CMOS028FDSOI Technology

MIM CAPACITOR models

DK1.2_RF_mmW

Comparison with DK1.1_RF_mmW model(s)

Spice Models Benchmark

Please use the bookmark to navigate

General information on models

- Maximum supply voltage is - V.
- Validity domain is defined as follows:

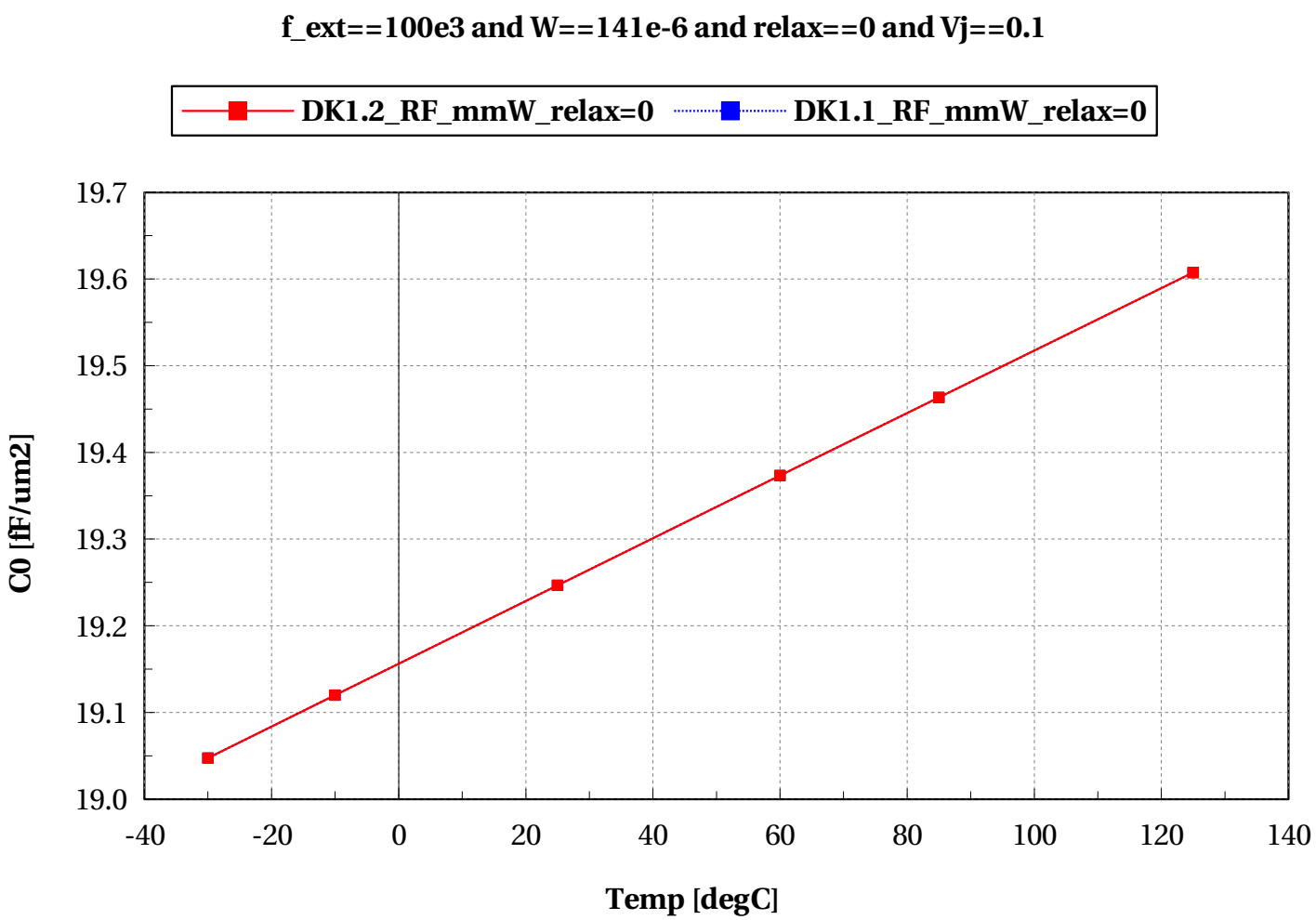
Output parameters definitions

- Model(s): cmim16acc_acc
  - ✔ Cj : Junction capacitance at Vj = 0.1V, f = 100e3Hz.
  - ✔ Ij : Junction leakage current at Vj = 0.1V.

cmim16acc_acc
Electrical characteristics scaling

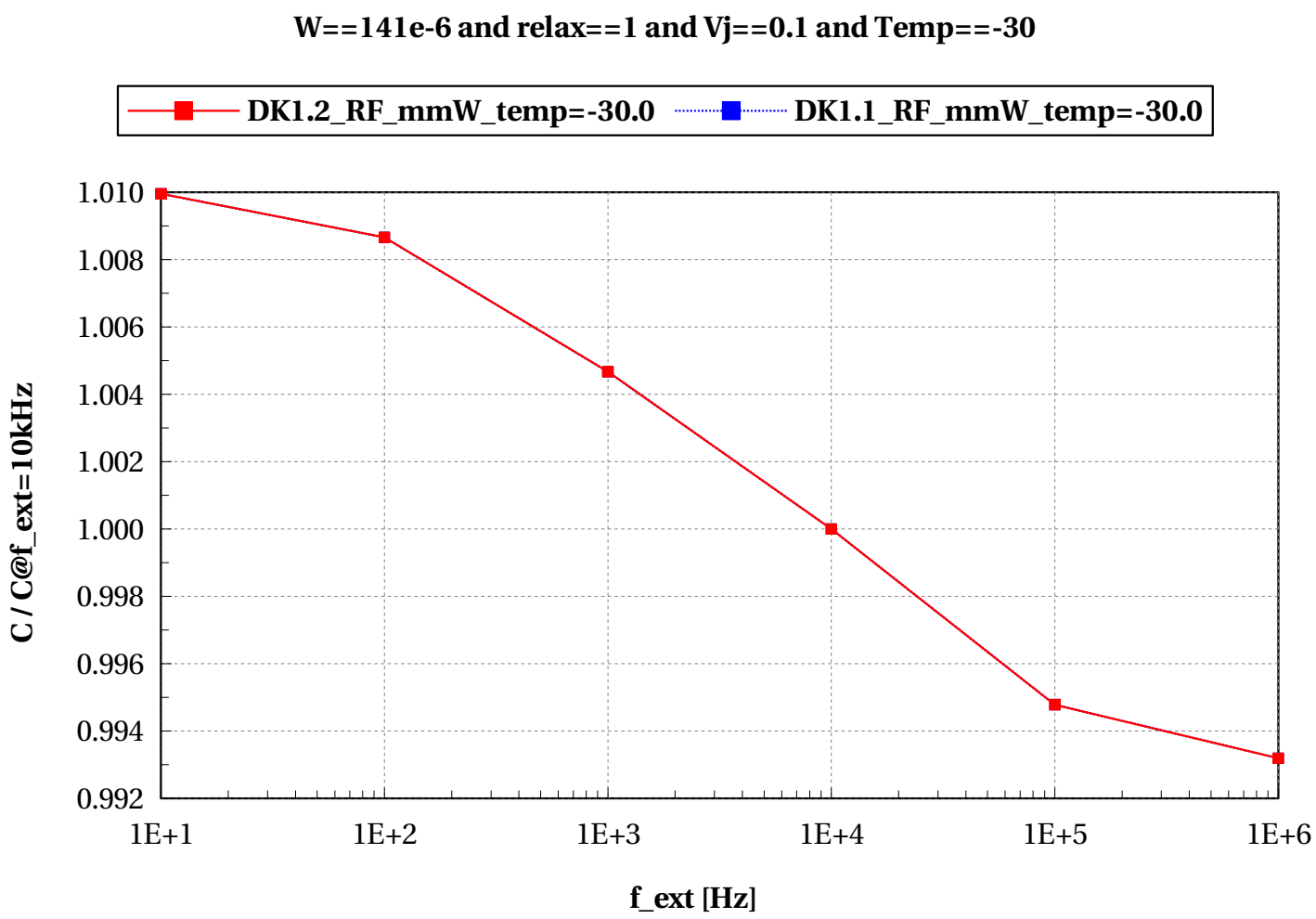
Cj vs Temp @ f=100kHz

cmim16acc_acc, C0 [fF/um2] vs Temp [degC]



