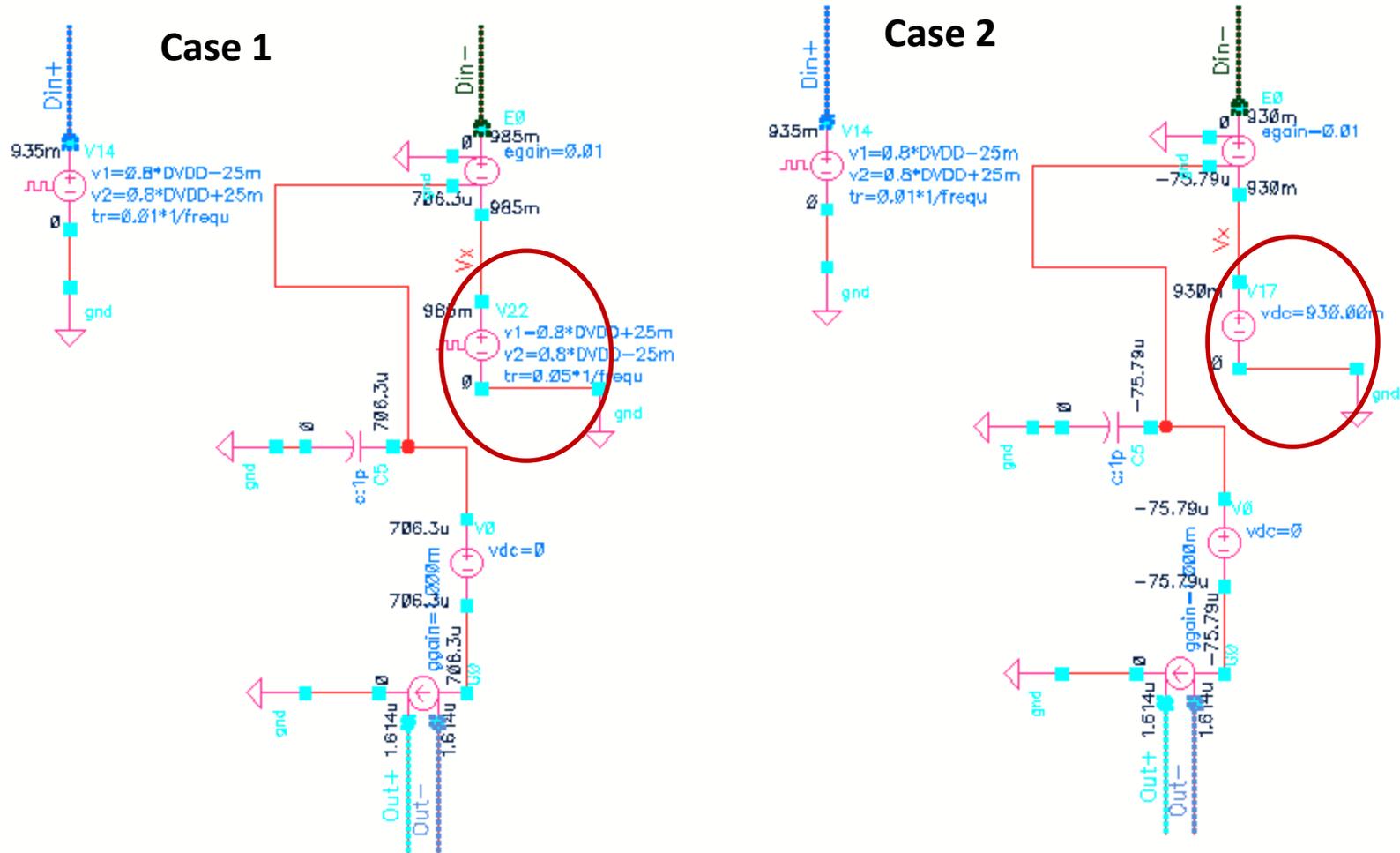


## Problem 2 Clarifications – Ref 3

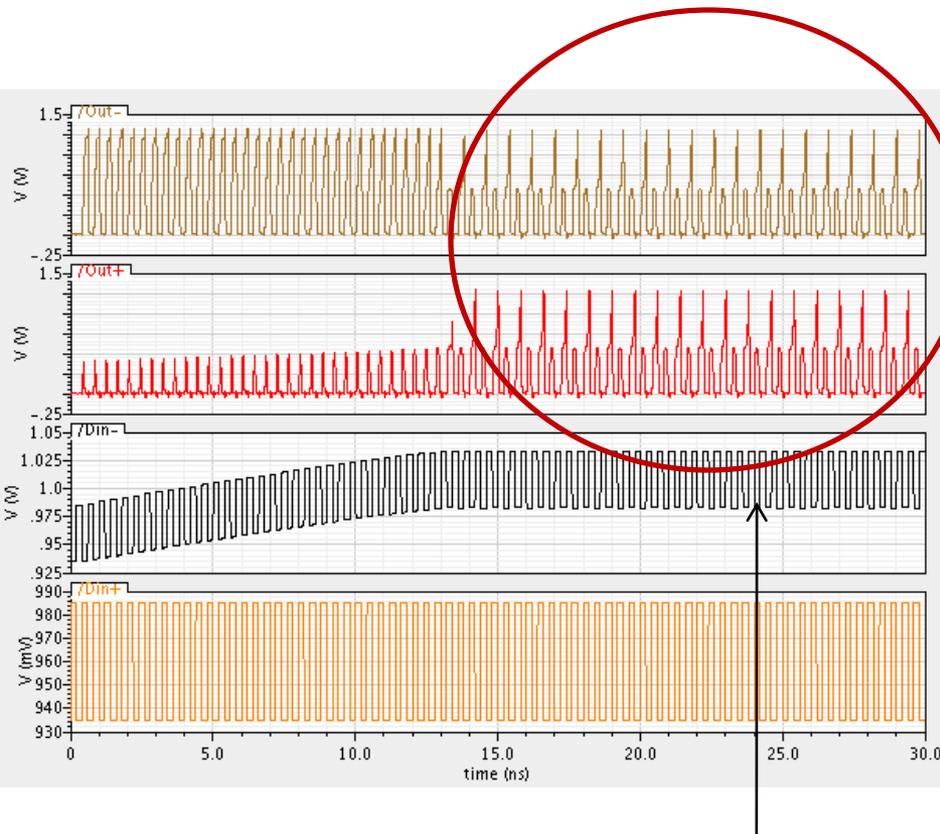
### 1. Find Metastable $V_{ms}(\tau) = V_{os}(t \rightarrow \infty, \tau)$ Such that $V(\text{out}+) = V(\text{out}-)$

- 1) Both Din+ and Din- have to be differential or 2) Din just DC voltage (ex 930mV)

