

# Триггеры типа RS

## Синтез асинхронного триггера типа RS

### Таблицы и словарь переходов

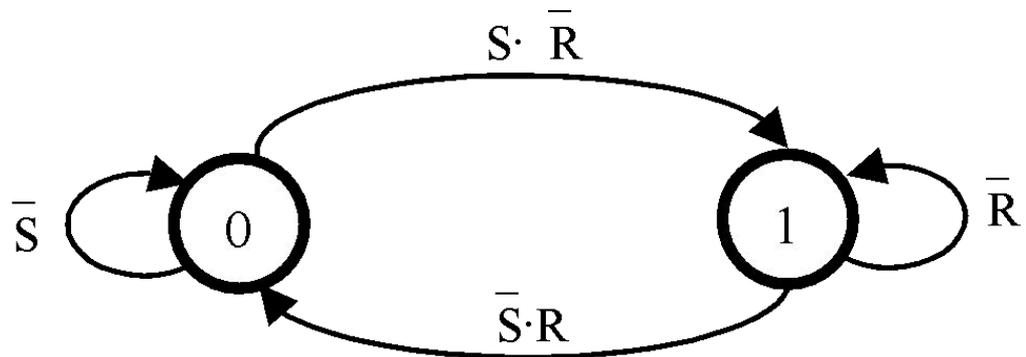
j	S	R	Q	Q <sup>+</sup>
0	0	0	0	0
1	0	0	1	1
2	0	1	0	0
3	0	1	1	0
4	1	0	0	1
5	1	0	1	1
6	1	1	0	*
7	1	1	1	*

S	R	Q <sup>+</sup>
0	0	Q
0	1	0
1	0	1
1	1	*

Переход Q→Q <sup>+</sup>	S	R
0→0	0	*
0→1	1	0
1→0	0	1
1→1	*	0

		S R			
		00	01	11	10
Q	0	0	0	*	1
	1	1	0	*	1

a)



б)

Рис. 3.2

$$Q^+ = \overline{R \vee \overline{S \vee Q}}$$

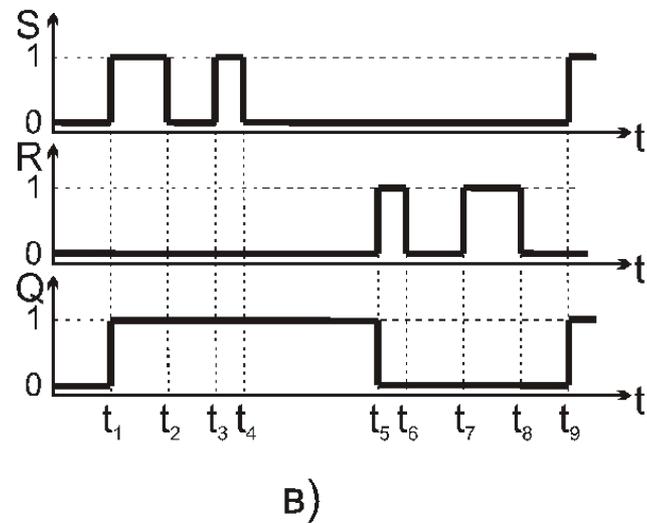
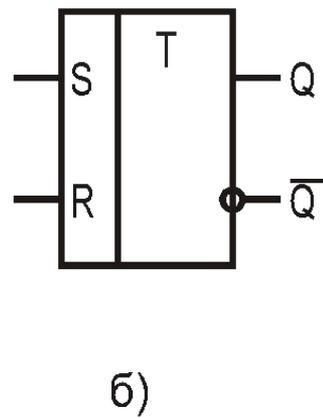
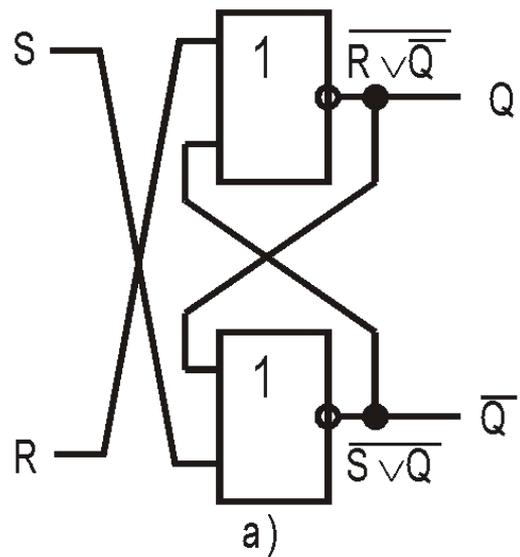


