**** 12/01/07 07:38:18 ************** PSpice Lite (Mar 2000) *****************

 ** Profile: "SCHEMATIC3-output_resistance" [C:\Documents and Settings\usf\courses\EEL 3302\EEL 3302 FILES\cad_05\cad_5-SCHEMATIC3-

 ****   CIRCUIT DESCRIPTION

****

** Creating circuit file "cad_5-SCHEMATIC3-output_resistance.sim.cir"
** WARNING: THIS AUTOMATICALLY GENERATED FILE MAY BE OVERWRITTEN BY SUBSEQUENT SIMULATIONS

*Libraries:
* Local Libraries :
* From [PSPICE NETLIST] section of C:\Program Files\OrcadLite\PSpice\PSpice.ini file:
.lib "nom.lib"

*Analysis directives:
.AC DEC 1e1 1e0 1e7
.OP
.PROBE V(*) I(*) W(*) D(*) NOISE(*)
.INC ".\cad_5-SCHEMATIC3.net"

**** INCLUDING cad_5-SCHEMATIC3.net ****
* source CAD_5
X_U1   N00579 0 VCC -VCC N10263 uA741
X_U2   N01565 N02208 VCC -VCC N02145 uA741
V_V5   N15072 0 DC 0Vdc AC 0Vac
V_V4   N01565 0 DC 0Vdc AC 0Vac
I_I1   0 0 DC 0Adc AC 0Aac
R_R1   N00579 0 1k
R_R5   0 N03510 1k
X_U3   N15072 N03510 VCC -VCC N03616 uA741
I_I3   N02208 0 DC 0Adc AC 0Aac
I_I6   N03616 0 DC 0Adc AC 1Aac
R_R8   0 N02145 1e8
R_R2   0 N02208 1k
I_I2   N10263 0 DC 0Adc AC 1Aac
R_R4   N03510 N03616 9K
V_V1   VCC 0 15Vdc
R_R3   N02208 N02145 999k
I_I5   N03510 0 DC 0Adc AC 0Aac
R_R7   0 N10263 1e8
V_V2   0 -VCC 15Vdc
R_R9   0 N03616 1e8
V_V3   N00579 0 DC 0Vdc AC 0Vac
I_I4   N02145 0 DC 0Adc AC 1Aac

**** RESUMING cad_5-SCHEMATIC3-output_resistance.sim.cir ****
.END

**** 12/01/07 07:38:18 ************** PSpice Lite (Mar 2000) *****************

 ** Profile: "SCHEMATIC3-output_resistance" [C:\Documents and Settings\usf\courses\EEL 3302\EEL 3302 FILES\cad_05\cad_5-SCHEMATIC3-

 ****   Diode MODEL PARAMETERS

****

	X_U1.dx	X_U2.dx	X_U3.dx
IS	800.000000E-18	800.000000E-18	800.000000E-18
RS	1	1	1

□
**** 12/01/07 07:38:18 ************** PSpice Lite (Mar 2000) *****************

 ** Profile: "SCHEMATIC3-output_resistance" [C:\Documents and Settings\usf\courses\EEL 3302\EEL 3302 FILES\cad_05\cad_5-SCHEMATIC3-

 ****   BJT MODEL PARAMETERS

****

	X_U1.qx	X_U2.qx	X_U3.qx
	NPN	NPN	NPN
IS	800.000000E-18	800.000000E-18	800.000000E-18
BF	93.75	93.75	93.75
NF	1	1	1
BR	1	1	1
NR	1	1	1
CN	2.42	2.42	2.42
D	.87	.87	.87

□
**** 12/01/07 07:38:18 ************** PSpice Lite (Mar 2000) *****************

 ** Profile: "SCHEMATIC3-output_resistance" [C:\Documents and Settings\usf\courses\EEL 3302\EEL 3302 FILES\cad_05\cad_5-SCHEMATIC3-