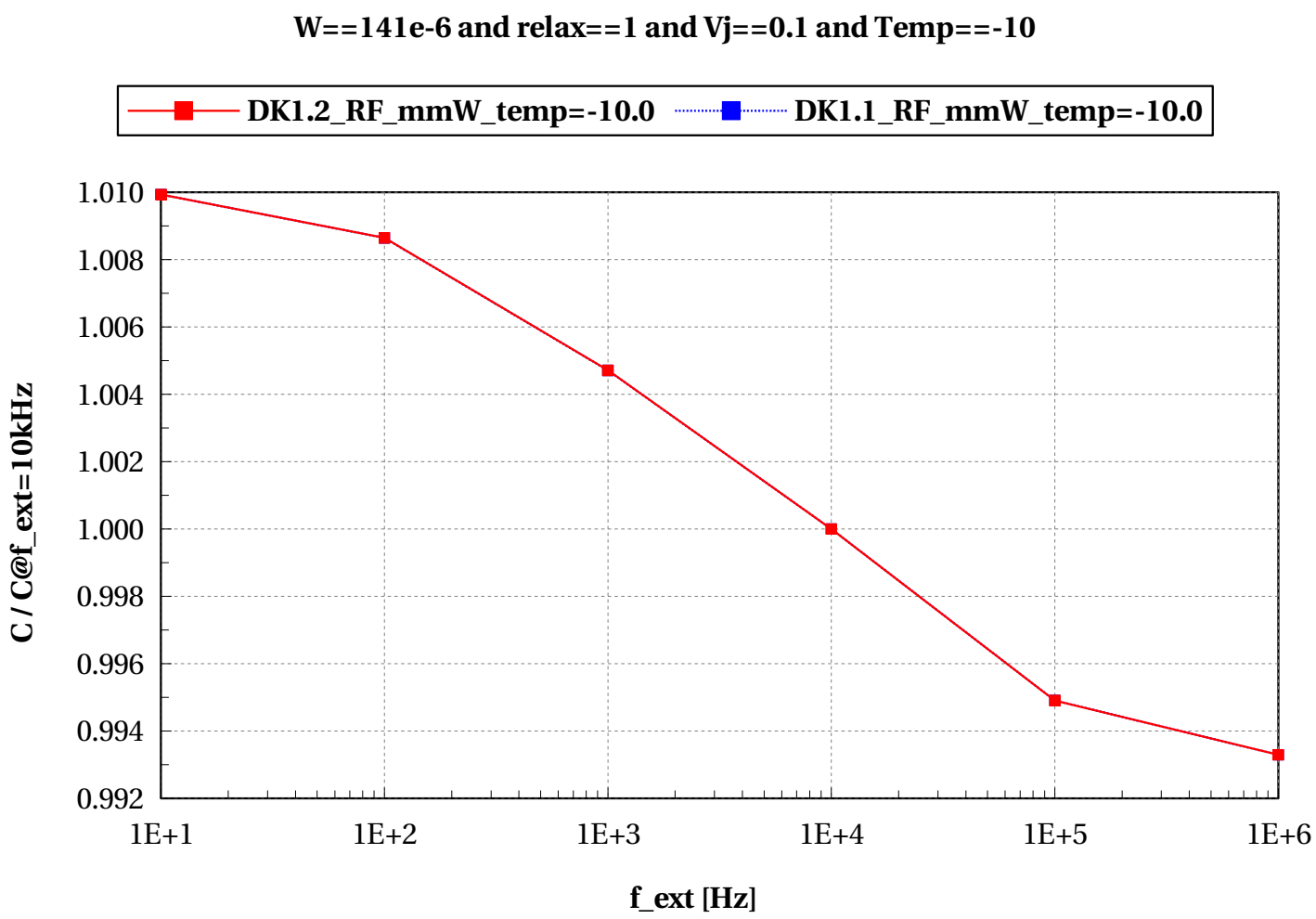
Cj vs f_ext @ Temp=-30

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



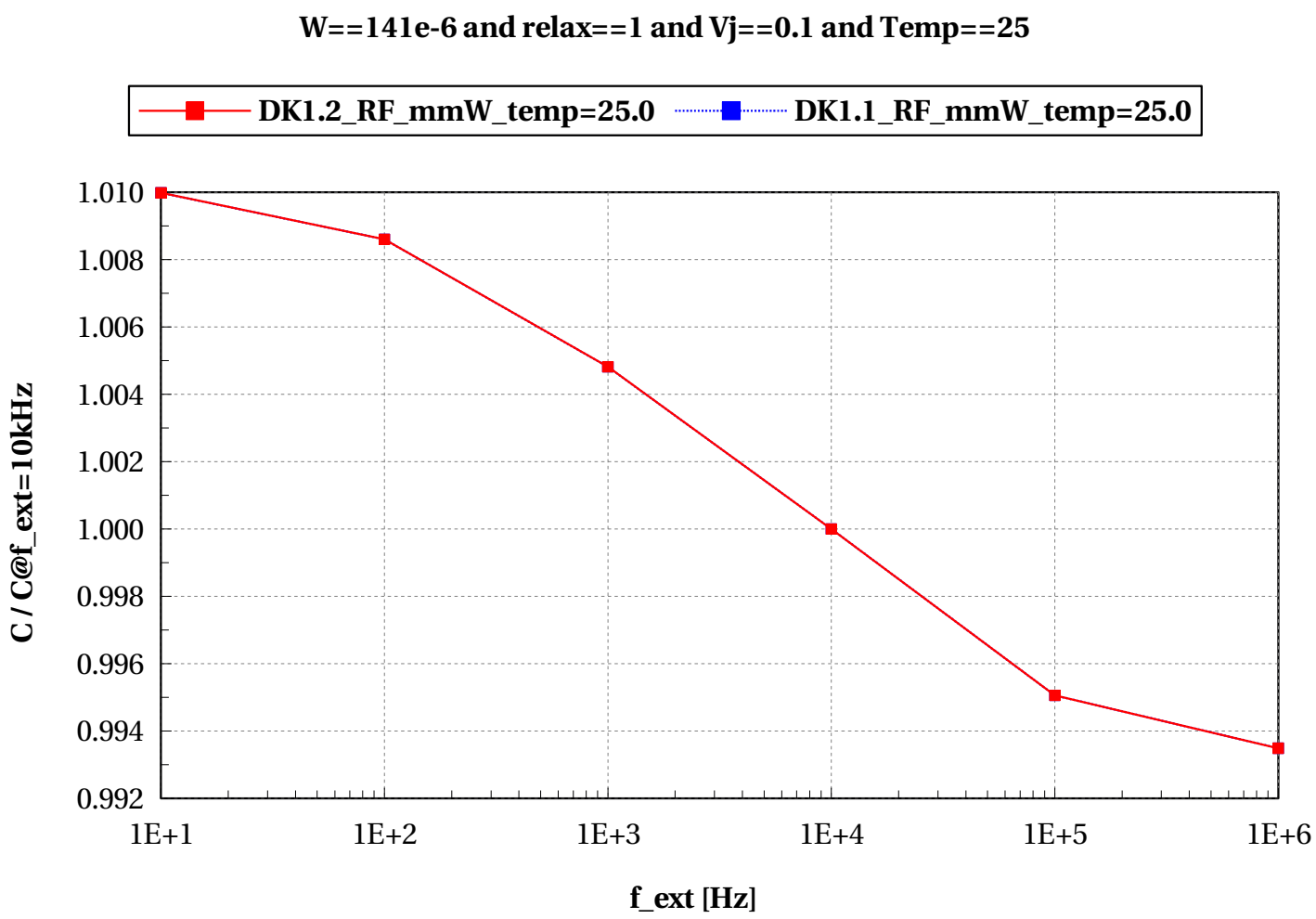
Cj vs f_ext @ Temp=-10

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



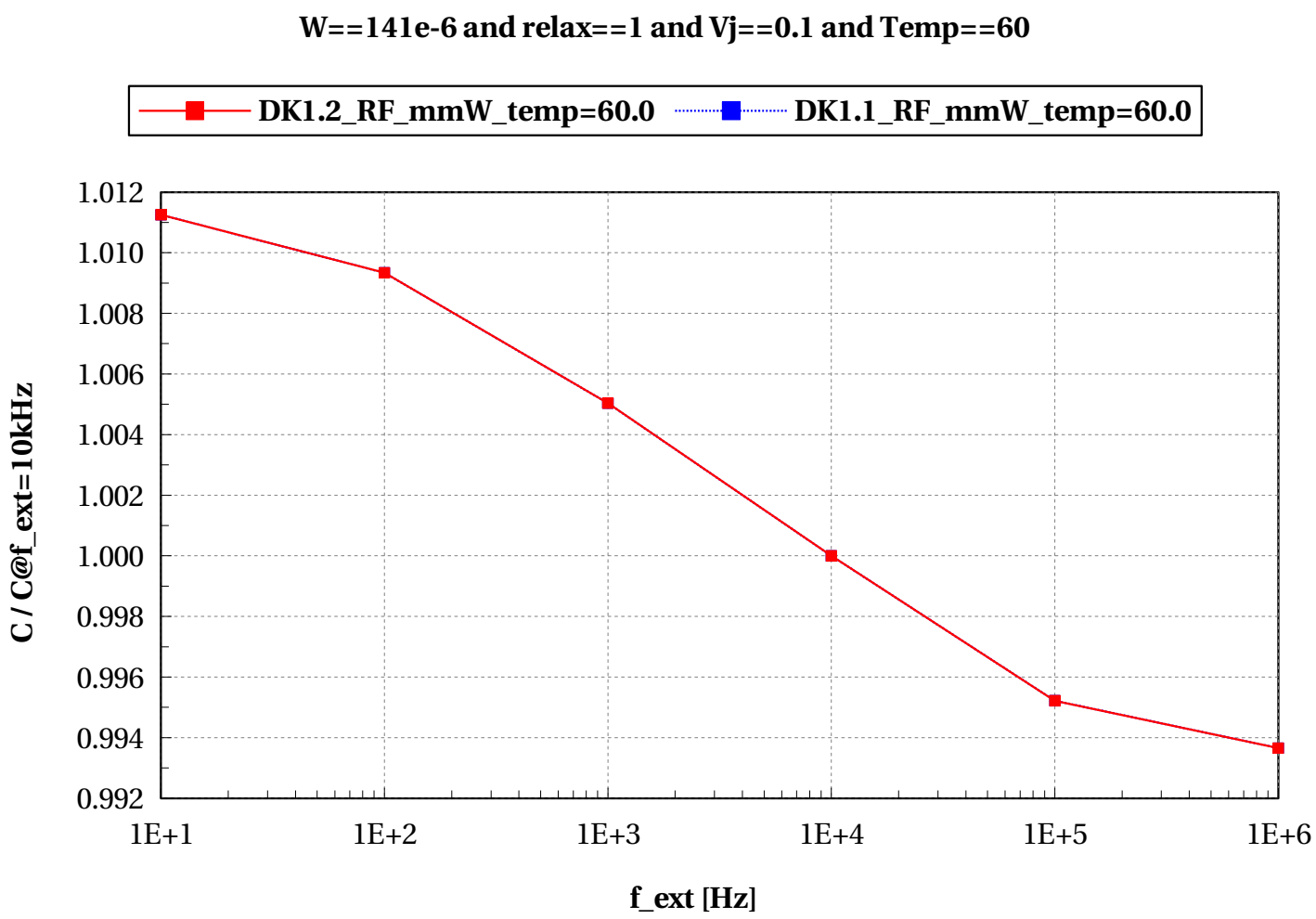
Cj vs f_ext @ Temp=25

