ESD18VU1B_02LS

SPICE3 Model Documentation

Technical Report

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RF and Protection Devices

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Revision History

ESD18VU1B_02LS

Revision History: May 25, 2012, Rev. 1.0

Previous Version:

Page	Subjects (major changes since last revision)
All	Creation of document.

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Last Trademarks Update 2009-10-19

1 Model Description

LBOND is the inductance of the bond wire. Snap back behaviour is not modeled. Breakdown voltage is adjusted to the DC measurement. Hence the simulated TLP characteristic has an offset.

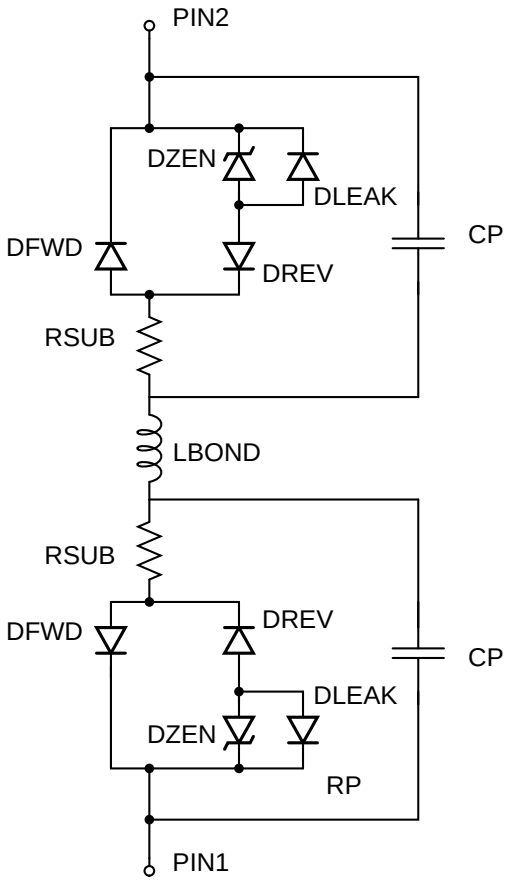

Figure 1: Subcircuit of ESD diode

2 Model Performance

The results of parameter extraction are shown in this chapter. Red boxes indicate measurement data. Blue lines indicate simulated data. Measurement temperature is 27 °C .

