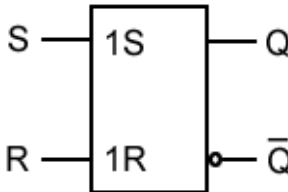
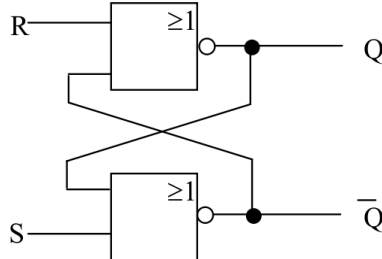
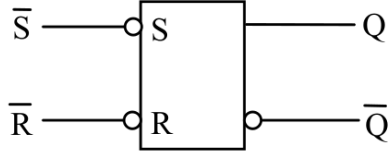
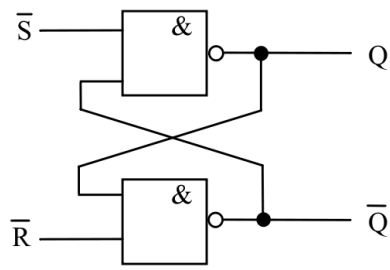
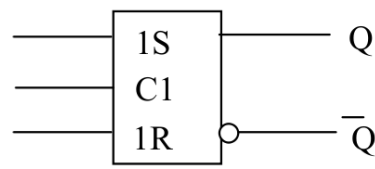
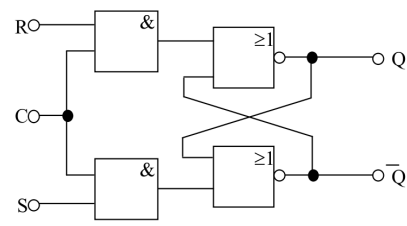
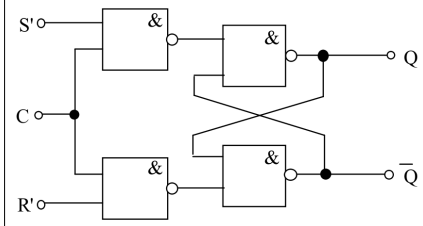


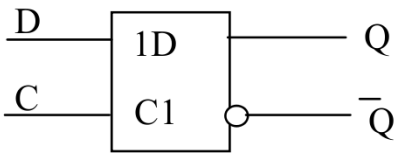
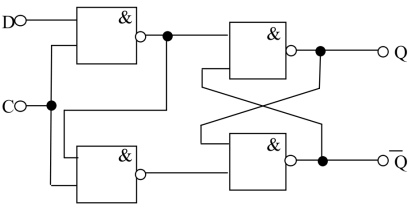
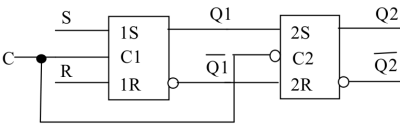
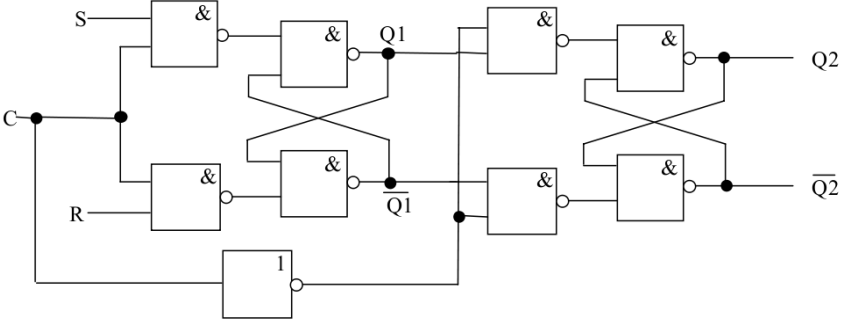
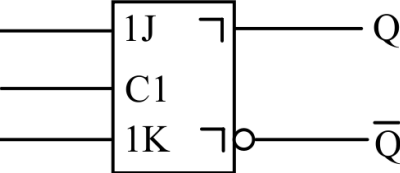
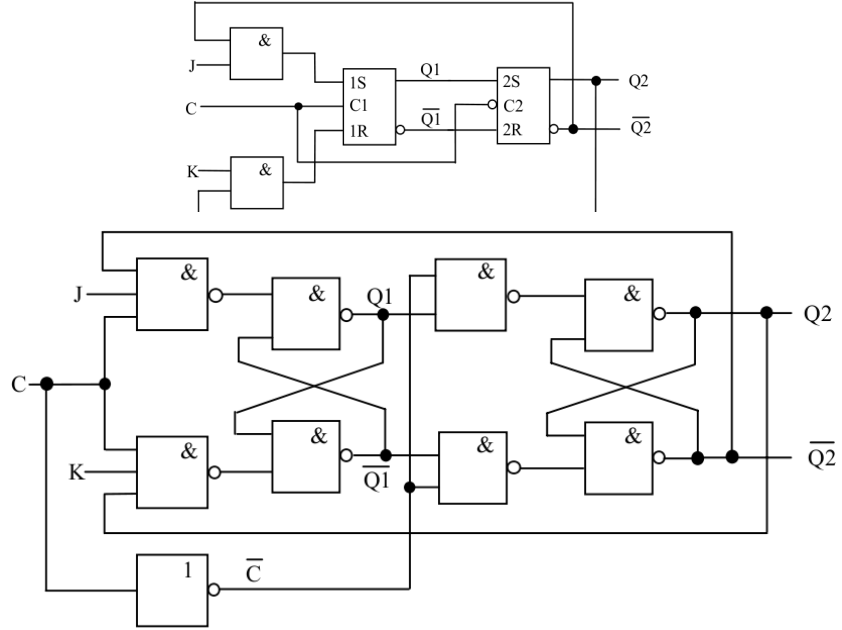
Flip-Flop Schaltungen

