$V_{EE} = -4.5 \pm 0.3V$ ,  $V_{CC} = V_{CCA} = GND$ ,  $V_{TT} = -2.0V$ ,  $T_c = 0^\circ C$  to  $+85^\circ C$ ,  $R_T = 50\Omega$  to  $V_{TT}$

| Item                   | Symbol    | Input         | Output              | Test Condition | Min. | Typ. | Max. | Unit |
|------------------------|-----------|---------------|---------------------|----------------|------|------|------|------|
| Propagation delay time | $T_{PLH}$ | Dn            | $Q_{nA}$ , $Q_{nB}$ |                | 470  | 620  | 790  | ps   |
|                        | $T_{PHL}$ |               |                     |                | 440  | 590  | 750  |      |
|                        | $T_{PLH}$ | $\bar{E}$     |                     |                | 500  | 660  | 840  |      |
|                        | $T_{PHL}$ |               |                     |                | 500  | 630  | 800  |      |
| Gate-to-Gate time skew | $T_{SGG}$ | $\bar{E}$     |                     |                |      | 50   |      |      |
| Rise time              | $T_{TLH}$ | Dn, $\bar{E}$ |                     | 20% to 80%     |      | 250  | 320  |      |
| Fall time              | $T_{THL}$ |               |                     |                |      | 220  | 280  |      |

Note: AC test circuit; See page 4-3.



**Figure 1. Frequency characteristics**