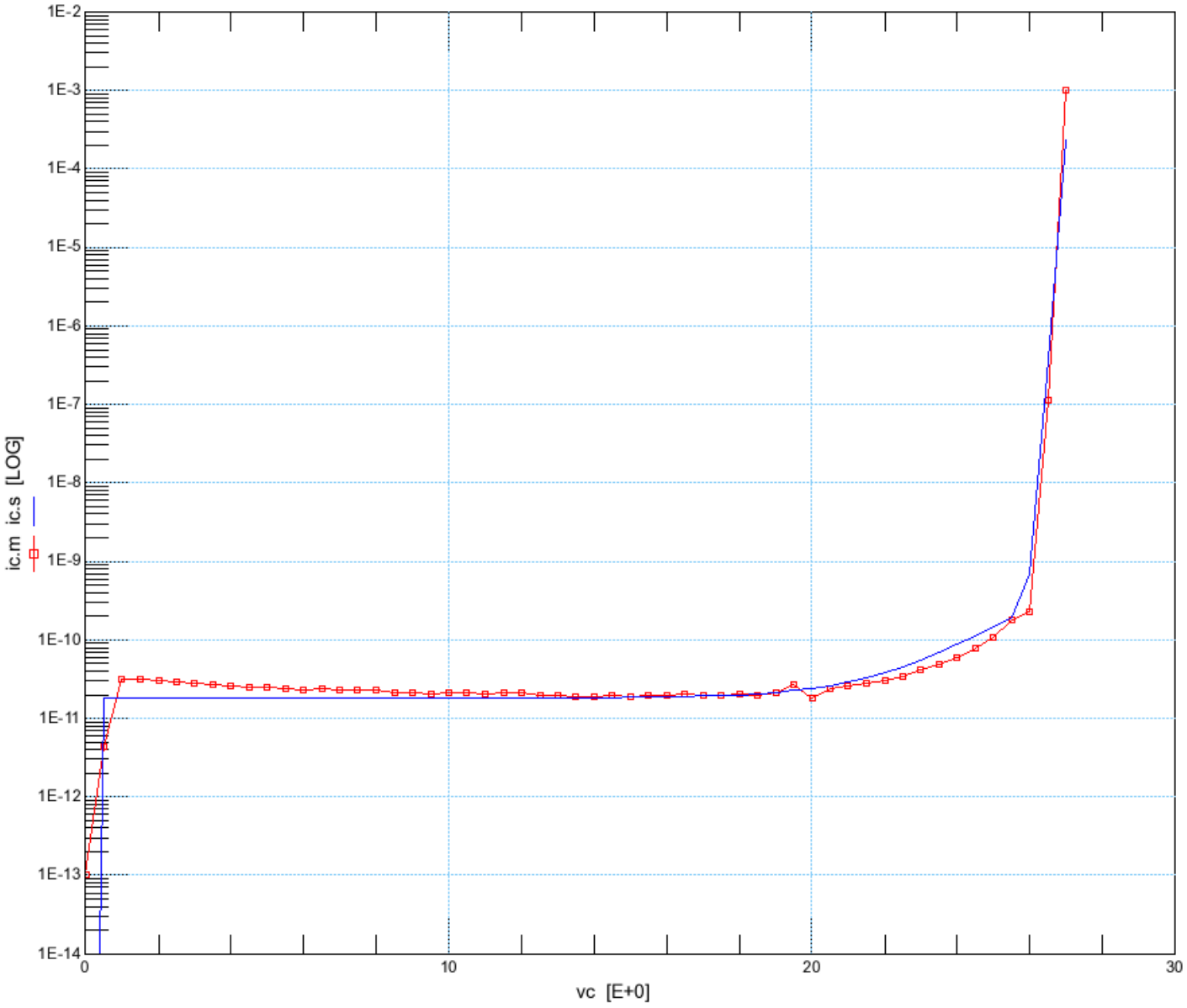

Figure 2: Leakage current

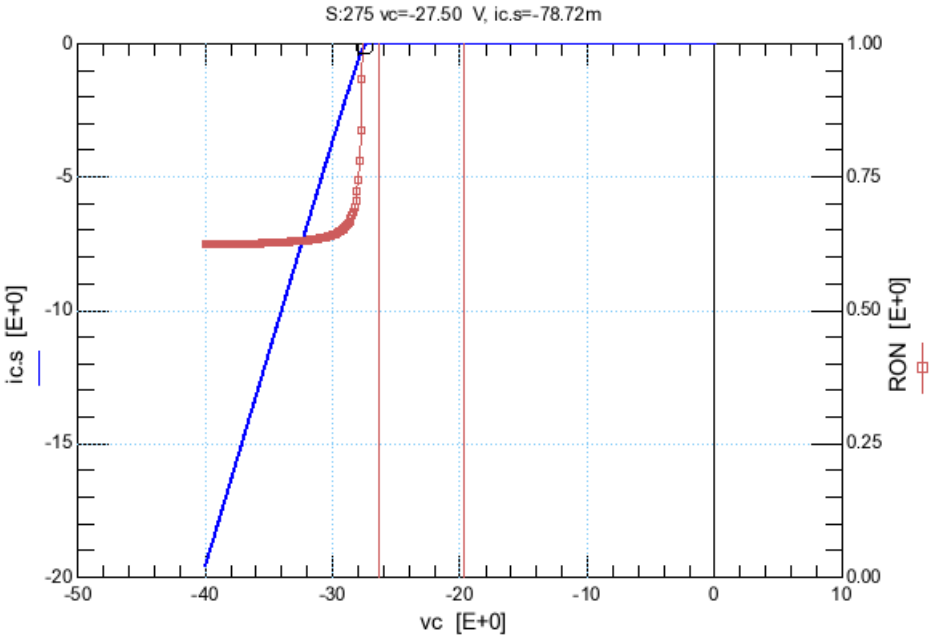

Figure 3: Forward TLP characteristics

