Bahan Ajar

Chapter 7

Materi Pembelajaran

Matakuliah :

DESAIN DAN SIMULASI RANGKAIAN ELEKTRONIKA

Kode Matakuliah : SKO 20425

Prodi : SISTEM KOMPUTER

Dosen Pengampu Matakuliah:

Bayu Nugroho, S.Kom., M.Eng

Chapter 7

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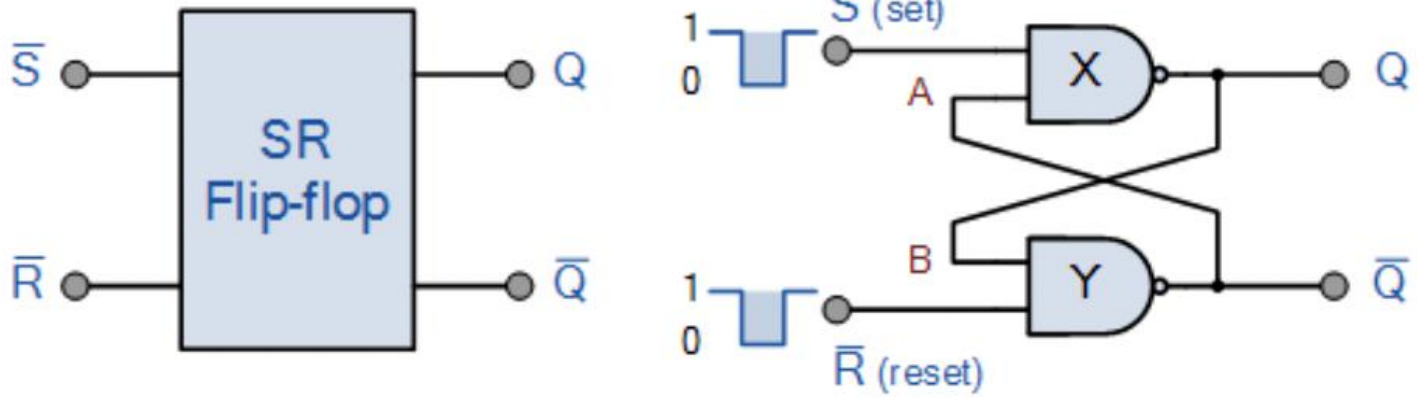
Flip Flop (SR Flip Flop)

The SR flip-flop, also known as a SR Latch, can be considered as one of the most basic sequential logic circuit possible.

This simple flip-flop is basically a one-bit memory bistable device that has two inputs, one which will “SET” the device (meaning the output = “1”), and is labelled S and one which will “RESET” the device (meaning the output = “0”), labelled R.

Flip Flop (SR Flip Flop)

