

Re: Problem with measure Rin!

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2004-08/1482.html>

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Date: 08/09/04

Date: Mon, 09 Aug 2004 17:43:34 +0100

FWIW, I ran Francesco's circuit in CM 2000 and observed simulated current I_b of about 560 nA, not 794 nA. I_c was 67 uA. Beta therefore is ~ 120.

Full 2N2222 model spec in CM here is:

IS: Transport saturation current 81.2e-15
BF: Ideal maximum forward beta 195.0
NF: Forward current emission coefficient 1.000
VAF: Forward Early voltage 98.60
IKF: Forward beta high current roll-off 480.0m
ISE: B-E leakage saturation current 53.70p
NE: B-E leakage emission coefficient 2.000
BR: Ideal maximum reverse beta 4.000
NR: Reverse current emission coefficient 1.000
VAR: Reverse Early voltage 20.00
IKR: Reverse beta high current roll-off 720.0m
ISC: B-C leakage saturation current 0.000
NC: B-C leakage emission coefficient 2.000
RB: Zero-bias base resistance 258.0m
IRB: Current at halfway base resistance 0.000
RBM: High current minimum base resistance 0.000
RE: Emitter resistance 64.40m
RC: Collector resistance 25.80m
CJE: B-E zero-bias depletion capacitance 89.50p
VJE: B-E built-in potential 1.100
MJE: B-E junction exponential factor 500.0m
TF: Ideal forward transit-time 530.0p
XTF: Coefficient for bias depletion of TF 0.000
VTF: Voltage describing VBC dependence of TF 0.000
ITF: High-current parameter for effect on TF 0.000
PTF: Excess phase at freq.=1.0(TF*2PI) Hz 0.000
CJC: B-C zero-bias depletion capacitance 28.90p
VJC: B-C built-in potential 300.0m
MJC: B-C junction exponential factor 300.0m
XCJC: Fraction of B-C capacitance at base node 1.000
TR: Ideal reverse transit-time 368.0n
CJS: Zero-bias collector-saturation capacitance 0.000
VJS: Substrate junction built-in potential 750.0m

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MJS: Substrate junction exponential factor 0.000
XTB: Foward/reverse beta temp. coefficient 1.500
EG: Energy gap for temperature effect on IS 1.110
XTI: Temperature exponent for effect on IS 3.000
KF: Flicker-noise coefficient 0.000
AF: Flicker-noise exponent 1.000
FC: Foward-bias capacitance coefficient 500.0m
TNOM: Paramameter measurement temperature 27.00

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