cmos028fdsoi Technology

EGLVT models

DK1.2_RF_mmW

Comparison with DK1.1_RF_mmW model(s)

Please use the bookmark to navigate

General information on EGLVT models

- Maximum supply voltage is 1.8 V.
- Validity domain is defined as follows:
  - ✔ Drawn gate length varies from 150nm to 10um.
  - ✔ Drawn transistor width varies from 0.16um to 10um.
  - ✔ Device temperature varies from -40 °C to 125 °C.

Output parameters definitions

- Model(s): eglvtnfet_acc, eglvtpfet_acc
  - ✔ Gm_ana : Drain transconductance at Ids = iana*M*W/L, Vds = Vdd/4V, f = 100kHz.
  - ✔ Sv@1hz : Gate noise voltage spectral density at 1Hz, Vgs = Vgs_ana, Vds = Vdd/4V
  - ✔ Aid : delta_Id/Id * sqrt(W.L)
  - ✔ Gds_ana : Drain conductance at Ids = iana*M*W/L, Vds = Vdd/4, f = 100k
  - ✔ Vgs_ana : Vgs value for which drain current is iana*M*shrink_iana*W/(shrink_iana*L+dlshrink_iana+plashrink_iana*p_la) at Vds=Vdd/4V.
  - ✔ Avt : delta_Vt * sqrt(W.L)
  - ✔ Id_sv : Drain current at Vgs = Vgs_ana and Vds = Vdd/4V for which noise voltage and current spectral densities Sv, Si are extracted.
  - ✔ Cbd_off : Bulk-to-Drain capacitance at Vgs = 0V, Vds = 0V, f = 100kHz.
  - ✔ Cdg_ana : Drain-to-Gate transcapacitance at Ids = iana*M*W/L, Vds = Vdd/4V, f = 100kHz.
  - ✔ Ft_ana : Transition frequency at Ids = iana*M*W/L, Vds = Vdd/4V
  - ✔ Sv@th : Gate thermal noise voltage spectral density, Vgs = Vgs_ana, Vds = Vdd/4V
  - ✔ Abeta : delta_GmMax/GmMax * sqrt(w/L)
  - ✔ Cdd_ana : Total drain capacitance at Ids = iana*M*W/L, Vds = Vdd/4V, f = 100kHz.
  - ✔ Gdc_ana : Voltage gain at Ids = iana*M*W/L, Vds = Vdd/4V, f = 100kHz
  - ✔ Cgg_ana : Total gate capacitance at Ids = iana*M*W/L, Vds = Vdd/4V, f = 100kHz
  - ✔ Cgd_0v : Gate-to-Drain capacitance at Vgs = 0V, Vds = vds_cggV, f = 100kHz.
  - ✔ Vtgmmax : Threshold voltage at Vds = 0.05 derived from Gm max method.

eglvtnfet_acc
Electrical characteristics per geometry

eglvtnfet_acc @ w=2e-6, l=0.15e-6, swshe=0, pre_layout_local=1, nf=2, sa=1.2e-07, sb=1.2e-07, sd=1.4e-07, devtype=PCELLwoWPE, as=1.2e-13, ad=1.2e-13, ps=2.24e-06, pd=2.24e-06, vbs=0, vdd=1.8, temp=25

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	TT	FFF
VtGmmax [mV]	410.6 0.0mV	365.9 0.0mV	321.3 0.0mV
Vgs_ana [mV]	623.6 0.0mV	561.3 0.0mV	501.1 0.0mV
GDC_ana []	59.19 0.0%	60.87 0.0%	62.13 0.0%
GBW_QS [GHz]	122.9 0.0%	130.8 0.0%	137 0.0%
Ft_ana [GHz]	36.44 0.0%	38.45 0.0%	40.38 0.0%
Gm_ana [µS]	537 0.0%	576.1 0.0%	616.8 0.0%
Gds_ana [µS]	9.07 0.0%	9.47 0.0%	9.93 0.0%
Cgg_ana [fF]	2.35 0.0%	2.38 0.0%	2.43 0.0%
Cdg_ana [fF]	1.21 0.0%	1.2 0.0%	1.23 0.0%
Cdd_ana [aF]	694 0.0%	700.2 0.0%	715.6 0.0%
Avt [mV.µm]	1.87 -2.6%	1.82 -2.6%	1.8 -2.6%
Abeta [%.µm]	0.62 -0.2%	0.55 -0.0%	0.49 0.1%
AId [%.µm]	0.56 -1.3%	0.49 -1.4%	0.43 -1.5%
Sv@1Hz [V/√Hz]	5.62e-06 0.0%	2.33e-05 0.0%	9.7e-05 0.0%
Sv@th [V/√Hz]	5.09e-09 0.0%	4.85e-09 0.0%	4.66e-09 0.0%