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



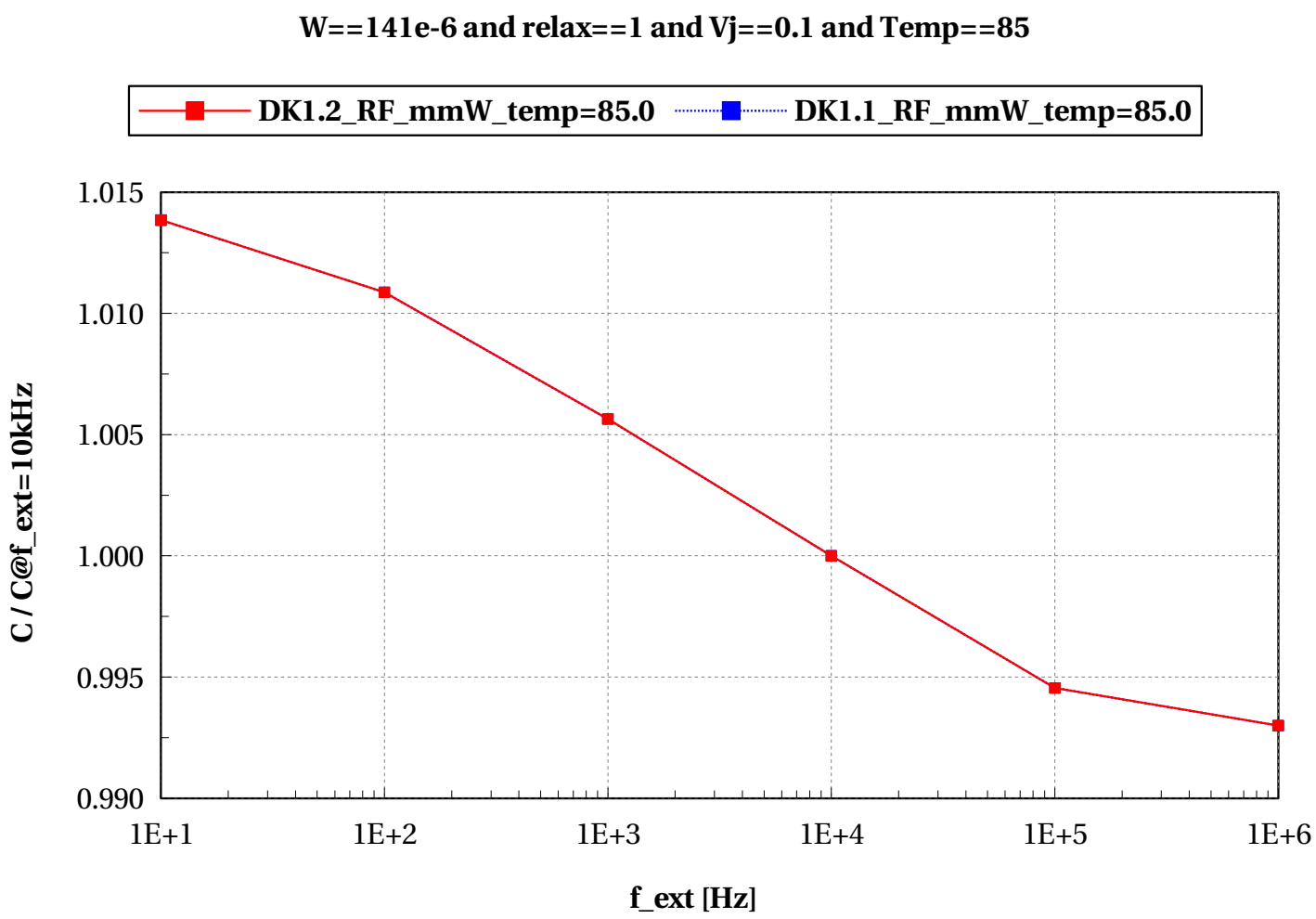
Cj vs f_ext @ Temp=60

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



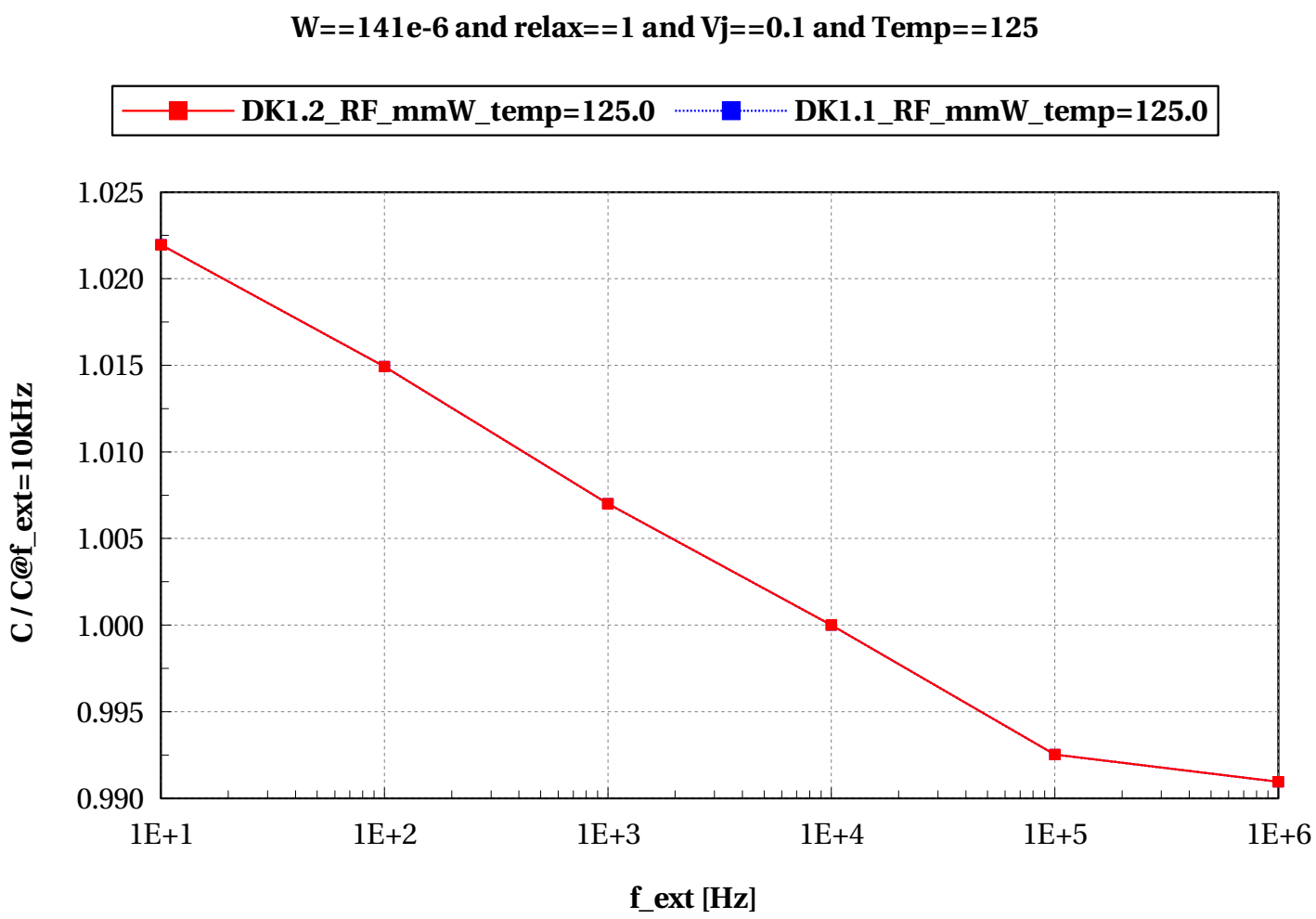
Cj vs f_ext @ Temp=85

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



