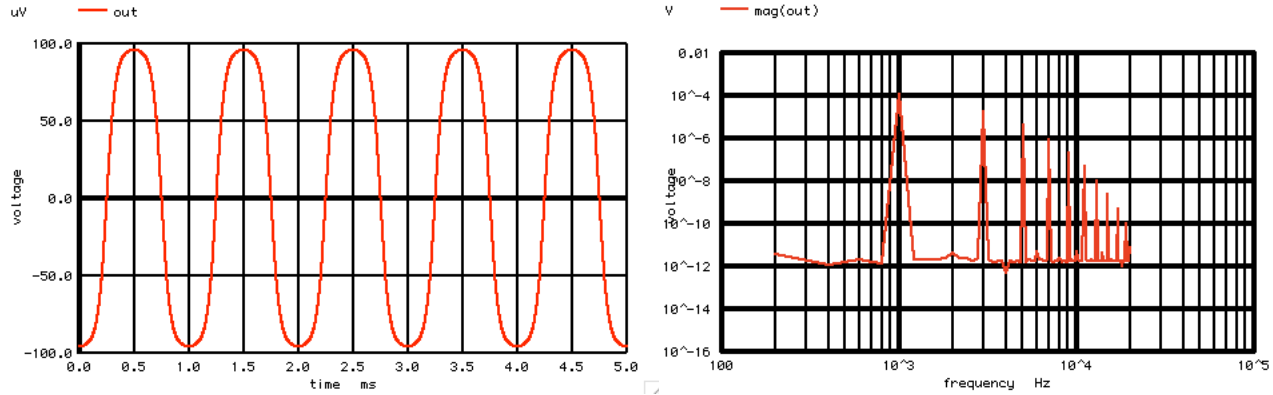


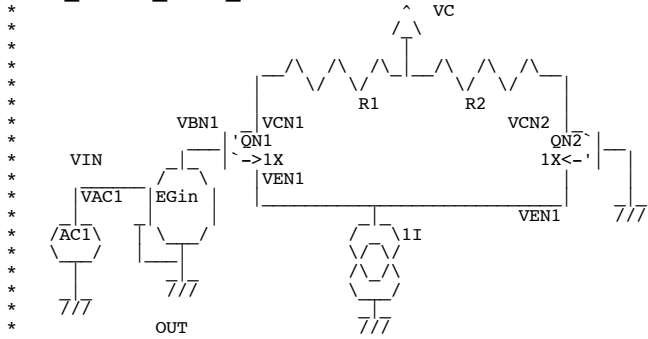
=====DIFF_STAGE_Find_Harmonics=====



```

=====Define Simulation Spectrum=====
totalperiod = 0.005 BinBandWidth = 200
sampleRate = 2.5E-05 nyquist = 20000
=====Run Transient=====
=====Run FFT=====
=====Define FFT Points=====
BinsPerHarmonic = 5
=====Printout FFT Points=====
index =4  freq = 1000  value = 0.000110669  dist_% = 100
index =9  freq = 2000  value = 4.50714E-12  dist_% = 4.07263E-06
index =14  freq = 3000  value = 1.80348E-05  dist_% = 16.2961
index =19  freq = 4000  value = 4.67826E-13  dist_% = 4.22725E-07
index =24  freq = 5000  value = 3.94386E-06  dist_% = 3.56364
index =29  freq = 6000  value = 4.62211E-12  dist_% = 4.17651E-06
index =34  freq = 7000  value = 8.88489E-07  dist_% = 0.802833
index =39  freq = 8000  value = 2.22783E-12  dist_% = 2.01305E-06
    
```

DIFF_STAGE_Find_Harmonics



```

.OPTIONS GMIN=1e-18 METHOD=trap srcsteps = 1 gminsteps = 1
*=====
VCC VC 0 DC 10
VTime VTime 0 DC 0 PWL( 0 0 1 1)
Vfreq1 Vfreq1 0 DC 1000
BVIN VIN 0 V = .1*cos(6.283185307179586*V(VFreq1)*V(VTime))
BOUT OUT 0 V = V(VCN1)-V(VCN2)
I1 VEN1 0 100u
QN1 VCN1 VIN VEN1 NPN1 1.00
QN2 VCN2 0 VEN1 NPN1 1.00
R1 VCN1 VC 1
R2 VCN2 VC 1
    
```

```

*=====Model Files=====
.model NPN1 NPN( BF=2100 VAF=216 )
.model PNP1 PNP( BF=2100 VAF=21 )
    
```

```

.control
echo "=====Define Simulation Spectrum=====
let tperiod = 5m
let sampRate = 25u
let BinBW = 1/tperiod
let nyquist = .5/sampRate
echo "totalperiod = $tperiod BinBandWidth = $BinBW"
echo "sampleRate = $sampRate nyquist = $nyquist"
echo "=====Run Transient=====
tran 25u 5m 0 1u
plot out
echo "=====Run FFT=====
linearize
set specwindow= "rectangular"
spec 200 20k 200 v(out)
plot mag(out) loglog
echo "=====Define FFT Points=====
let period = 5m
let inFreq = 1k
let binBW = 1/period
let FundBin= inFreq/binBW
echo "BinsPerHarmonic = $FundBin"
echo "=====Printout FFT Points=====
let i = 0
repeat 8
let i = i +1
    
```

```
let index = i*FundBin -1
let findex = FundBin -1
let freq = frequency[${&index}]
let val = mag(out[${&index}])
let dist = 100*val/mag(out[${&findex}])
echo "index=${&index} freq=${&freq} value=${&val} dist_%=${&dist}"
endrepeat
.endc
.end
```