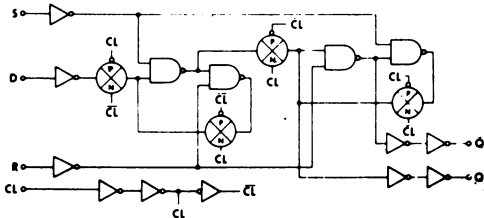
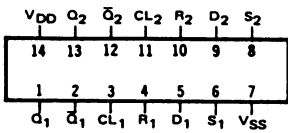


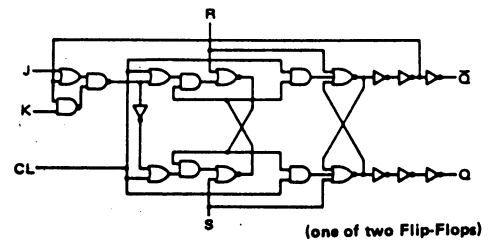
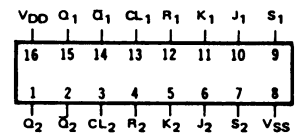
SCL4013B

DUAL D TYPE FLIP FLOP



SCL4027B

DUAL JK TYPE FLIP FLOP



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

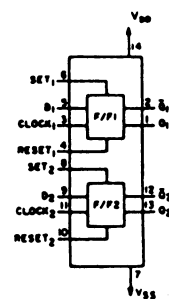
| PARAMETER | CONDITIONS | V _{DD} (Vdc) | T _{LOW} * MAX | | +25°C | | | T _{HIGH} ** MAX | | UNIT |
|--|--|--------------------------|------------------------|-----|-------|-------|-----|--------------------------|-----|-------|
| | | | MIN | MAX | MIN | TYP | MAX | MIN | MAX | |
| QUIESCENT DEVICE CURRENT I _{DD} | V _{IN} = V _{SS} OR V _{DD} | 5 | | 1 | | 0.005 | 1 | | 30 | μA dc |
| | | 10 | | 2 | | 0.01 | 2 | | 60 | |
| | | 15 | | 4 | | 0.02 | 4 | | 120 | |

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.

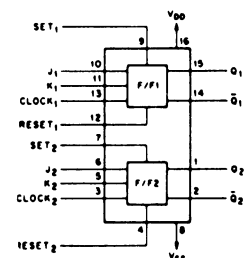
DYNAMIC CHARACTERISTICS: (CL = 50pF, TA = 25°C)

| PARAMETER | V _{DD} (Vdc) | MINIMUM | TYPICAL | MAXIMUM | UNIT |
|--|--------------------------|---------|---------|---------|------|
| PROPAGATION DELAY TIME t _{PLH} , t _{PHL} | 5 | | 125 | 250 | ns |
| | 10 | | 65 | 130 | |
| | 15 | | 45 | 90 | |
| PROPAGATION DELAY TIME t _{PLH} , t _{PHL} | 5 | | 150 | 300 | ns |
| | 10 | | 65 | 130 | |
| | 15 | | 50 | 100 | |
| OUTPUT TRANSITION TIME t _{TLH} , t _{THL} | 5 | | 100 | 200 | ns |
| | 10 | | 50 | 100 | |
| | 15 | | 40 | 80 | |
| CLOCK PULSE WIDTH MINIMUM PW _{CL} | 5 | | 70 | 140 | ns |
| | 10 | | 30 | 60 | |
| | 15 | | 20 | 40 | |
| CLOCK PULSE WIDTH MINIMUM PW _{CL} | 5 | | 165 | 330 | ns |
| | 10 | | 60 | 120 | |
| | 15 | | 50 | 100 | |
| MAXIMUM CLOCK FREQUENCY f _{CL} | 5 | 4 | 7 | | MHz |
| | 10 | 8 | 16 | | |
| | 15 | 12.5 | 25 | | |
| MAXIMUM CLOCK FREQUENCY f _{CL} | 5 | 1.5 | 3 | | MHz |
| | 10 | 4 | 8 | | |
| | 15 | 5 | 10 | | |

BLOCK DIAGRAM SCL4013B



SCL4027B



SCL4013B
DUAL D TYPE FLIP FLOP

SCL4027B
DUAL JK TYPE FLIP FLOP

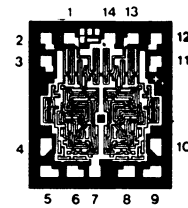
DYNAMIC CHARACTERISTICS: (CL = 50pF, TA = 25°C)

| PARAMETER | V _{DD} V _{dc} | MINIMUM | TYPICAL | MAXIMUM | UNIT |
|---|------------------------------------|---------|---------|---------|------|
| CLOCK RISE & FALL TIME MAXIMUM t _{rCL} , t _{fCL} SCL4013B | 5 | 15 | | | μs |
| | 10 | 10 | | | |
| | 15 | 5 | | | |
| CLOCK RISE & FALL TIME MAXIMUM t _{rCL} , t _{fCL} SCL4027B | 5 | 15 | | | μs |
| | 10 | 5 | | | |
| | 15 | 3 | | | |
| MINIMUM SETUP TIME t _{set} SCL4013B | 5 | | 25 | 50 | ns |
| | 10 | | 10 | 20 | |
| | 15 | | 7.5 | 12 | |
| MINIMUM SETUP TIME t _{set} SCL4027B | 5 | | 100 | 200 | ns |
| | 10 | | 50 | 100 | |
| | 15 | | 40 | 80 | |
| MINIMUM HOLD TIME t _{hold} SCL4013B | 5 | | 0 | 25 | ns |
| | 10 | | 0 | 15 | |
| | 15 | | 0 | 10 | |
| MINIMUM HOLD TIME t _{hold} SCL4027B | 5 | | -25 | 0 | ns |
| | 10 | | -10 | 0 | |
| | 15 | | -5 | 0 | |

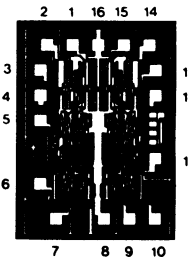
SET AND RESET

| | | | | | |
|--|----|--|-----|-----|----|
| PROPAGATION DELAY TIME S to Q, R to Q t _{PLH} SCL4013B | 5 | | 125 | 250 | ns |
| | 10 | | 65 | 130 | |
| | 15 | | 45 | 90 | |
| PROPAGATION DELAY TIME S to Q, R to Q t _{PLH} SCL4027B | 5 | | 150 | 300 | ns |
| | 10 | | 65 | 130 | |
| | 15 | | 50 | 100 | |
| MINIMUM SET & RESET PULSE WIDTH PW _S , PW _R SCL4013B | 5 | | 65 | 130 | ns |
| | 10 | | 30 | 60 | |
| | 15 | | 25 | 50 | |
| MINIMUM SET & RESET PULSE WIDTH PW _S , PW _R SCL4027B | 5 | | 100 | 200 | ns |
| | 10 | | 50 | 100 | |
| | 15 | | 40 | 80 | |
| SET & RESET REMOVAL TIME t _{rem} | 5 | | 0 | 25 | ns |
| | 10 | | 0 | 10 | |
| | 15 | | 0 | 5 | |

**DIE DRAWING
SCL4013B
44 x 51 mils**



**DIE DRAWING
SCL4027B
49 x 68 mils**



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