The Basic SR Flip-flop



Symbol

Circuit

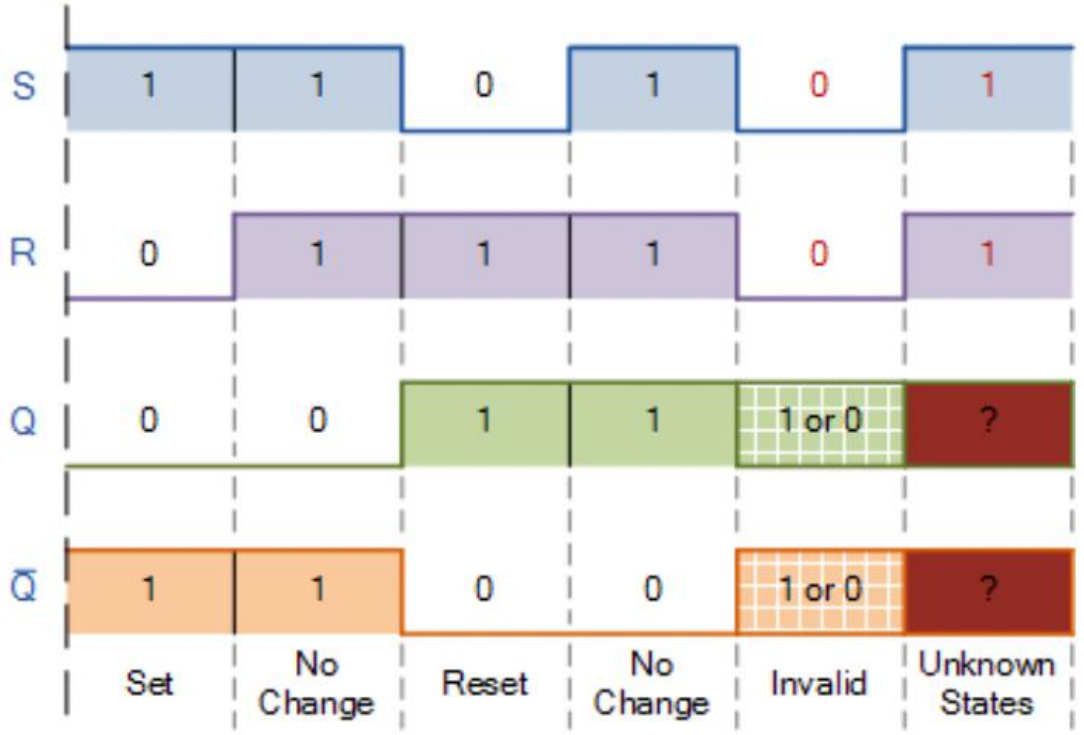
Flip Flop (SR Flip Flop)

Truth Table for this Set-Reset Function

State	S	R	Q	$\overline{Q}$	Description
Set	1	0	0	1	Set $\overline{Q}$ » 1
	1	1	0	1	no change
Reset	0	1	1	0	Reset $\overline{Q}$ » 0
	1	1	1	0	no change
Invalid	0	0	1	1	Invalid Condition

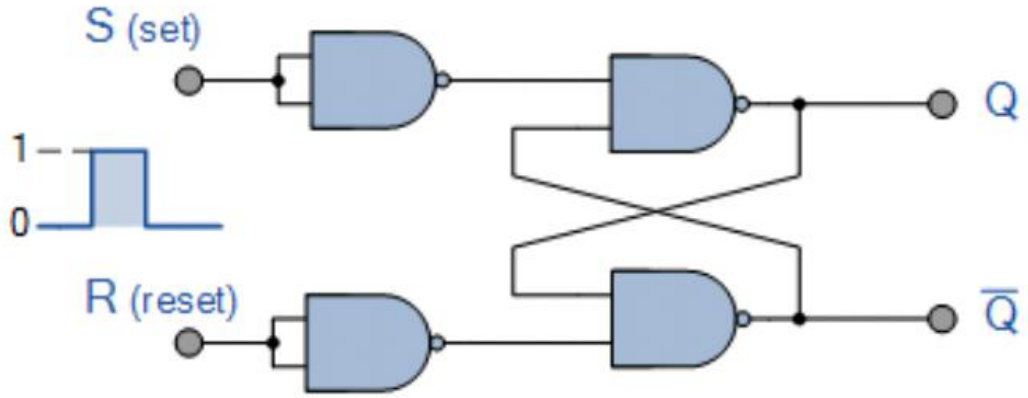
Flip Flop (SR Flip Flop)