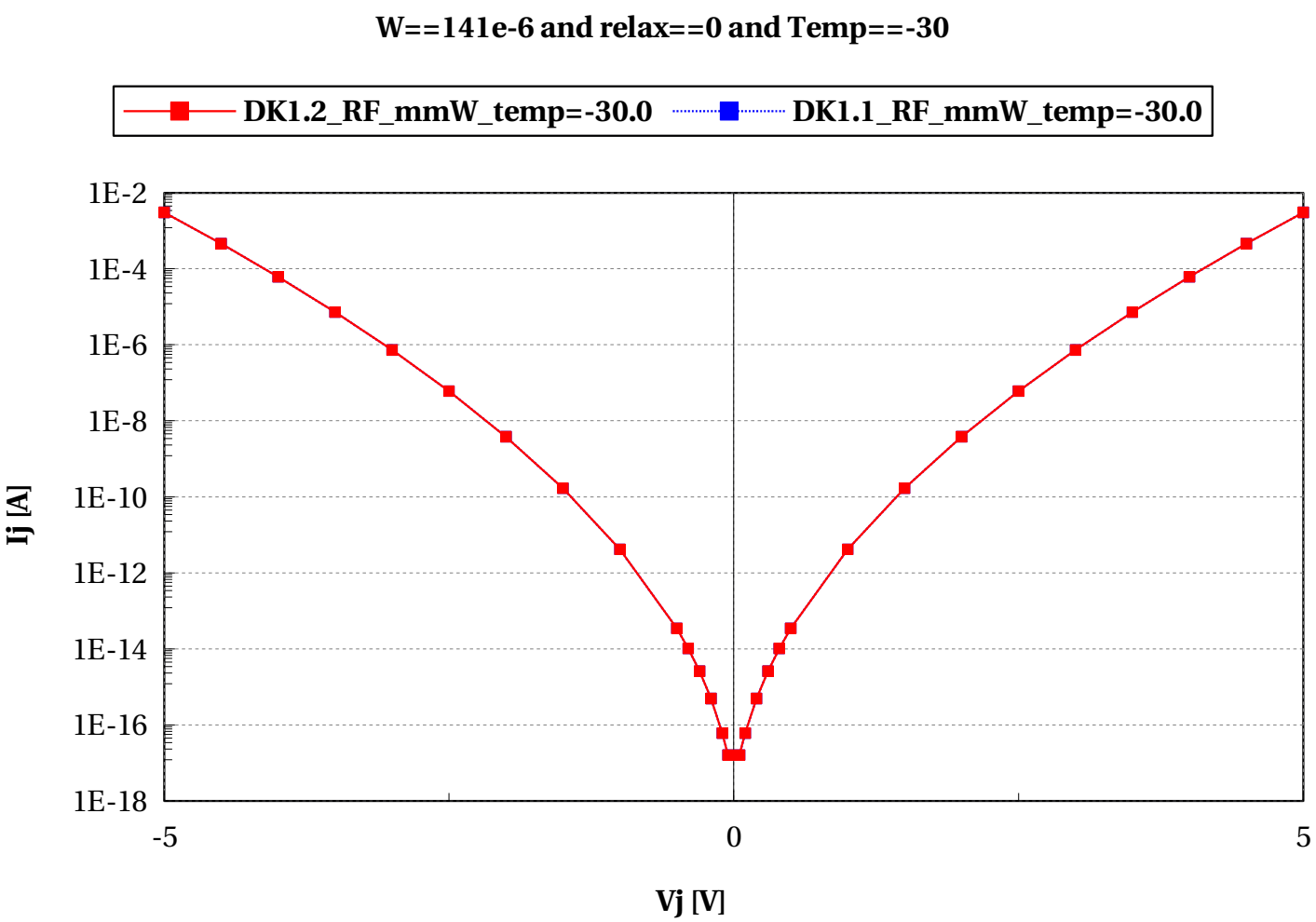
Cj vs f_ext @ Temp=125

cmim16acc_acc, C / C@f_ext=10kHz vs f_ext [Hz]



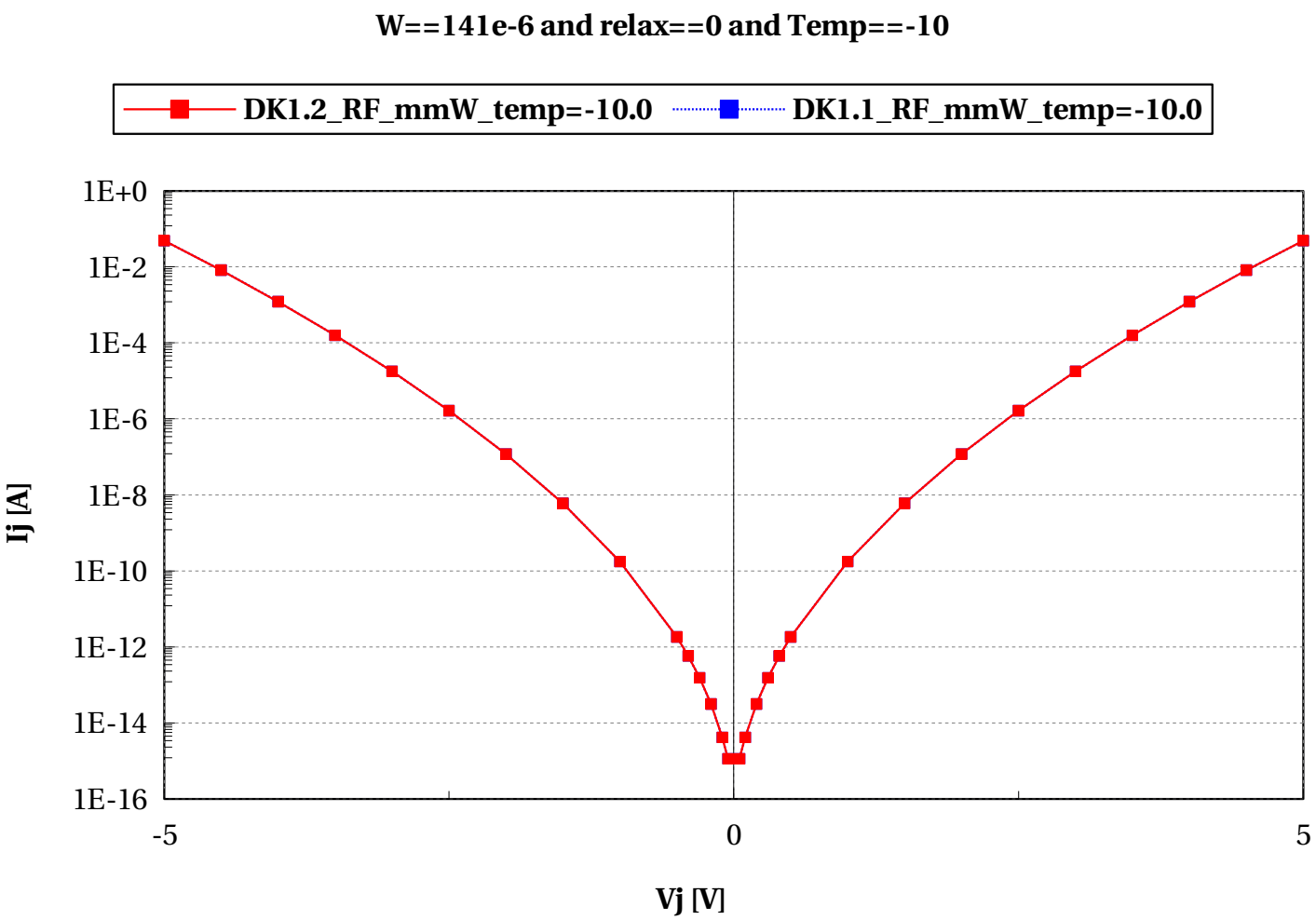
Ij vs Vj @ Temp=-30

cmim16acc_acc, Ij [A] vs Vj [V]



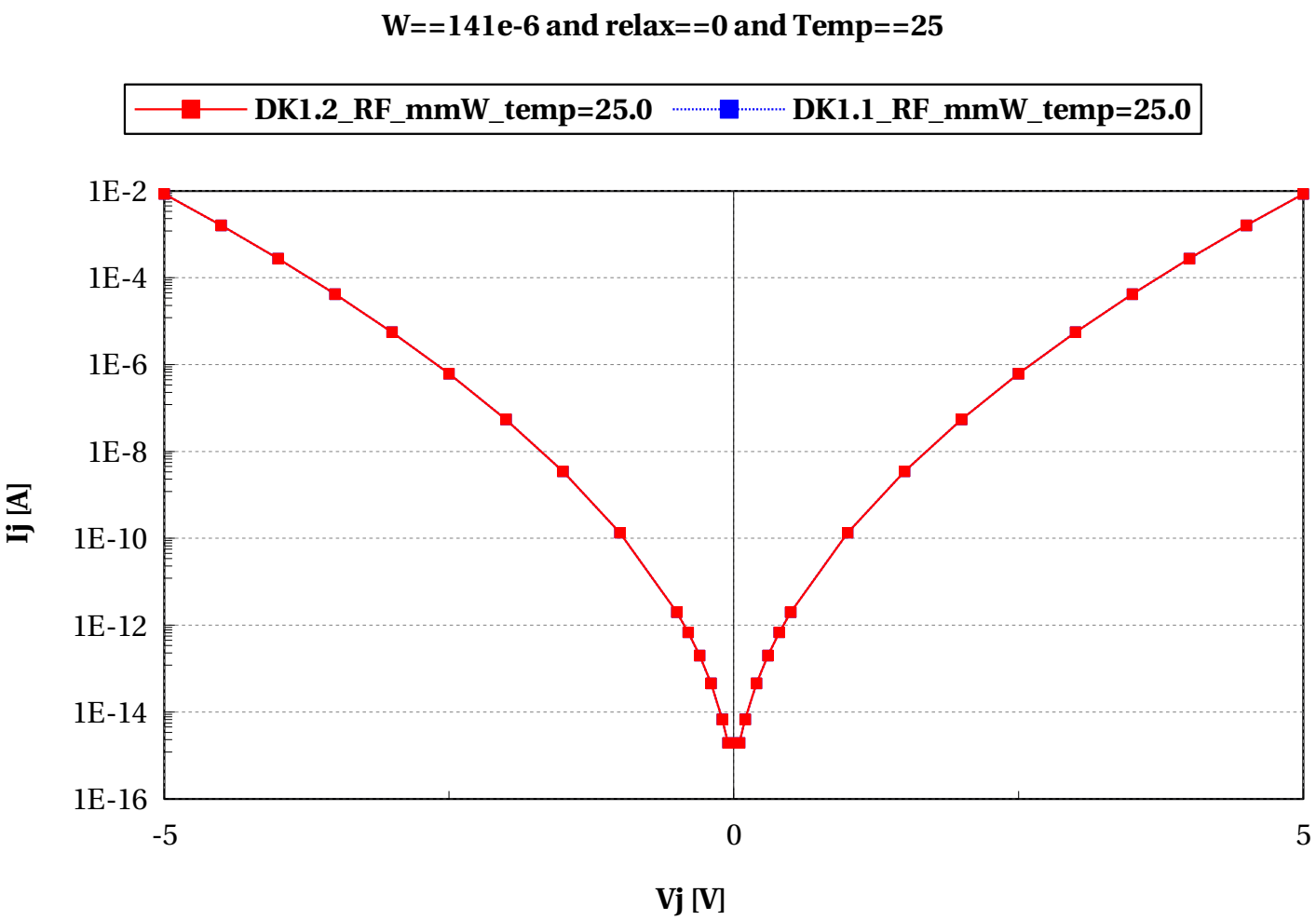
Ij vs Vj @ Temp=-10

cmim16acc_acc, Ij [A] vs Vj [V]



