Filter

Kerut (*ripple*).

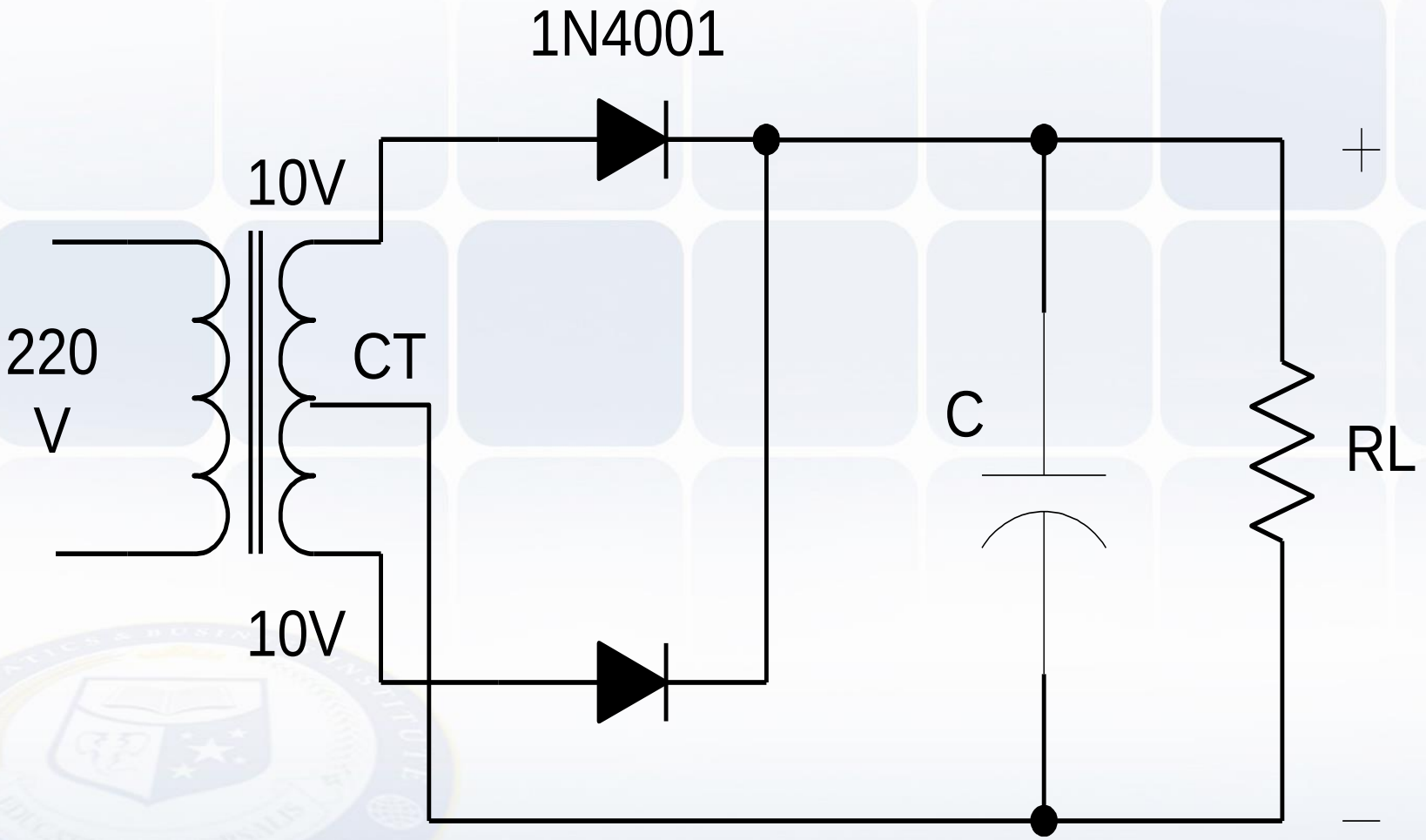
Filter *choke* dan kapasitor

