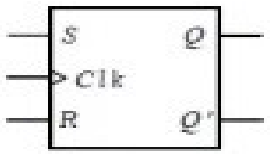
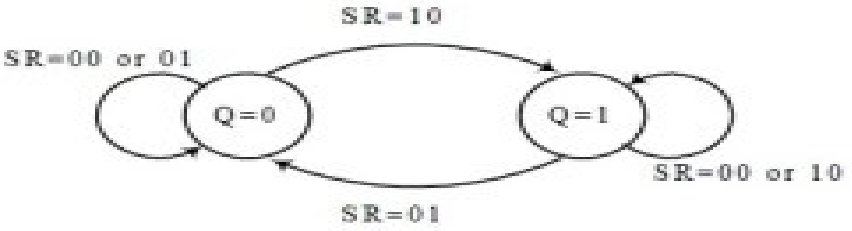
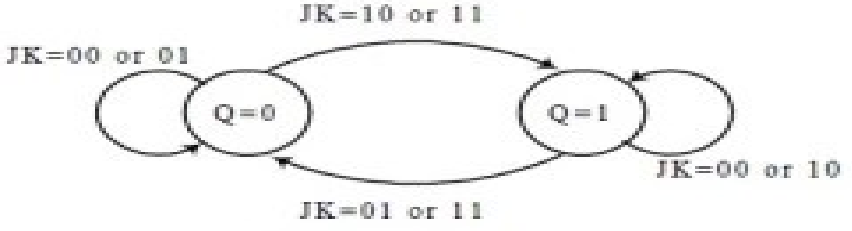
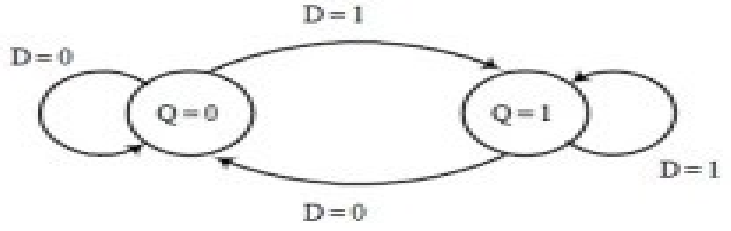
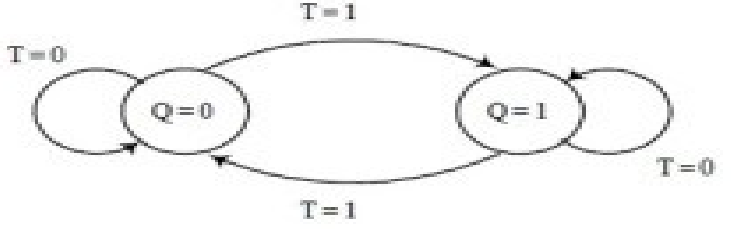
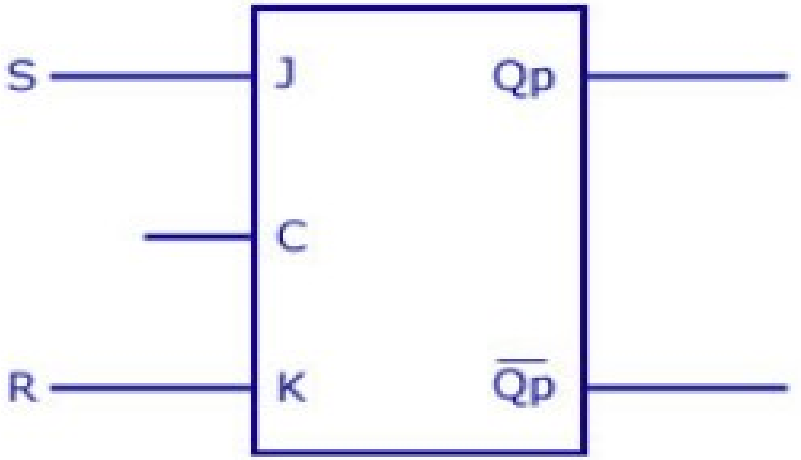
Name / Symbol	Characteristic (Truth) Table	State Diagram / Characteristic Equations	Excitation Table
SR 	S R Q Q_{next} 0 0 0 0 0 0 1 1 0 1 0 0 0 1 1 0 1 0 0 1 1 0 1 1 1 1 0 × 1 1 1 ×	 $Q_{next} = S + R'Q$ $SR = 0$	Q Q_{next} S R 0 0 0 × 0 1 1 0 1 0 0 1 1 1 × 0
JK 	J K Q Q_{next} 0 0 0 0 0 0 1 1 0 1 0 0 0 1 1 0 1 0 0 1 1 0 1 1 1 1 0 1 1 1 1 0	 $Q_{next} = J'K'Q + JK' + JKQ'$ $= J'K'Q + JK'Q + JK'Q' + JKQ'$ $= K'Q(J'+J) + JQ'(K'+K)$ $= K'Q + JQ'$	Q Q_{next} J K 0 0 0 × 0 1 1 × 1 0 × 1 1 1 × 0
D 	D Q Q_{next} 0 × 0 1 × 1	 $Q_{next} = D$	Q Q_{next} D 0 0 0 0 1 1 1 0 0 1 1 1
T 	T Q Q_{next} 0 0 0 0 1 1 1 0 1 1 1 0	 $Q_{next} = TQ' + T'Q = T \oplus Q$	Q Q_{next} T 0 0 0 0 1 1 1 0 1 1 1 0