Рис. 3.3.

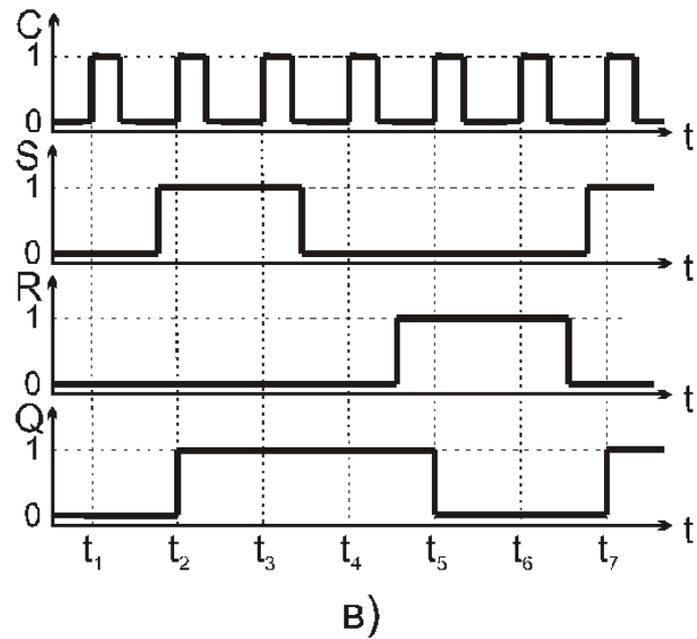
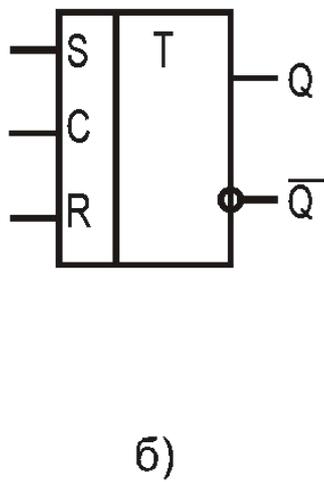
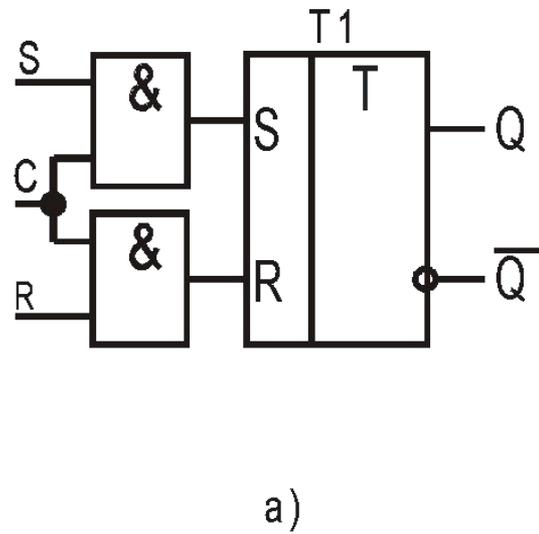


Рис. 3.4.