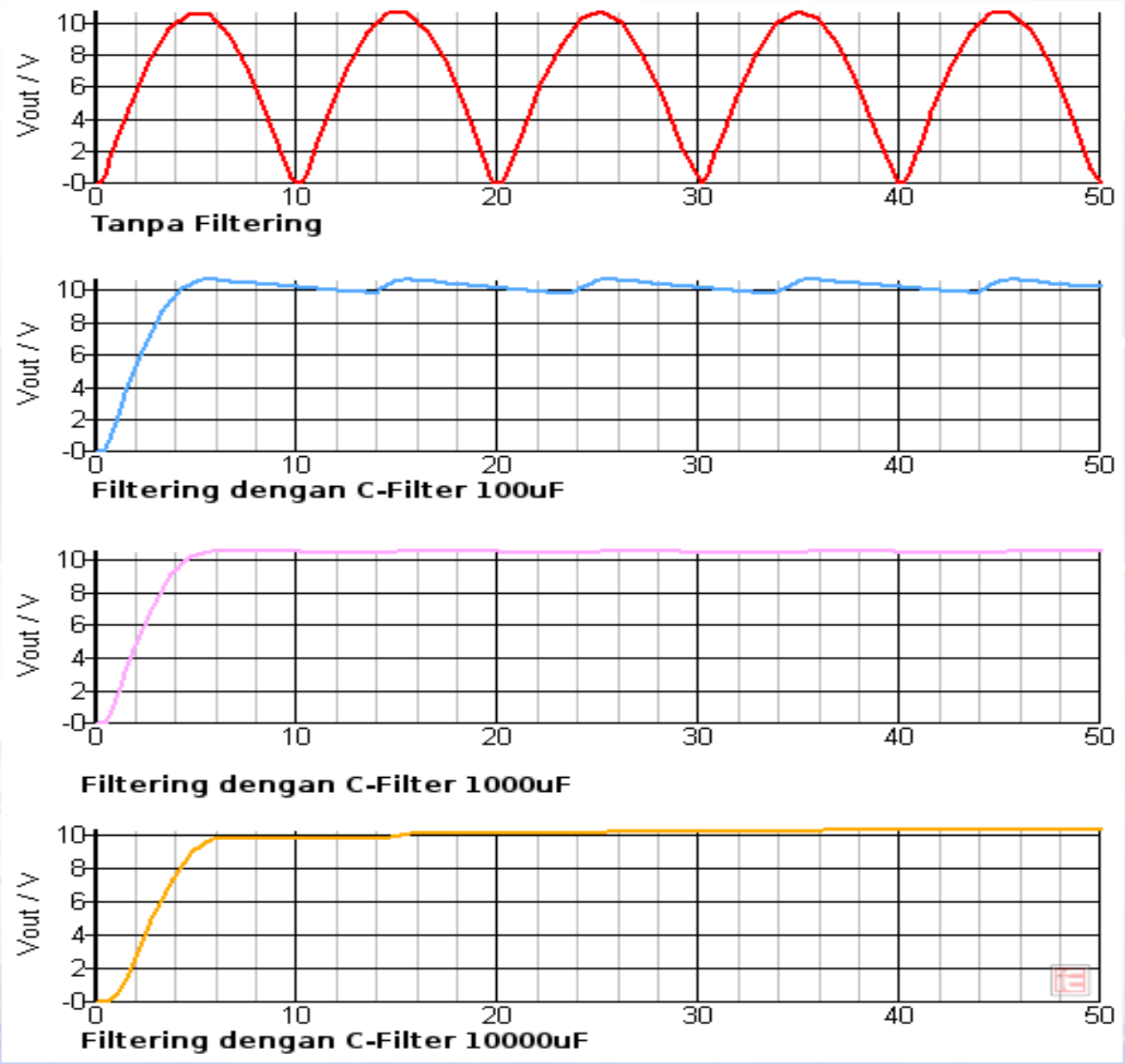
$X_L = 2\ \pi f\ L$

Sulit dilalui arus bolak-balik, reaktansi besar.

