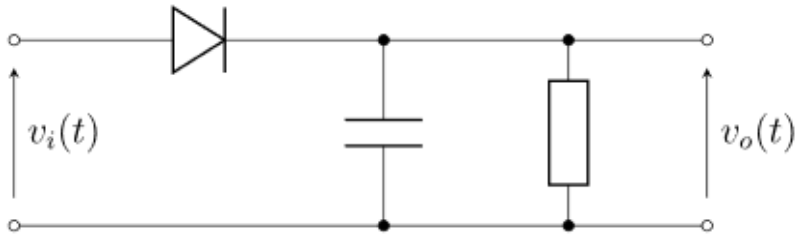
appVersion(4) = "0.99.6956.134"

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

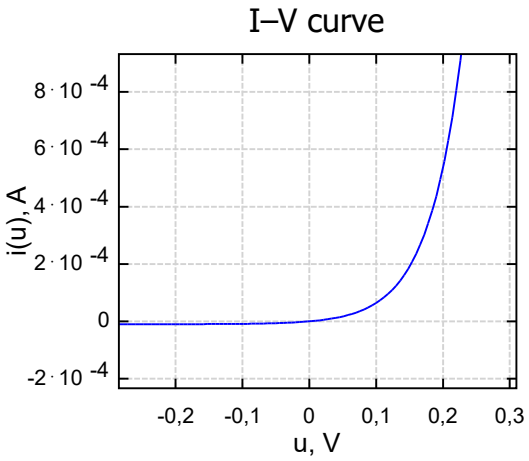
$I_0 := 1 \cdot 10^{-5}$

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



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

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



$AbsTol := 10^{-3} \qquad RelTol := 10^{-3}$

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

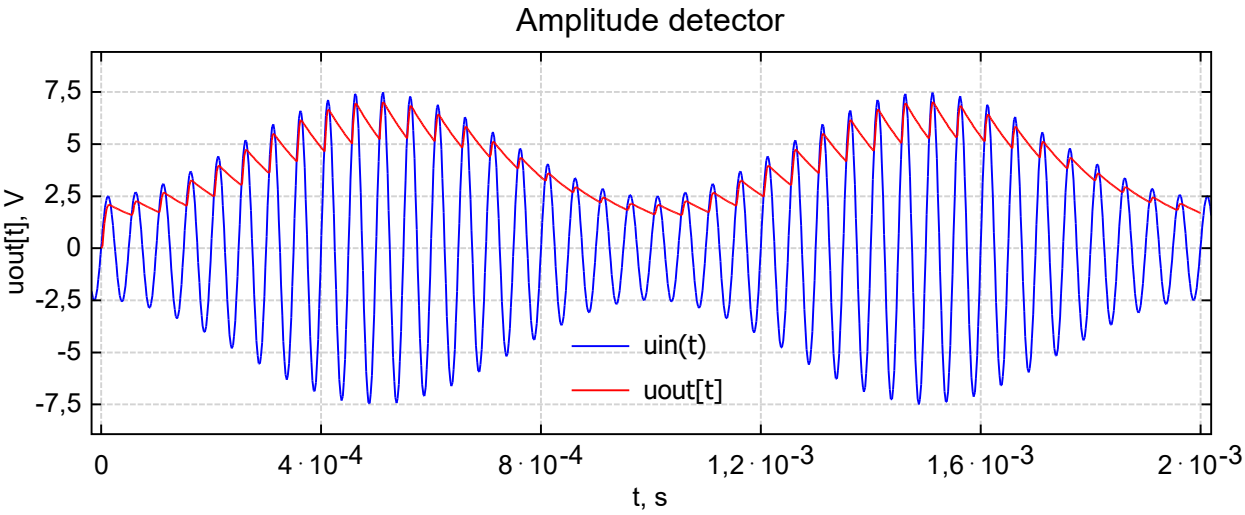
$$MaxStep := \frac{t_{max} - t_{min}}{(N-1) \cdot 2}$$

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

$start := time(0)$

$u_{out} := GearBDF(u, t_{min}, t_{max}, N-1, D)$

$time(0) - start = 1.052$ c



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