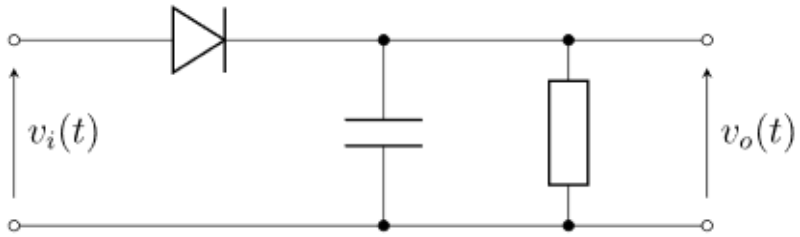
appVersion(4) = "0.99.6884.37264"

$R := 100 \qquad C := 1.5 \cdot 10^{-6}$

$I_0 := 1 \cdot 10^{-5}$

$i(u) := I_0 \cdot \left(\exp\left(\frac{u}{0.05} \right) - 1 \right)$



$f := 20 \cdot 10^{3} \qquad F := 1 \cdot 10^{3} \qquad Um := 5 \qquad ma := 0.5 \qquad \omega := 2 \cdot \pi \cdot f \qquad \Omega := 2 \cdot \pi \cdot F$

$u_{in}(t) := Um \cdot (1 - ma \cdot \cos(\Omega \cdot t)) \cdot \sin(\omega \cdot t)$

$AbsTol := 10^{-9} \qquad RelTol := 10^{-9}$

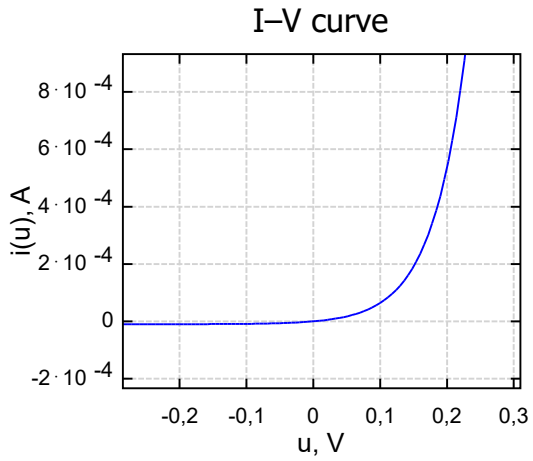
$u_0 := 0 \qquad t_{min} := 0 \qquad t_{max} := 0.002 \qquad N := 10^{3}$

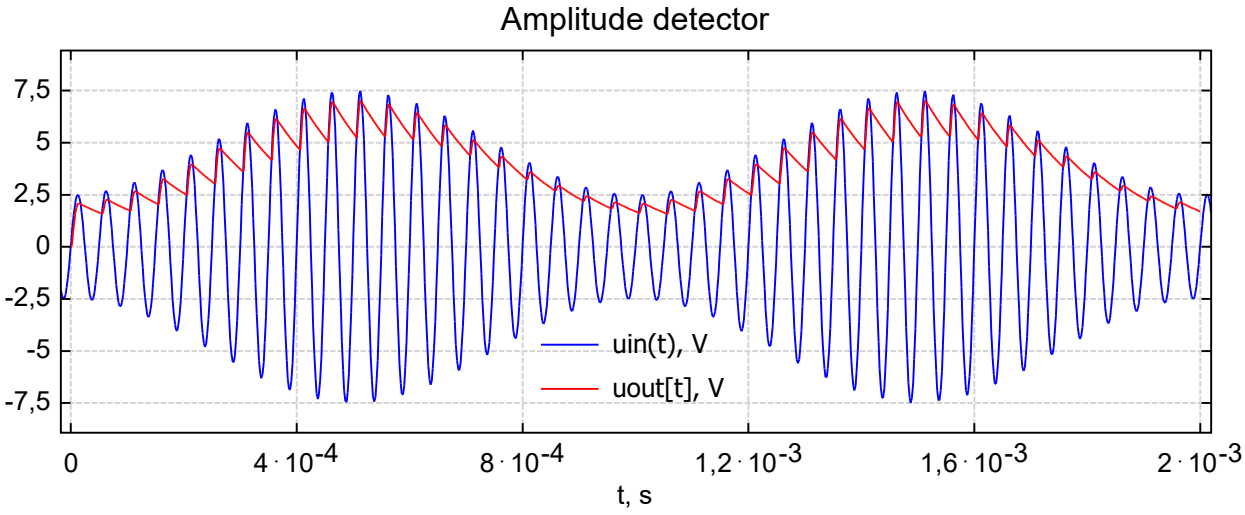
$D(t, u) := -\frac{u}{R \cdot C} + \frac{1}{C} \cdot \left(i\left(u_{in}(t) - u \right) \right)$

$start := \text{time}(0)$

$u_{out} := \text{dn\_GearsBDF}\left(u_0, t_{min}, t_{max}, N - 1, D \right)$

$\text{time}(0) - start = 1.322$ c





$\begin{cases} u_{in}(t) \\ u_{out} \end{cases}$