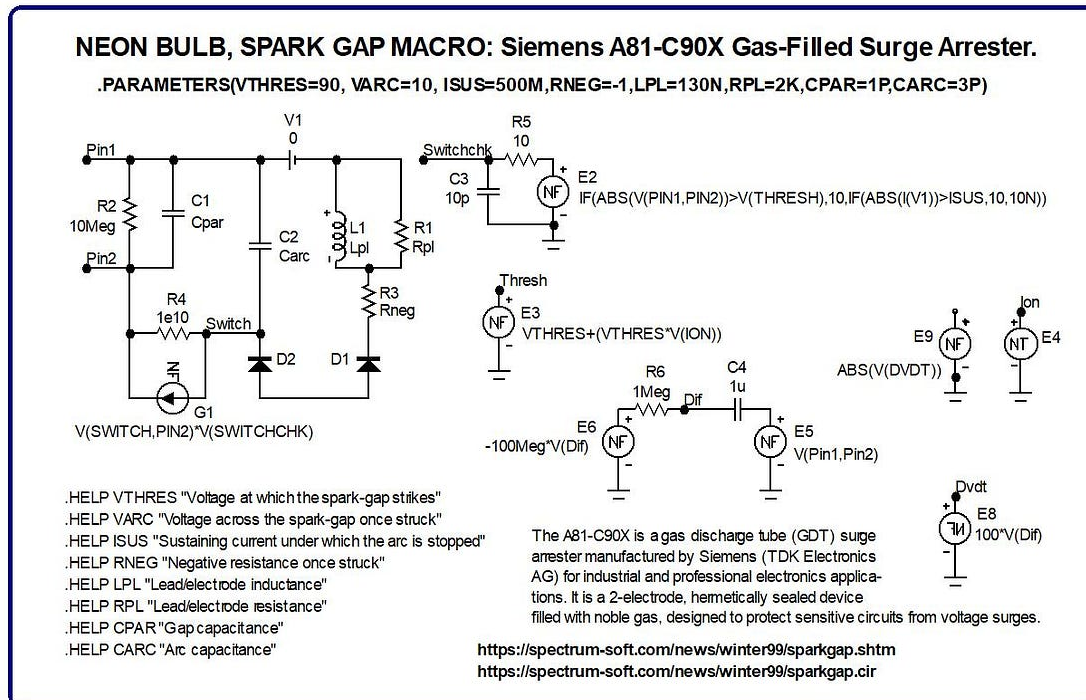


Micro-Cap's Spark Gap macro file.



VINYASI

JUL 17, 2026



THIS IS A SCREENSHOT OF MY SPRUCED-UP VERSION

Outline of the contents of this post:

- [Spruced-up with cosmetic alterations](#)
 - download links
 - text of file
- [Original file](#)
 - download links
 - text from original file
- [More information](#) on this electronic component

SPRUCED UP WITH COSMETIC ALTERATIONS

[direct download link](#)

[alternate link](#) (Google Docs)

Text from the file of my spruced-up version:

```
[Main]
FileType=CIR
Version=12.00
Program=Micro-Cap
Component Version=10.00
Shape Version=11.00
Screen=1366,768
MCAPVersion=12.2.0.5
Key ID=Demo
NLCnt=58
TXCnt=19
[shapedef]
Name=Battery
Line=0,0,22,0
Line=22,-3,22,3
Line=26,-7,26,7
Line=26,0,48,0
Current=32,8,16,8
[shapedef]
```

```
Name=Capacitor
Line=0,0,22,0
Line=22,-8,22,8
Line=26,-8,26,8
Line=26,0,48,0
Current=32,12,16,12
[shapedef]
Name=Diode
Root="Diode.root",0,0,0
[shapedef]
Name=Diode.root
Line=0,0,20,0
Line=28,0,48,0
Rectangle=18,-8,20,8
PolyClosed=3
PolyLine=20,0
PolyLine=28,-8
PolyLine=28,8
Current=32,16,16,16
[shapedef]
Name=Ground
Line=0,0,12,0
Line=12,-8,12,8
Line=18,-4,18,4
Line=24,0,24,0
[shapedef]
```

Name=Inductor

Line=42,0,48,0

Line=0,0,5,0

Arc=5,-7,17,7 , 11,-7,5,0

Arc=13,-7,25,7 , 19,-7,13,0

Arc=29,-7,41,7 , 35,-7,29,0

Arc=21,-7,33,7 , 27,-7,21,0

Arc=6,-7,18,7 , 18,0,12,-7

Arc=14,-7,26,7 , 26,0,20,-7

Arc=22,-7,34,7 , 34,0,28,-7

Arc=30,-7,42,7 , 42,0,36,-7

Line=11,-7,12,-7

Line=19,-7,20,-7

Line=27,-7,28,-7

Line=35,-7,36,-7

Arc=13,-4,17,2 , 13,-1,15,2

Arc=29,-4,33,2 , 29,-1,31,2

Arc=21,-4,25,2 , 21,-1,23,2

Arc=14,-4,18,2 , 16,2,18,-1

Arc=30,-4,34,2 , 32,2,34,-1

Arc=22,-4,26,2 , 24,2,26,-1

Line=15,2,16,2

Line=23,2,24,2

Line=31,2,32,2

Line=5,5,9,5

Line=41,5,41,9

```
Line=39,7,43,7
Current=32,8,16,8
[shapedef]
Name=Isource.Root
Ellipse=-12,12,12,36
FColor=None
Line=0,0,0,24
PolyClosed=3
PolyLine=-4,24
PolyLine=4,24
PolyLine=0,32
Line=0,32,0,48
Current=16,16,16,32
[shapedef]
Name=Minus.root
Line=-2,0,2,0
[shapedef]
Name=NFI
Root="Isource.Root",0,0,0
Root="TextN.Root",-26,20,0
Root="TextF.Root",-18,20,0
[shapedef]
Name=NFV
Root="Vsource.root",0,0,0
Root="TextN.Root",28,-6,1
Root="TextF.Root",28,1,1
```

```
[shapedef]
Name=NTVOFV
Root="VOFV.Root",0,0,0
Root="TextN.Root",41,20,0
Root="TextT.Root",48,20,0
```

```
[shapedef]
Name=OFV.Root
Root="Plus.root",8,8,0
Ellipse=-2,-2,2,2
FColor=None
Ellipse=-2,46,2,50
FColor=None
```

```
[shapedef]
Name=Plus.root
Line=-2,0,2,0
Line=0,-2,0,2
```

```
[shapedef]
Name=Resistor
PolyOpen=12
PolyLine=0,0
PolyLine=0,0
PolyLine=12,0
PolyLine=14,-4
PolyLine=18,4
PolyLine=22,-4
PolyLine=26,4
```

PolyLine=30,-4
PolyLine=34,4
PolyLine=36,0
PolyLine=48,0
PolyLine=48,0
Current=32,8,16,8
[shapedef]
Name=TextF.Root
Line=0,0,5,0
Line=0,0,0,8
Line=2,4,0,4
[shapedef]
Name=TextN.Root
Line=0,8,0,0
Line=0,0,5,8
Line=5,8,5,0
[shapedef]
Name=TextT.Root
Line=0,0,5,0
Line=2,0,2,8
[shapedef]
Name=VOFV.Root
Line=0,0,0,0
Line=0,48,0,48
Root="Vsrc.root",0,0,0
Root="OFV.Root",0,0,0

```
[shapedef]
Name=Vsource.root
Line=0,0,12,0
Line=36,0,48,0
Ellipse=12,-12,36,12
FColor=None
Line=7,5,7,9
Root="Plus.root",41,7,0
Current=32,16,16,16
[shapedef]
Name=Vsrc.root
Root="Plus.root",43,8,0
Root="Minus.root",43,40,0
Line=48,0,48,12
Line=48,36,48,48
Ellipse=36,12,61,36
FColor=None
Current=64,16,64,32
[compdef]
Name=Battery
Definition=Battery
Shape=Battery
Mask=6401
Used=77
memo=Battery
Label Offset=19,7,10,13
```


PinCnt=2

Pin="Plus",6,0,-4,-5

Pin="Minus",0,0,-10,-5

[compdef]

Name=Inductor

Definition=Inductor

Shape=Inductor

Mask=6145

Used=166

memo=Inductor

Label Offset=18,9,11,12

PinCnt=2

Pin="Plus",6,0,-5,-9

Pin="Minus",0,0,-3,-9

[compdef]

Name=Resistor

Definition=Resistor

Shape=Resistor

Mask=6401

Used=756

memo=Resistor

Label Offset=18,6,8,11

PinCnt=2

Pin="Plus",6,0,-10,-4

Pin="Minus",0,0,-14,-4

[compdef]

Name=Capacitor
Definition=Capacitor
Shape=Capacitor
Mask=6401
Used=119
memo=Capacitor
Label Offset=16,12,12,12
PinCnt=2
Pin="Plus",6,0,-3,-5
Pin="Minus",0,0,-14,-5
[compdef]
Name=Diode
Definition=Diode
Shape=Diode
Mask=4353
Used=67
memo=Diode
Label Offset=17,10,12,12
PinCnt=2
Pin="Anode",6,0,-9,-8
Pin="Cathode",0,0,-20,-8
[compdef]
Name=NFV
Definition=NFV
Shape=NFV
Mask=4864