# двухтактный триггера типа RS

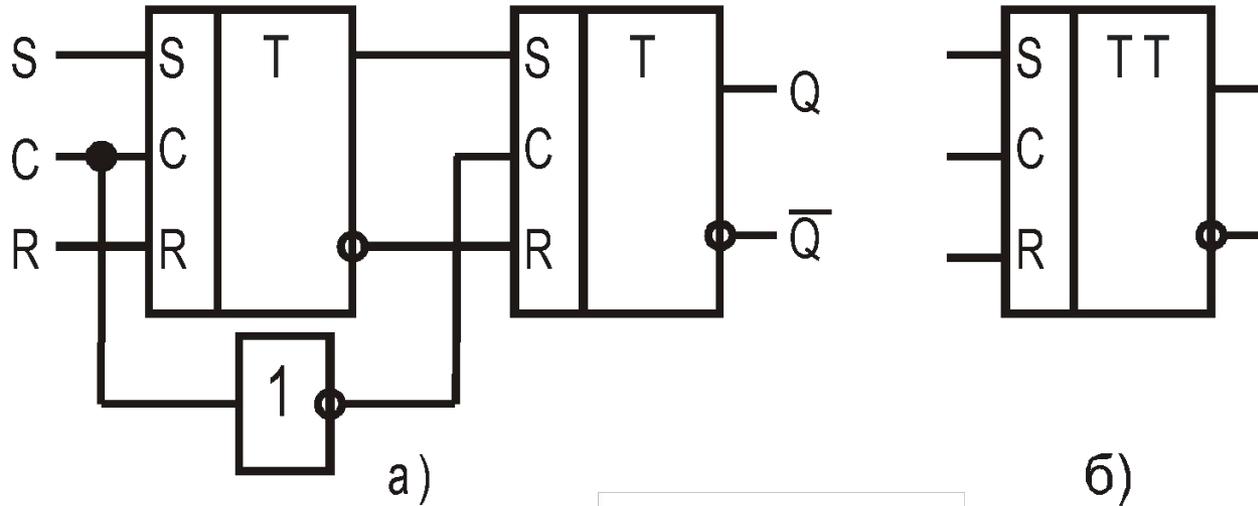


Рис. 3.5.

# Триггеры типа JK

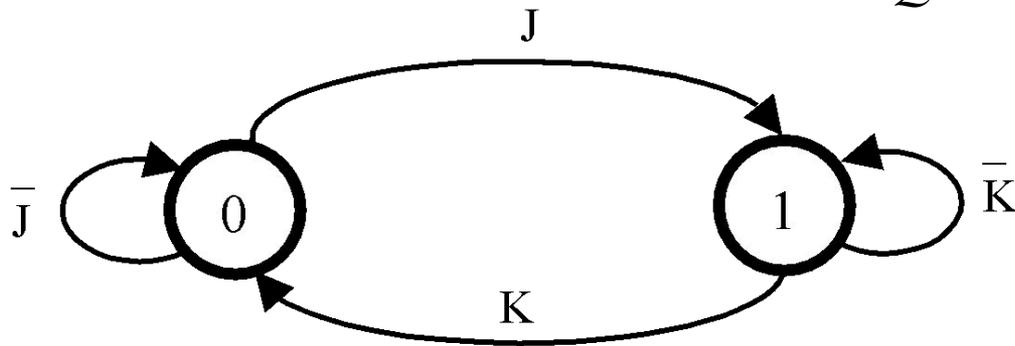
Таблица 3.4

J	K	$Q^+$
0	0	Q
0	1	0
1	0	1
1	1	$\bar{Q}$

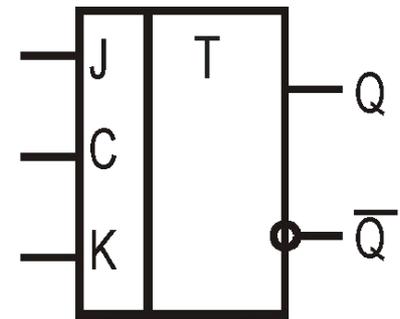
Таблица 3.5

Переход $Q \rightarrow Q^+$	J	K
$0 \rightarrow 0$	0	*
$0 \rightarrow 1$	1	*
$1 \rightarrow 0$	*	1
$1 \rightarrow 1$	*	0

$$Q^+ = J\bar{Q} \vee \bar{K}Q$$



а)



б)

Рис. 3.6.