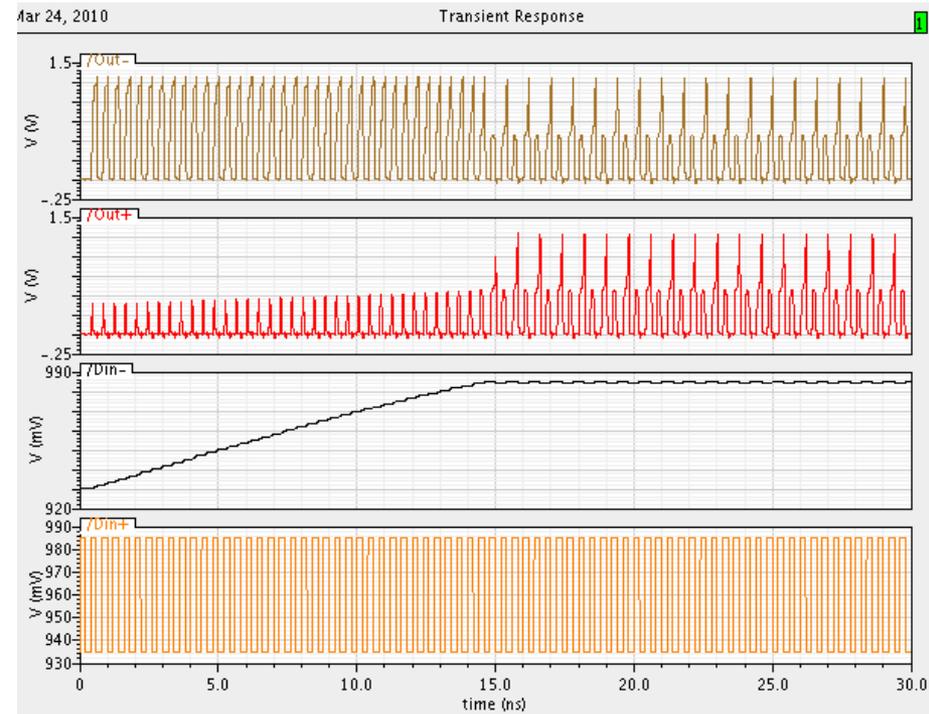
**This simulation without SR Latch**



## Case 1



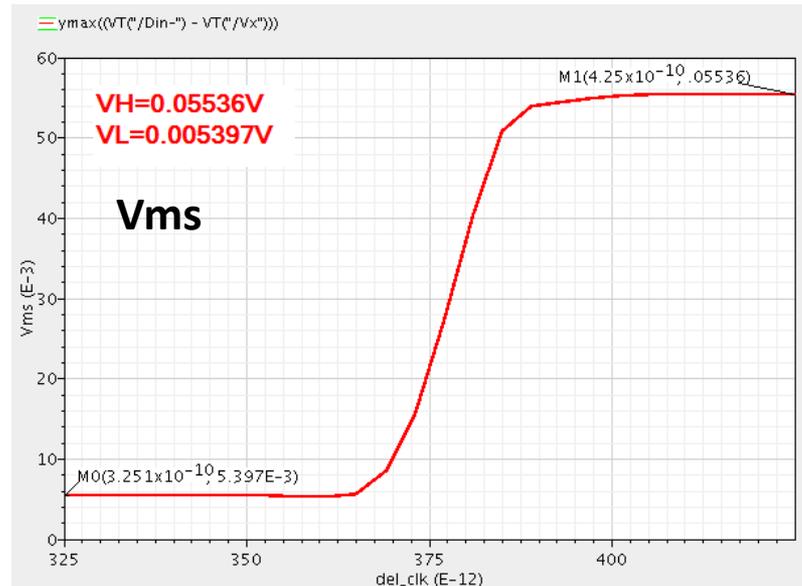
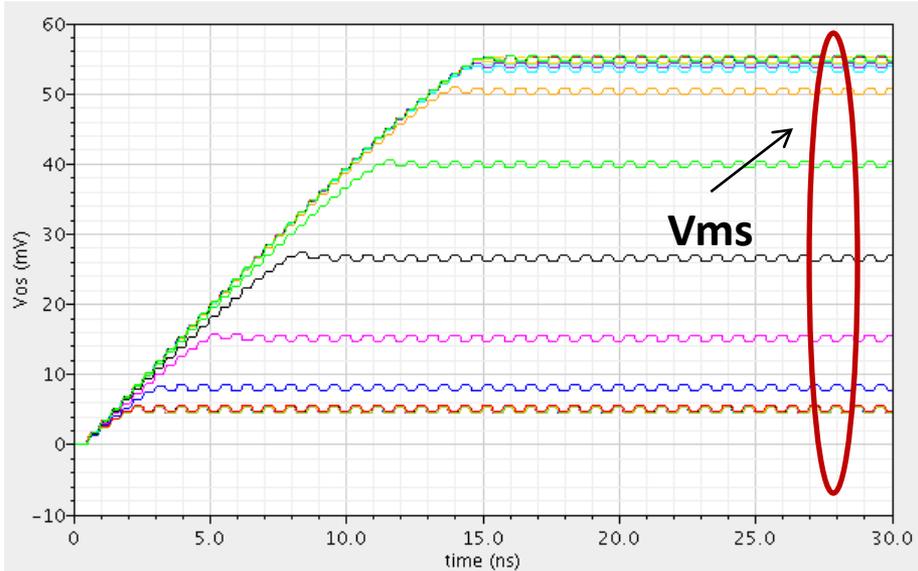
## Case 2