Used=57

memo=Analog behavioral voltage source (E.g.
VALUE= $I(R2)*V(3,4)^2$)

Label Offset=18,12,16,13

PinCnt=2

Pin="Plus",6,0,-8,-4

Pin="Minus",0,0,-21,-6

[compdef]

Name=Ground

Definition=Ground

Shape=Ground

Mask=257

Used=421

memo=Ground

Label Offset=0,0,0,0

PinCnt=1

Pin="PinA",0,0,-3,-7

[compdef]

Name=NTVofV

Definition=NTVofV

Shape=NTVOFV

Mask=4096

memo=Analog behavioral VofV table source

Label Offset=63,12,-29,59

PinCnt=4

Pin="Plus Output",6,0,-15,-3

Pin="Minus Output",6,6,-12,17

Pin="Plus Input",0,0,-29,-3

Pin="Minus Input",0,6,-33,17

[compdef]

Name=NFI

Definition=NFI

Shape=NFI

Mask=4608

Used=11

memo=Analog behavioral current source (E.g. $VALUE = \exp(-T/5) \cdot \sin(2 \cdot \pi \cdot 10 \cdot T)$)

Label Offset=15,12,-29,13

PinCnt=2

Pin="Plus",0,0,7,12

Pin="Minus",0,6,7,3

[TitleBlockDef]

Name=DefaultOld

Rectangle=-24,-25,232,76

FColor=None

Text="#Field1"

TextInfo=-20,-21,28,-3 , -15,0,"Arial"

Text="#Field2"

TextInfo=-20,2,9,13 , -8,0,"Arial"

Text="#Field3"

TextInfo=-20,20,7,31 , -8,0,"Arial"

Text="#Field4"

TextInfo=-20,41,9,52 , -8,0,"Arial"

Text="#Field5"

TextInfo=-20,60,7,71 , -8,0,"Arial"

Line=-24,16,232,16

Line=-24,56,232,56

Line=-24,36,232,36

[Circuit]

Window Placement=2,3, -1,-1, -8,-31, 0,18,996,442

Default Object=Color=#000000,Width=3

Default Object

Font=Height=-15,FStyle=0,Color=#000000,Name=Arial

Default Object Apply Border To Text=No

Default Object Apply Fill To Text=No

Default Object GridSnap=No

NodeVoltageFormat=3

CurrentFormat=3

PowerFormat=3

PathDelayFormat=3

WarningFormat=3

GridTextFormulaFormat=3

SpiceType=AMBIGUOUS

Title_Block_Border=None

Title_Block=False

Show Nodes=False

Show Voltages=False

Show Current=False

Show Power=False

Show Condition=False

Show Pin Connections=False

Show Connection Warnings=False

Show Cross=False

Show Attribute Text=True

Show Grid Text=True

[Object]

Object=TitleBlock

CBorder=#000000

Px=80,80,560,208

Rot=0

KeepAspectRatio=True

OneTitle=True

Placement=BottomRight

[Attr]

ON=0,0,NAME

V=DefaultOld

Font=Verdana

[Attr]

ON=0,11,#Field1

V=\$name

Font=Verdana

[Attr]

ON=0,22,#Field2

V=\$user \$company

Font=Verdana

[Attr]

ON=0,33,#Field3

V

Font=Verdana

[Attr]

ON=0,44,#Field4

V=\$date

Font=Verdana

[Attr]

ON=0,55,#Field5

V=Page \$page of \$maxpage

Font=Verdana

[Object]

Object=Rectangle

Rounded=True

Weight=3

CBorder=#000080

Px=8,8,808,520

[Comp]

Name=Battery

Px=240,120

Rot=2

[Attr]

ON=-30,-36,PART

V=V1

Style=8192

[Attr]

ON=-27,-23,VALUE

V=0

Style=8192

[Comp]

Name=Inductor

Px=248,200

Rot=5

[Attr]

ON=10,-37,PART

V=L1

Style=8192

[Attr]

ON=10,-22,INDUCTANCE

V=Lpl

Style=8192

[Comp]

Name=Resistor

Px=296,152

Rot=7

[Attr]

ON=9,11,PART

V=R1

Style=8192

[Attr]

ON=8,25,RESISTANCE

V=Rpl

Style=8192

[Comp]

Name=Capacitor

Px=128,184

Rot=5

[Attr]

ON=13,-41,PART

V=C1

Style=8192

[Attr]

ON=13,-25,CAPACITANCE

V=Cpar

Style=8192

[Wire]

Pxs=296,120,296,152

[Wire]

Pxs=248,120,248,152

[Wire]

Pxs=240,120,248,120

[Comp]

Name=Resistor

Px=96,136

Rot=7

[Attr]

ON=-24,11,PART

V=R2

Style=8192

[Attr]

ON=-45,26,RESISTANCE

V=10Meg

Style=8192

[Wire]

Pxs=128,120,128,136

[Wire]

Pxs=96,120,128,120

[Wire]

Pxs=96,120,96,136

[Wire]

Pxs=248,200,272,200

[Wire]

Pxs=96,200,128,200

[Comp]

Name=Resistor

Px=272,200

Rot=7

[Attr]

ON=8,11,PART

V=R3

Style=8192

[Attr]

ON=8,24,RESISTANCE

V=Rneg

Style=8192

[Wire]

Pxs=272,200,296,200

[Comp]

Name=Diode

Px=272,248

Rot=7

[Attr]

ON=-28,12,PART

V=D1

Style=8192

[Attr]

ON=-61,27,MODEL

V=DCLAMP

[Comp]

Name=Diode

Px=192,248

Rot=1

[Attr]

ON=12,12,PART

V=D2

Style=8192

[Attr]

ON=12,27,MODEL

V=DCLAMP

[Wire]

Pxs=192,296,272,296

[Wire]

Pxs=128,120,192,120

[Comp]

Name=Capacitor

Px=192,208

Rot=5

[Attr]

ON=14,-38,PART

V=C2

Style=8192

[Attr]

ON=14,-24,CAPACITANCE

V=Carc

Style=8192

[Wire]

Pxs=192,120,192,160

[Comp]

Name=Resistor

Px=104,248

[Attr]

ON=19,-32,PART

V=R4

Style=8192

[Attr]

ON=11,-19,RESISTANCE

V=1e10

Style=8192

[Wire]

Pxs=152,248,192,248

[Wire]

Pxs=96,248,104,248

[Wire]

Pxs=96,200,96,248

[Wire]

Pxs=152,248,152,296

[Wire]

Pxs=96,296,104,296

[Wire]

Pxs=96,248,96,296

[Comp]

Name=NFV

Px=408,168

Rot=3

[Attr]

ON=18,-42,PART

V=E2

Style=8192

[Attr]

ON=19,-27,VALUE

V=IF(ABS(V(PIN1,PIN2))>V(THRESH),10,IF(ABS(I(V1))>ISUS,10,10
N))

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=Ground

Px=408,168

Rot=1

[Comp]

Name=NFV

Px=368,264

Rot=3

[Attr]

ON=16,-38,PART

V=E3

Style=8192

[Attr]

ON=17,-23,VALUE

$V = V_{THRES} + (V_{THRES} * V(ION))$

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=Ground

Px=368,264

Rot=1

[Comp]

Name=Resistor

Px=360,120

[Attr]

ON=17,-35,PART

V=R5

Style=8192

[Attr]

ON=18,-21,RESISTANCE

V=10

Style=8192

[Comp]

Name=Capacitor

Px=360,168

Rot=3

[Attr]

ON=-29,-41,PART

V=C3

Style=8192

[Attr]

ON=-32,-27,CAPACITANCE

V=10p

Style=8192

[Wire]

Pxs=360,168,408,168

[Comp]

Name=NTVofV

Px=704,232

[Attr]

ON=63,12,PART

V=E4

Style=8192

[Attr]

ON=63,27,TABLE

V=(0,0) (1U,.5565M) (10M,1M) (100M,86M) (1,217M) (10,521M)
(100,956M)

[Attr]

ON=0,22,SMOOTHING

V=No

[Attr]

ON=0,33,FRACTION

V=.1

[Attr]

ON=0,44,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=Ground

Px=752,280

Rot=1

[Comp]

Name=Ground

Px=704,280

Rot=1

[Comp]

Name=NFV

Px=568,352

Rot=3

[Attr]

ON=17,-39,PART

V=E5

Style=8192

[Attr]

ON=17,-22,VALUE

V=V(Pin1,Pin2)

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=Ground

Px=568,352

Rot=1

[Comp]

Name=Ground

Px=456,352

Rot=1

[Comp]

Name=Resistor

Px=504,304

Rot=2

[Attr]

ON=-28,-35,PART

V=R6

Style=8192

[Attr]

ON=-38,-20,RESISTANCE

V=1Meg

Style=8192

[Comp]

Name=Capacitor

Px=520,304

Rot=4

[Attr]

ON=16,-38,PART

V=C4

Style=8192

[Attr]

ON=17,-24,CAPACITANCE

V=1u

Style=8192

[Wire]

Pxs=504,304,520,304

[Comp]

Name=NFV

Px=456,352

Rot=3

[Attr]