Zustandsgesteuerte FF

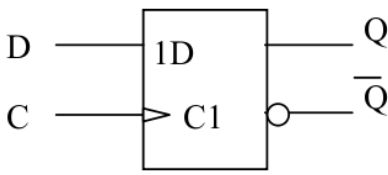
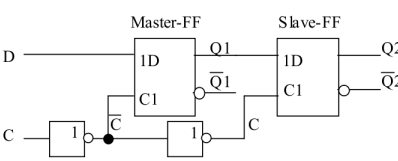
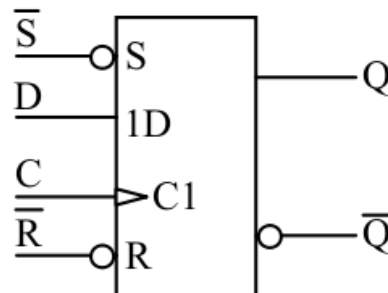
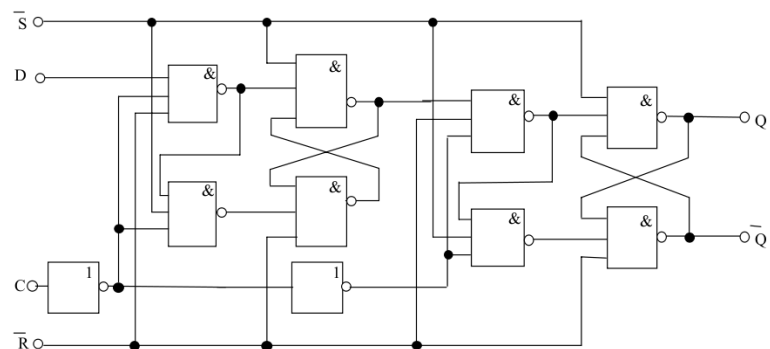
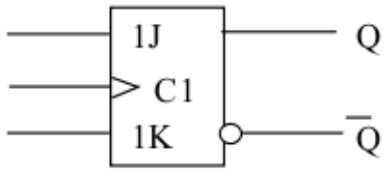
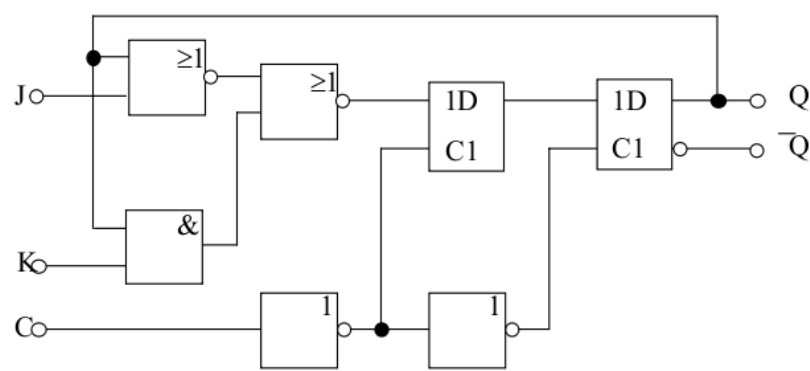
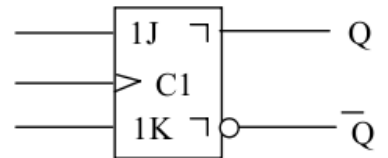
DIN-Symbol	Schaltbild mit Log. Symb.	Wahrheitstabelle																				
 RS-Flip-Flop		<table><tr><th>S</th><th>R</th><th>Q</th><th>$\overline{Q}$</th></tr><tr><td>0</td><td>0</td><td>Q_{-1}</td><td>$\overline{Q}_{-1}$</td></tr><tr><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td><td>0</td></tr></table>	S	R	Q	$\overline{Q}$	0	0	Q_{-1}	$\overline{Q}_{-1}$	0	1	0	1	1	0	1	0	1	1	0	0
S	R	Q	$\overline{Q}$																			
0	0	Q_{-1}	$\overline{Q}_{-1}$																			
0	1	0	1																			
1	0	1	0																			
1	1	0	0																			
 $\overline{R}\overline{S}$-Flip-Flop		<table><tr><th>$\overline{S}$</th><th>$\overline{R}$</th><th>Q</th><th>$\overline{Q}$</th></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>Q_{-1}</td><td>$\overline{Q}_{-1}$</td></tr></table>	$\overline{S}$	$\overline{R}$	Q	$\overline{Q}$	0	0	1	1	0	1	1	0	1	0	0	1	1	1	Q_{-1}	$\overline{Q}_{-1}$
$\overline{S}$	$\overline{R}$	Q	$\overline{Q}$																			
0	0	1	1																			
0	1	1	0																			
1	0	0	1																			
1	1	Q_{-1}	$\overline{Q}_{-1}$																			

