

opamp_741_a.ece

Description

opamp_741_a.ece is a macromodel (“sub-circuit”) of the 741 op-amp. The $\pm V_{CC}$ supply is provided internally.

The following SPICE net-list, available in the public domain, is implemented in opamp_741_a.ece:

```
.SUBCKT OPAMP3 1 2 81 101 102
Q1 5 1 7 NPN
Q2 6 2 8 NPN
RC1 101 5 95.49
RC2 101 6 95.49
RE1 7 4 43.79
RE2 8 4 43.79
I1 4 102 0.001
*
* OPEN-LOOP GAIN, FIRST POLE AND SLEW RATE
G1 100 10 6 5 0.0104719
RP1 10 100 9.549MEG
CP1 10 100 0.0016667UF
*
* VOLTAGE LIMITING
DP 10 105 DLIM
VP 101 105 DC 2.214V
DN 104 10 DLIM
VN 104 102 DC 2.214V
.model DLIM D(IS=1E-15)
*
*OUTPUT STAGE
EOUT 80 100 10 100 1
RO 80 81 100
*
* INTERNAL REFERENCE
RREF1 101 103 100K
RREF2 103 102 100K
EREF 100 0 103 0 1
R100 100 0 1MEG
*
.model NPN NPN(BF=50000)
*
.ENDS
```

AC (small-signal) implementation of the model is provided, assuming that the op amp is working in the linear region of operation.