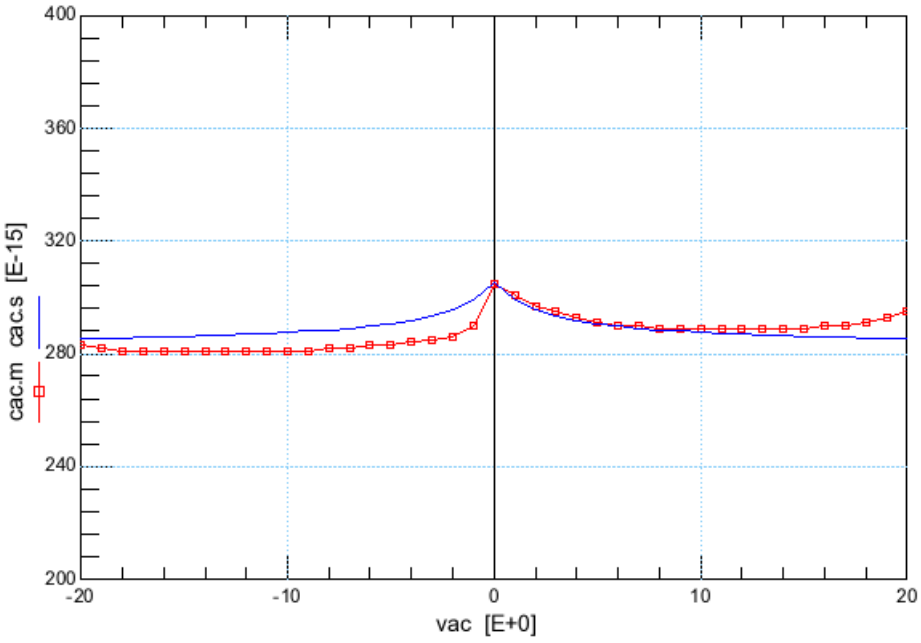

Figure 4: CV curve for positive and negative voltages

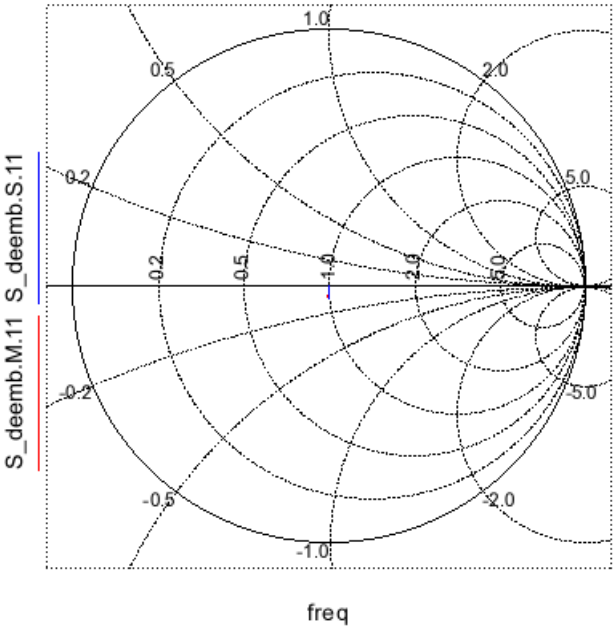

Figure 5: S11, VC=0V (VC=voltage at cathode)