ON=-31,-42,PART

V=E6

Style=8192

[Attr]

ON=-98,-28,VALUE

V=-100Meg*V(Dif)

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=NFV

Px=704,448

Rot=5

[Attr]

ON=16,-42,PART

V=E8

Style=8192

[Attr]

ON=14,-27,VALUE

V=100*V(Dif)

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Comp]

Name=Ground

Px=704,448

Rot=1

[Comp]

Name=NFV

Px=704,280

Rot=3

[Attr]

ON=-31,-37,PART

V=E9

Style=8192

[Attr]

ON=-87,-12,VALUE

V=ABS(V(DVDT))

Style=8192

[Attr]

ON=0,33,DERIVATIVE

V=Default

[Attr]

ON=0,55,SMOOTHING

V=No

[Attr]

ON=0,66,FRACTION

V=.1

[Attr]

ON=0,77,INTERPOLATION

V=Linear_X_Linear_Y

[Wire]

Pxs=96,184,96,200

[Wire]

Pxs=64,120,96,120

[Wire]

Pxs=64,200,96,200

[Comp]

Name=NFI

Px=152,296

Rot=1

[Attr]

ON=-9,3,PART

V=G1

Style=8192

[Attr]

ON=-96,17,VALUE

V=V(SWITCH,PIN2)*V(SWITCHCHK)

Style=8192

[Attr]

ON=0,44,DERIVATIVE

V=Default

[Attr]

ON=0,66,SMOOTHING

V=No

[Attr]

ON=0,77,FRACTION

V=.1

[Attr]

ON=0,88,INTERPOLATION

V=Linear_X_Linear_Y

[Wire]

Pxs=312,120,360,120

[Wire]

Pxs=192,208,192,248

[Wire]

Pxs=248,120,296,120

[Wire]

Pxs=128,184,128,200

[Grid Text]

Text="The A81-C90X is a gas discharge tube (GDT) surge"

Text="arrester manufactured by Siemens (TDK Electronics"

Text="AG) for industrial and professional electronics applica-"

Text="tions. It is a 2-electrode, hermetically sealed device"

Text="filled with noble gas, designed to protect sensitive"

Text="circuits from voltage surges."

Px=392,488

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="".HELP VTHRES "Voltage at which the spark-gap strikes""

Px=48,376

GridSnap= True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".PARAMETERS(VTHRES=90, VARC=10,
ISUS=500M,RNEG=-1,LPL=130N,RPL= 2K,CPAR=1P,CARC= 3P)"

Px=72,72

Height=-14

FStyle=4

GridSnap= True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Dvdt"

Px=704,400

GridSnap= True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Dif"

Px=504,304

GridSnap= True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="lon"

Px=752,232

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Switchchk"

Px=312,120

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Thresh"

Px=368,216

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Switch"

Px=152,248

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Pin2"

Px=64,200

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="Pin1"

Px=64,120

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text="NEON BULB, SPARK GAP MACRO: Siemens A81-C90X
Gas-Filled Surge Arrester."

Px=56,48

Height=-19

FStyle=4

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP VARC "Voltage across the spark-gap once struck""

Px=48,392

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP ISUS "Sustaining current under which the arc is stopped""

Px=48,408

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP RNEG "Negative resistance once struck""

Px=48,424

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP LPL "Lead/electrode inductance""

Px=48,440

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP CPAR "Gap capacitance""

Px=48,472

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP CARC "Arc capacitance""

Px=48,488

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Grid Text]

Text=".HELP RPL "Lead/electrode resistance""

Px=48,456

GridSnap=True

JustifyH=Left

JustifyV=Bottom

CBorder=None

[Schematic]

CurrentSection 0=0

CurrentSection 1=0

CurrentSection 2=0

CurrentSection 3=0

Splitter.xs=0

Splitter.ys=0

TextQuad=4099

Scale=0.666666666666666663

GridUser=10

ShapeGroups="Main","Euro","DeMorgan","Polarity","Electrolytic","
Main1","Main11","GroundArrow"

CalcRMS=False

CalcAVG=False

CalcPeak=False

CalcVoltage=True

DisplayMeasure=Last

ShareScales=True

[Tools]

Pos=Top

FILESAVEASOLD=No

BOM=No

FILEPCB=No

PROBE=Yes

SELECT=Yes

PAN=Yes
COMP=Yes
TEXT=Yes
WIRE=Yes
WIRED=Yes
BUS=Yes
GRAPHIC=Yes
FLOWCHART=Yes
LINE=No
ELLIPSE=No
RECT=No
DIAM=No
ARC=No
PIE=No
TRIANGLE=No
STAR=No
LEFTBRK=No
RIGHTBRK=No
BOTHBRK=No
META=No
PARALLELOGRAM=No
FC_PROCESS=No
FC_ALT_PROCESS=No
FC_DECISION=No
FC_DATA=No
FC_PREDEFPROCESS=No

FC_INTERNALSTORAGE=No
FC_DOCUMENT=No
FC_MULTIDOCUMENT=No
FC_TERMINATOR=No
FC_PREPARATION=No
FC_MANUALINPUT=No
FC_MANUALOPERATION=No
FC_CONNECTOR=No
FC_OFFPAGECONNECTOR=No
FC_PUNCHCARD=No
FC_PUNCHEDTAPE=No
FC_SUMMING_JUNCTION=No
FC_OR=No
FC_COLLATE=No
FC_SORT=No
FC_EXTRACT=No
FC_MERGE=No
FC_STORED_DATA=No
FC_DELAY=No
FC_SAS=No
FC_MAGNETIC_DISK=No
FC_DAS=No
FC_DISPLAY=No
SPREAD_SHEET=Yes
POLYCLOS=No
POLYOPEN=No

FLAG=No
INFO=Yes
HELP=Yes
HELP_SPICE=No
LINK=No
CHECK=Yes
REGION_ENABLE=Yes
TITLE_BLOCK=Yes
DIGTRC=No
DIGTRC2=No
BUILD_COMMAND=Yes
DIGALL=No
GRIDTEXT=Yes
COMPTTEXT=Yes
NODE=Yes
MEASURED=Yes
NODEV=Yes
CURRENT=Yes
POWER=Yes
CONDITIN=Yes
PIN=Yes
CONNWARN=Yes
CROSS=No
GRID=No
BORDER=No
BORDERONE=Yes

TITLE=No
RUBBER=Yes
PROPERTY=Yes
STEP=Yes
MIRROR=Yes
ROTATE=Yes
FLIPY=Yes
FLIPX=Yes
CIR_MAKEMACRO=No
CLEARCUTWIRE=No
CLIPBOARD CIRPAGE2BMM=No
FINDCOMP=Yes
FIND=Yes
REPEAT=No
REPLACE=No
MODEL=Yes
CIR2CKT=No
ATTDISP=No
ENABLE=No
DISABLE=No
ENABLE_WITH=Yes
TOFRONT=No
TOBACK=No
SELNEXT=No
PAGEADD=No
PAGEADDTXT=No

ADDSECTION=No
PAGEDEL=No
ZOOMIN=Yes
ZOOMOUT=Yes
AUTOSCALECIR=Yes
GOTOFLAG=No
UPLEVEL=Yes
COLOR=No
FONT=No
STYLE=Yes
DM_LAST=No
DM_RMS=No
DM_AVG=No
DM_PEAK=No
GRID_NONE=No
GRID_NORMAL=No
GRID_BOLD_5=No
GRID_BOLD_6=No
GRID_BOLD_USER=No
GRAPH_PAPER=No
SPLITCIRTEXTH=No
SPLITCIRTEXTV=No
SPACE_SPLITTERS_EVENLY=No
NORMALCIR=No
RENAMEDEFINE=No
RENAMECMP=No

ATTALIGN=No
RESETNODEPOS=No
FIT2STANDARD=No
NODESNAP=No
MOVETEXT=No
TEXTINC=No
TOGGLETEXT=No
TOGGLEMODE=No
TOLERANCE=No
ALIGNAB=No
ALIGNLEFT=No
ALIGNCENTER=No
ALIGNRIGHT=No
ALIGNTOP=No
ALIGNMIDDLES=No
ALIGNBOTTOM=No
[Section]
Index=0
Name="sparkgap"
Type=Main
Enable=True
CurrentPage 0=0
CurrentPage 1=0
CurrentPage 2=0
CurrentPage 3=0
TabSize 0=320

TabSize 1=320
TabSize 2=320
TabSize 3=320
[Page]
Index=0
Section=0
Print=True
Enable=True
Name=Page 1
PrinterScale=-1
Scale 0=0.66666666666666663
Scale 1=1
Scale 2=1
SB 3=0,144
Scale 3=0.66666666666666663
Px=427,435
WinBackGround Color=#FFFFFF
Select Color=#000000
Anchor Color=#000000
Select Box Color=#000080
Grid Text
Color=Height=-12,FStyle=0,Color=#000000,Name=Arial
Grid Text RTF=False
Grid Text Angle=0
Grid Text GridSnap=True
Grid Text PinIt=False

