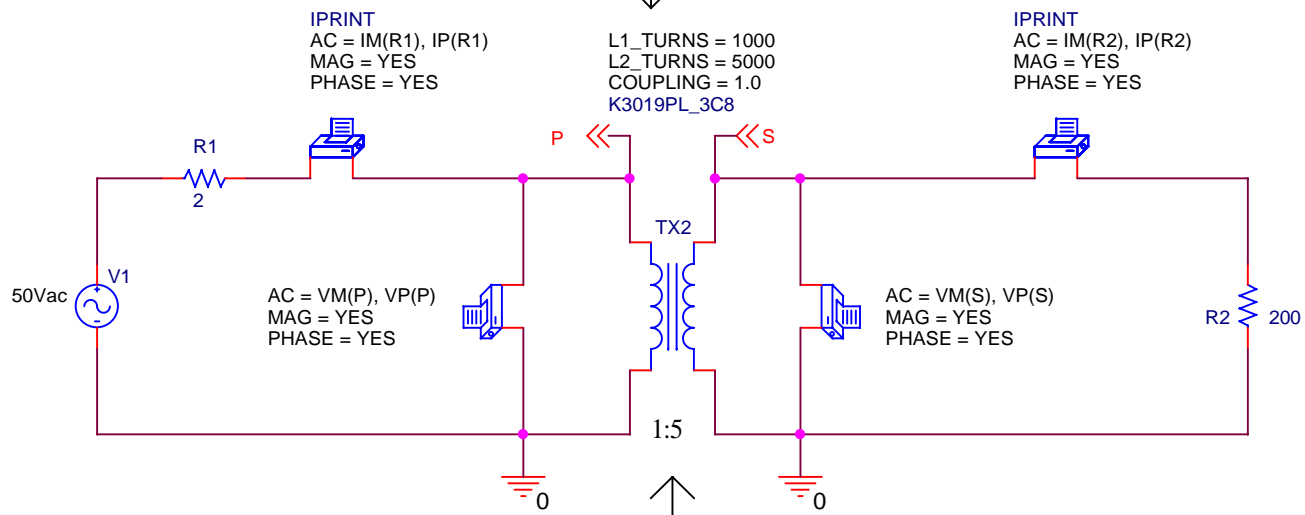


Non-Ideal Transformer

Purpose: Determine the voltage and current for the primary and secondary of a transformer circuit using an ideal transformer.

Analysis: The source voltage is $50\cos(1000t)$, so us an AC Sweep with a single frequency of $1000/(2\pi) = 159.15$ Hz

Use large values for the numbers of turns that will also provide the desired turns ratio.
 Turns ratio = $a = N1/N2$
 In this case, $a = 1000/5000 = 1/5$.



Note that two ground symbols are required.

Text was added to label the turns ratio.

The non-ideal transformer (part K3019PL_3CB) is available in the EVAL library.

To change the orientation of a symbol, right-click on the symbol and then select ROTATE(or use ctrl-R), MIRROR HORIZONTALLY, or MIRROR VERTICALLY.

For convenience, OFFPAGE symbols were used to label the primary (P) and the secondary (S).

Edit attributes of parts as follows:

- 1) If the attribute appears next to the part, double click it and then change its value
- 2) If the attribute does not appear next to the part, double click on the part, find the desired attribute, right click on it and select DISPLAY. Then indicate what Display Format is desired. Once the attribute has been displayed, double-click on it and change the value.

Title		Title		Title	
<Title>		<Title>		<Title>	
Size	Doc	Size	Doc	Rev	Rev
A	<Doc>	A	<Doc>	<RevCode>	<RevCode>
Date:	Date: Wednesday, February 26, 2003 12:00				Sheet of 1 1 of 1

**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: AC Sweep

**** CIRCUIT DESCRIPTION

** WARNING: THIS AUTOMATICALLY GENERATED FILE MAY BE OVERWRITTEN BY SUBSEQUENT PROFILES

*Libraries:

* Local Libraries :

* From [PSPICE NETLIST] section of pspiceev.ini file:

.lib nom.lib

*Analysis directives:

.AC LIN 1 159.15Hz 159.15Hz

.PROBE

.INC "transformer - non-ideal-SCHEMATIC1.net"

**** INCLUDING "transformer - non-ideal-SCHEMATIC1.net" ****

* source TRANSFORMER - NON-IDEAL

V_V1 N00023 0 DC 0Vdc AC 50Vac

R_R1 N00023 N00029 2

R_R2 0 N00065 200

V_PRINT1 N00029 P 0V

.PRINT AC

+ IM(V_PRINT1)

+ IP(V_PRINT1)

.PRINT AC

+ VM([S],[0])

+ VP([S],[0])

.PRINT AC

+ VM([P],[0])

+ VP([P],[0])

V_PRINT4 S N00065 0V

.PRINT AC

+ IM(V_PRINT4)

+ IP(V_PRINT4)

L1_TX2 P 0 1000

L2_TX2 S 0 5000

K_TX2 L1_TX2 L2_TX2 1.0 K3019PL_3C8

**** RESUMING "transformer - non-ideal-SCHEMATIC1-AC Sweep.sim.cir" ****

.INC "transformer - non-ideal-SCHEMATIC1.als"

**** INCLUDING "transformer - non-ideal-SCHEMATIC1.als" ****

.ALIASES

V_V1 V1(+=N00023 -=0)

R_R1 R1(1=N00023 2=N00029)

R_R2 R2(1=0 2=N00065)

V_PRINT1 PRINT1(1=N00029 2=P)

V_PRINT4 PRINT4(1=S 2=N00065)

L1_TX2 TX2(1=P 2=0)

L2_TX2 TX2(3=S 4=0)

K_TX2 TX2()

_ (P=P)

_ (S=S)

.ENDALIASES

**** RESUMING "transformer - non-ideal-SCHEMATIC1-AC Sweep.sim.cir" ****
.END

**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: AC Sweep

**** Ferromagnetic Core MODEL PARAMETERS

	K3019PL_3C8
LEVEL	2
AREA	1.38
PATH	4.52
MS	415.200000E+03
A	44.82
C	.4112
K	25.74

**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: AC Sweep

**** SMALL SIGNAL BIAS SOLUTION TEMPERATURE = 27.000 DEG C

NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE
(P)	0.0000	(S)	0.0000	(N00023)	0.0000	(N00029)	0.0000
(N00065)	0.0000						

VOLTAGE SOURCE CURRENTS	
NAME	CURRENT

V_V1	0.000E+00
V_PRINT1	0.000E+00
V_PRINT4	0.000E+00

TOTAL POWER DISSIPATION 0.00E+00 WATTS

**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****

** circuit file for profile: AC Sweep

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****      AC ANALYSIS                      TEMPERATURE = 27.000 DEG C
*****
FREQ      IM(V_PRINT1)IP(V_PRINT1)
1.592E+02  5.000E+00 -3.540E-02 So Ip = 5.00/-0.035° A or Ip = 5.00/0° A
**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****
** circuit file for profile: AC Sweep

****      AC ANALYSIS                      TEMPERATURE = 27.000 DEG C
*****
FREQ      VM(S,0)      VP(S,0)
1.592E+02  2.000E+02  8.849E-03 So Vs = 200.0/-0.0088° V or Vs = 200.0/0° V
**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****
** circuit file for profile: AC Sweep

****      AC ANALYSIS                      TEMPERATURE = 27.000 DEG C
*****
FREQ      VM(P,0)      VP(P,0)
1.592E+02  4.000E+01  8.849E-03 So Vp = 40.0/-0.0088° V or Vp = 40.0/0° V
**** 01/26/00 18:25:16 ***** Evaluation PSpice (Mar 1999) *****
** circuit file for profile: AC Sweep

****      AC ANALYSIS                      TEMPERATURE = 27.000 DEG C
*****
FREQ      IM(V_PRINT4)IP(V_PRINT4)
1.592E+02  1.000E+00  8.849E-03 So Is = 1.00/-0.0088° A or Is = 1.00/0° A

JOB CONCLUDED

TOTAL JOB TIME          .42

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