S-R Flip-flop Switching Diagram



Positive NAND Gate SR Flip-flop

Positive NAND Gate SR Flip-flop

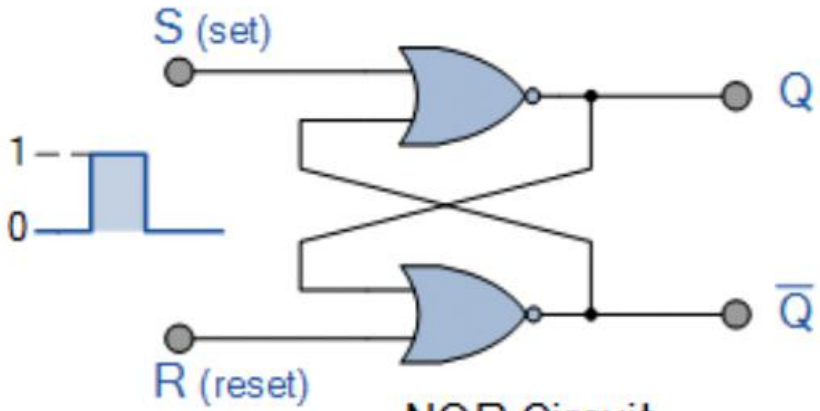


NAND Circuit

S	R	Q	$\overline{Q}$
0	0	No change	
0	1	0	1
1	0	1	0
1	1	X (Invalid)	X

The NOR Gate SR Flip-flop

The NOR Gate SR Flip-flop

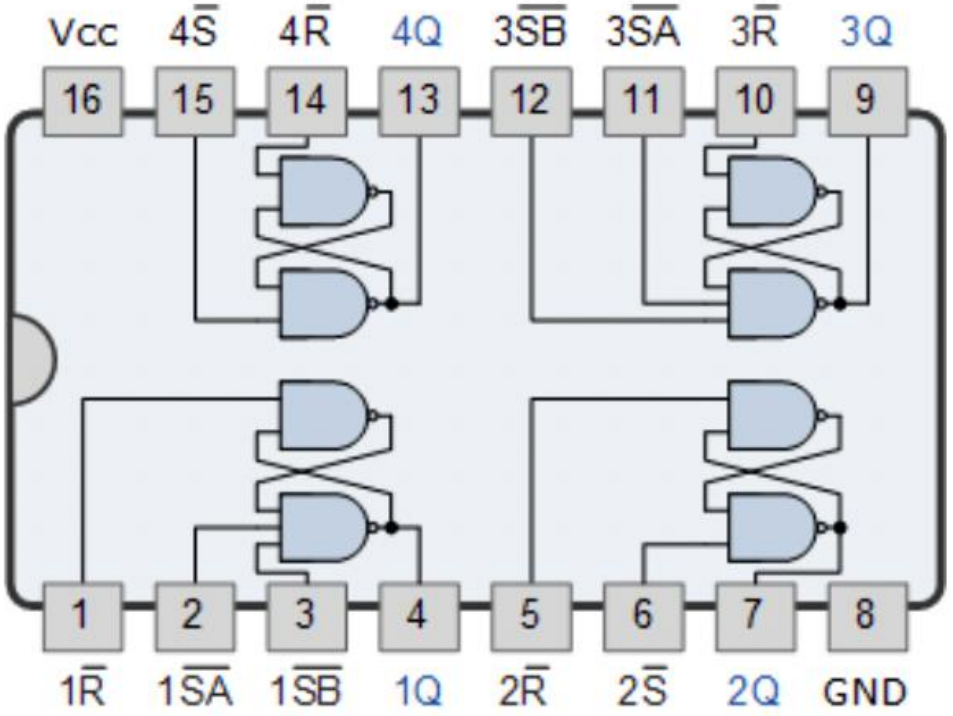


NOR Circuit

S	R	Q	$\overline{Q}$
0	0	No change	
0	1	1	0
1	0	0	1
1	1	X (Invalid)	X

Quad SR Bistable Latch 74LS279

Quad SR Bistable Latch 74LS279



Tugas Mandiri (teori):

Lakukan pembuatan skema rangkaian SR Flip Flop dengan LED menggunakan software simulator

Tugas Mandiri (prakt):

Lakukan Simulasi SR Flip Flop menggunakan software simulator dan jelaskan hasil simulasinya.

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