Grid Text JustifyH=Left

Grid Text JustifyV=Bottom

Grid GradientColor2=None

Grid OutlineThickness=1

Grid OutlineColor=None

Component Color=#000000

Attribute

Text=Height=-12,FStyle=0,Color=#000000,Name=Arial

Wire Color=#000000

Bus Color=#008000

Pin

Connection=Height=-10,FStyle=0,Color=#000000,Name=Arial

Pin Marker Color=#000000

Node

Number=Height=-12,FStyle=0,Color=#000000,Name=Arial

Node Voltage

Color=Height=-11,FStyle=0,Color=#000000,Name=Arial

Dynamic AC Voltage Color=#C0C0C0

Text Banner

Text=Height=-15,FStyle=0,Color=#800000,Name=Arial

Title Block Background=#C0C0C0

Current=Height=-11,FStyle=0,Color=#0000FF,Name=Arial

Power/Condition=Height=-11,FStyle=0,Color=#000000,Name=Arial

Digital Path Color=#000000

Title Block Border=#000000

Disabled Color=#C0C0C0

Search Color=#FFFF00

Grid Color=#000000

Graph Paper=#E4E4E4

Digital 0 Color=#000000

Digital R Color=#FFFF00

Digital F Color=#FFFF00

Digital 1 Color=#000000

Digital X Color=#C0C0C0

Digital Z Color=#808080

Block Select Color=#51F998

[Page]

Index=1

Section=0

Type=Text

Print=True

Enable=True

Name=Text

Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New

Comment Color=#808080

WinBackGround Color=#FFFFFF

Disabled Color=#C0C0C0

KeyWord Color=#0000FF

Error Color=#000000

Search Color=#FFFF00

[Page]

Index=2

Section=0
Type=Text
Print=False
Enable=True
Name=Models
Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New
Comment Color=#808080
WinBackGround Color=#FFFFFF
Disabled Color=#C0C0C0
KeyWord Color=#0000FF
Error Color=#000000
Search Color=#FFFF00
[Page]
Index=3
Section=0
Type=Info
Print=False
Enable=True
Name=Info
Font=Height=-15,FStyle=0,Color=#000000,Name=Courier New
Comment Color=#000000
WinBackGround Color=#FFFFFF
Disabled Color=#C0C0C0
KeyWord Color=#0000FF
Error Color=#000000
Search Color=#FFFF00

[Text Area]

Section=0

Page=1

Text=.MODEL DCLAMP D (BV=VARC)

[Text Area]

Section=0

Page=2

[InfoPage]

InfoPage= True

Warnings= True

System= True

Defines= True

Array= True

Model= True

Measure= True

MacroSubckt= True

NotUsed= True

ComponentCounts= True

VariablizePaths= False

DontShowPaths= False

SimulationLog= True

[Transient]

WinID=1

Font=Height=-15,FStyle=0,Color=#0000FF,Name=Arial

WinBackGround Color=#FFFFFF

Select Color=#000000

Anchor Color=#000000

Select Box Color=#000080

Title

AutoTitle=Yes

Grid Color=#808080

Grid Weight=1

Grid Pattern=Dot

Tracker

Foreground=Height=-19,FStyle=0,Color=#000000,Name=Arial

Tracker Background=#FFFF00

Baseline color=#0000FF

BaseLine Weight=1

CurveFit color=#000000

CurveFit Weight=2

CurveFit Pattern=Dash

Static Grids=False

PlusMark=False

MinorLog25=Off

LabelMinor=Off

DataPoints=False

Token=False

Ruler=False

XAxisGrids=True

YAxisGrids=True

MinorLogGrids=True

BaseLine=False

AlignZ=True
Align Cursors=True
TagFormatX=3
TagFormatY=3
FormulaFormat=2
EndMode=SCALE
Graph Background=#FFFFFF
Tracker Intercept=False
Tracker Mouse=True
Tracker Cursor=True
Tracker Cursor BranchInfo=False
Horizontal Cursor=False
Same Y Scales=Yes
Enable X Scaling=True
Enable Y Scaling=True
Keep X Scales The Same=False
Number of Grids X=5
Number of Grids Y=5
Cursor Select Color Primary=#C0C0C0
Cursor Select Color Secondary=#000000
Data Point Labels Color
Fore=Height=-19,FStyle=0,Color=#000000,Name=Arial
Data Point Labels Color Back=#FFFF00
OperPoint=True
OperPointOnly=False
AutoScaleRanges=False

FixedTimeStep=False
DoPSS=False
PSS_Periods="1"
PSS_Iterations="5"
PSS_Error="1u"
PSS_ShowPlots=True
FFT_NPts="1024"
FFT_IncludeDCHarmonic=False
FFT_AutoScale_Harmonics="10"
PrinterAutoTile=No
PrinterBlackBorder=No
AnimateWait=None
AnimateWaitTime=500
AnimatePressAfter=0
Save_For_Future=No
Reduce_Display=1
Reduce_Save=1
Reduce_ThrowDataOut=0
Num Out Header Left
Num Out Header Center="\$MC\n\$user\n\$company\n\$Analysis
of \$name\n"
Num Out Header Right
Num Out Delimiter=32
Num Out Write=True
Num Out Write Main Header=True
Num Out Write Limits=True

Num Out Write Branch Header=True
Num Out Write Models=True
Num Out Write Zero Models=True
Num Out Write Undefined Models=True
Num Out Write Operating Point=True
Num Out Write Measurement Values=True
Num Out Write Tolerance Detail=True
Num Out Write Values=True
Num Out Write Waveform Header=True
Num Out Allow Dup Y Expr=False
Num Out Low="TSTART"
Num Out High="TMAX"
Num Out
Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New
Num Out Format=3
Num Out HideNonSelected=False
Num Out UseActualDataPoints=False
AutoSaveWave=False
Wave Format=16E
State Variables Format=5E
Print Individual Pages=False
[Tools]
Pos=Top
SELECT=Yes
PAN=Yes
GRAPHIC=Yes

LINE=No
ELLIPSE=No
RECT=No
DIAM=No
ARC=No
PIE=No
TRIANGLE=No
STAR=No
LEFTBRK=No
RIGHTBRK=No
BOTHBRK=No
META=No
PARALLELOGRAM=No
POLYCLOS=No
POLYOPEN=No
SCALE=Yes
CURSOR=Yes
MEASUREH=Yes
MEASUREV=Yes
TAG=Yes
PTAG=Yes
TEXT=Yes
PROPERTY=Yes
START=Yes
STOP=Yes
PAUSE=Yes

RESUME=No
DATAPTS=Yes
TOKENS=Yes
RULER=No
PLUS=No
XAXIS=Yes
YAXIS=Yes
MINORLOG=Yes
LOG25=No
BASELINE=No
HORIZCUR=No
GOTOX=Yes
GOTOY=Yes
GOTOPERF=Yes
GOTOBRNC=Yes
CLEAR_ACCUMULATED=Yes
PDELETE_ALL_PLOTS=Yes
NEXT=Yes
NEXTIN=Yes
PEAK=Yes
VALLEY=Yes
HIGH=Yes
LOW=Yes
INFLECTN=Yes
GHIGH=Yes
GLOW=Yes

BOTTOM=Yes
TOP=Yes
WAVEFORMBUFFER=Yes
AOUTPUT=Yes
PKEY=No
ENXSCALE=Yes
ENYSCALE=Yes
ZOOMIN=Yes
ZOOMOUT=Yes
AUTOSCALE=No
RESTORESCALE=No
COLOR=No
FONT=No
STYLE=Yes
SELNEXT=No
NORMALIZE=No
NORMALIZE_MIN=No
NORMALIZE_MAX=No
ADD_TAG_LEFT=No
ADD_TAG_RIGHT=No
ADD_HORZ_TAG=No
ADD_VERT_TAG=No
ALIGN_CURSORS=No
ALIGN_CURSORSZ=No
CURSORTOCLIPBOARD=No
TRACKER_CURSOR=No

TRACKER_CURSOR_BRANCHINFO=No

TRACKER_INTERCEPT=No

TRACKER_MOUSE=No

TOFRONT=Yes

TOBACK=Yes

SPLITCIRTEXTH=No

SPLITCIRTEXTV=No

SPACE_SPLITTERS_EVENLY=No

NORMALCIR=No

LABEL_WAVEFORM=No

LABEL_DATA_POINTS=No

WFB_ADD_TO_LIMITS=No

ENVELOPE=No

SAMEYSCALES=No

KEEPXSCALESTHESAME=No

CURVEFIT=No

ADD_MARKER=No

SHOWWATCH=No

BP=No

TOGGLEMODE=No

REMOVEALLTEXT=No

AUTOSCALEX=No

LABELALLMINOR=No

ALIGNLEFT=No

ALIGNCENTER=No

ALIGNRIGHT=No

ALIGNTOP=No

ALIGNMIDDLES=No

ALIGNBOTTOM=No

[APage]

Analysis=Transient

Name="Main"

[AC]