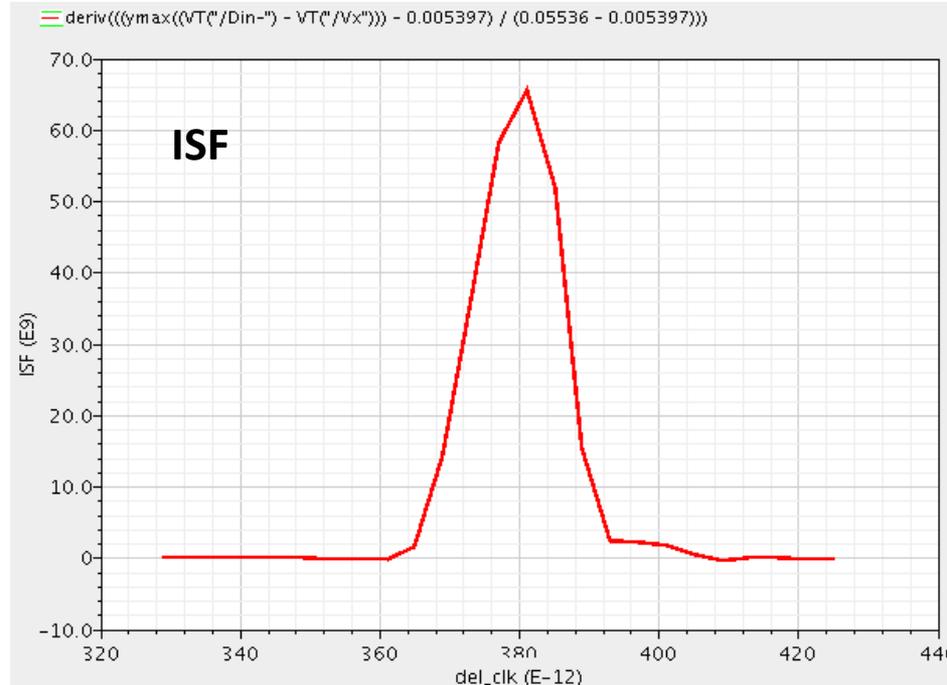
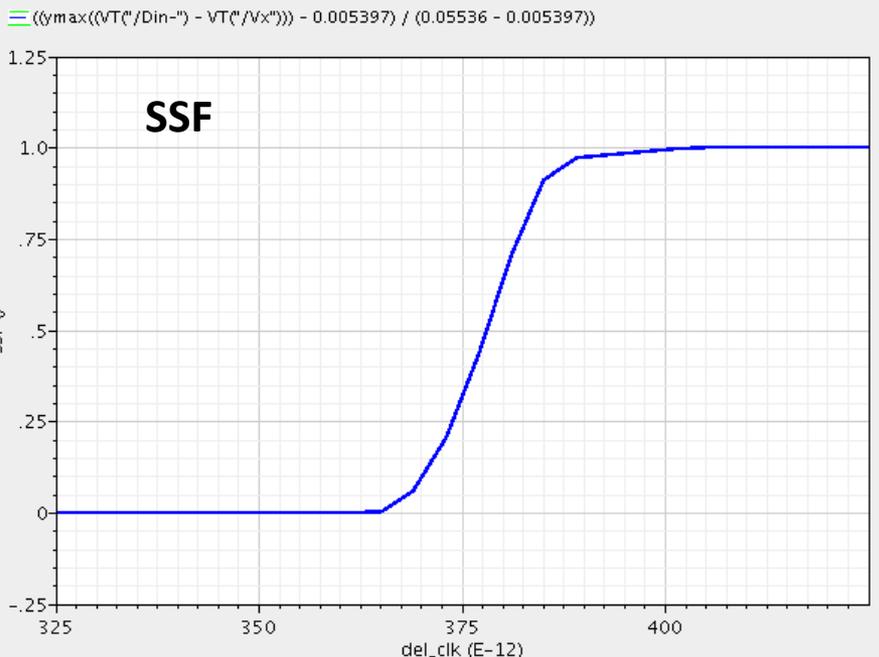
**Make sure that comparator is metastable as  $V_{os}$  settles**