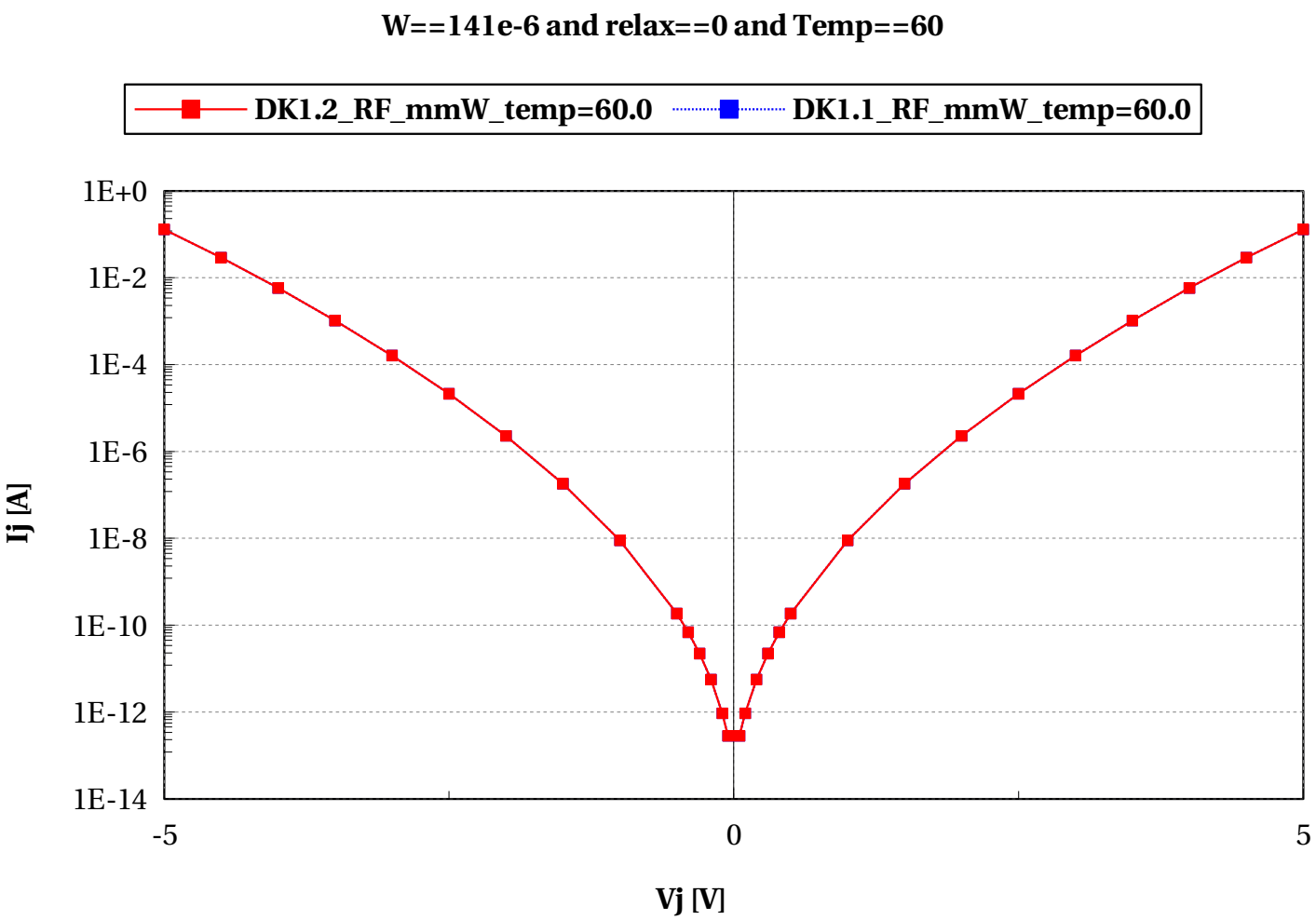
Ij vs Vj @ Temp=25

cmim16acc_acc, Ij [A] vs Vj [V]



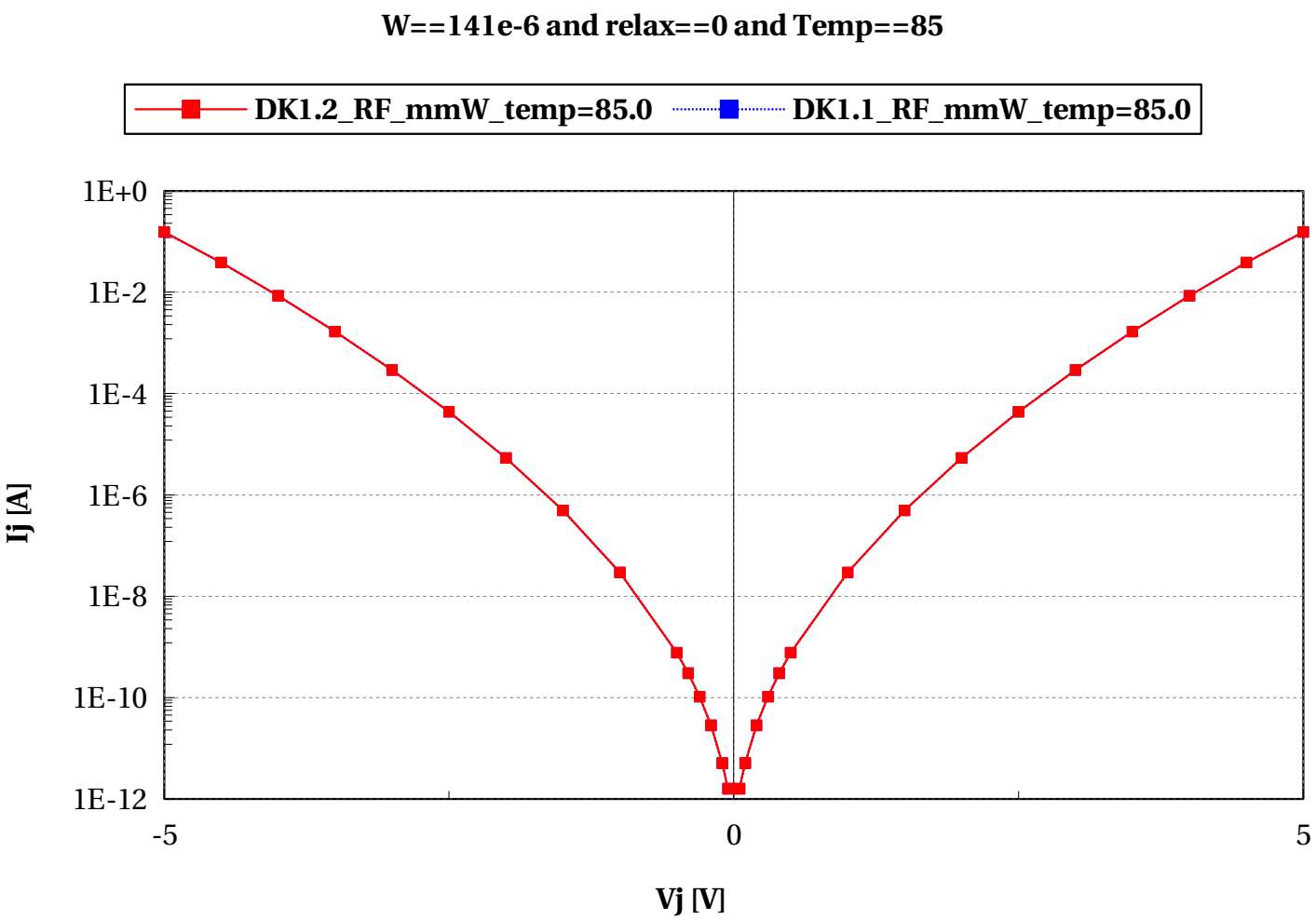
Ij vs Vj @ Temp=60

cmim16acc_acc, Ij [A] vs Vj [V]