WinID=2

Font=Height=-15,FStyle=0,Color=#0000FF,Name=Arial

WinBackGround Color=#FFFFFF

Select Color=#000000

Anchor Color=#000000

Select Box Color=#000080

Title

AutoTitle=Yes

Grid Color=#808080

Grid Weight=1

Grid Pattern=Dot

Tracker

Foreground=Height=-19,FStyle=0,Color=#000000,Name=Arial

Tracker Background=#FFFF00

Baseline color=#0000FF

BaseLine Weight=1

CurveFit color=#000000

CurveFit Weight=2

CurveFit Pattern=Dash

Static Grids=False
PlusMark=False
MinorLog25=Off
LabelMinor=Off
DataPoints=False
Token=False
Ruler=False
XAxisGrids=False
YAxisGrids=False
MinorLogGrids=False
BaseLine=False
AlignZ=True
Align Cursors=True
TagFormatX=3
TagFormatY=3
FormulaFormat=2
EndMode=SCALE
Graph Background=#FFFFFF
Tracker Intercept=False
Tracker Mouse=True
Tracker Cursor=True
Tracker Cursor BranchInfo=False
Horizontal Cursor=False
Same Y Scales=Yes
Enable X Scaling=True
Enable Y Scaling=True

Keep X Scales The Same=False

Number of Grids X=5

Number of Grids Y=5

Cursor Select Color Primary=#C0C0C0

Cursor Select Color Secondary=#000000

Data Point Labels Color

Fore=Height=-19,FStyle=0,Color=#000000,Name=Arial

Data Point Labels Color Back=#FFFF00

OperPoint=False

AutoScaleRanges=False

FFT_NPts="1024"

FFT_IncludeDCHarmonic=False

FFT_AutoScale_Harmonics="10"

PrinterAutoTile=No

PrinterBlackBorder=No

AnimateWait=None

AnimateWaitTime=500

AnimatePressAfter=0

Save_For_Future=No

Reduce_Display=1

Reduce_Save=1

Reduce_ThrowDataOut=0

Num Out Header Left

Num Out Header Center="\$MC\n\$user\n\$company\n\$Analysis
of \$name\n"

Num Out Header Right

Num Out Delimiter=32

Num Out Write=True

Num Out Write Main Header=True

Num Out Write Limits=True

Num Out Write Branch Header=True

Num Out Write Models=True

Num Out Write Zero Models=True

Num Out Write Undefined Models=True

Num Out Write Operating Point=True

Num Out Write Measurement Values=True

Num Out Write Tolerance Detail=True

Num Out Write Noise=True

Num Out Write Values=True

Num Out Write Waveform Header=True

Num Out Allow Dup Y Expr=False

Num Out Low="FMIN"

Num Out High="FMAX"

Num Out

Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New

Num Out Format=3

Num Out HideNonSelected=False

Num Out UseActualDataPoints=False

AutoSaveWave=False

Wave Format=16E

State Variables Format=5E

Print Individual Pages=False

[Tools]

Pos=Top

SELECT=Yes

PAN=Yes

GRAPHIC=Yes

LINE=No

ELLIPSE=No

RECT=No

DIAM=No

ARC=No

PIE=No

TRIANGLE=No

STAR=No

LEFTBRK=No

RIGHTBRK=No

BOTHBRK=No

META=No

PARALLELOGRAM=No

POLYCLOS=No

POLYOPEN=No

SCALE=Yes

CURSOR=Yes

MEASUREH=Yes

MEASUREV=Yes

TAG=Yes

PTAG=Yes

TEXT=Yes
PROPERTY=Yes
START=Yes
STOP=Yes
PAUSE=Yes
RESUME=No
DATAPTS=Yes
TOKENS=Yes
RULER=No
PLUS=No
XAXIS=Yes
YAXIS=Yes
MINORLOG=Yes
LOG25=No
BASELINE=No
HORIZCUR=No
GOTOX=Yes
GOTOY=Yes
GOTOPERF=Yes
GOTOBRNC=Yes
CLEAR_ACCUMULATED=Yes
PDELETE_ALL_PLOTS=Yes
NEXT=Yes
NEXTIN=Yes
PEAK=Yes
VALLEY=Yes

HIGH=Yes
LOW=Yes
INFLECTN=Yes
GHIGH=Yes
GLOW=Yes
BOTTOM=Yes
TOP=Yes
WAVEFORMBUFFER=Yes
AOUTPUT=Yes
PKEY=No
ENXSCALE=Yes
ENYSCALE=Yes
ZOOMIN=Yes
ZOOMOUT=Yes
AUTOSCALE=No
RESTORESCALE=No
COLOR=No
FONT=No
STYLE=Yes
SELNEXT=No
NORMALIZE=No
NORMALIZE_MIN=No
NORMALIZE_MAX=No
ADD_TAG_LEFT=No
ADD_TAG_RIGHT=No
ADD_HORZ_TAG=No

ADD_VERT_TAG=No
ALIGN_CURSORS=No
ALIGN_CURSORSZ=No
CURSORTOCLIPBOARD=No
TRACKER_CURSOR=No
TRACKER_CURSOR_BRANCHINFO=No
TRACKER_INTERCEPT=No
TRACKER_MOUSE=No
TOFRONT=Yes
TOBACK=Yes
SPLITCIRTEXTH=No
SPLITCIRTEXTV=No
SPACE_SPLITTERS_EVENLY=No
NORMALCIR=No
LABEL_WAVEFORM=No
LABEL_DATA_POINTS=No
WFB_ADD_TO_LIMITS=No
ENVELOPE=No
SAMEYSCALES=No
KEEPXSCALESTHESAME=No
CURVEFIT=No
ADD_MARKER=No
SHOWWATCH=No
BP=No
TOGGLEMODE=No
REMOVEALLTEXT=No

AUTOSCALEX=No

LABELALLMINOR=No

ALIGNLEFT=No

ALIGNCENTER=No

ALIGNRIGHT=No

ALIGNTOP=No

ALIGNMIDDLES=No

ALIGNBOTTOM=No

[APage]

Analysis=AC

Name="Main"

[DC]

WinID=3

Font=Height=-15,FStyle=0,Color=#0000FF,Name=Arial

WinBackGround Color=#FFFFFF

Select Color=#000000

Anchor Color=#000000

Select Box Color=#000080

Title

AutoTitle=Yes

Grid Color=#808080

Grid Weight=1

Grid Pattern=Dot

Tracker

Foreground=Height=-19,FStyle=0,Color=#000000,Name=Arial

Tracker Background=#FFFF00

Baseline color=#0000FF
BaseLine Weight=1
CurveFit color=#000000
CurveFit Weight=2
CurveFit Pattern=Dash
Static Grids=False
PlusMark=False
MinorLog25=Off
LabelMinor=Off
DataPoints=False
Token=False
Ruler=False
XAxisGrids=False
YAxisGrids=False
MinorLogGrids=False
BaseLine=False
AlignZ=True
Align Cursors=True
TagFormatX=3
TagFormatY=3
FormulaFormat=2
EndMode=SCALE
Graph Background=#FFFFFF
Tracker Intercept=False
Tracker Mouse=True
Tracker Cursor=True

Tracker Cursor BranchInfo=False
Horizontal Cursor=False
Same Y Scales=Yes
Enable X Scaling=True
Enable Y Scaling=True
Keep X Scales The Same=False
Number of Grids X=5
Number of Grids Y=5
Cursor Select Color Primary=#C0C0C0
Cursor Select Color Secondary=#000000
Data Point Labels Color
Fore=Height=-19,FStyle=0,Color=#000000,Name=Arial
Data Point Labels Color Back=#FFFF00
AutoScaleRanges=False
PrinterAutoTile=No
PrinterBlackBorder=No
AnimateWait=None
AnimateWaitTime=500
AnimatePressAfter=0
Save_For_Future=No
Reduce_Display=1
Reduce_Save=1
Reduce_ThrowDataOut=0
Num Out Header Left
Num Out Header Center="\$MC\n\$user\n\$company\n\$Analysis
of \$name\n"

Num Out Header Right
Num Out Delimiter=32
Num Out Write=True
Num Out Write Main Header=True
Num Out Write Limits=True
Num Out Write Branch Header=True
Num Out Write Models=True
Num Out Write Zero Models=True
Num Out Write Undefined Models=True
Num Out Write Measurement Values=True
Num Out Write Tolerance Detail=True
Num Out Write Values=True
Num Out Write Waveform Header=True
Num Out Allow Dup Y Expr=False
Num Out Low="DCMIN"
Num Out High="DCMAX"
Num Out
Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New
Num Out Format=3
Num Out HideNonSelected=False
Num Out UseActualDataPoints=False
AutoSaveWave=False
Wave Format=16E
State Variables Format=5E
Print Individual Pages=False
[Tools]

Pos=Top
SELECT=Yes
PAN=Yes
GRAPHIC=Yes
LINE=No
ELLIPSE=No
RECT=No
DIAM=No
ARC=No
PIE=No
TRIANGLE=No
STAR=No
LEFTBRK=No
RIGHTBRK=No
BOTHBRK=No
META=No
PARALLELOGRAM=No
POLYCLOS=No
POLYOPEN=No
SCALE=Yes
CURSOR=Yes
MEASUREH=Yes
MEASUREV=Yes
TAG=Yes
PTAG=Yes
TEXT=Yes

