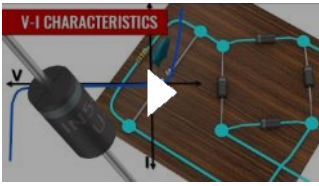


How does a Diode work?



ΤΕΤΑΡΤΗ 27/10/21

ΠΩΣ ΛΕΓΟΥΜΕ ΜΙΑ ΔΙΟΔΟΣ



ΗΛΕΚΤΡΙΚΑ ΙΣΩΔΥΝΑΜΑ

ΑΝΟΡΘΟΤΗΣ

ΔΙΠΛΑΞΙΑΕΤΗΣ ΤΑΣΗΣ

ΤΡΟΦΟΔΟΤΙΚΑ ΙΣΧΥΟΣ

ΠΕΡΙΟΡΙΣΤΗΣ ΤΑΣΗΣ

ΠΡΟΣΤΑΣΙΑ ΠΗΚΙΩΝ

ΓΙΑΤΙ ΔΕΝ "ΚΑΙΝΟΝΤΑΙ" ΕΠΙΧΟΡΑ ΟΙ ΔΙΟΔΟΙ

ΤΡΟΦΟΔΟΣΙΑ ΜΕ ΔΙΟΔΟΥΣ

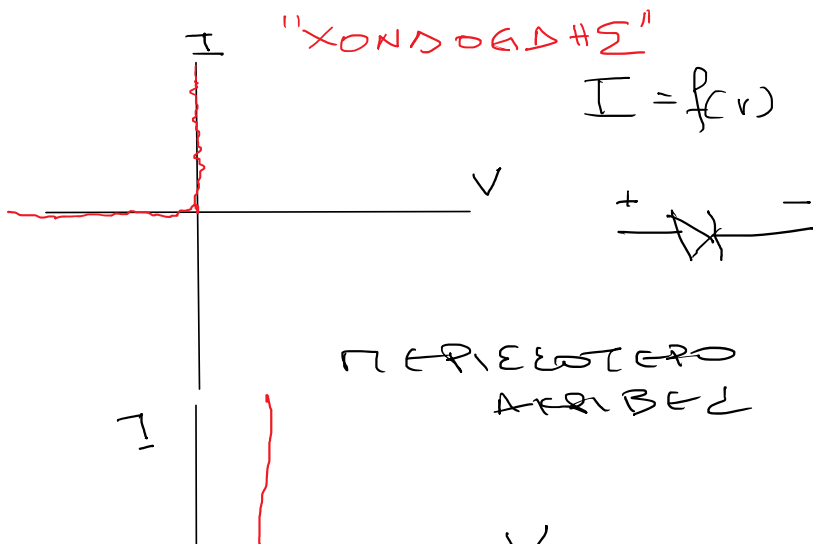
ΕΠΕΞΕΡΓΑΣΙΑ ΑΝΑΝΟΓΙΣΜΩΝ ΣΗΜΑΤΩΝ

ΥΦΗΛΙΑΚΕΣ ΠΥΛΕΣ

ΔΙΑΦΟΡΕΤΙΚΟΙ ΤΥΠΟΙ ΔΙΟΔΩΝ

Types of Diodes

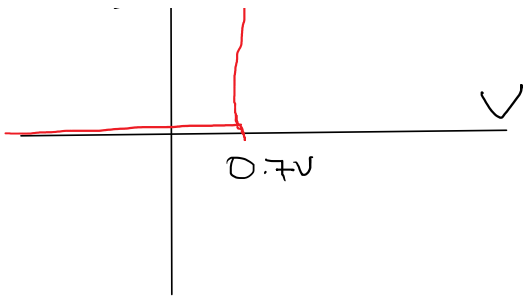
- Light Emitting Diode.
- Laser diode.
- Avalanche diode.
- Zener diode.
- Schottky diode.
- Photodiode.
- PN junction diode.



