

opamp_lf411_b.ece

Description

opamp_lf411_b.ece is a macromodel (“sub-circuit”) of the LF-411 op-amp. The $\pm V_{CC}$ supply is to be provided externally to nodes **vcc** and **vee** of the op amp.

The following SPICE net-list, available in the public domain, is implemented in opamp_lf411_b.ece:

```
* non-inverting input
* | inverting input
* | | positive power supply
* | | | negative power supply
* | | | | output
* | | | | |
* 1 2 3 4 5
.subckt LF411
*
c1 11 12 4.196E-12
c2 6 7 10.00E-12
css 10 99 1.333E-12
dc 5 53 dx
de 54 5 dx
dlp 90 91 dx
dln 92 90 dx
dp 4 3 dx
egnd 99 0 poly(2),(3,0),(4,0) 0 .5 .5
fb 7 99 poly(5) vb vc ve vlp vln 0 31.83E6 -30E6 30E6 30E6 -30E6
ga 6 0 11 12 251.4E-6
gcm 0 6 10 99 2.514E-9
iss 10 4 dc 170.0E-6
hlim 90 0 vlim 1K
j1 11 2 10 jx
j2 12 1 10 jx
r2 6 9 100.0E3
rd1 3 11 3.978E3
rd2 3 12 3.978E3
ro1 8 5 50
ro2 7 99 25
rp 3 4 15.00E3
rss 10 99 1.176E6
vb 9 0 dc 0
vc 3 53 dc 1.500
ve 54 4 dc 1.500
vlim 7 8 dc 0
vlp 91 0 dc 25
vln 0 92 dc 25
.model dx D(Is=800.0E-18 Rs=1m)
```

```
.model jx NJF(Is=12.50E-12 Beta=743.3E-6 Vto=-1)
.ends
.ENDS
```

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