PROPERTY=Yes
START=Yes
STOP=Yes
PAUSE=Yes
RESUME=No
DATAPTS=Yes
TOKENS=Yes
RULER=No
PLUS=No
XAXIS=Yes
YAXIS=Yes
MINORLOG=Yes
LOG25=No
BASELINE=No
HORIZCUR=No
GOTOX=Yes
GOTOY=Yes
GOTOPERF=Yes
GOTOBRNC=Yes
CLEAR_ACCUMULATED=Yes
PDELETE_ALL_PLOTS=Yes
NEXT=Yes
NEXTIN=Yes
PEAK=Yes
VALLEY=Yes
HIGH=Yes

LOW=Yes
INFLECTN=Yes
GHIGH=Yes
GLOW=Yes
BOTTOM=Yes
TOP=Yes
WAVEFORMBUFFER=Yes
AOUTPUT=Yes
PKEY=No
ENXSCALE=Yes
ENYSCALE=Yes
ZOOMIN=Yes
ZOOMOUT=Yes
AUTOSCALE=No
RESTORESCALE=No
COLOR=No
FONT=No
STYLE=Yes
SELNEXT=No
NORMALIZE=No
NORMALIZE_MIN=No
NORMALIZE_MAX=No
ADD_TAG_LEFT=No
ADD_TAG_RIGHT=No
ADD_HORIZ_TAG=No
ADD_VERT_TAG=No

ALIGN_CURSORS=No
ALIGN_CURSORSZ=No
CURSORTOCLIPBOARD=No
TRACKER_CURSOR=No
TRACKER_CURSOR_BRANCHINFO=No
TRACKER_INTERCEPT=No
TRACKER_MOUSE=No
TOFRONT=Yes
TOBACK=Yes
SPLITCIRTEXTH=No
SPLITCIRTEXTV=No
SPACE_SPLITTERS_EVENLY=No
NORMALCIR=No
LABEL_WAVEFORM=No
LABEL_DATA_POINTS=No
WFB_ADD_TO_LIMITS=No
ENVELOPE=No
SAMEYSCALES=No
KEEPXSCALESTHESAME=No
CURVEFIT=No
ADD_MARKER=No
SHOWWATCH=No
BP=No
TOGGLEMODE=No
REMOVEALLTEXT=No
AUTOSCALEX=No

LABELALLMINOR=No

ALIGNLEFT=No

ALIGNCENTER=No

ALIGNRIGHT=No

ALIGNTOP=No

ALIGNMIDDLES=No

ALIGNBOTTOM=No

[APage]

Analysis=DC

Name="Main"

[HmDistortion]

WinID=4

Font=Height=-15,FStyle=0,Color=#0000FF,Name=Arial

WinBackGround Color=#FFFFFF

Select Color=#000000

Anchor Color=#000000

Select Box Color=#000080

Title

AutoTitle=Yes

Grid Color=#808080

Grid Weight=1

Grid Pattern=Dot

Tracker

Foreground=Height=-19,FStyle=0,Color=#000000,Name=Arial

Tracker Background=#FFFF00

Baseline color=#0000FF

BaseLine Weight=1
CurveFit color=#000000
CurveFit Weight=2
CurveFit Pattern=Dash
Static Grids=False
PlusMark=False
MinorLog25=Off
LabelMinor=Off
DataPoints=False
Token=False
Ruler=False
XAxisGrids=True
YAxisGrids=True
MinorLogGrids=True
BaseLine=False
AlignZ=True
Align Cursors=True
TagFormatX=3
TagFormatY=3
FormulaFormat=2
EndMode=SCALE
Graph Background=#FFFFFF
Tracker Intercept=False
Tracker Mouse=True
Tracker Cursor=True
Tracker Cursor BranchInfo=False

Horizontal Cursor=False
Same Y Scales=Yes
Enable X Scaling=True
Enable Y Scaling=True
Keep X Scales The Same=False
Number of Grids X=5
Number of Grids Y=5
Cursor Select Color Primary=#C0C0C0
Cursor Select Color Secondary=#000000
Data Point Labels Color
Fore=Height=-19,FStyle=0,Color=#000000,Name=Arial
Data Point Labels Color Back=#FFFF00
OperPoint=True
AutoScaleRanges=False
DoPSS=True
PSS_Periods="1"
PSS_Iterations="5"
PSS_Error="1u"
PSS_ShowPlots=True
FFT_NPts="1024"
FFT_IncludeDCHarmonic=False
FFT_AutoScale_Harmonics="10"
PrinterAutoTile=No
PrinterBlackBorder=No
Save_For_Future=No
Reduce_Display=1

Reduce_Save=1

Reduce_ThrowDataOut=0

Num Out Header Left

Num Out Header Center="\$MC\n\$user\n\$company\n\$Analysis
of \$name\n"

Num Out Header Right

Num Out Delimiter=32

Num Out Write=True

Num Out Write Main Header=True

Num Out Write Limits=True

Num Out Write Branch Header=True

Num Out Write Models=True

Num Out Write Zero Models=True

Num Out Write Undefined Models=True

Num Out Write Operating Point=True

Num Out Write Measurement Values=True

Num Out Write Tolerance Detail=True

Num Out Write Values=True

Num Out Write Waveform Header=True

Num Out Allow Dup Y Expr=False

Num Out

Font=Height=-16,FStyle=0,Color=#000080,Name=Courier New

Num Out Format=3

Num Out HideNonSelected=False

Num Out UseActualDataPoints=False

AutoSaveWave=False

Wave Format=16E

State Variables Format=5E

Print Individual Pages=False

[Tools]

Pos=Top

SELECT=Yes

PAN=Yes

GRAPHIC=Yes

LINE=No

ELLIPSE=No

RECT=No

DIAM=No

ARC=No

PIE=No

TRIANGLE=No

STAR=No

LEFTBRK=No

RIGHTBRK=No

BOTHBRK=No

META=No

PARALLELOGRAM=No

POLYCLOS=No

POLYOPEN=No

SCALE=Yes

CURSOR=Yes

MEASUREH=Yes

MEASUREV=Yes
TAG=Yes
PTAG=Yes
TEXT=Yes
PROPERTY=Yes
START=Yes
STOP=Yes
PAUSE=Yes
RESUME=No
DATAPTS=Yes
TOKENS=Yes
RULER=No
PLUS=No
XAXIS=Yes
YAXIS=Yes
MINORLOG=Yes
LOG25=No
BASELINE=No
HORIZCUR=No
GOTOX=Yes
GOTOY=Yes
GOTOPERF=Yes
GOTOBRNC=Yes
CLEAR_ACCUMULATED=Yes
PDELETE_ALL_PLOTS=Yes
NEXT=Yes

NEXTIN=Yes
PEAK=Yes
VALLEY=Yes
HIGH=Yes
LOW=Yes
INFLECTN=Yes
GHIGH=Yes
GLOW=Yes
BOTTOM=Yes
TOP=Yes
WAVEFORMBUFFER=Yes
AOUTPUT=Yes
PKEY=No
ENXSCALE=Yes
ENYSCALE=Yes
ZOOMIN=Yes
ZOOMOUT=Yes
AUTOSCALE=No
RESTORESCALE=No
COLOR=No
FONT=No
STYLE=Yes
SELNEXT=No
NORMALIZE=No
NORMALIZE_MIN=No
NORMALIZE_MAX=No

ADD_TAG_LEFT=No
ADD_TAG_RIGHT=No
ADD_HORZ_TAG=No
ADD_VERT_TAG=No
ALIGN_CURSORS=No
ALIGN_CURSORSZ=No
CURSORTOCLIPBOARD=No
TRACKER_CURSOR=No
TRACKER_CURSOR_BRANCHINFO=No
TRACKER_INTERCEPT=No
TRACKER_MOUSE=No
TOFRONT=Yes
TOBACK=Yes
SPLITCIRTEXTH=No
SPLITCIRTEXTV=No
SPACE_SPLITTERS_EVENLY=No
NORMALCIR=No
LABEL_WAVEFORM=No
LABEL_DATA_POINTS=No
WFB_ADD_TO_LIMITS=No
ENVELOPE=No
SAMEYSCALES=No
KEEPXSCALESTHESAME=No
CURVEFIT=No
ADD_MARKER=No
SHOWWATCH=No

BP=No

TOGGLEMODE=No

REMOVEALLTEXT=No

AUTOSCALEX=No

LABELALLMINOR=No

ALIGNLEFT=No

ALIGNCENTER=No

ALIGNRIGHT=No

ALIGNTOP=No

ALIGNMIDDLES=No

ALIGNBOTTOM=No

[APage]

Analysis=HmDistortion

Name="Main"

[Monte Carlo Options]

Analysis=Transient

Status=Off

Zero Tolerance=False

Eliminate Outliers=False

Distribution=Normal

Number of Runs

Seed=0

[Monte Carlo Options]

Analysis=AC

Status=Off

Zero Tolerance=False

Eliminate Outliers=False

Distribution=Normal

Number of Runs

Seed=0

[Monte Carlo Options]

Analysis=DC

Status=Off

Zero Tolerance=False

Eliminate Outliers=False

Distribution=Normal

Number of Runs

Seed=0

[Monte Carlo Options]

Analysis=HmDistortion

Status=Off

Zero Tolerance=False

Eliminate Outliers=False

Distribution=Normal

Number of Runs=10

Seed=0

[Limits]