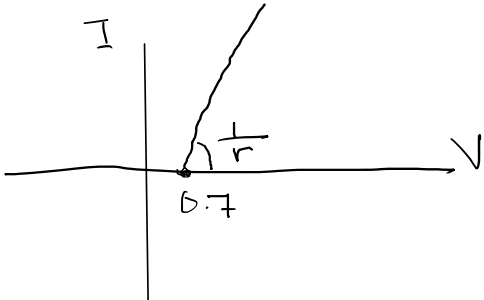
$I = \frac{1}{R} V$

$I = \begin{cases} 0, & V < 0 \\ +\infty, & V \geq 0 \end{cases}$

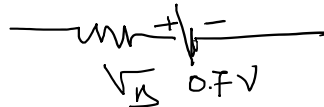
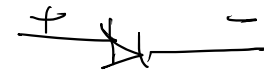
$I = \begin{cases} \phi, & V < 0.7 \\ +\infty, & V \geq 0.7 \end{cases}$



$$I = \begin{cases} 0, & V < 0.7 \\ \infty, & V \geq 0.7 \end{cases}$$



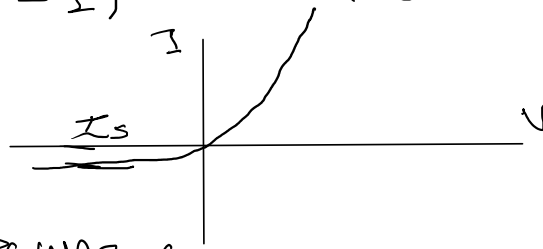
$$I = f(V) = \begin{cases} 0, & V < 0.7 \\ \frac{1}{r_d}, & V \geq 0.7 \end{cases}$$



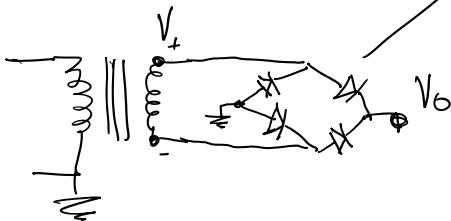
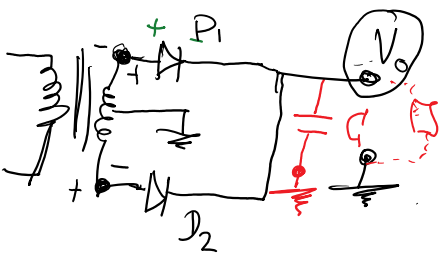
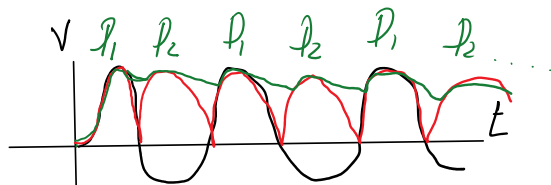
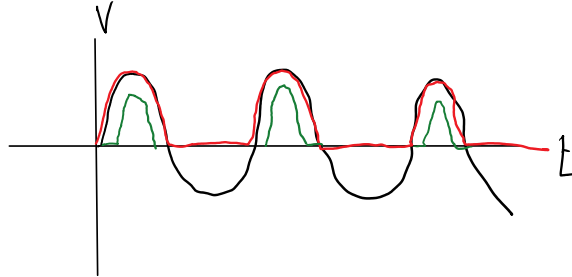
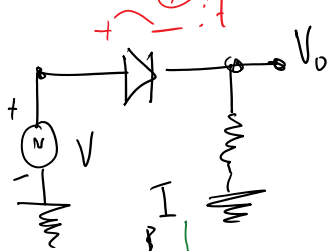
ΟΤΑΝ "ΑΓΕΙ"