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

****

NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE	NODE	VOLTAGE
(VCC)	15.0000	(-VCC)	-15.0000	(N00579)	0.0000	(N01565)	0.0000
(N02145)	.0984	(N02208)	18.76E-06	(N03510)	19.25E-06	(N03616)	910.3E-06
(N10263)	3.8356	(N15072)	0.0000	(X_U1.6)	-362.2E-06	(X_U1.7)	3.8356
(X_U1.8)	3.8356	(X_U1.9)	0.0000	(X_U2.6)	-9.298E-06	(X_U2.7)	.0984

(X_U2.8) .0984 (X_U2.9) 0.0000 (X_U3.6)-87.67E-09 (X_U3.7) 915.3E-06

(X_U3.8) 915.3E-06 (X_U3.9) 0.0000 (X_U1.10) -.6077

(X_U1.11) 14.9600 (X_U1.12) 14.9600

(X_U1.13) -.5938 (X_U1.14) -.5938

(X_U1.53) 14.0000 (X_U1.54) -14.0000

(X_U1.90) 45.33E-06 (X_U1.91) 40.0000

(X_U1.92) -40.0000 (X_U1.99) 0.0000

(X_U2.10) -.6077 (X_U2.11) 14.9600

(X_U2.12) 14.9600 (X_U2.13) -.5938

(X_U2.14) -.5938 (X_U2.53) 14.0000

(X_U2.54) -14.0000 (X_U2.90) 101.6E-06

(X_U2.91) 40.0000 (X_U2.92) -40.0000

(X_U2.99) 0.0000 (X_U3.10) -.6077

(X_U3.11) 14.9600 (X_U3.12) 14.9600

(X_U3.13) -.5938 (X_U3.14) -.5938

(X_U3.53) 14.0000 (X_U3.54) -14.0000

(X_U3.90) 99.02E-06 (X_U3.91) 40.0000

(X_U3.92) -40.0000 (X_U3.99) 0.0000

VOLTAGE SOURCE CURRENTS

NAME	CURRENT
V_V5	-7.972E-08
V_V4	-7.972E-08
V_V1	-5.001E-03
V_V2	-5.001E-03
V_V3	-7.974E-08
X_U1.vb	-3.622E-09
X_U1.vc	1.017E-11
X_U1.ve	1.784E-11
X_U1.vlim	4.533E-08
X_U1.vlp	-4.000E-11
X_U1.vln	-4.000E-11
X_U2.vb	-9.298E-11
X_U2.vc	1.390E-11
X_U2.ve	1.410E-11
X_U2.vlim	1.016E-07
X_U2.vlp	-4.000E-11
X_U2.vln	-4.000E-11
X_U3.vb	-8.767E-13

```
    X_U3.vc      1.400E-11
    X_U3.ve      1.400E-11
    X_U3.vlim    9.902E-08
    X_U3.vlp    -4.000E-11
    X_U3.vln    -4.000E-11

    TOTAL POWER DISSIPATION   1.50E-01  WATTS
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□

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**** 12/01/07 07:38:18 ************** PSpice Lite (Mar 2000) *****************

 ** Profile: "SCHEMATIC3-output_resistance"  [ C:\Documents and Settings\usf\courses\EEL 3302\EEL 3302 FILES\cad_05\cad_5-SCHEMATIC3-


 ****     OPERATING POINT INFORMATION      TEMPERATURE =   27.000 DEG C

*******************************************************************************




**** VOLTAGE-CONTROLLED CURRENT SOURCES


NAME         X_U1.ga     X_U1.gcm    X_U2.ga     X_U2.gcm    X_U3.ga
I-SOURCE     0.000E+00  -3.622E-09  -3.529E-09  -3.622E-09  -3.621E-09

NAME         X_U3.gcm
I-SOURCE    -3.622E-09


**** VOLTAGE-CONTROLLED VOLTAGE SOURCES


NAME         X_U1.egnd   X_U2.egnd   X_U3.egnd
V-SOURCE     0.000E+00   0.000E+00   0.000E+00
I-SOURCE    -8.726E-08  -1.513E-07  -1.342E-07


**** CURRENT-CONTROLLED CURRENT SOURCES


NAME         X_U1.fb     X_U2.fb     X_U3.fb
I-SOURCE    -3.836E-02  -9.833E-04  -8.146E-06


**** CURRENT-CONTROLLED VOLTAGE SOURCES


NAME         X_U1.hlim   X_U2.hlim   X_U3.hlim
V-SOURCE     4.533E-05   1.016E-04   9.902E-05
I-SOURCE    -9.068E-17  -2.032E-16  -1.981E-16


**** DIODES


NAME         X_U1.dc     X_U1.de     X_U1.dlp    X_U1.dln    X_U1.dp
```

