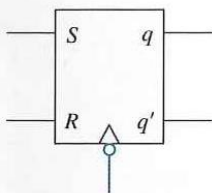


Basic Flip Flops

- Logic Symbol
- State Transition Table
- State Transition Diagram
- Next State Equation
- Excitation Table

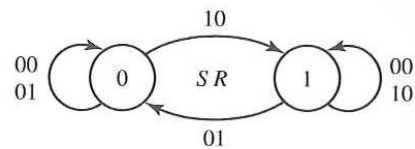
FLIP FLOPS



S	R	q	q^*
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	—
1	1	1	—

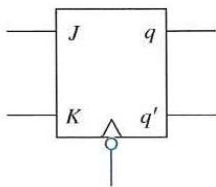
not
allowed

$$q^* = S + R'q$$



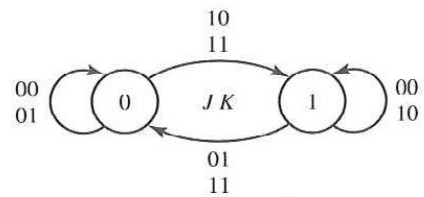
q	q^*	S	R
0	0	0	X
0	1	1	0
1	0	0	1
1	1	X	0

SR Flip Flop



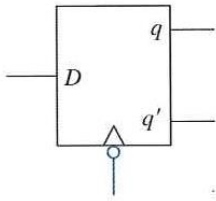
J	K	q	q^*
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

$$q^* = Jq' + K'q$$



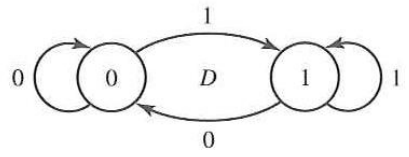
q	q^*	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

JK Flip Flop



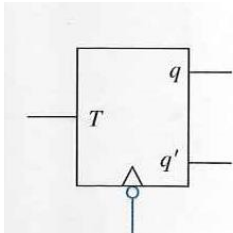
D	q	q^*
0	0	0
0	1	0
1	0	1
1	1	1

$$q^* = D$$



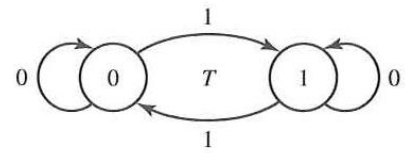
q	q^*	D
0	0	0
0	1	1
1	0	0
1	1	1

D Flip Flop



T	q	q^*
0	0	0
0	1	1
1	0	1
1	1	0

$$q^* = T \oplus q$$



q	q^*	T
0	0	0
0	1	1
1	0	1
1	1	0

T Flip Flop