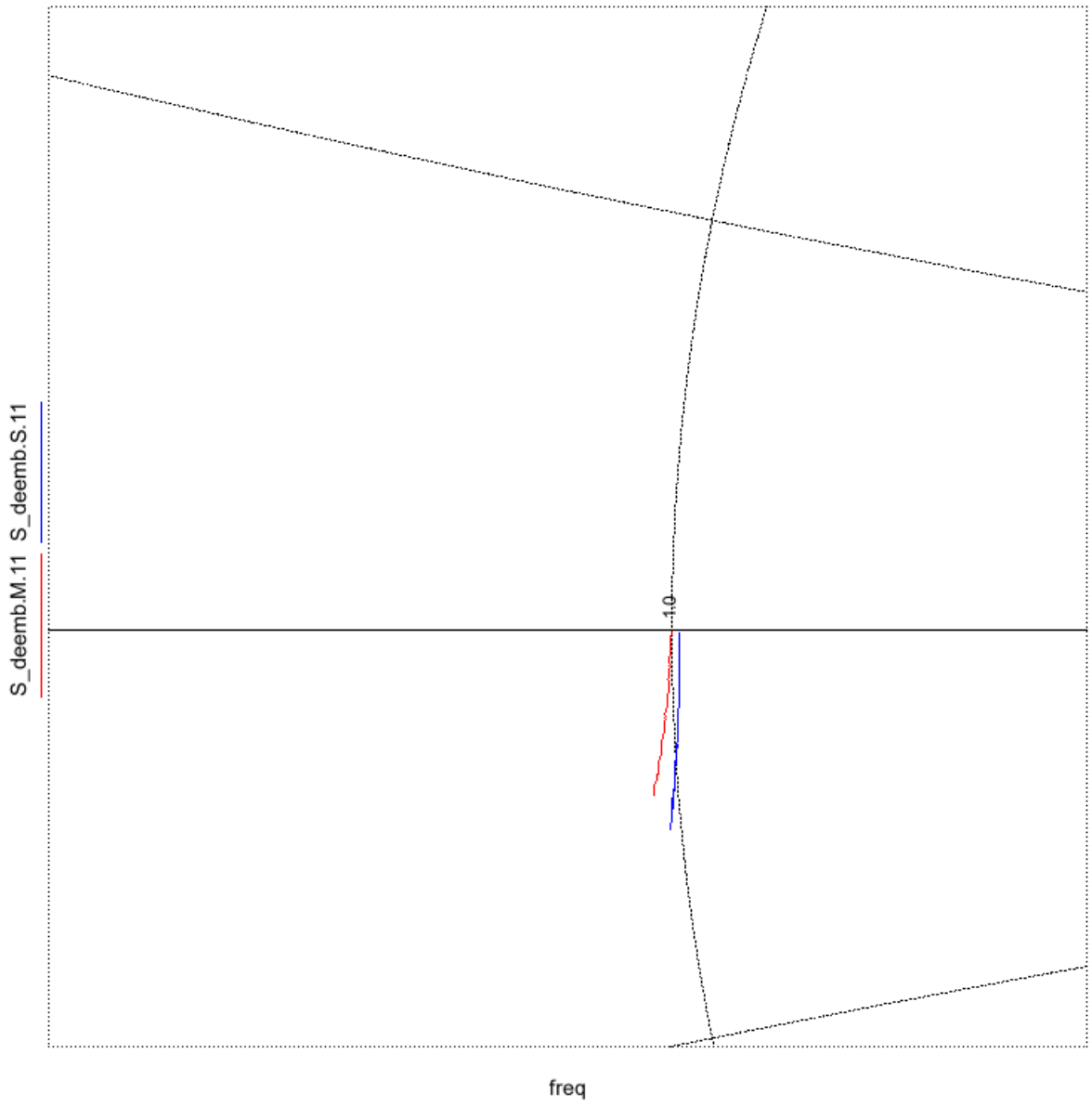

Figure 6: S11, VC=0V (VC=voltage at cathode)

