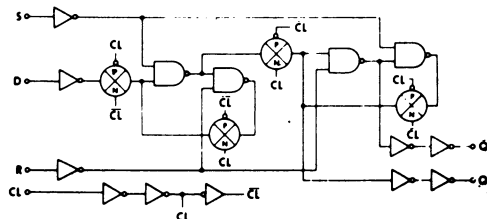
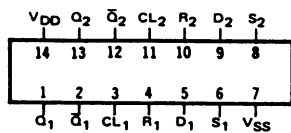
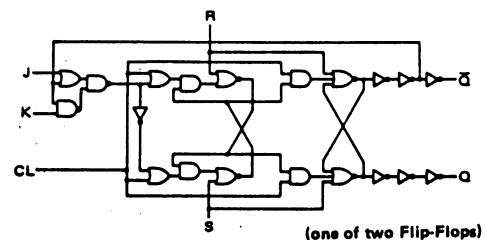


SCL4013B

DUAL D TYPE FLIP FLOP

**SCL4027B**

DUAL JK TYPE FLIP FLOP

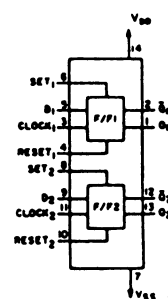
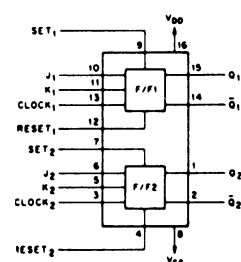
**STATIC CHARACTERISTICS: ($V_{SS} = 0\text{ V}$)**

PARAMETER	CONDITIONS	V_{DD} (Vdc)	T_{LOW}^{*} MIN	T_{LOW}^{*} MAX	+25°C TYP	MAX	T_{HIGH}^{**} MIN	T_{HIGH}^{**} MAX	UNIT
QUIESCENT DEVICE CURRENT I_{DD}	$V_{IN} = V_{SS}$ OR V_{DD}	5		1	0.005	1		30	μA
		10		2	0.01	2		60	
		15		4	0.02	4		120	

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

DYNAMIC CHARACTERISTICS: ($CL = 50\text{pF}$, $T_A = 25^{\circ}\text{C}$)

PARAMETER	V_{DD} (Vdc)	MINIMUM	TYPICAL	MAXIMUM	UNIT
PROPAGATION DELAY TIME t_{PLH}, t_{PHL} SCL4013B	5		125	250	ns
	10		65	130	
	15		45	90	
PROPAGATION DELAY TIME t_{PLH}, t_{PHL} SCL4027B	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} SCL4013B	5		70	140	ns
	10		30	60	
	15		20	40	
CLOCK PULSE WIDTH MINIMUM PW_{CL} SCL4027B	5		165	330	ns
	10		60	120	
	15		50	100	
MAXIMUM CLOCK FREQUENCY f_{CL} SCL4013B	5	4	7		MHz
	10	8	16		
	15	12.5	25		
MAXIMUM CLOCK FREQUENCY f_{CL} SCL4027B	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	5	15			μ s
MAXIMUM t_{rCL}, t_{fCL}	10	10			
SCL4013B	15	5			
CLOCK RISE & FALL TIME	5	15			μ s
MAXIMUM t_{rCL}, t_{fCL}	10	5			
SCL4027B	15	3			
MINIMUM SETUP TIME	5		25	50	ns
t_{set}	10		10	20	
SCL4013B	15		7.5	12	
MINIMUM SETUP TIME	5		100	200	ns
t_{set}	10		50	100	
SCL4027B	15		40	80	
MINIMUM HOLD TIME	5		0	25	ns
t_{hold}	10		0	15	
SCL4013B	15		0	10	
MINIMUM HOLD TIME	5		-25	0	ns
t_{hold}	10		-10	0	
SCL4027B	15		-5	0	

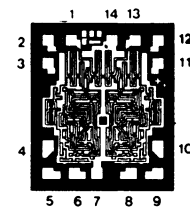
SET AND RESET

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

DIE DRAWING

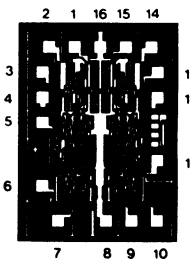
SCL4013B

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.