J-K Flip Flop to S-R Flip Flop

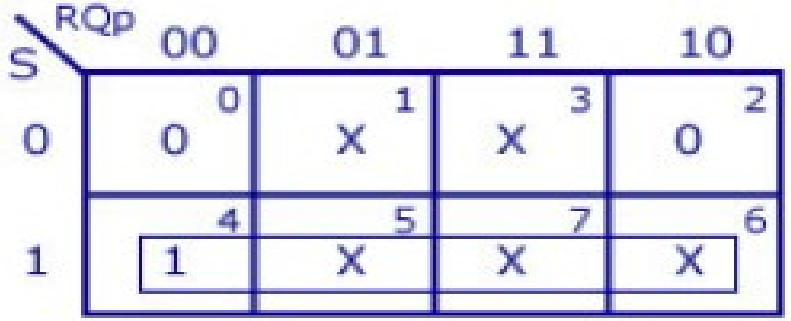
Conversion Table

S-R Inputs		Outputs		J-K Inputs	
S	R	Qp	Qp+1	J	K
0	0	0	0	0	X
0	0	1	1	X	0
0	1	0	0	0	X
0	1	1	0	X	1
1	0	0	1	1	X
1	0	1	1	X	0
1	1	Invalid		Dont care	
1	1	Invalid		Dont care	

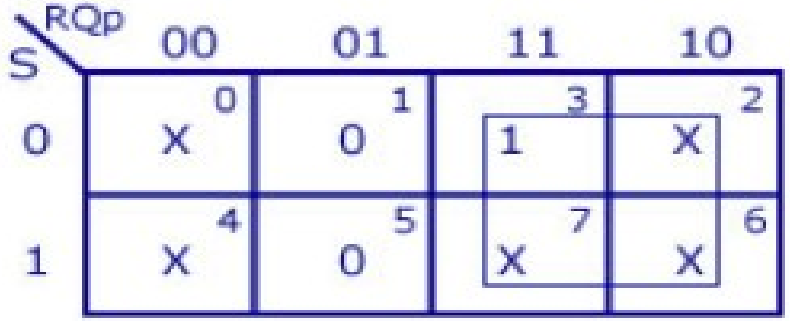
Logic Diagram



K-maps



J=S



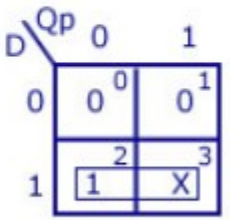
K=R

S-R Flip Flop to D Flip Flop

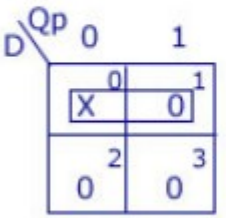
Conversion Table

D Input	Outputs		S-R Inputs	
	Qp	Qp+1	S	R
0	0	0	0	X
0	1	0	0	1
1	0	1	1	0
1	1	1	X	0

