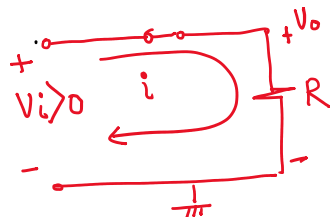
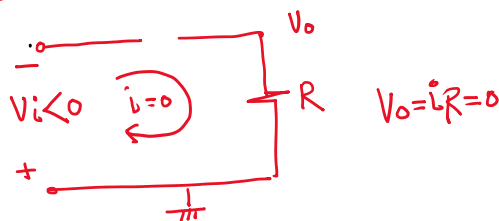


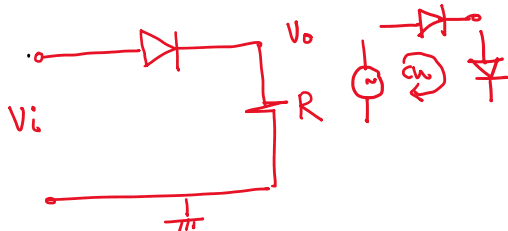
$0 < t < T/2, V_i > 0, +V_e \text{ H.C.}$   
 $V_o = V_i$



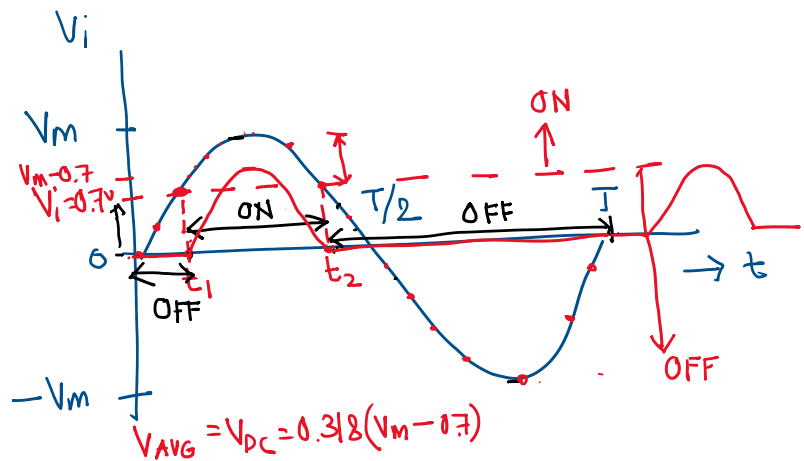
$T/2 < t < T, V_i < 0, -V_e \text{ H.C.}, V_o = 0$



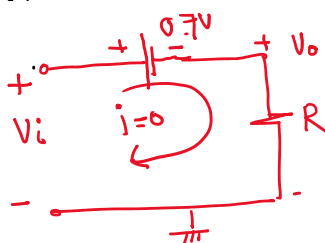
$S_i, V_D = 0.7V \text{ [F.B]}$



$V_i > 0.7V : \text{ON}$   
 $V_i < 0.7V : \text{OFF}$



Step 1: determine the transition state voltage



① transition  
 $V_D = 0.7$   
 $I_D = 0$

$$+V_i - 0.7 - iR = 0$$

$$\Rightarrow V_i = 0.7V$$

Step 2: draw the TSV line on the

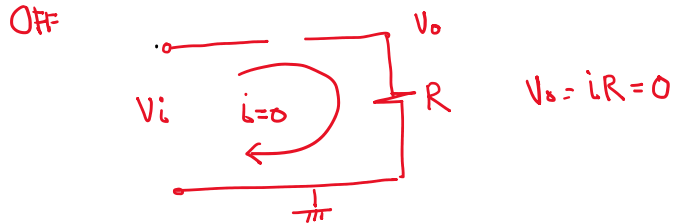
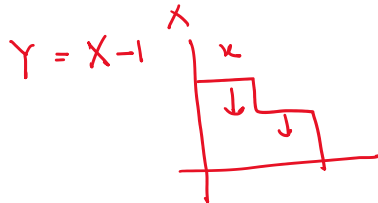
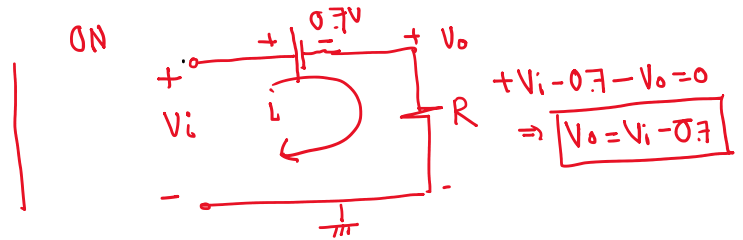
OFF  
 $i = 0$