# Триггеры типа Т

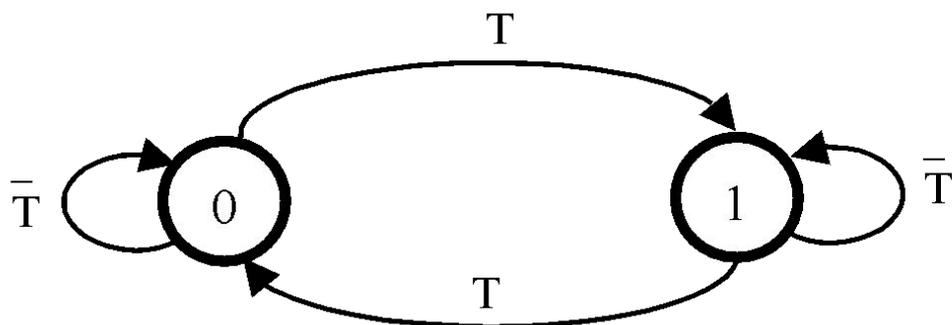
Таблица 3.6

T	$Q^+$
0	Q
1	$\bar{Q}$

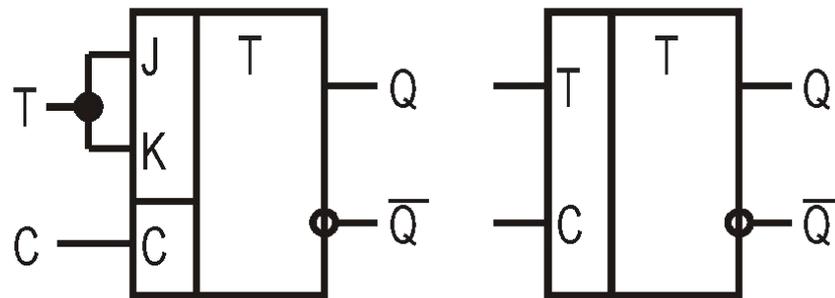
Таблица 3.7

Переход $Q \rightarrow Q^+$	T
0 → 0	0
0 → 1	1
1 → 0	1
1 → 1	0

$$Q^+ = T\bar{Q} \vee \bar{T}Q$$



а)



б)

в)

Рис. 3.7.

