

triangle_3.ece



Attributes

```
mainnodes: p n
outvar:
+ v1=v1_of_v0
+ i1=cur(p)_of_v0
iparms:
+ i0=0
rparms:
+ frequency=10
+ t0=0
+ v_high=1.0
+ v_low=-1.0
```

Description

triangle_3.ece is a triangular wave voltage source connected between nodes **p** and **n**. The parameters have the following meaning:

frequency: Frequency. In the first half, the voltage goes from **v_high** to **v_low** if **i0=0** (and from **v_low** to **v_high** if **i0=1**).

t0: An “offset” time interval. Its meaning will become clear in the following example.

The output variables **i1** and **v1** are the branch current and branch voltage, respectively.

AC behaviour is not implemented.

The effect of the various parameters of **triangle_3.ece** on the waveforms is shown in Fig. 1. The corresponding circuit file is given below.

```

title: testing of triangle_3.ece

begin_circuit
    eelement type=triangle_3 p=a n=0
+    frequency=0.2 t0=0 i0=0 v_high=2 v_low=-2 epsl=1e-3

    eelement type=triangle_3 p=b n=0
+    frequency=0.2 t0=0 i0=1 v_high=2 v_low=-2 epsl=1e-3

    eelement type=triangle_3 p=c n=0
+    frequency=0.2 t0=1.5 i0=0 v_high=2 v_low=-2 epsl=1e-3

    eelement type=r p=a n=b r=1
    eelement type=r p=b n=c r=1

    refnode=0
    outvar:
+    va=nodev_of_a
+    vb=nodev_of_b
+    vc=nodev_of_c
end_circuit

begin_solve
    solve_type=startup
    initial_sol initialize
end_solve

begin_solve
    solve_type=trns
    initial_sol previous
    begin_output
        filename=triangle_3_ece.dat
        variables: va vb vc
    end_output
    method:
+    back_euler=yes
+    t_start=0 t_end=16 delt_const=0.5 delt_min=0.1
end_solve

end_cf

```

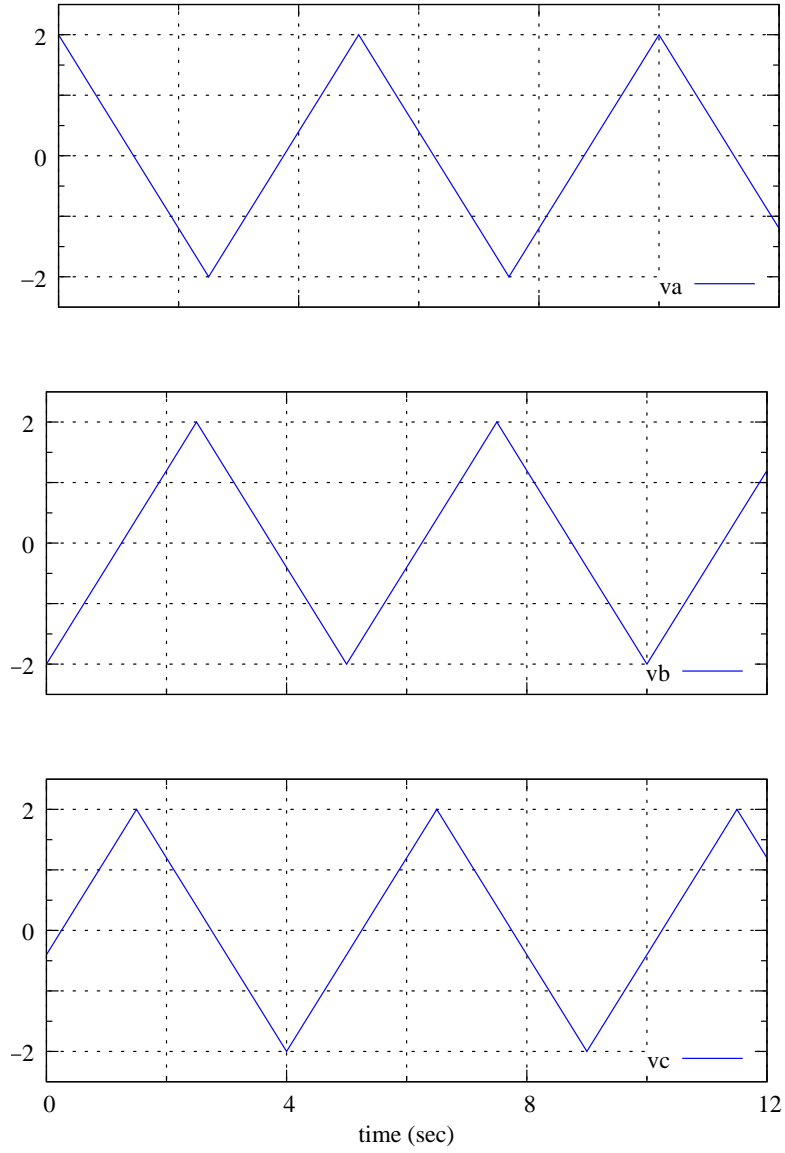


Figure 1: Waveforms obtained with `triangle_3.ece`: (a) `va`: frequency=0.2, $t_0=0$, $i_0=0$, $v_{high}=2$, $v_{low}=-2$, (b) `vb`: frequency=0.2, $t_0=0$, $i_0=1$, $v_{high}=2$, $v_{low}=-2$, (c) `vc`: frequency=0.2, $t_0=1.5$, $i_0=0$, $v_{high}=2$, $v_{low}=-2$.