ON  
 $V_D = 0.7V$   
 $i \neq 0$

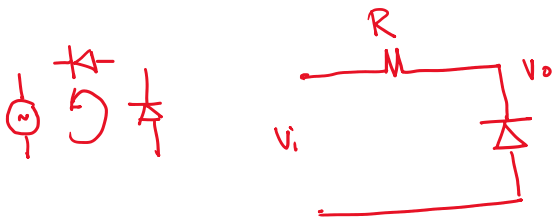
T.S.V  
 $V_D = 0.7V$   
 $i = 0$

Step 2: draw the TSV line on the Signal

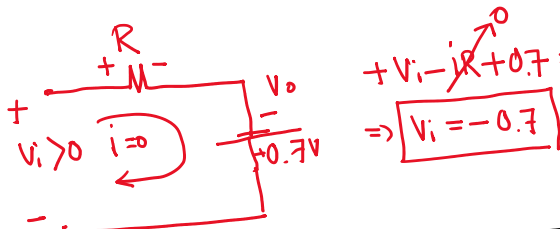
$0 < t < t_1, V_i < 0.7V$ : OFF  $V_o = 0V$   
 $t_1 < t < t_2, V_i > 0.7V$ : ON  $V_o = V_i - 0.7$   
 $t_2 < t < T, V_i < 0.7V$ : OFF  $V_o = 0V$



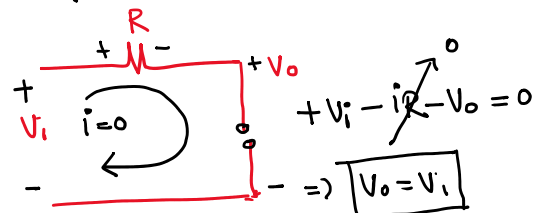
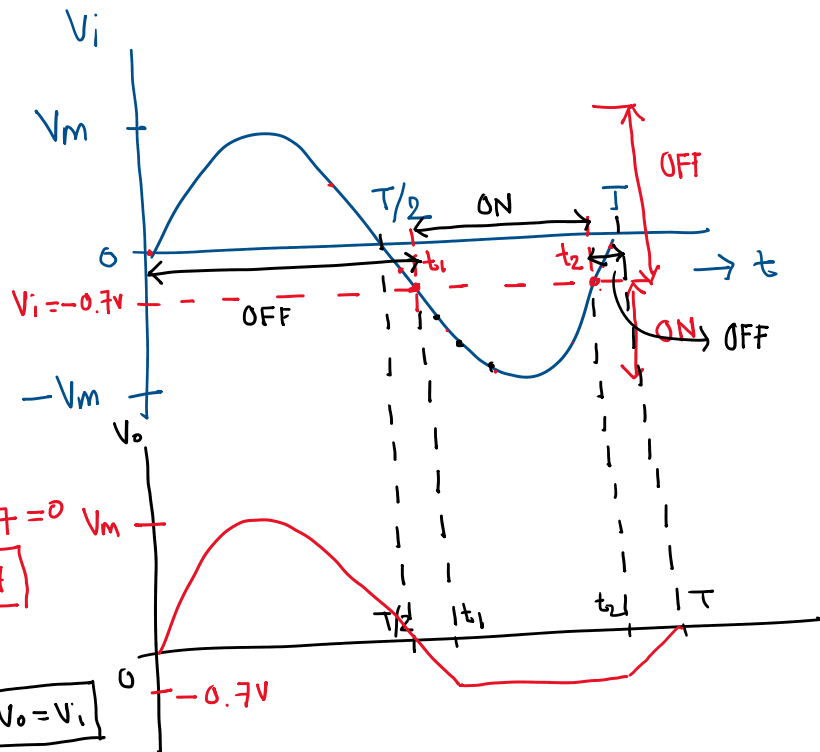
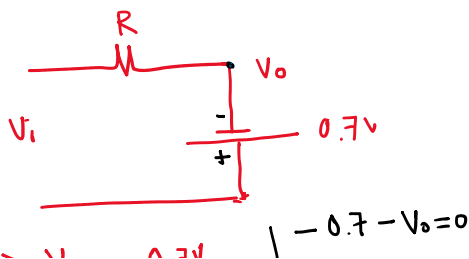
t	$V_i$	$V_o = V_i - 0.7$
$t_1$	0.7	$0.7 - 0.7 = 0$
$T/4$	$V_m$	$V_m - 0.7$
$t_2$	0.7	0



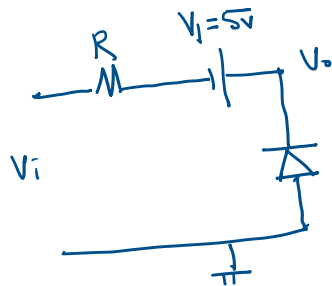
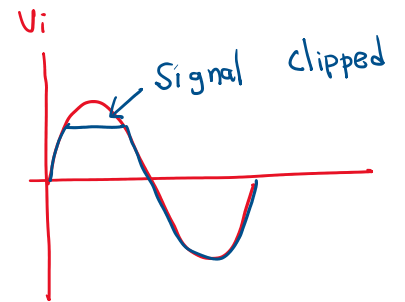
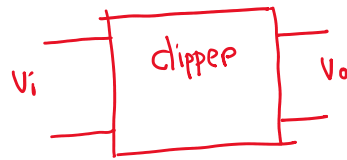
T.S.V.



$0 < t < t_1$  &  $t_2 < t < T, V_i > -0.7V$ , OFF  $V_o = V_i$   
 $t_1 < t < t_2, V_i < -0.7V$ , ON  $V_o = -0.7$



$$\begin{aligned}
 & \text{---} \downarrow \\
 & > V_o = -0.7V \quad \left| \begin{aligned} -0.7 - V_o &= 0 \\ \Rightarrow V_o &= -0.7 \end{aligned} \right.
 \end{aligned}$$



Full Wave Rectifier