# Триггеры типа D

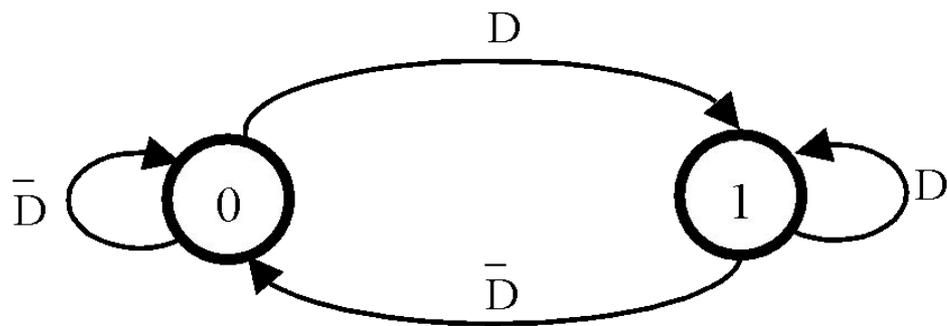
Таблица 3.8

D	$Q^+$
0	0
1	1

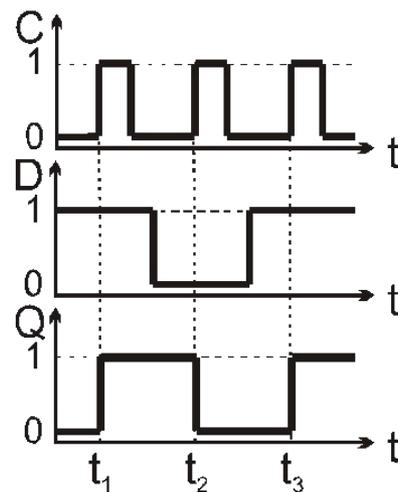
Таблица 3.9

Переход $Q \rightarrow Q^+$	D
$0 \rightarrow 0$	0
$0 \rightarrow 1$	1
$1 \rightarrow 0$	0
$1 \rightarrow 1$	1

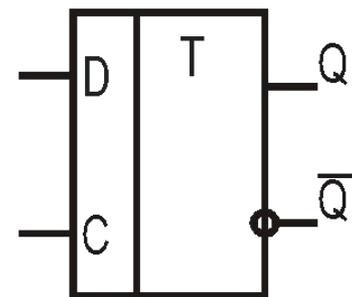
$$Q^+ = D$$



а)



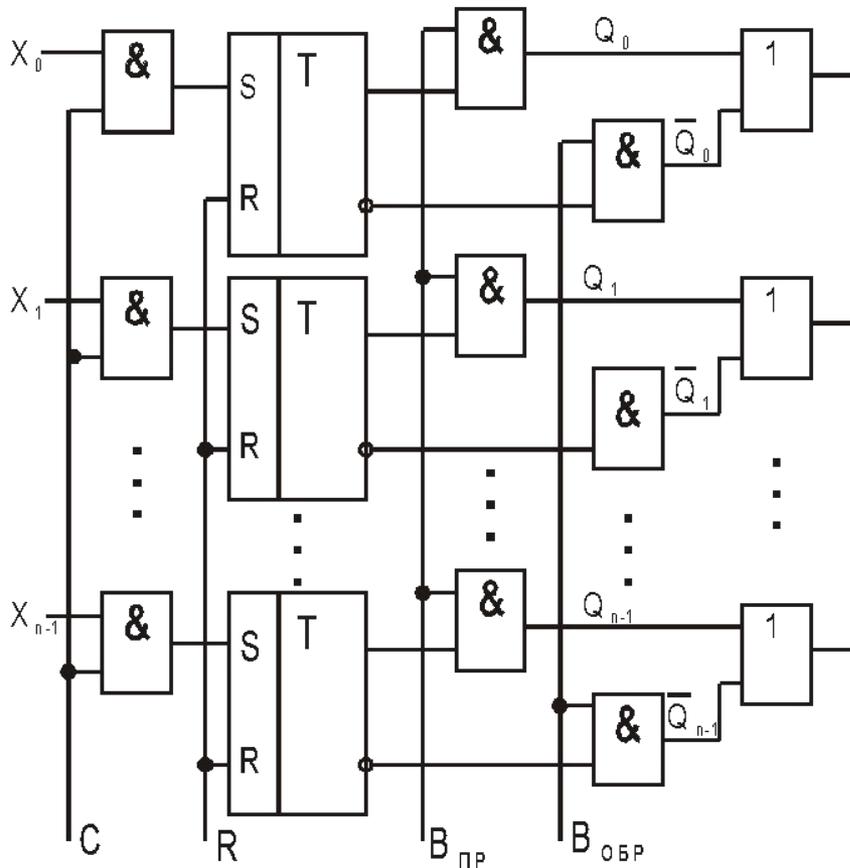
б)



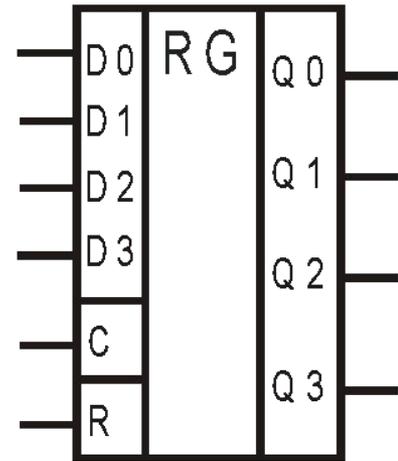
в)

Рис. 3.8.