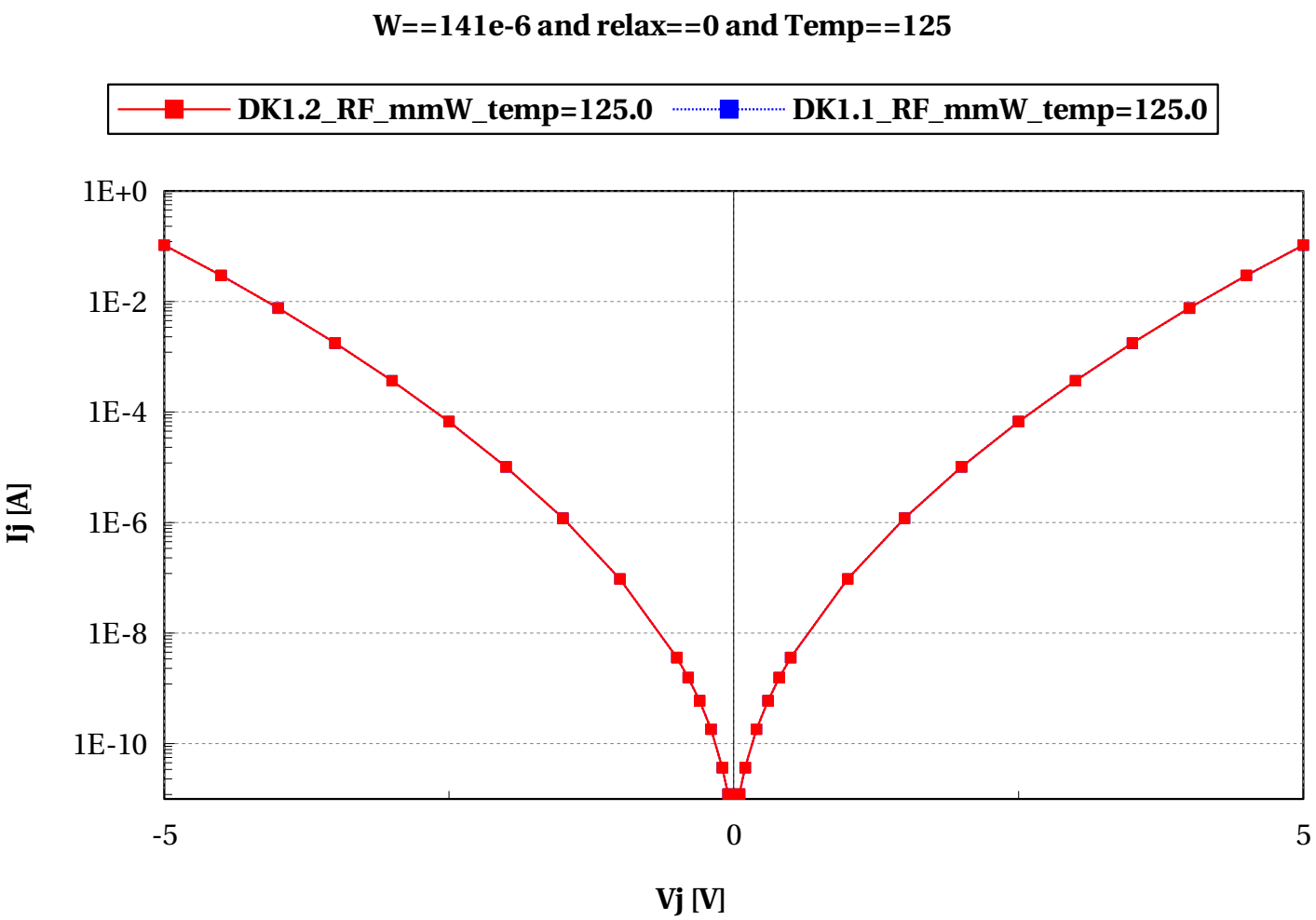
Ij vs Vj @ Temp=85

cmim16acc_acc, Ij [A] vs Vj [V]



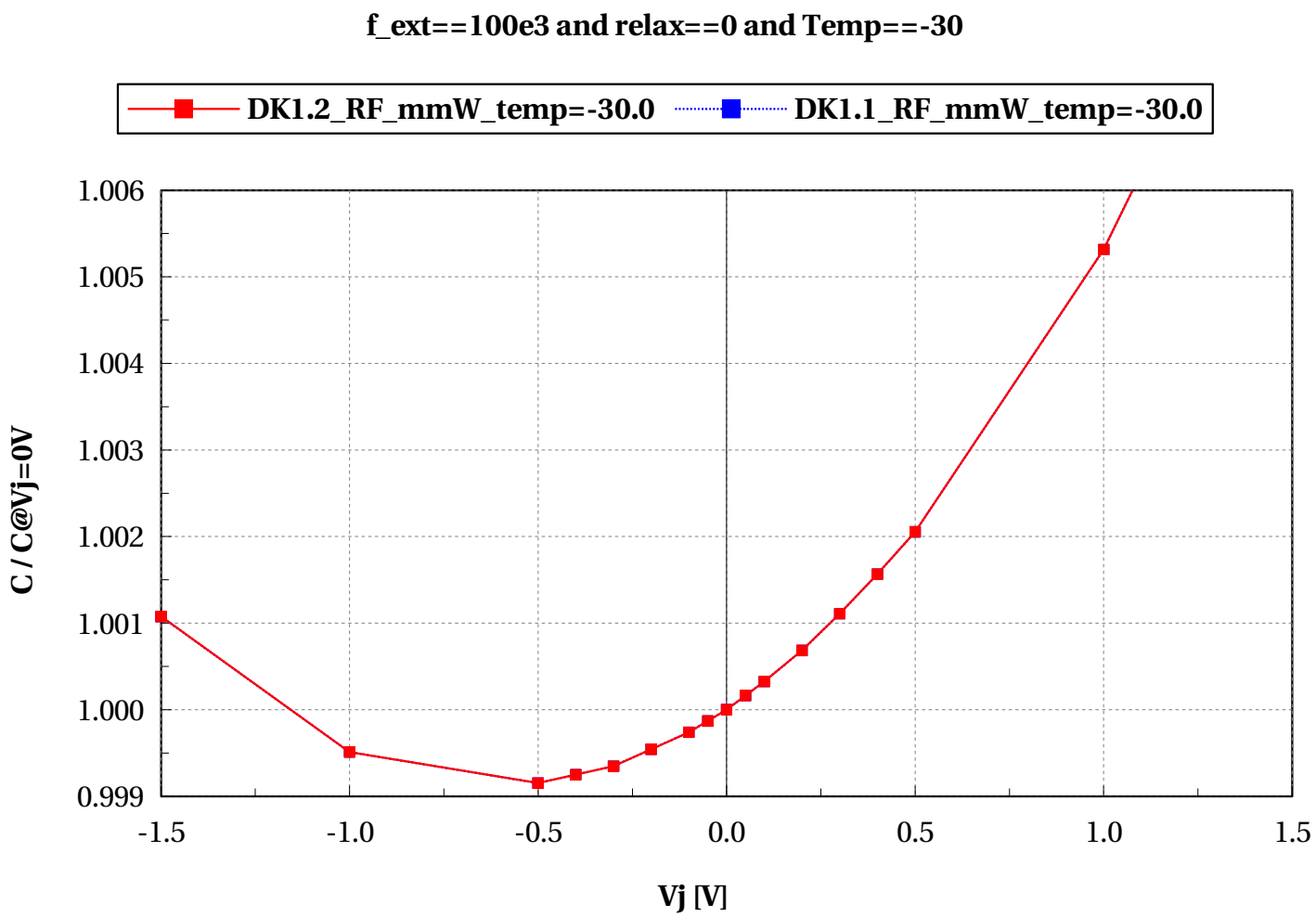
Ij vs Vj @ Temp=125

cmim16acc_acc, Ij [A] vs Vj [V]