Analysis=Transient

StateVar=Zero

RunOption=Normal

Temperature Type=Linear

Accumulate Plots=False

IgnoreExprErrors=False
[WaveForm]
Analysis= Transient
Plt=1
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable
Line Color=#0000FF
Text Color=#0000FF
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis= Transient
Plt=1
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable

Line Color=#000000
Text Color=#000000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis=Transient
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable
Line Color=#008000
Text Color=#008000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"

ScaleUnitsY="Auto"

SFmtX=3

SFmtY=3

NOFmtX=3

NOFmtY=3

[Limits]

Analysis=AC

Sweep type=Auto

StateVar=Zero

RunOption=Normal

Temperature Type=Linear

Accumulate Plots=False

IgnoreExprErrors=False

FirstValueDisplay=Mag

SecondValueDisplay=PhaseDeg

DisplayValuesInProbe=DC

[WaveForm]

Analysis=AC

Plt=1

AliasID=-1

Options=LINEARY

Enable=Enable

Line Color=#0000FF

Text Color=#0000FF

Rainbow=False

VFmtX=3

VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis=AC
Plt=1
AliasID=-1
Options=LINEARY
Enable=Enable
Line Color=#000000
Text Color=#000000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3

NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis=AC
AliasID=-1
Options=LINEARY
Enable=Enable
Line Color=#008000
Text Color=#008000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[Limits]
Analysis=DC
StateVar=Zero
RunOption=Normal
Temperature Type=Linear
Accumulate Plots=False

IgnoreExprErrors=False
Sweep1 type=Auto
Sweep2 type=None
[WaveForm]
Analysis=DC
Plt=1
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable
Line Color=#0000FF
Text Color=#0000FF
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis=DC
AliasID=-1
Options=LINEARX,LINEARY

Enable=Enable
Line Color=#000000
Text Color=#000000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"
ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[WaveForm]
Analysis=DC
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable
Line Color=#008000
Text Color=#008000
Rainbow=False
VFmtX=3
VFmtY=3
ScaleFactorX="None"
ScaleFactorY="None"

ScaleUnitsX="Auto"
ScaleUnitsY="Auto"
SFmtX=3
SFmtY=3
NOFmtX=3
NOFmtY=3
[Limits]
Analysis=HmDistortion
FreqMethod=Log
AmpMethod=List
PlaceText=True
StateVar=Zero
RunOption=Normal
Temperature Type=Linear
Accumulate Plots=False
IgnoreExprErrors=False
[WaveForm]
Analysis=HmDistortion
Plt=1
AliasID=-1
Options=LINEARX,LINEARY
Enable=Enable
Line Color=#0000FF
Text Color=#0000FF
Rainbow=False
VFmtX=3

VFmtY=3

ScaleFactorX="None"

ScaleFactorY="None"

ScaleUnitsX="Auto"

ScaleUnitsY="Auto"

SFmtX=3

SFmtY=3

NOFmtX=3

NOFmtY=3

[Limits]

Analysis=DynamicAC

FirstValueDisplay=Mag

SecondValueDisplay=PhaseDeg

PlaceText=True

[Limits]

Analysis=DynamicDC

PlaceText=True

[Pane]

Analysis=Transient

[Pane]

Analysis=AC

[Pane]

Analysis=DC

[Pane]

Analysis=HmDistortion

[Pane]

Analysis=ImDistortion
[Pane]
Analysis=Stability
[Optimize]
Analysis=Transient
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2
InitializeEach=True
Method=Powell
Update_Plot=False
Minimize_Plot=False
StartWith=Existing

GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Optimize]
Analysis=AC
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2
InitializeEach=True
Method=Powell
Update_Plot=False
Minimize_Plot=False

StartWith=Existing
GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Optimize]
Analysis=DC
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2
InitializeEach=True
Method=Powell
Update_Plot=False

Minimize_Plot=False
StartWith=Existing
GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Optimize]
Analysis=HmDistortion
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2
InitializeEach=True
Method=Powell

Update_Plot=False
Minimize_Plot=False
StartWith=Existing
GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Optimize]
Analysis=DynamicAC
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2
InitializeEach=True

Method=Powell
Update_Plot=False
Minimize_Plot=False
StartWith=Existing
GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Optimize]
Analysis=DynamicDC
Format=3
ThatCnt=10
POWELL_TOL=1e-4
POWELL_RelPercentTol=.1
POWELL_PercentTol=1m
HOOKE_TOL=1e-4
HOOKE_PercentTol=1m
HOOKE_RHO=.3
HOOKE_EPSILON=1e-9
HOOKE_ITERMAX=1000
DE_MAXITER=200
DE_IPRINT=50
DE_PCROS=.9
DE_FACT=.5
DE_MULTIPLIER=5
InitialRangeFactor=2

InitializeEach=True
Method=Powell
Update_Plot=False
Minimize_Plot=False
StartWith=Existing
GridSize=4
NumberOfTrys=10
Log=False
Show Log=False
[Watch]
Analysis= Transient
Format=3
ExprPercentWidth=80
[Watch]
Analysis=AC
Format=3
ExprPercentWidth=80
[Watch]
Analysis=DC
Format=3
ExprPercentWidth=80
[Watch]
Analysis=HmDistortion
Format=3
ExprPercentWidth=80
[TF]

Input Source

Place Text=False

[WCTolerance]

Var Width=100

Nominal Width=72

Tol Width=152

Tol Name=Drift

Col Width Neq=50

Col Width Pos=50

Col Width Rnd=50

Tol Name=Drift

Col Width Neq=50

Col Width Pos=50

Col Width Rnd=50

[WCFiles]

UseFile=<Library>Standard.tlib

AVAILABLE_FILE=<Library>Standard.tlib

[OPMethods]

Analysis= Transient

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=AC

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=DC

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=HmDistortion

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=ImDistortion

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=Stability

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=DynamicAC

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

[OPMethods]

Analysis=DynamicDC

Standard Newton-Raphson=0,0

Source Stepping=0,0

Diagonal Gmin Stepping=0,0

Junction Gmin Stepping=0,0

Pseudo Transient=0,0

ORIGINAL FILE

[Direct download link from Spectrum-Soft website](#). This is the original file. Change its extension to "macro" (from its download link of: ".cir")

before saving it to the library subfolder within the topmost folder called: "MC12" on your computer.

Data sheet posted to Spectrum-Soft and its PDF hard-copy:

**Spark Gap Macro Winter 1999**
178KB  PDF file

Download

Text of original file:

```
[Main]
FileType=CIR
Version=5.20
Program=Micro-Cap V
Screen=800,600
MC5Version=2.1.2
NLCnt=55
TXCnt=9

[FontAndColor]
Circuit Background=15
Grid Text=Height=-12,FStyle=0,Color=9,Name=Arial
Circuit Object=Height=-16,FStyle=0,Color=4,Name=Arial
Component=12
Attribute Text=Height=-12,FStyle=0,Color=2,Name=Arial
Wire=2
Select=9
Pin=9
```

Box Region=4
Node Number=Height=-12,FStyle=0,Color=13,Name=Arial
Node Voltage=0
Digital Path=9
Title Block=Height=-16,FStyle=0,Color=0,Name=Arial
Analysis Text=Height=-16,FStyle=0,Color=12,Name=Arial
Analysis Grid Color=8
Analysis Graph Background=15
Analysis Object=Height=-16,FStyle=0,Color=4,Name=Arial
Analysis Window Background=15
NumOut=Height=-16,FStyle=0,Color=4,Name=Courier New
ScaleColor=On

[Window Placement]

Circuit=2,3, -1,-1, -4,-22, 132,126,770,449
CircuitA=0,0, 0,0, 0,0, 0,0,0,0
Analysis=0,0, 0,0, 0,0, 0,0,0,0
ProbeC=0,0, 0,0, 0,0, 0,0,0,0
ProbeA=0,0, 0,0, 0,0, 0,0,0,0

[Comp]

Name=Battery
Grid=27,7
Rot=2

[Attr]

ONV=-30,-36,PART,V1
Style=8192

[Attr]

ONV=-27,-23,VALUE,0
Style=8192

[Comp]

Name=Inductor
Grid=28,17

Rot=5

[Attr]

ONV=10,-37,PART,L1

Style=8192

[Attr]

ONV=10,-22,VALUE,Lpl

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Comp]

Name=Resistor

Grid=34,11

Rot=7

[Attr]

ONV=9,11,PART,R1

Style=8192

[Attr]

ONV=8,25,VALUE,Rpl

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Comp]

Name=Capacitor

Grid=13,17

Rot=5

[Attr]

ONV=13,-41,PART,C1

Style=8192

[Attr]

ONV=13,-25,VALUE,Cpar

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=34,7,34,11

[Wire]

Grids=28,7,28,11

[Wire]

Grids=27,7,28,7

[Comp]

Name=Resistor

Grid=9,9

Rot=7

[Attr]

ONV=-24,11,PART,R2

Style=8192

[Attr]

ONV=-45,26,VALUE,10Meg

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=13,7,13,11

[Wire]

Grids=9,7,13,7

[Wire]

Grids=9,7,9,9

[Wire]

Grids=28,17,31,17

[Wire]

Grids=9,17,13,17

[Comp]

Name=Resistor

Grid=31,17

Rot=7

[Attr]

ONV=8,11,PART,R3

Style=8192

[Attr]

