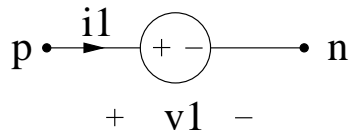


`vpulse.ece`



Attributes

```
mainnodes: p n
outvar:
+ v1=v1_of_v0
+ i1=cur_p_of_v0
rparms:
+ v_1=0
+ v_2=0
+ t_1=0
+ t_2=0
+ delt_1=0
+ delt_2=0
```

Description

`vpulse.ece` is a pulse voltage source connected between nodes `p` and `n`. The parameters have the following meaning:

`t1`: Time of the first transition (from `v_1` to `v_2`).

`t2`: Time of the second transition (from `v_2` to `v_1`).

`delt_1`: Width of the transition at `t_1`.

`delt_2`: Width of the transition at `t_2`.

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 `vpulse.ece` on the waveforms is shown in Fig. 1. The corresponding circuit file is given below.

```

title: testing of vpulse.ece

begin_circuit
    eelement name=vin type=vpulse p=a n=0 v_1=0 v_2=5
+    t_1=10 t_2=30 delt_1=2 delt_2=4
    eelement name=vin type=vpulse p=b n=0 v_1=5 v_2=0
+    t_1=10 t_2=30 delt_1=1 delt_2=1
    eelement type=r p=a n=b r=10
    refnode=0
    outvar:
+    va=nodev_of_a
+    vb=nodev_of_b
end_circuit

begin_solve
    solve_type=dc
    initial_sol initialize
    method: t_dc=0.0
end_solve

begin_solve
    solve_type=trns
    initial_sol previous
    begin_output
        filename=vpulse_ece.dat
        variables: va vb
    end_output
    method: back_euler=yes
+    t_start=0 t_end=40 delt_const=1
end_solve

end_cf

```

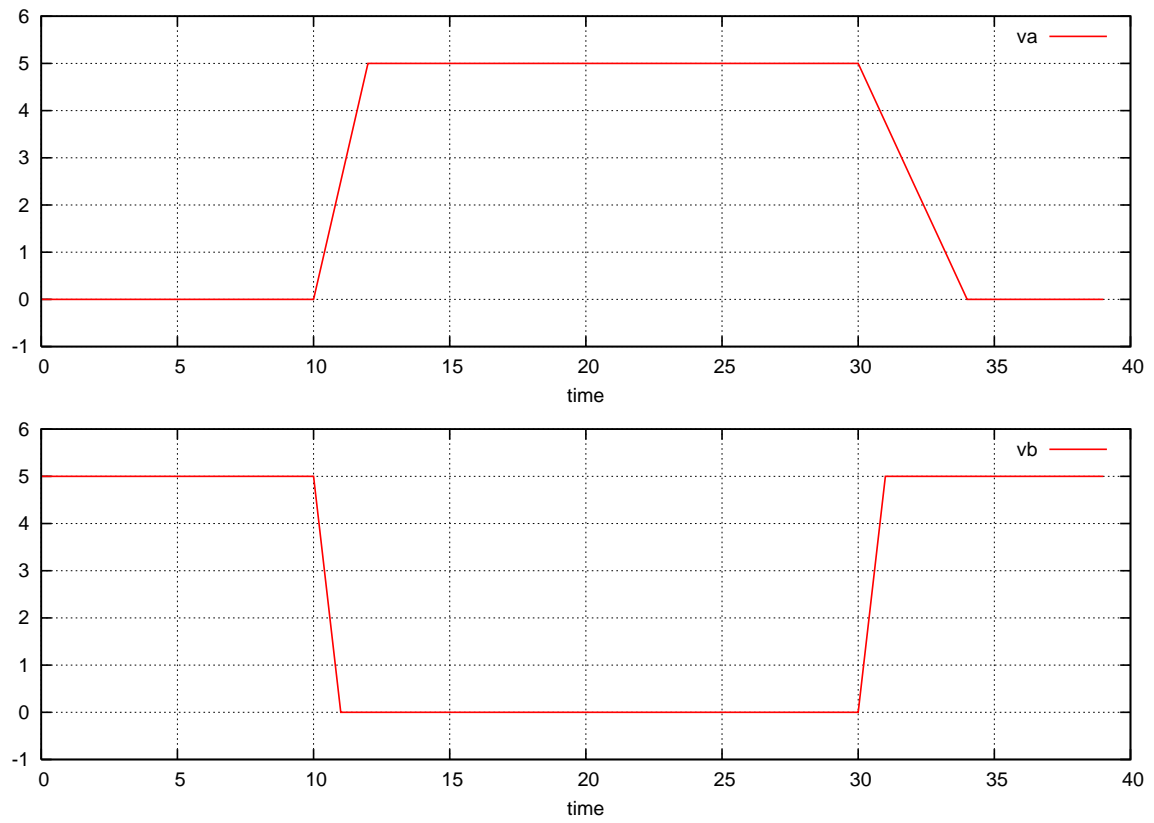


Figure 1: Waveforms obtained with `vpulse.ece`: (a) $v_1=0$, $v_2=5$, $t_1=10$, $t_2=30$, $\text{delt}_1=2$, $\text{delt}_2=4$, (b) $v_1=5$, $v_2=0$, $t_1=10$, $t_2=30$, $\text{delt}_1=1$, $\text{delt}_2=1$.