


```

* =====Loop_Temp=====
let          j          = 1
while        (j          <= NoOfTemp )
let          Temp       = TempVals[j-1]
set          temp       = $&Temp
set          thisName   = $NameList[$&j]
let          $thisName  = 0 * vector(NoOfVin)
echo        "$&j $&Temp $temp $thisName "

* =====Loop_Vin=====
let          k          = 1
while        (k          <= NoOfVin )
let          Vin        = VinVals[k-1]
alter       e_gainin gain = $&Vin
tran        25u        5m        0        1u
linearize
set         specwindow= "blackman"
spec        200        8k        200        v(out)
let         thdsq      =mag(out[9])^2 +mag(out[14])^2 +mag(out[19])^2 +mag(out[24])^2
let         thd_percent= 100*sqrt(thdsq)/mag(out[4])
echo        "$&unknown.Vin $&thd_percent"
let         unknown.{ $thisName}[unknown.k-1] = thd_percent
repeat     3
destroy
end
if          ($?interrupt)
goto       bail
endif
let         k          =          k + 1
endwhile
setscale   VinVals
plot       $NameList loglog title "THD_% vs Vin_pK and Temp_C"
let         j          =          j + 1
endwhile
label     bail
echo      "Done."
end
.endc

*=====
.model     NPN1     NPN(     BF=2100 VAF=216 )
.model     PNP1     PNP(     BF=2100 VAF=21 )
.end

```

=====END_OF_SPICE=====

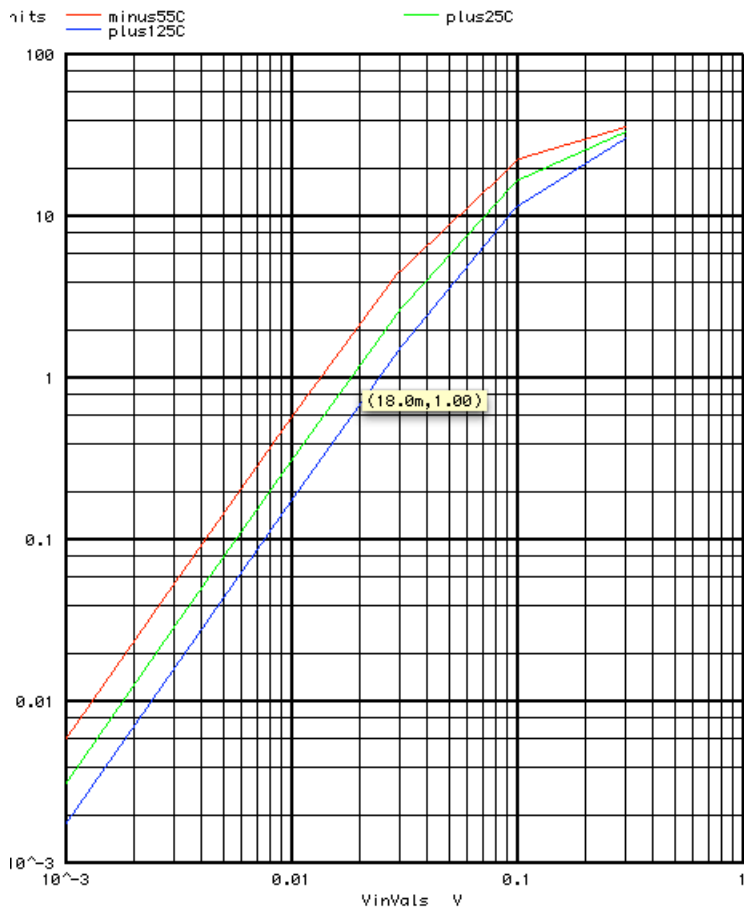
This simulation only works on MacSpice for now.
Data in spice apparently gets stored in vectors which are ready to be plotted.

This is a classical plot of the distortion versus differential input voltage. The distortion often limits the practical magnitude of the input signal to less than ideal signal to noise ratio levels. For instance the 1% distortion level is at a 18mV peak level. At this input voltage, the output current is at 35% of the maximum available output.

The distortion simulation does a transient analysis at various input levels and temperatures. The distortion is found by doing an RMS sum of the harmonics and then dividing by the fundamental.

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Graph 4 - unknown331: THD_% vs Vin_pK and Temp_C



Plotting distortion versus input level shows that the distortion is constant in shape and is scaled to absolute temperature.