# Регистры



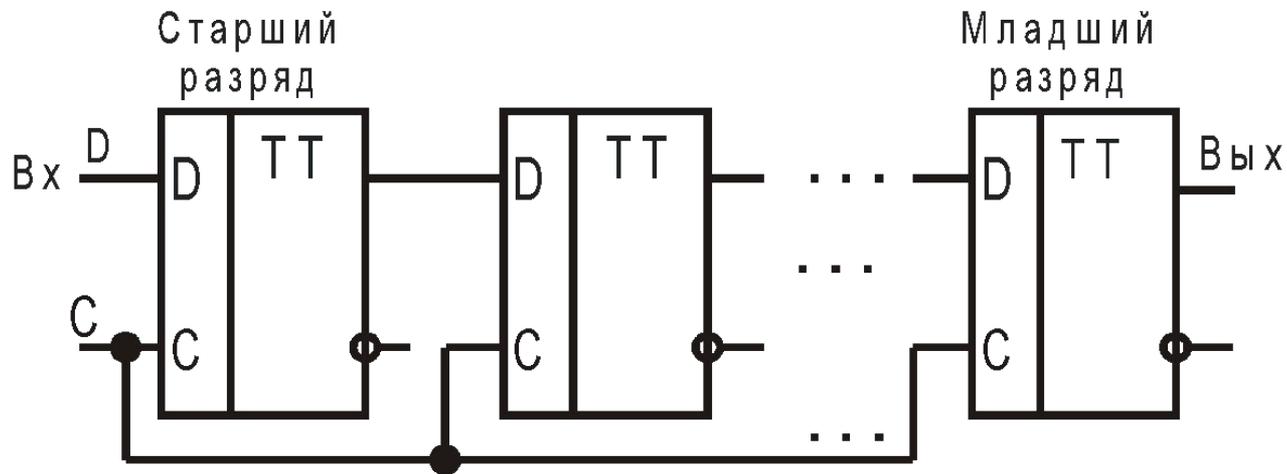
а)



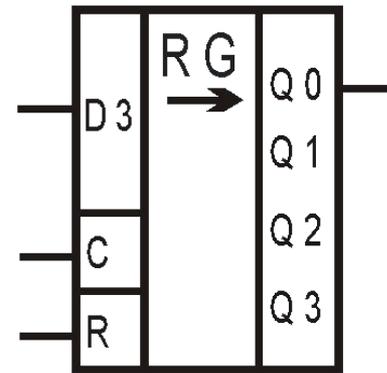
б)

Рис 39

# Регистры сдвига



а)



б)

Рис. 3.10.