$X_C = 1 / 2\ \pi f\ C$

Mudah dilalui arus bolak-balik, reaktansi kecil


1N4001
10V
220
V
CT
10V
C
RL
+
—


Vout / V
10
8
6
4
2
-0
0
10
20
30
40
50
Tanpa Filtering
Vout / V
Filtering dengan C-Filter 100uF
Vout / V
Filtering dengan C-Filter 1000uF
Vout / V
Filtering dengan C-Filter 10000uF

Kondensator elektrolit tersedia kapasitas. PolaritasKapasitor

***ripple* puncak-ke puncak :**

$$V_R = I_L / fC$$

Di mana : V_R = tegangan *ripple*

I_L = Arus beban DC

f = frekuensi *ripple*

C = Kapasitas kapasitor

Contoh

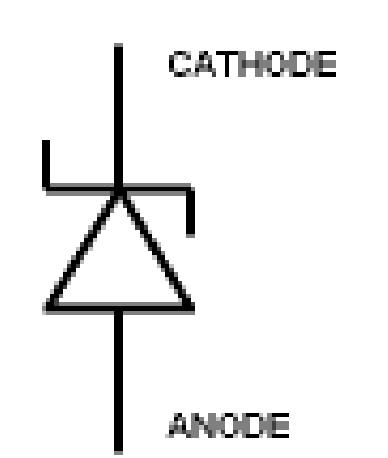
$V_L = V_P = V_{rms} / 0{,}707$
$= 12 / 0{,}707 = 17\ V$

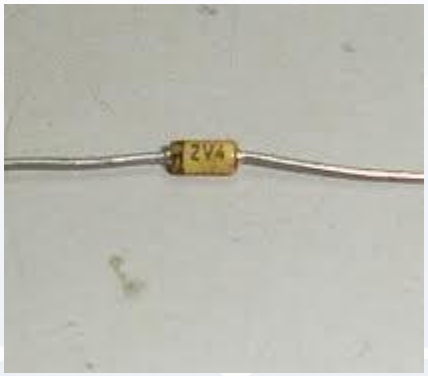
$I_L = V_L / R_L$
$= 17 / 5.10^3 = 0{,}0034\ A = 3{,}4\ mA$

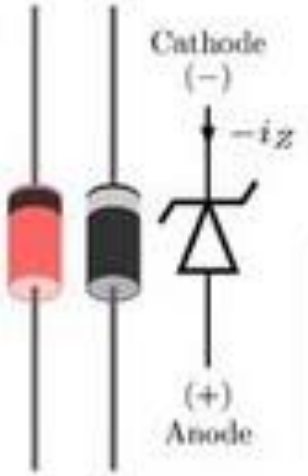
$V_R = I_L / fC$
$= 0{,}0034 / 100.100.10^{-6} = 0{,}34\ V_{PP}$

V_P dikurangi *potenitial barier* dioda ; 0,7 sistem CT dan 1,4 untuk system jembatan.

Fungsi regulasi tegangan.
Regulasi dengan dioda zener.
Tegangan input.
Tegangan output.
Arus beban.
Daya dioda zener.
Resistor seri.

