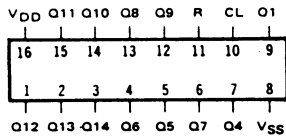
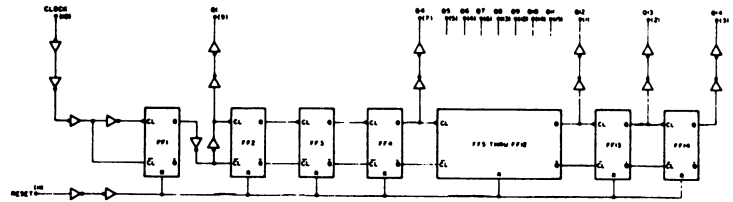


**SCL4020B**

FOURTEEN STAGE BINARY COUNTER



LOGIC DIAGRAM



STATIC CHARACTERISTICS: (  $V_{SS} = 0 V$  )

| PARAMETER                         | CONDITIONS                    | $V_{DD}$<br>(Vdc) | $T_{LOW}^*$ |     | + 25°C |      |     | $T_{HIGH}^{**}$ |     | UNIT         |
|-----------------------------------|-------------------------------|-------------------|-------------|-----|--------|------|-----|-----------------|-----|--------------|
|                                   |                               |                   | MIN         | MAX | MIN    | TYP  | MAX | MIN             | MAX |              |
| QUIESCENT DEVICE CURRENT $I_{DD}$ | $V_{IN} = V_{SS}$ OR $V_{DD}$ | 5                 |             | 5   |        | 0.05 | 5   |                 | 150 | $\mu A_{dc}$ |
|                                   |                               | 10                |             | 10  |        | 0.1  | 10  |                 | 300 |              |
|                                   |                               | 15                |             | 20  |        | 0.2  | 20  |                 | 600 |              |

Note: \* $T_{LOW}$  = -55°C for C / H devices, -40°C for E / S devices, \*\* $T_{HIGH}$  = +125°C for C / H devices, +85°C for E / S devices.

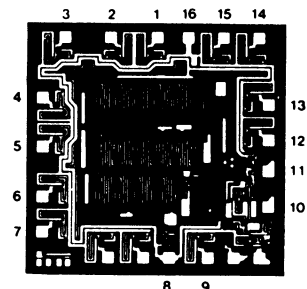
DYNAMIC CHARACTERISTICS: (  $C_L = 50pF, T_A = 25^\circ C$  )

| PARAMETER   | $V_{DD}$<br>Vdc | MINIMUM | TYPICAL | MAXIMUM | UNIT    |
|---|-----------------|---------|---------|---------|---------|
| PROPAGATION DELAY TIME $t_{PLH}, t_{PHL}$<br>(CLOCK TO Q1)          | 5               |         | 180     | 360     | ns      |
|   | 10              |         | 80      | 160     |         |
|   | 15              |         | 65      | 130     |         |
| PROPAGATION DELAY TIME $t_{PLH}, t_{PHL}$<br>( $Q_i$ TO $Q_{i+1}$ ) | 5               |         | 100     | 200     | ns      |
|   | 10              |         | 40      | 80      |         |
|   | 15              |         | 30      | 60      |         |
| OUTPUT TRANSITION TIME $t_{TLH}, t_{THL}$                           | 5               |         | 100     | 200     | ns      |
|   | 10              |         | 40      | 80      |         |
|   | 15              |         | 30      | 60      |         |
| CLOCK PULSE WIDTH MINIMUM $PW_{CL}$                                 | 5               |         | 70      | 140     | ns      |
|   | 10              |         | 30      | 60      |         |
|   | 15              |         | 20      | 40      |         |
| CLOCK FREQUENCY MAXIMUM $f_{CL}$                                    | 5               | 3       | 4.5     |         | MHz     |
|   | 10              | 6       | 9       |         |         |
|   | 15              | 7.5     | 11      |         |         |
| CLOCK RISE & FALL TIME MAXIMUM $t_{rCL}, t_{fCL}$                   | 5               |         | 100     | 50      | $\mu s$ |
|   | 10              |         | 100     | 50      |         |
|   | 15              |         | 100     | 50      |         |

RESET OPERATIONS

|                                  |    |  |     |     |    |
|----------------------------------|----|--|-----|-----|----|
| PROPAGATION DELAY TIME $t_{PHL}$ | 5  |  | 200 | 400 | ns |
|                                  | 10 |  | 100 | 200 |    |
|                                  | 15 |  | 75  | 150 |    |
| RESET PULSE WIDTH MINIMUM $PW_R$ | 5  |  | 100 | 200 | ns |
|                                  | 10 |  | 40  | 80  |    |
|                                  | 15 |  | 30  | 60  |    |
| RESET REMOVAL TIME $t_{rem}$     | 5  |  | 150 | 300 | ns |
|                                  | 10 |  | 65  | 125 |    |
|                                  | 15 |  | 40  | 75  |    |

DIE DRAWING  
SCL4020B  
80 x 78 mils



Note: Refer to "SCL4000B SERIES FAMILY SPECIFICATIONS" for remaining Dynamic & Static Characteristics, and, for recommended and maximum operating conditions.