Taktzustandsgesteuerte RS-Flipflops

 Taktzustandsgestr. RS-FF		<table><tr><th>C</th><th>S</th><th>R</th><th>Q</th><th>$\bar{Q}$</th></tr><tr><td>0</td><td>x</td><td>x</td><td>Q_{-1}</td><td>$\bar{Q}_{-1}$</td></tr><tr><td>1</td><td>0</td><td>0</td><td>Q_{-1}</td><td>$\bar{Q}_{-1}$</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td></tr></table>	C	S	R	Q	$\bar{Q}$	0	x	x	Q_{-1}	$\bar{Q}_{-1}$	1	0	0	Q_{-1}	$\bar{Q}_{-1}$	1	0	1	0	1	1	1	0	1	0	1	1	1	0	0
C	S	R	Q	$\bar{Q}$																												
0	x	x	Q_{-1}	$\bar{Q}_{-1}$																												
1	0	0	Q_{-1}	$\bar{Q}_{-1}$																												
1	0	1	0	1																												
1	1	0	1	0																												
1	1	1	0	0																												
		<table><tr><th>C</th><th>S'</th><th>R'</th><th>Q</th><th>$\bar{Q}$</th></tr><tr><td>0</td><td>x</td><td>x</td><td>Q_{-1}</td><td>$\bar{Q}_{-1}$</td></tr><tr><td>1</td><td>0</td><td>0</td><td>Q_{-1}</td><td>$\bar{Q}_{-1}$</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>	C	S'	R'	Q	$\bar{Q}$	0	x	x	Q_{-1}	$\bar{Q}_{-1}$	1	0	0	Q_{-1}	$\bar{Q}_{-1}$	1	0	1	0	1	1	1	0	1	0	1	1	1	1	1
C	S'	R'	Q	$\bar{Q}$																												
0	x	x	Q_{-1}	$\bar{Q}_{-1}$																												
1	0	0	Q_{-1}	$\bar{Q}_{-1}$																												
1	0	1	0	1																												
1	1	0	1	0																												
1	1	1	1	1																												