K-maps

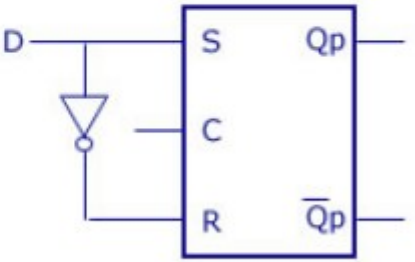


S = D



$R = \overline{D}$

Logic Diagram

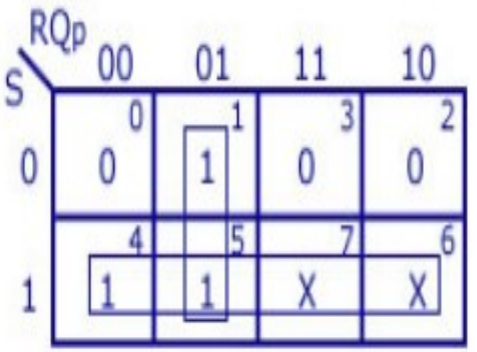


D Flip Flop to S-R Flip Flop

Conversion Table

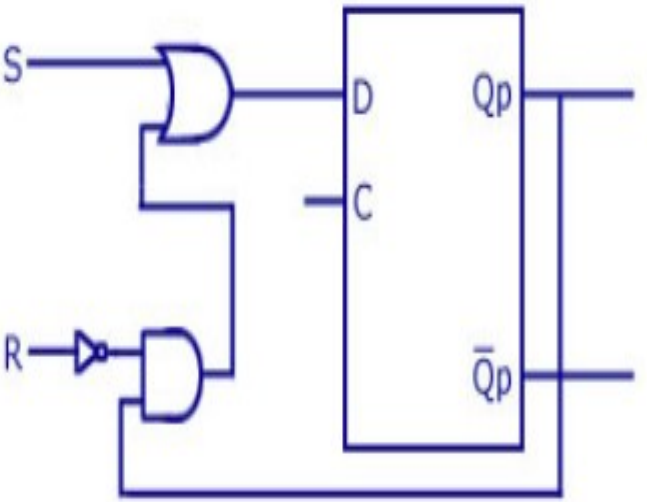
S-R Inputs		Outputs		D Input
S	R	Qp	Qp+1	
0	0	0	0	0
0	0	1	1	1
0	1	0	0	0
0	1	1	0	0
1	0	0	1	1
1	0	1	1	1
1	1	Invalid		Dont care
1	1	Invalid		Dont care

K-map



$D = S + \bar{R}Q_n$

Logic Diagram

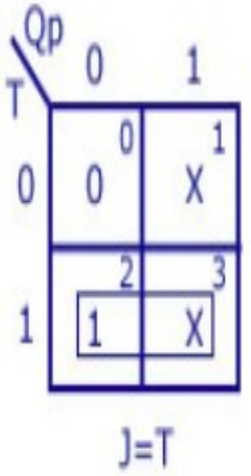


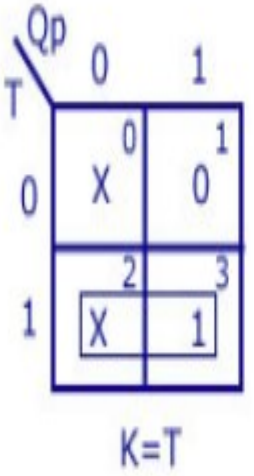
J-K Flip Flop to T Flip Flop

Conversion Table

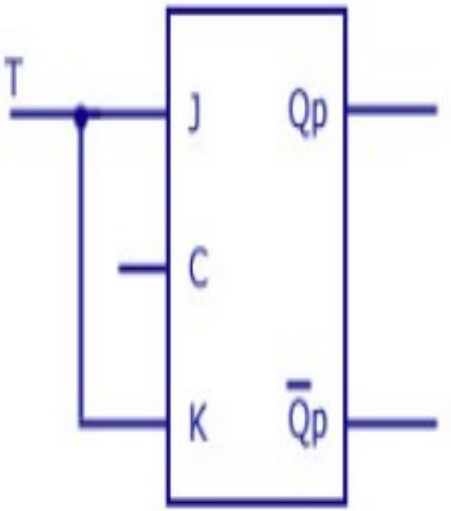
T Input	Outputs		J-K Inputs	
	Qp	Qp+1	J	K
0	0	0	0	X
0	1	1	X	0
1	0	1	1	X
1	1	0	X	1