**Either case we can get identical simulation result, and just do that takes less simulation time  
Following result based on Case 2.**

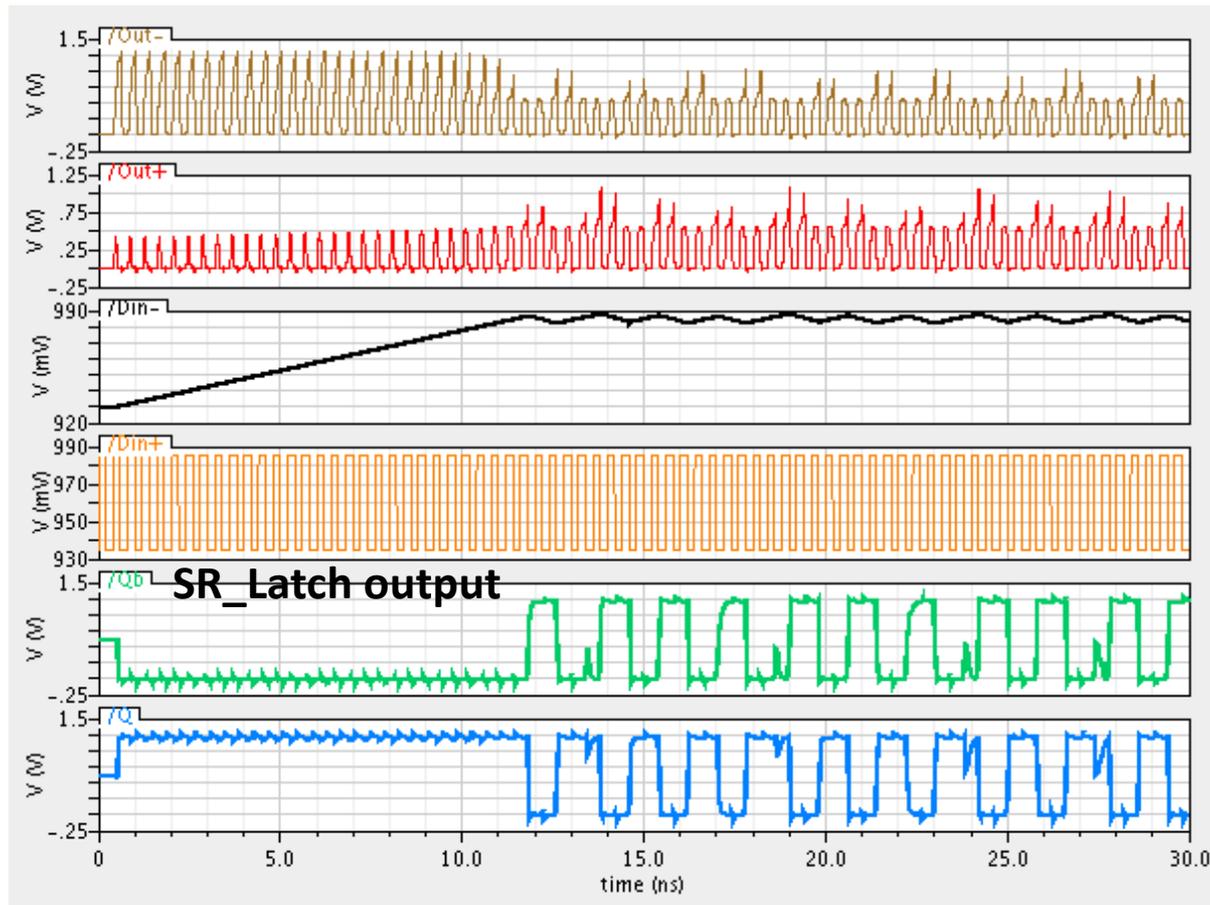
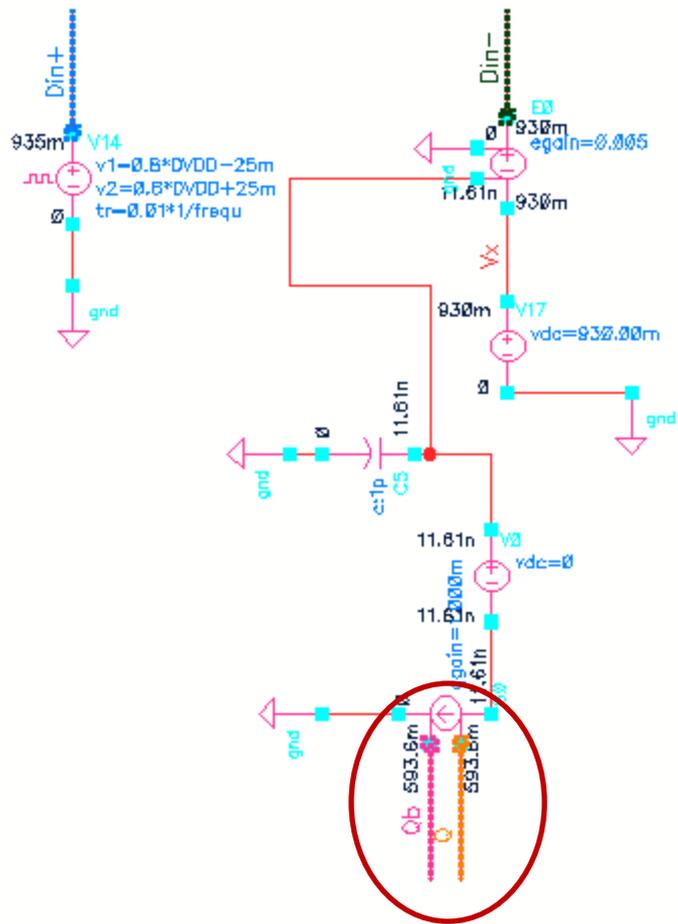
## 2. Measure Vms for varying (τ)