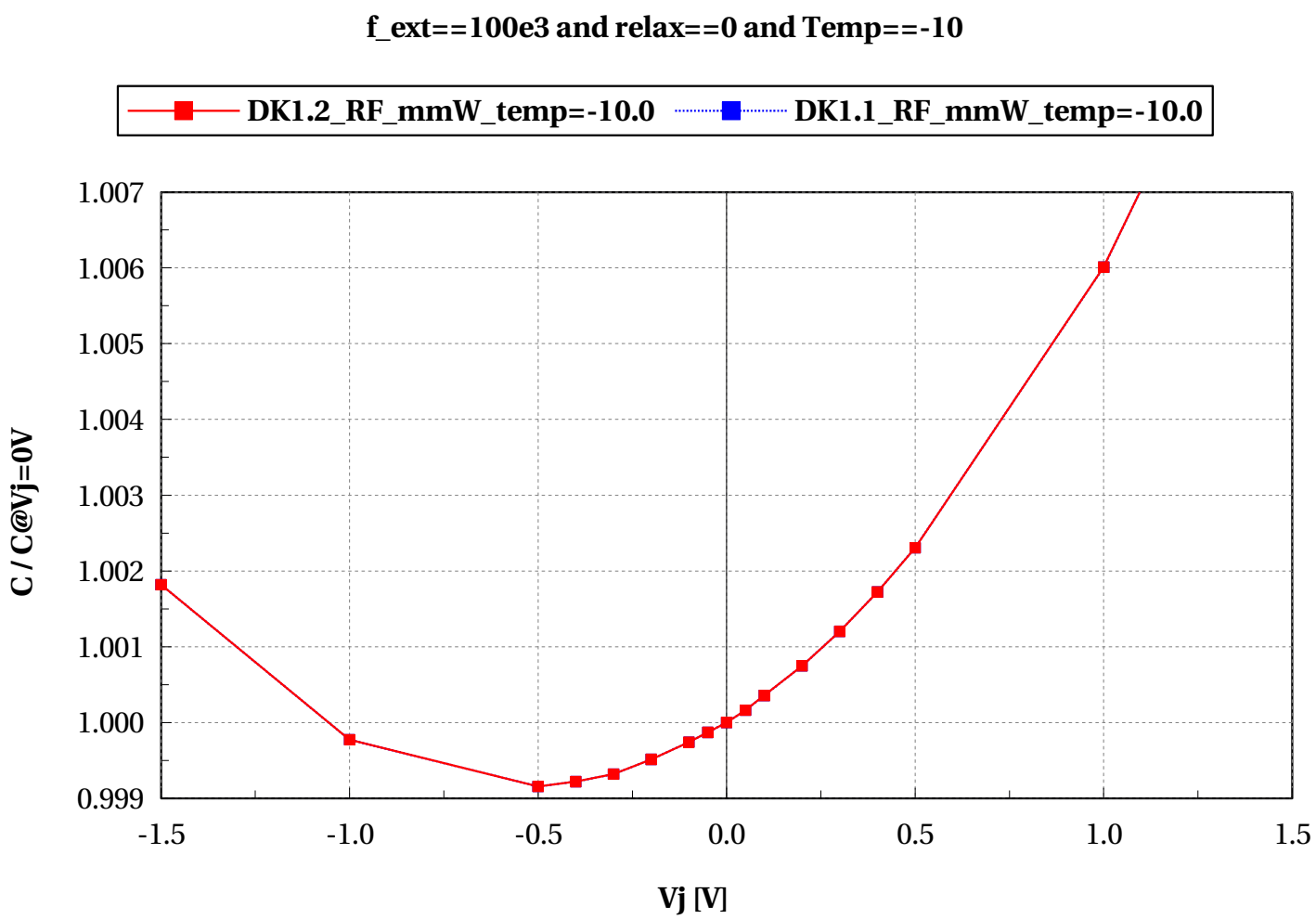
Cj vs Vj @ Temp=-30

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



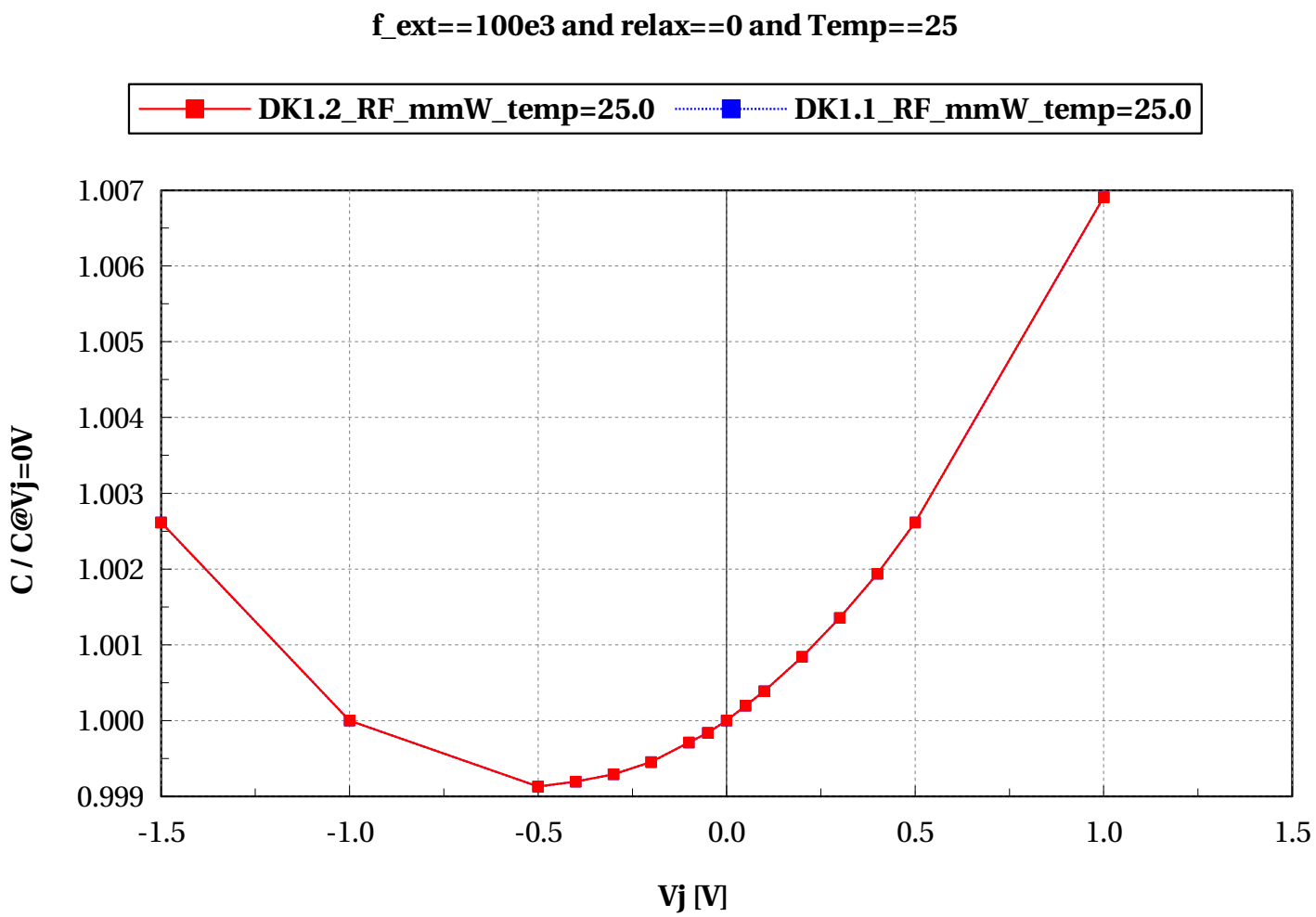
Cj vs Vj @ Temp=-10

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



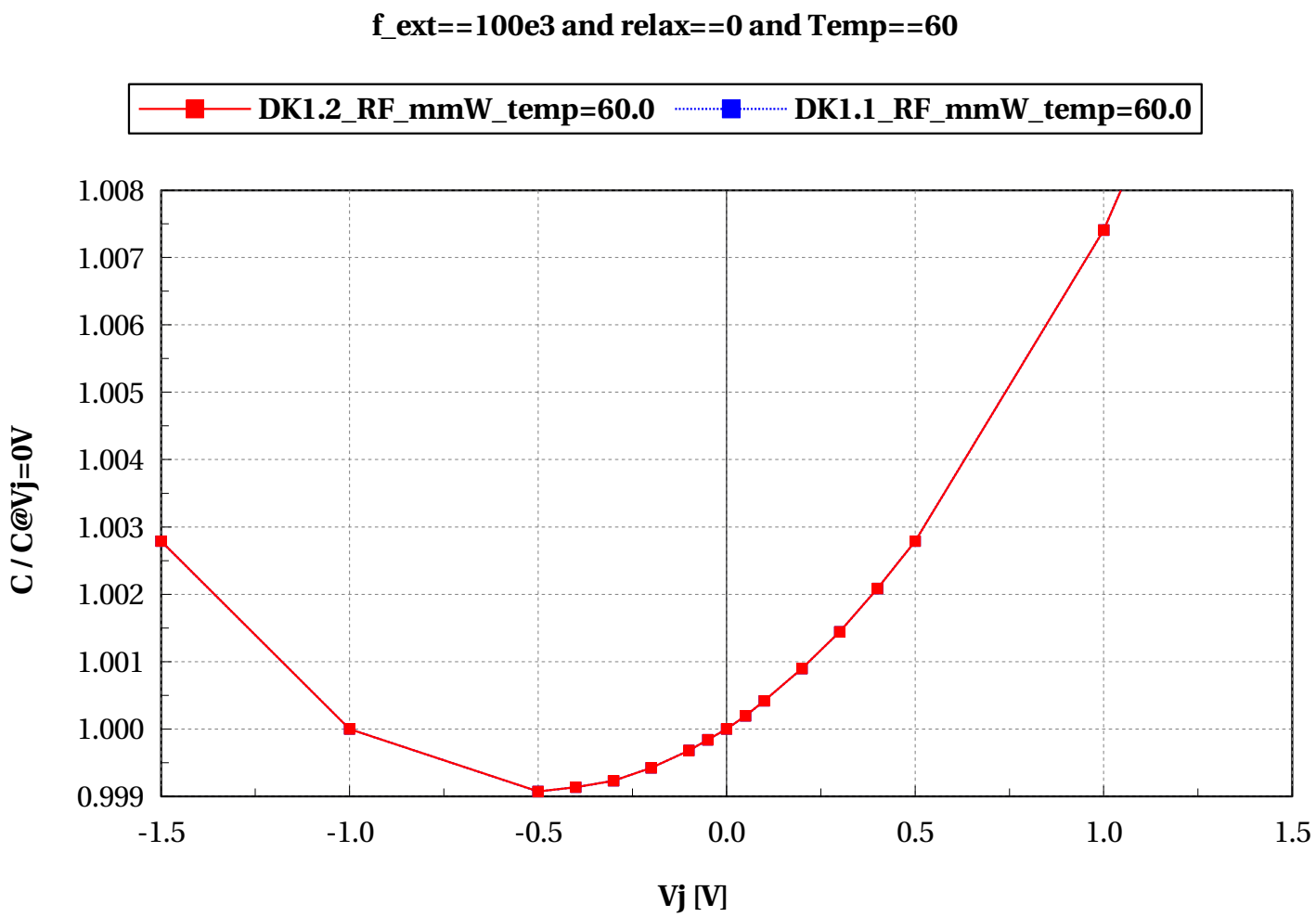
Cj vs Vj @ Temp=25

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



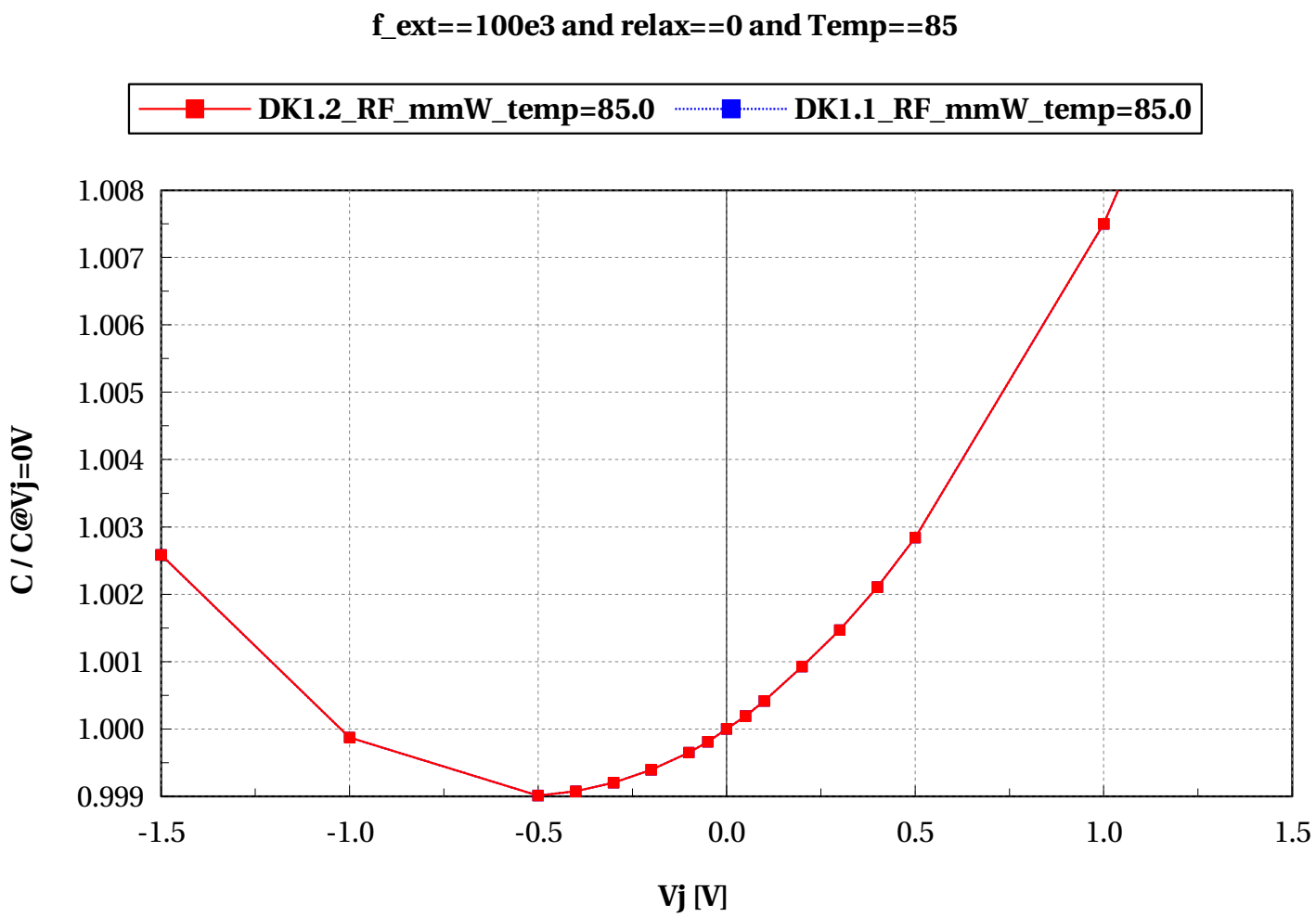
Cj vs Vj @ Temp=60

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



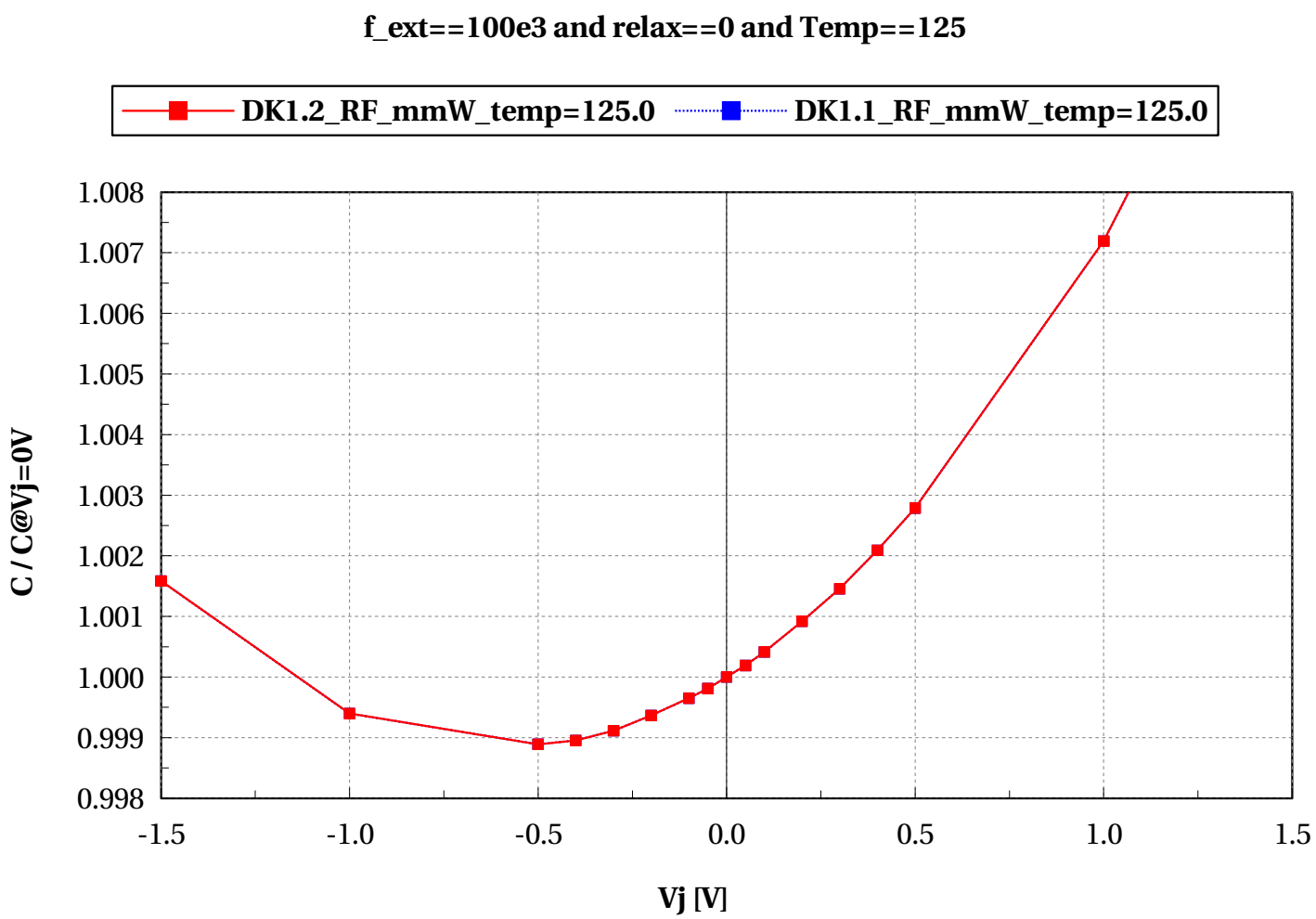
Cj vs Vj @ Temp=85

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



Cj vs Vj @ Temp=125

cmim16acc_acc, C / C@Vj=0V vs Vj [V]



Annex

Conditions of simulations

The simulations were done with SBenchLSF Alpha using Eldo simulator 2018.3.

- Model cmim16acc_acc (DK1.2_RF_mmW)
  - ✔ Input Parameters
    - ✘ mc_runs = 1000
    - ✘ vsub1 = 0
    - ✘ temp = 25 °C
    - ✘ mc_sens = 0
    - ✘ vj = 0.1 V
    - ✘ f_ext = 100e3 Hz
    - ✘ sbenchlsf_release = Alpha
    - ✘ ams_release = 2018.3
