

SPICE PARAMETER

EMZ1

```
* QEMZ1_NPN BJT model
* Date: 2006/11/30
.MODEL QEMZ1_NPN NPN
+ IS=70.000E-15
+ BF=277.08
+ VAF=114.03
+ IKF=1
+ ISE=70.000E-15
+ NE=1.8934
+ BR=11.565
+ VAR=100
+ IKR=.11266
+ ISC=1.0228E-12
+ NC=1.3260
+ NK=.71869
+ RE=.2
+ RB=13.897
+ RC=1.2190
+ CJE=11.342E-12
+ MJE=.38289
+ CJC=4.0230E-12
+ MJC=.34629
+ TF=338.92E-12
+ XTF=4.0449
+ VTF=167.36
+ ITF=.85959
+ TR=110.25E-9
+ XTB=1.5000
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* QEMZ1_PNP BJT model
* Date: 2006/11/30
.MODEL QEMZ1_PNP PNP
+ IS=70.000E-15
+ BF=266.38
+ VAF=50.700
+ IKF=.27914
+ ISE=70.000E-15
+ NE=1.7618
+ BR=1.8730
+ VAR=100
+ IKR=2.0006
+ ISC=270.82E-12
+ NC=1.7915
+ RE=.2
+ RB=7.8035
+ RC=1.0862
+ CJE=22.937E-12
+ MJE=.58268
+ CJC=11.613E-12
+ MJC=.43988
+ TF=328.92E-12
+ XTF=331.17
+ VTF=254.25
+ ITF=8.1505
+ TR=327.28E-9
+ XTB=1.5000
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