$$I_D = I_S (e^{\frac{V}{V_T}} - 1)$$

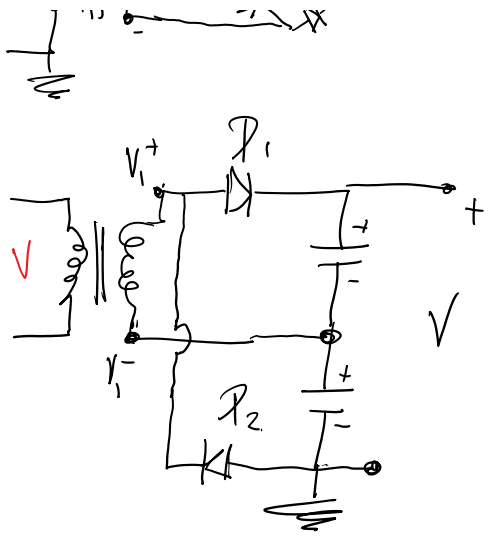
"ΠΑΡΑΡΕΣ" ΗΛΕΚΤΡΙΚΟ ΑΝΑΛΟΓΟ



ΑΝΟΡΘΩΣΗ ΠΕΡΙΜΑΤΟΣ



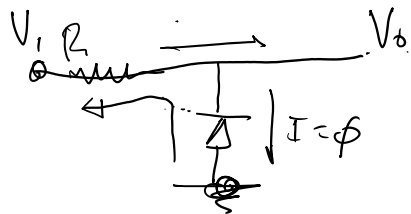
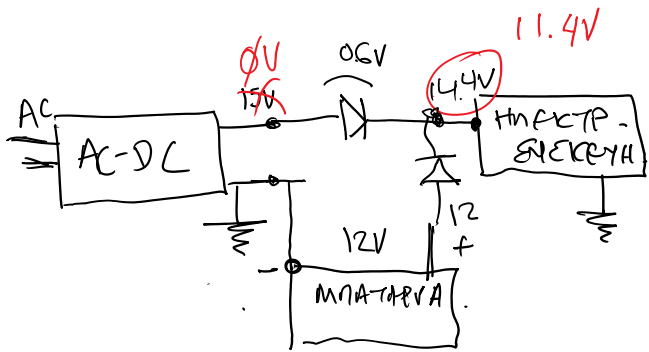
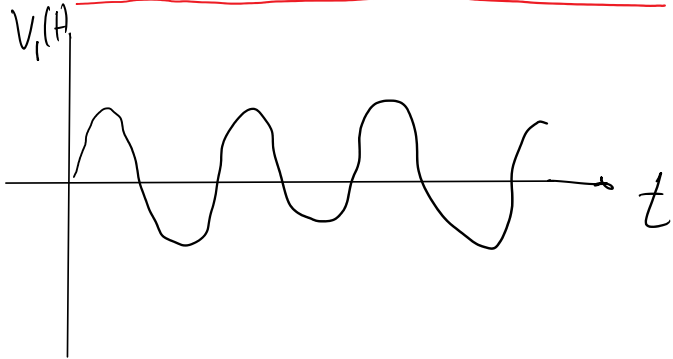
... ..



$$V = f(V_1^+ - V_1^-)$$

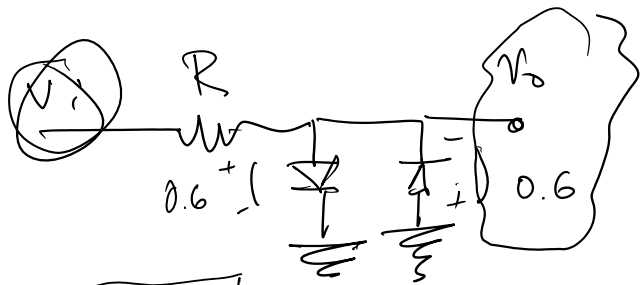
"премнож" (multiplier)

$$V = 2(V_1^+ - V_1^-)$$

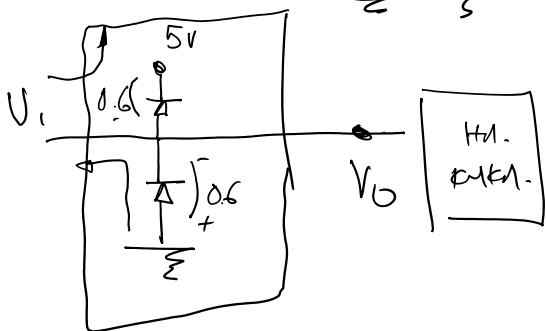


$$V_1 = 10V \rightarrow V_0 = 10V$$

$$V_1 = -10V \rightarrow V_0 = -0.6V$$



$$-0.6 \leq V \leq 0.6$$



$$-0.6 \leq V_0 \leq 5.6$$

$$V_0 = \begin{cases} V_1, & -0.6 \leq V_1 \leq 5.6 \\ -0.6, & V_1 < -0.6 \\ 5.6, & V_1 > 5.6 \end{cases}$$