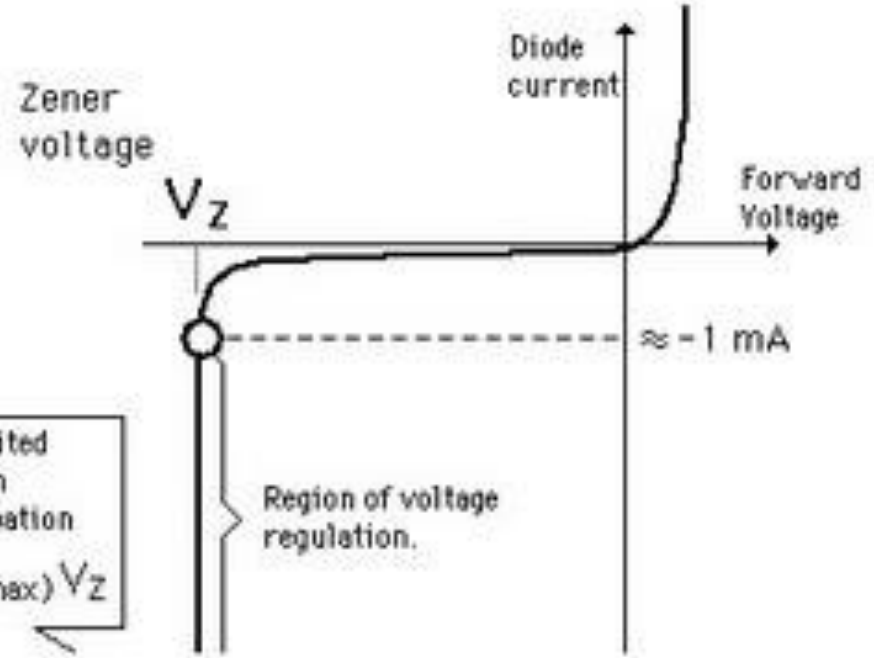




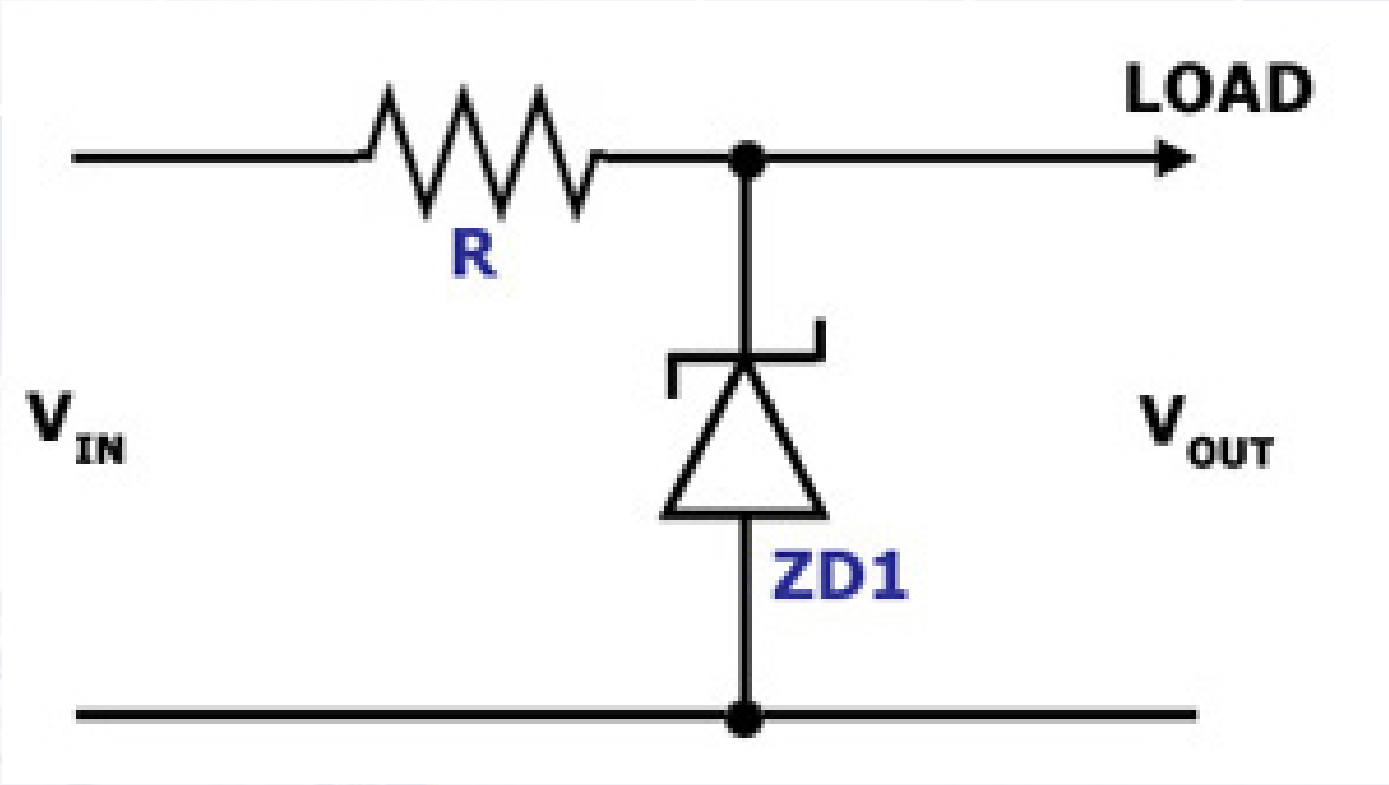


Current limited by maximum power dissipation