 D-Flip-Flop	 <table><tr><th>C</th><th>D</th><th>Q</th><th>$\overline{Q}$</th></tr><tr><td>0</td><td>x</td><td>Q_{-1}</td><td>$\overline{Q}_{-1}$</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td></tr></table>	C	D	Q	$\overline{Q}$	0	x	Q_{-1}	$\overline{Q}_{-1}$	1	0	0	1	1	1	1	0														
C	D	Q	$\overline{Q}$																												
0	x	Q_{-1}	$\overline{Q}_{-1}$																												
1	0	0	1																												
1	1	1	0																												
 RS-Master-Slave-FF																															
 JK-Flip-Flop (taktzustandsgesteuert)	 <table><tr><th>C</th><th>J</th><th>K</th><th>Q</th><th>$\overline{Q}$</th></tr><tr><td>0</td><td>x</td><td>x</td><td>Q_{-1}</td><td>$\overline{Q}_{-1}$</td></tr><tr><td></td><td>0</td><td>0</td><td>Q_{-1}</td><td>$\overline{Q}_{-1}$</td></tr><tr><td></td><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td></td><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td></td><td>1</td><td>1</td><td>$\overline{Q}_{-1}$</td><td>Q_{-1}</td></tr></table>	C	J	K	Q	$\overline{Q}$	0	x	x	Q_{-1}	$\overline{Q}_{-1}$		0	0	Q_{-1}	$\overline{Q}_{-1}$		0	1	0	1		1	0	1	0		1	1	$\overline{Q}_{-1}$	Q_{-1}
C	J	K	Q	$\overline{Q}$																											
0	x	x	Q_{-1}	$\overline{Q}_{-1}$																											
	0	0	Q_{-1}	$\overline{Q}_{-1}$																											
	0	1	0	1																											
	1	0	1	0																											
	1	1	$\overline{Q}_{-1}$	Q_{-1}																											

Taktflankengesteuerte Flip-flops

 Einflankengestr. D-FF		<table> <tr> <th>C</th> <th>D</th> <th>Q</th> <th>$\bar{Q}$</th> </tr> <tr> <td>0</td> <td>x</td> <td>Q_{-1}</td> <td>$\bar{Q}_{-1}$</td> </tr> <tr> <td>1</td> <td>x</td> <td>Q_{-1}</td> <td>$\bar{Q}_{-1}$</td> </tr> <tr> <td>$\downarrow$</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>$\downarrow$</td> <td>1</td> <td>1</td> <td>0</td> </tr> </table>	C	D	Q	$\bar{Q}$	0	x	Q_{-1}	$\bar{Q}_{-1}$	1	x	Q_{-1}	$\bar{Q}_{-1}$	$\downarrow$	0	0	1	$\downarrow$	1	1	0
C	D	Q	$\bar{Q}$																			
0	x	Q_{-1}	$\bar{Q}_{-1}$																			
1	x	Q_{-1}	$\bar{Q}_{-1}$																			
$\downarrow$	0	0	1																			
$\downarrow$	1	1	0																			
 Einflankengestr. D-FF mit asynchronen S,R-Eingängen																						
 Einflankengestr. JK-FF																						
 Zweiflankengestr. JK-FF	