ONV=8,24,VALUE,Rneg

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=31,17,34,17

[Comp]

Name=Diode

Grid=31,23

Rot=7

[Attr]

ONV=-28,12,PART,D1

Style=8192

[Attr]

ONV=0,0,VALUE,

[Attr]

ONV=-61,27,MODEL,DCLAMP

[Comp]

Name=Diode

Grid=21,23

Rot=1

[Attr]

ONV=12,12,PART,D2

Style=8192

[Attr]

ONV=0,0,VALUE,

[Attr]

ONV=12,27,MODEL,DCLAMP

[Wire]

Grids=21,29,31,29

[Wire]

Grids=13,7,21,7

[Comp]

Name=Capacitor

Grid=21,18

Rot=5

[Attr]

ONV=14,-38,PART,C2

Style=8192

[Attr]

ONV=14,-24,VALUE,Carc

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=21,7,21,12

[Comp]

Name=Resistor

Grid=10,23

[Attr]

ONV=19,-32,PART,R4

Style=8192

[Attr]

ONV=11,-19,VALUE,1e10

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=16,23,21,23

[Wire]

Grids=9,23,10,23

[Wire]

Grids=9,17,9,23

[Wire]

Grids=16,23,16,29

[Wire]

Grids=9,29,10,29

[Wire]

Grids=9,23,9,29

[Comp]

Name=NFV

Grid=50,13

Rot=3

[Attr]

ONV=18,-42,PART,E2

Style=8192

[Attr]

ONV=19,-27,VALUE,IF (ABS(V(Pin1,Pin2))>V(Thresh),10,IF (ABS(I(V1))>Is
us,10,10n))

Style=8192

[Attr]

ONV=0,0,FREQ,

[Comp]

Name=Ground

Grid=50,13

Rot=1

[Comp]

Name=NFV

Grid=47,24

Rot=3

[Attr]

ONV=16,-38,PART,E3

Style=8192

[Attr]

ONV=17,-23,VALUE,Vthres+(Vthres*V(lon))

Style=8192

[Attr]

ONV=0,0,FREQ,

[Comp]

Name=Ground

Grid=47,24

Rot=1

[Comp]

Name=Resistor

Grid=44,7

[Attr]

ONV=17,-35,PART,R5

Style=8192

[Attr]

ONV=18,-21,VALUE,10

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Comp]

Name=Capacitor

Grid=44,13

Rot=3

[Attr]

ONV=-29,-41,PART,C3

Style=8192

[Attr]

ONV=-32,-27,VALUE,10p

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=44,13,50,13

[Comp]

Name=NTVofV

Grid=27,37

[Attr]

ONV=63,12,PART,E4

Style=8192

[Attr]

ONV=63,27,TABLE,(0,0) (1U,.5565M) (10M,1M) (100M,86M) (1,217M)
(10,521M) (100,956M)

[Comp]

Name=Ground

Grid=33,43

Rot=1

[Comp]

Name=Ground

Grid=27,43

Rot=1

[Comp]

Name=NFV

Grid=68,36

Rot=3

[Attr]

ONV=17,-39,PART,E5

Style=8192

[Attr]

ONV=17,-22,VALUE,V(Pin1,Pin2)

Style=8192

[Attr]

ONV=0,0,FREQ,

[Comp]

Name=Ground

Grid=68,36

Rot=1

[Comp]

Name=Ground

Grid=54,36

Rot=1

[Comp]

Name=Resistor

Grid=60,30

Rot=2

[Attr]

ONV=-28,-35,PART,R6

Style=8192

[Attr]

ONV=-38,-20,VALUE,1Meg

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Comp]

Name=Capacitor

Grid=62,30

Rot=4

[Attr]

ONV=16,-38,PART,C4

Style=8192

[Attr]

ONV=17,-24,VALUE,1u

Style=8192

[Attr]

ONV=0,0,FREQ,

[Attr]

ONV=0,0,MODEL,

[Wire]

Grids=60,30,62,30

[Comp]

Name=NFV

Grid=54,36

Rot=3

[Attr]

ONV=-31,-42,PART,E6

Style=8192

[Attr]

ONV=-98,-28,VALUE,-100Meg*V(Dif)

Style=8192

[Attr]

ONV=0,0,FREQ,

[Comp]

Name=NFV

Grid=75,27

Rot=5

[Attr]

ONV=16,-42,PART,E8

Style=8192

[Attr]

ONV=14,-27,VALUE,100*V(Dif)

Style=8192

[Attr]

ONV=0,0,FREQ,

[Comp]

Name=Ground

Grid=75,27

Rot=1

[Comp]

Name=NFV

Grid=27,43

Rot=3

[Attr]

ONV=-31,-37,PART,E9

Style=8192

[Attr]

ONV=-86,-23,VALUE,ABS(V(Dvdt))

Style=8192

[Attr]

ONV=0,0,FREQ,

[Wire]

Grids=9,15,9,17

[Wire]

Grids=5,7,9,7

[Wire]

Grids=5,17,9,17

[Comp]

Name=NFI

Grid=16,29

Rot=1

[Attr]

ONV=-9,3,PART,G1

Style=8192

[Attr]

ONV=-96,17,VALUE,V(Switch,Pin2)*V(Switchchk)

Style=8192

[Attr]

ONV=0,0,FREQ,

[Wire]

Grids=38,7,44,7

[Wire]

Grids=21,18,21,23

[Wire]

Grids=28,7,34,7

[Grid Text]

Text=.Parameters(Vthres, Varc, Isus,Rneg,Lpl,Rpl,Cpar,Carc)

Grid=9,48

Color=1

[Grid Text]

Text=Dvdt

Grid=75,21

Color=1

[Grid Text]

Text=Dif

Grid=60,30

Color=1

[Grid Text]

Text=lon

Grid=33,37

Color=1

[Grid Text]

Text=Switchchk

Grid=38,7

Color=1

[Grid Text]

Text=Thresh

Grid=47,18

Color=1

[Grid Text]

Text=Switch

Grid=16,23

Color=1

[Grid Text]

Text=Pin2

Grid=5,17

Color=1

[Grid Text]

Text=Pin1

Grid=5,7

Color=1

[Schematic]

Page 0=0

TabSize 0=320

Page 1=0

TabSize 1=320

Page 2=0

TabSize 2=320

Page 3=0

TabSize 3=320

Splitter.xs=0

Splitter.ys=0

TextQuad=4099

Scale=1

PrinterScale=-1

View=304

[Page]

Index=0

Name=Page 1

SB 3=8,0

Grid=50,10

[Text Area]

Font=Height=-16,FStyle=0,Color=4,Name=Courier New

Comment Color=8

Background Color=15

Len=27

.MODEL DCLAMP D (BV=VARC)

[Printer]

T.AutoTile=No

T.BlackBorder=No

A.AutoTile=No

A.BlackBorder=No

D.AutoTile=No

D.BlackBorder=No

[Analysis]

AnimateWait=0

AnimateWaitTime=500

Same Y Scales=Yes

T.Save_For_Future=No

A.Save_For_Future=No

D.Save_For_Future=No

T.Reduce_Display=1

T.Reduce_Save=1

A.Reduce_Display=1

A.Reduce_Save=1

D.Reduce_Display=1

D.Reduce_Save=1

[Monte Carlo Options]

Analysis=Transient

Status=Off

Distribution=Normal

Number of Runs

[Monte Carlo Options]

Analysis=AC

Status=Off

Distribution=Normal

Number of Runs

[Monte Carlo Options]

Analysis=DC

Status=Off

Distribution=Normal

Number of Runs

[Limits]

Analysis= Transient

OPT=120

[WaveForm]

Analysis= Transient

Options=LINEARX,LINEARY

Plt=1

SFmtX

SFmtY

Color=12

[WaveForm]

Analysis= Transient

Options=LINEARX,LINEARY

Plt=1

SFmtX

SFmtY

Color=9

[WaveForm]

Analysis= Transient

Options=LINEARX,LINEARY

SFmtX

SFmtY

Color=2

[Limits]

Analysis=AC

OPT=0

[WaveForm]

Analysis=AC

Options=LINEARY

Plt=1

SFmtX

SFmtY

Color=12

[WaveForm]

Analysis=AC

Options=LINEARY

Plt=1

SFmtX

SFmtY

Color=9

[WaveForm]

Analysis=AC

Options=LINEARY

SFmtX

SFmtY

Color=2

[Limits]

Analysis=DC

OPT=0

[WaveForm]

Analysis=DC

Options=LINEARX,LINEARY

Plt=1

SFmtX

SFmtY

Color=12

[WaveForm]

Analysis=DC

Options=LINEARX,LINEARY

SFmtX

SFmtY

Color=9

[WaveForm]

Analysis=DC

Options=LINEARX,LINEARY

SFmtX

SFmtY

Color=2

[Stepping]

Index=1

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=2

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=3

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=4

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=5

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=6

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=7

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=8

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=9

Status=Off

Method=Linear

Parameter Type=Component

[Stepping]

Index=10

Status=Off

Method=Linear

Parameter Type=Component

[DSP]

T.Status=Off

A.Status=Off

Siemens A81-C90X Gas-Filled Surge Arrestor/Arrestor Overview

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