MODEL	X_U1.dx	X_U1.dx	X_U1.dx	X_U1.dx	X_U1.dx
ID	-1.02E-11	-1.78E-11	-4.00E-11	-4.00E-11	-3.00E-11
VD	-1.02E+01	-1.78E+01	-4.00E+01	-4.00E+01	-3.00E+01
REQ	1.00E+12	1.00E+12	1.00E+12	1.00E+12	1.00E+12
CAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NAME	X_U2.dc	X_U2.de	X_U2.dlp	X_U2.dln	X_U2.dp
MODEL	X_U2.dx	X_U2.dx	X_U2.dx	X_U2.dx	X_U2.dx
ID	-1.39E-11	-1.41E-11	-4.00E-11	-4.00E-11	-3.00E-11
VD	-1.39E+01	-1.41E+01	-4.00E+01	-4.00E+01	-3.00E+01
REQ	1.00E+12	1.00E+12	1.00E+12	1.00E+12	1.00E+12
CAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NAME	X_U3.dc	X_U3.de	X_U3.dlp	X_U3.dln	X_U3.dp
MODEL	X_U3.dx	X_U3.dx	X_U3.dx	X_U3.dx	X_U3.dx
ID	-1.40E-11	-1.40E-11	-4.00E-11	-4.00E-11	-3.00E-11
VD	-1.40E+01	-1.40E+01	-4.00E+01	-4.00E+01	-3.00E+01
REQ	1.00E+12	1.00E+12	1.00E+12	1.00E+12	1.00E+12
CAP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**** BIPOLAR JUNCTION TRANSISTORS

NAME	X_U1.q1	X_U1.q2	X_U2.q1	X_U2.q2	X_U3.q1
MODEL	X_U1.qx	X_U1.qx	X_U2.qx	X_U2.qx	X_U3.qx
IB	7.97E-08	7.97E-08	7.98E-08	7.97E-08	7.98E-08
IC	7.48E-06	7.48E-06	7.48E-06	7.48E-06	7.48E-06
VBE	5.94E-01	5.94E-01	5.94E-01	5.94E-01	5.94E-01
VBC	-1.50E+01	-1.50E+01	-1.50E+01	-1.50E+01	-1.50E+01
VCE	1.56E+01	1.56E+01	1.56E+01	1.56E+01	1.56E+01
BETADC	9.38E+01	9.38E+01	9.38E+01	9.38E+01	9.38E+01
GM	2.89E-04	2.89E-04	2.89E-04	2.89E-04	2.89E-04
RPI	3.24E+05	3.24E+05	3.24E+05	3.24E+05	3.24E+05
RX	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RO	1.00E+12	1.00E+12	1.00E+12	1.00E+12	1.00E+12
CBE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CBC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CJS	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BETAAC	9.38E+01	9.38E+01	9.38E+01	9.38E+01	9.38E+01
CBX/CBX2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FT/FT2	4.60E+15	4.60E+15	4.60E+15	4.60E+15	4.60E+15

NAME	X_U3.q2
MODEL	X_U3.qx
IB	7.97E-08
IC	7.48E-06
VBE	5.94E-01
VBC	-1.50E+01
VCE	1.56E+01
BETADC	9.38E+01
GM	2.89E-04
RPI	3.24E+05
RX	0.00E+00
RO	1.00E+12
CBE	0.00E+00
CBC	0.00E+00
CJS	0.00E+00
BETAAC	9.38E+01

```
CBX/CBX2     0.00E+00
FT/FT2       4.60E+15



          JOB CONCLUDED

          TOTAL JOB TIME             .08
```