## 3. Derive ISF

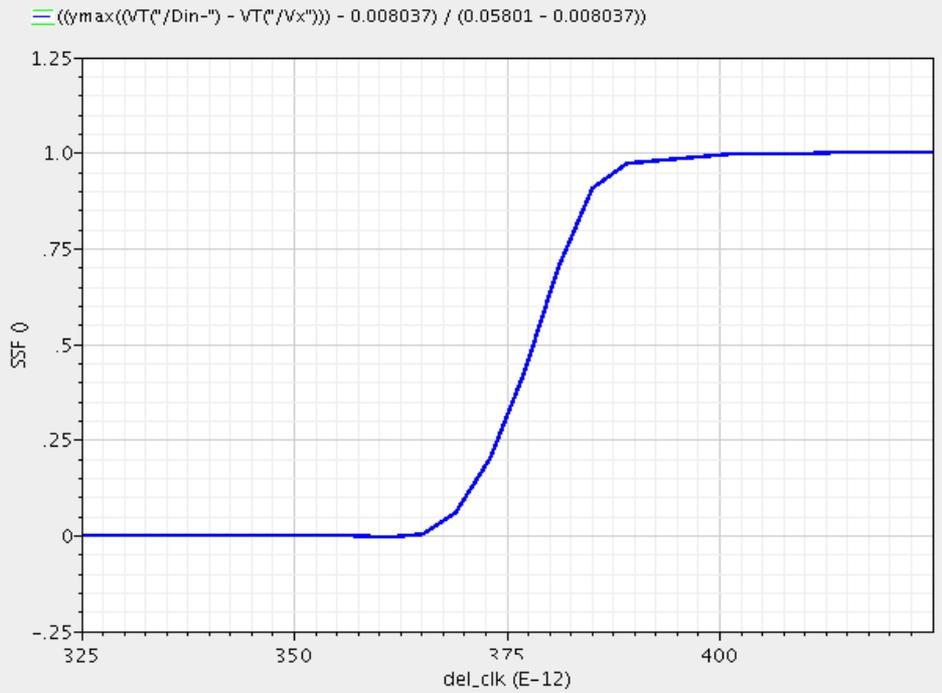


# This simulation with SR Latch



# This simulation with SR Latch

## SSF



## ISF

