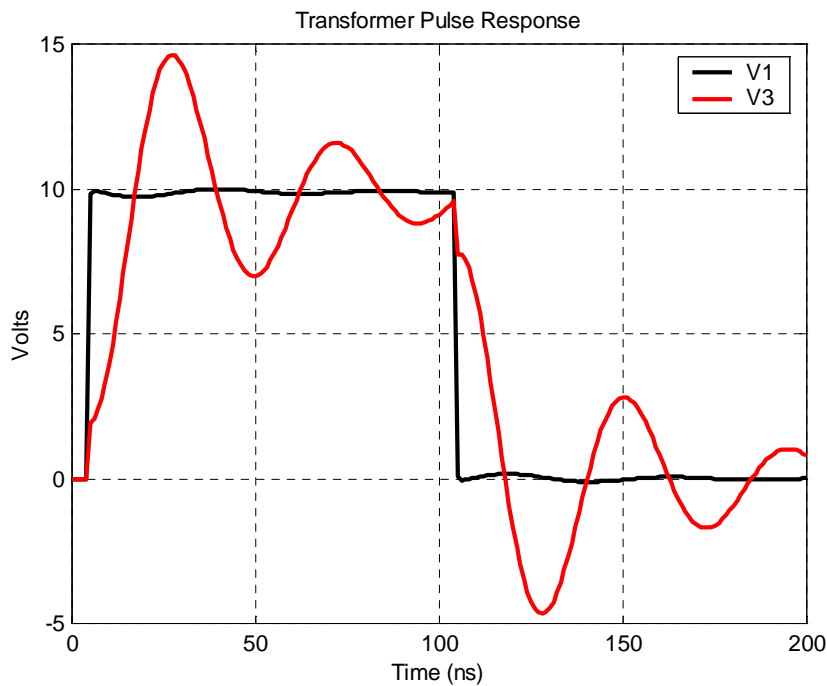


## Spice Verification of Transient Analysis

```
TRANSFORMER PULSE RESPONSE
* File:  xformer_tran.cir
VEin 99 0 PWL(0,0 4ns,0 4.012ns,10 104.012ns,10 104.022ns,0)
* 10ps rise & fall time; 100ns PW
* 4.012ns - 4ns = 0.012ns = 12ps; 10% to 90% = 10ps.
R1 99 1 10
R2 1 2 1.5
R3 3 0 20K
R4 3 4 1.5
R5 5 0 1K
R6 1 6 0.5
R7 3 7 1
*
C1 1 0 20pF
C2 6 5 5pF
C3 5 0 20pF
*
L1 2 3 1uH
L2 7 0 2mH
L3 4 5 1uH
*
.TRAN 1ns 200ns 0ns 2ps
.PRINT TRAN V(1) V(5); =vC1 and vC3 waveforms
.OPTIONS ITL5=0
.OPTIONS NOECHO NOPAGE NOMOD
.END
```

Plot obtained from the \*.out file of the above SPICE netlist:



MATLAB M-File used for above plot. (Reads SPICE \*.out file, stripped of headers)

```
% Test file read
% File:  c:\M-files\shortcut_updates\readtxt_TwinT.m
% 2/15/07
%
clc;clear;
ns=1e-9;
[time,v1,v3]=textread('c:\Spiceapps\datfiles\xformer_tran.txt','%f %f %f');
%
h=plot(time/ns,v1,'k',time/ns,v3,'r');
set(h,'LineWidth',2);
axis([0 200 -5 15]);
grid on
xlabel('Time (ns)');
ylabel('Volts');
title('Transformer Pulse Response');
legend('V1','V3',0);
figure(1)
%
```

Portion of \*.out file stripped of headers; saved with filename xformer\_tran.txt.

0.000E+00	0.000E+00	0.000E+00
1.000E-09	0.000E+00	0.000E+00
2.000E-09	0.000E+00	0.000E+00
3.000E-09	0.000E+00	0.000E+00
4.000E-09	0.000E+00	0.000E+00
5.000E-09	9.818E+00	1.949E+00
6.000E-09	9.943E+00	2.088E+00
7.000E-09	9.914E+00	2.345E+00
8.000E-09	9.884E+00	2.738E+00
9.000E-09	9.855E+00	3.256E+00
1.000E-08	9.828E+00	3.881E+00
1.100E-08	9.804E+00	4.597E+00
1.200E-08	9.782E+00	5.385E+00
1.300E-08	9.764E+00	6.227E+00
1.400E-08	9.749E+00	7.104E+00
1.500E-08	9.738E+00	7.997E+00
1.600E-08	9.731E+00	8.887E+00
1.700E-08	9.727E+00	9.757E+00
1.800E-08	9.726E+00	1.059E+01
1.900E-08	9.729E+00	1.137E+01
2.000E-08	9.735E+00	1.209E+01
2.100E-08	9.744E+00	1.273E+01
2.200E-08	9.756E+00	1.329E+01
2.300E-08	9.770E+00	1.376E+01