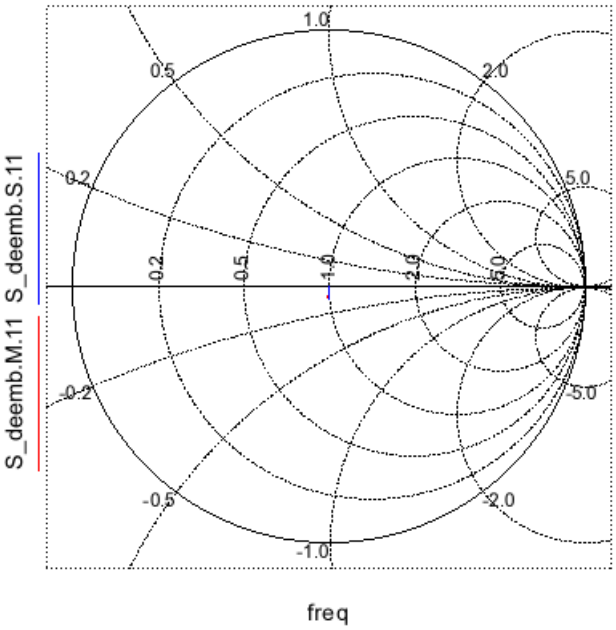

Figure 7: S11, VC=18V (VC=voltage at cathode)

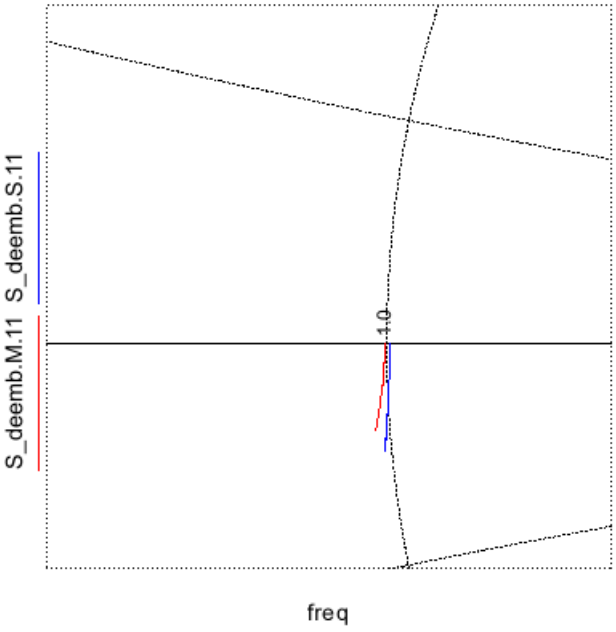

Figure 8: S11, VC=18V (VC=voltage at cathode)

3 Model Code

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+ TEMP = 27
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X2 11  12 BondwireModel_ESD18VU1B_02LRH
X3 12  2  ESD18VU1B_SINGLE
.ENDS
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X1 11  1  ESD18VU1B_SINGLE
X2 11  12 BondwireModel_ESD18VU1B_02LS
X3 12  2  ESD18VU1B_SINGLE
.ENDS
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+ IBV = 0.001
+ TNOM = 27
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+ N = 1
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+ CJO = 1E-15
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+ KF = 0
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+ N = 55
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+ TNOM = 27
D1 11 2
+ DFWD
D2 91 11
+ DREV
D3 91 2
+ DZEN
D4 2 91
+ DLEAK
RSUB 11 1 0.25
CP 1 2 5.28E-13
.ENDS
.SUBCKT BondwireModel_ESD18VU1B_02LS 1 2
* bond wire inductor
LBOND 1 2 2E-10
.ENDS
.SUBCKT BondwireModel_ESD18VU1B_02LRH 1 2
* bond wire inductor
LBOND 1 2 4E-10
.ENDS
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