    - ✘ model_version = 1.0
    - ✘ mc_nsigma = 3
  - ✔ Sweep Parameters
    - ✘ vj = -5.0, -4.5, -4.0, -3.5, -3.0, -2.5, -2.0, -1.5, -1.0, -0.5, -0.4, -0.3, -0.2, -0.1, -0.05, 0.0, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0
    - ✘ f_ext = 10.0, 100.0, 1000.0, 10000.0, 100000.0, 1000000.0
    - ✘ temp = -30.0, -10.0, 25.0, 60.0, 85.0, 125.0

- ✔ Extra parameters
  - ✘ cmim16acc_dev = 0

● Model cmim16acc_acc (DK1.1_RF_mmW)

- ✔ Input Parameters
  - ✘ mc_runs = 1000
  - ✘ vsub1 = 0
  - ✘ temp = 25 °C
  - ✘ mc_sens = 0
  - ✘ vj = 0.1 V
  - ✘ f_ext = 100e3 Hz
  - ✘ sbenchlsf_release = Alpha
  - ✘ ams_release = 2018.3
  - ✘ model_version = 1.0
  - ✘ mc_nsigma = 3
- ✔ Sweep Parameters
  - ✘ vj = -5.0, -4.5, -4.0, -3.5, -3.0, -2.5, -2.0, -1.5, -1.0, -0.5, -0.4, -0.3, -0.2, -0.1, -0.05, 0.0, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0
  - ✘ f_ext = 10.0, 100.0, 1000.0, 10000.0, 100000.0, 1000000.0
  - ✘ temp = -30.0, -10.0, 25.0, 60.0, 85.0, 125.0
- ✔ Extra parameters
  - ✘ cmim16acc_dev = 0