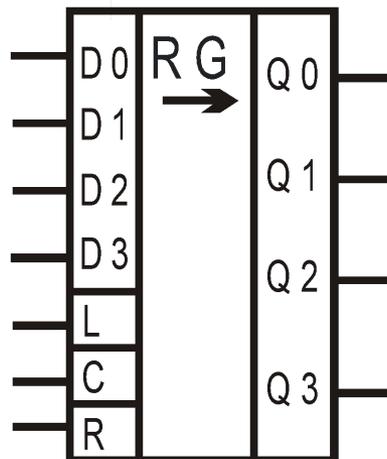


Рис. 3.11

# Счётчики

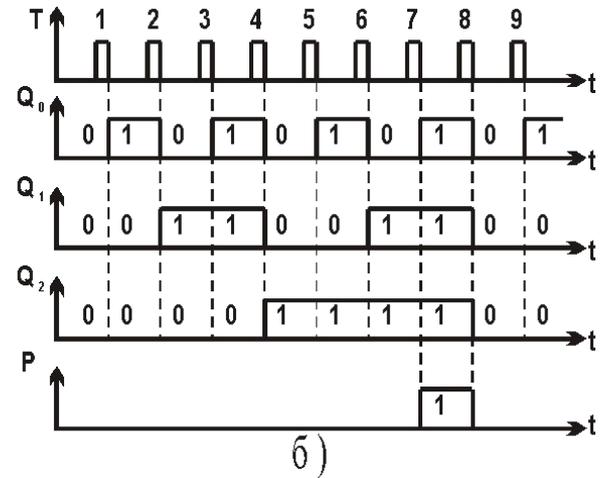
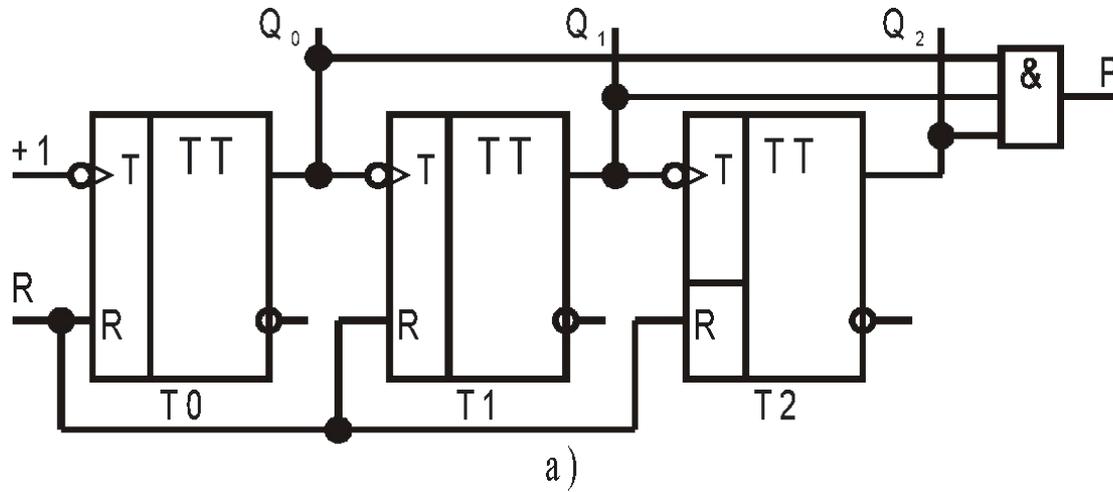
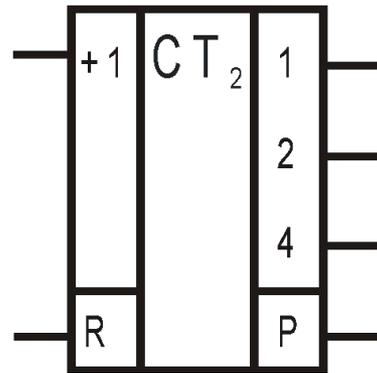
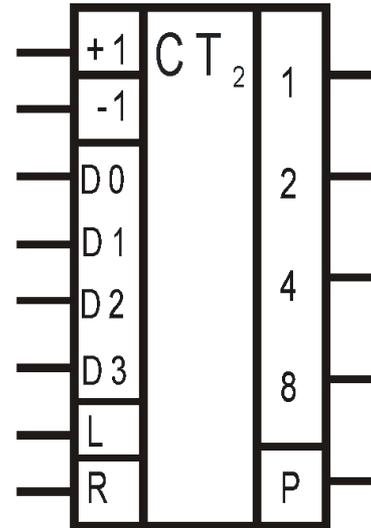


Рис. 3. 12.



а)



б)

Рис. 3.13.

