



.model BC550C NPN(Is=7.049f Xti=3 Ege=1.11 Vaf=23.89 Bf=493.2 Ise=99.2f Ne=1.829 Ikr=1.542 Nk=6.339 Xtb=1.5 Br=2.886 Isc=7.371p Nc=1.508 Ikr=5.426 Rc=1.175 Cjc=5.5p Mjc=.3132 Vjc=.4824 Fc=.5 Cje=11.5p Mje=.6588 Vje=.5 Tr=10n Ti=420.3p Iif=1.374 Xif=39.42 Vif=10m mfg=PHILIPS)  
 .model BC560C PNP(Is=1.02f Xti=3 Ege=1.11 Vaf=34.62 Bf=401.6 Ise=35.26p Ne=5.635 Ikr=74.73m Nk=5.512 Xtb=1.5 Br=9.011 Isc=1.517f Nc=1.831 Ikr=1.469 Rc=1.151 Cjc=9.81p Mjc=.332 Vjc=.4865 Fc=.5 Cje=35p Mje=.3333 Vje=.5 Tr=10n Ti=524p Iif=3.947 Xif=17.71 Vif=10m mfg=PHILIPS)  
 .model BC546B NPN(Is=2.39E-14 NF=1.008 ISE=3.55E-15 NE=1.541 BF=284.3 IKF=0.357 VAF=63.2 NR=1.004 ISO=6.27E-14 NC=1.243 BR=7.946 IKR=0.1144 VAR=26.9 RB=1.002-.06 RBM=1. RE=0.4693 RC=0.85 XTB=0 EGO=1.11 XTI=3 CJE=1.36E-11 VJE=0.65 MJE=0.3279 TF=4.39E-10 XTF=120 VTF=6.643 ITF=0.7495 PTF=0 CJC=3.73E-12 VJC=0.3997 MJC=0.2955 XCJC=0.6193 TR=1.00E-12 CJS=0 VJS=0.75 MJS=0.333 Fc=0.9579 Vceo=65 Icrating=100m mfg=NGP)  
 .model BC556B PNP(Is=3.83E-14 NF=1.008 ISE=1.22E-14 NE=1.528 BF=34.4 IKF=0.08039 VAF=21.11 NR=1.005 ISC=2.85E-13 NC=1.28 BR=14.84 IKR=0.047 VAR=32.02 RB=1.00E-.06 RBM=1. RE=0.6202 RC=0.8713 XTB=0 EGO=1.11 XTI=3 CJE=1.23E-11 VJE=0.6106 MJE=0.378 TF=6.00E-10 XTF=3.414 VTF=5.23 ITF=0.1483 PTF=0 CJC=1.00E-11 VJC=0.1022 MJC=0.3563 XCJC=0.6288 TR=1.00E-12 CJS=0 VJS=0.75 MJS=0.333 Fc=0.8027 Vceo=65 Icrating=100m mfg=FAIRCHILD)  
 .model BD139 NPN(Is=2.3985E-13 BF=244.9 NF=1.0 BR=78.11 NR=1.007 ISE=1.0471E-14 NE=1.2 ISC=1.9314E-11 NC=1.45 VAF=98.5 VAR=7.46 IKF=1.1863 IKR=0.1445 RB=2.14 RBM=0.001 IRB=0.031 RE=0.0832 RC=0.01 CJE=2.9270E-10 VJE=0.67412 MJE=0.3300 Fc=0.5 CJC=4.8831E-11 VJC=0.5258 MJC=0.3928 XCJC=0.6287 XTB=1.1398 EGO=1.2105 XTI=3.0 Vceo=80 Icrating=3 mfg=FAIRCHILD)  
 .model BD140 PNP(Is=2.9537E-13 BF=201.4 NF=1.0 BR=23.765 NR=1.021 ISE=1.8002E-13 NE=1.5 ISC=7.0433p NC=1.38 VAF=137.0 VAR=137.0 RB=1.98 RBM=0.01 IRB=0.011 RE=0.1109 RC=0.01 CJE=2.1982E-10 VJE=0.7211 MJE=0.3685 Fc=0.5 CJC=6.8291E-11 VJC=0.5499 MJC=0.3668 XCJC=0.6287 XTB=1.4883 EGO=1.2343 XTI=3.0 Vceo=80 Icrating=3 mfg=FAIRCHILD)  
 .model 2SC5200 NPN(Is=300f BF=100 NF=1 BR=8.025 NR=1.0 ISE=200p IKF=18 NE=2.0 ISC=2.01764E-10 NC=1.5 VAF=600 VAR=100 IKR=1.39087 RB=1.1 RBM=0.00011 IRB=1.51189E-6 RE=0.0032 RC=0.0183 CJE=6.1n VJE=0.711 MJE=0.304 Fc=0.5 CJC=380p VJC=0.84 MJC=0.25 TF=5n TR=3.342E-7 XTB=1.72 EG=0.78 XTI=3 mfg=Toshiba)  
 .model 2SA1943 PNP(Is=650f BF=100 NF=1 BR=8.805 NR=1.0 ISE=10p IKF=15 NE=2.0 ISC=2.01764E-10 NC=1.5 VAF=600 VAR=100 IKR=1.39087 RB=1.1 RBM=0.00011 IRB=1.51189E-6 RE=0.0061 RC=0.0103 CJE=5.26n VJE=0.711 MJE=0.304 Fc=0.5 CJC=750p VJC=0.84 MJC=0.25 TF=5n TR=3.342E-7 XTB=2.28 EG=0.81 XTI=3 mfg=Toshiba)