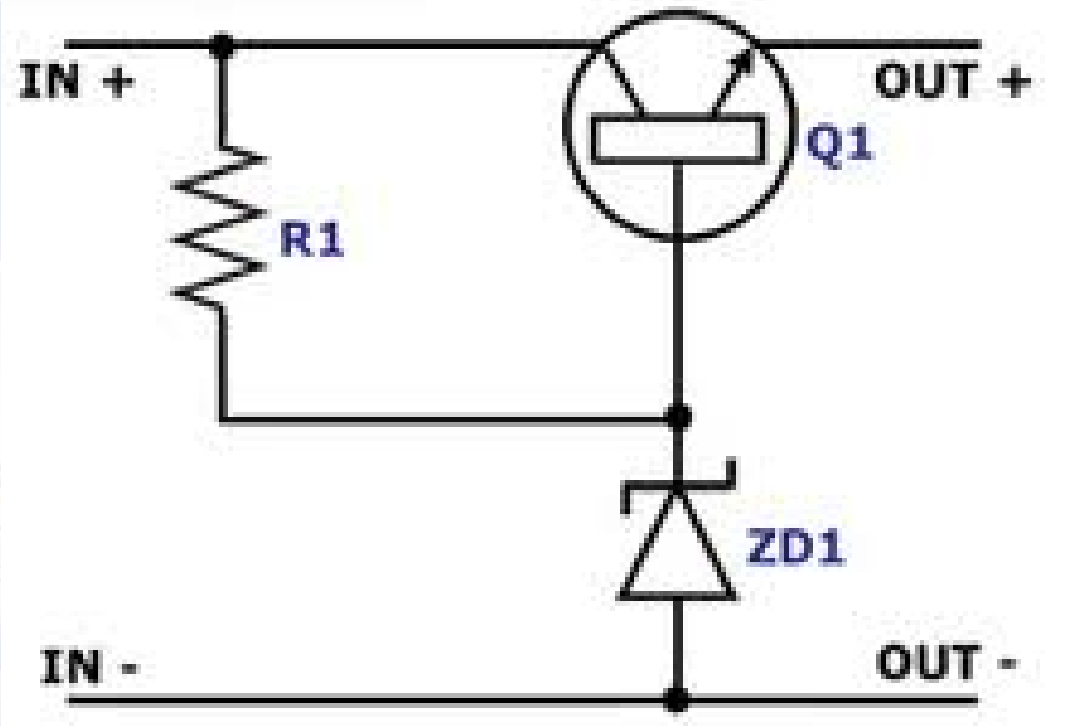
$P_{max} = I_{Z(max)} V_Z$



Regulator zener untuk arus kecil



Regulator zener & transistor



end