K-maps





Logic Diagram

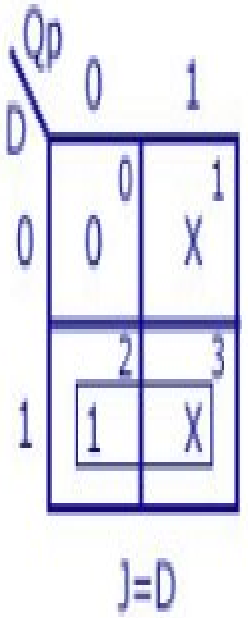


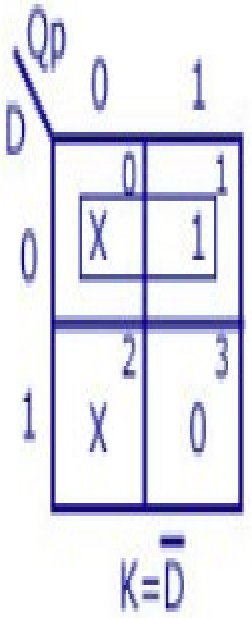
J-K Flip Flop to D Flip Flop

Conversion Table

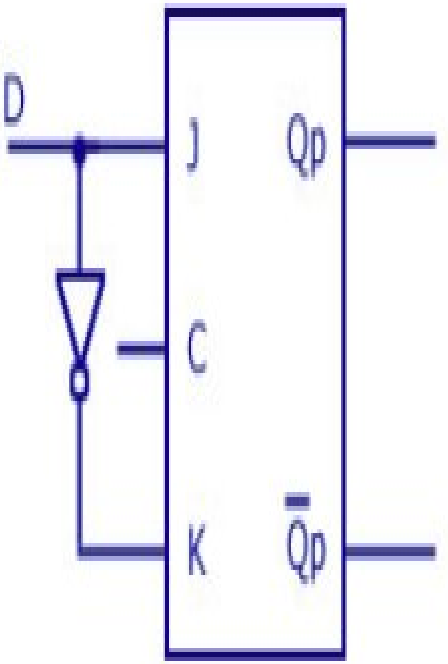
D Input	Outputs		J-K Inputs	
	Qp	Qp+1	J	K
0	0	0	0	X
0	1	0	X	1
1	0	1	1	X
1	1	0	X	0

K-maps





Logic Diagram

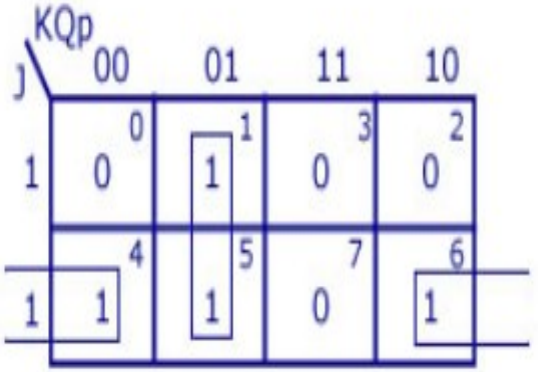


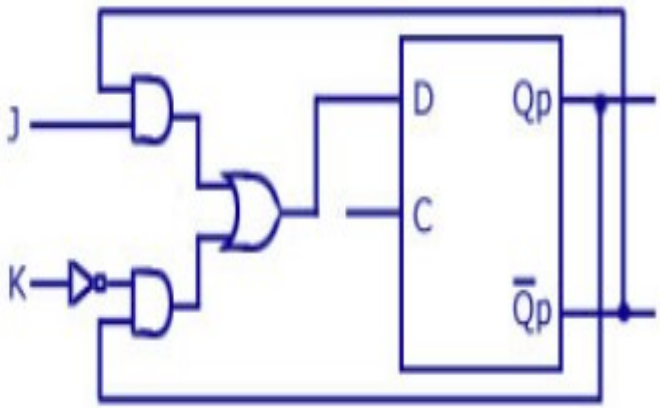
D Flip Flop to J-K Flip Flop

Conversion Table

J-K Input		Outputs		D Input
J	K	Qp	Qp+1	
0	0	0	0	0
0	0	1	1	1
0	1	0	0	0
0	1	1	0	0
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	0	0

K-map



$D = J\overline{Q}p + \overline{K}Qp$

Logic Diagram