eglvtnfet_acc @ w=2e-6, l=2.0e-6, swshe=0, pre_layout_local=1, nf=2, sa=1.2e-07, sb=1.2e-07, sd=1.4e-07, devtype=PCELLwoWPE, as=1.2e-13, ad=1.2e-13, ps=2.24e-06, pd=2.24e-06, vbs=0, vdd=1.8, temp=25

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	TT	FFF
VtGmmax [mV]	436.1 0.0mV	398.4 0.0mV	359.9 0.0mV
Vgs_ana [mV]	599.5 0.0mV	555.4 0.0mV	510.5 0.0mV
GDC_ana []	620.8 0.0%	592.6 0.0%	570 0.0%
GBW_QS [GHz]	13.33 0.0%	13.46 0.0%	13.58 0.0%
Ft_ana [GHz]	0.43 0.0%	0.44 0.0%	0.44 0.0%
Gm_ana [µS]	49.04 0.0%	50.74 0.0%	52.38 0.0%
Gds_ana [nS]	78.99 0.0%	85.61 0.0%	91.89 0.0%
Cgg_ana [fF]	18.16 0.0%	18.5 0.0%	18.97 0.0%
Cdg_ana [fF]	6.83 0.0%	6.98 0.0%	7.19 0.0%
Cdd_ana [aF]	585.8 0.0%	599.9 0.0%	614.3 0.0%
Avt [mV.µm]	3.92 0.6%	3.75 0.6%	3.65 0.7%
Abeta [%.µm]	0.91 0.1%	0.89 0.1%	0.86 0.1%
AId [%.µm]	0.87 0.3%	0.86 0.2%	0.85 0.1%
Sv@1Hz [V/√Hz]	2.91e-06 0.0%	5.31e-06 0.0%	9.54e-06 0.0%
Sv@th [V/√Hz]	1.49e-08 0.0%	1.46e-08 0.0%	1.43e-08 0.0%

eglvtpfet_acc
Electrical characteristics per geometry

eglvtpfet_acc @ w=2e-6, l=0.15e-6, swshe=0, pre_layout_local=1, nf=2, sa=1.2e-07, sb=1.2e-07, sd=1.4e-07, devtype=PCELLwoWPE, as=1.2e-13, ad=1.2e-13, ps=2.24e-06, pd=2.24e-06, vbs=1.8, vdd=1.8, temp=25

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	TT	FFF
VtGmmax [mV]	356.2 0.0mV	310.6 0.0mV	263.6 0.0mV
Vgs_ana [mV]	598 0.0mV	526.2 0.0mV	458.2 0.0mV
GDC_ana []	29.43 0.0%	30.69 0.0%	31 0.0%
GBW_QS [GHz]	48.79 0.0%	52.75 0.0%	55.02 0.0%
Ft_ana [GHz]	14.72 0.0%	15.88 0.0%	16.85 0.0%
Gm_ana [µS]	182.7 0.0%	197.2 0.0%	209.6 0.0%
Gds_ana [µS]	6.21 0.0%	6.43 0.0%	6.76 0.0%
Cgg_ana [fF]	1.98 0.0%	1.98 0.0%	1.98 0.0%
Cdg_ana [aF]	959.1 0.0%	914.2 0.0%	920.7 0.0%
Cdd_ana [aF]	595 0.0%	594.6 0.0%	606 0.0%
Avt [mV.µm]	2.63 -2.4%	2.56 -2.5%	2.52 -2.5%
Abeta [%.µm]	0.72 0.2%	0.64 0.5%	0.6 1.0%
AId [%.µm]	0.72 -0.0%	0.63 0.2%	0.57 0.5%
Sv@1Hz [V/√Hz]	1.4e-05 0.0%	4.09e-05 0.0%	1.22e-04 0.0%
Sv@th [V/√Hz]	8.39e-09 0.0%	7.94e-09 0.0%	7.72e-09 0.0%

eglvtpfet_acc @ w=2e-6, l=2.0e-6, swshe=0, pre_layout_local=1, nf=2, sa=1.2e-07, sb=1.2e-07, sd=1.4e-07, devtype=PCELLwoWPE, as=1.2e-13, ad=1.2e-13, ps=2.24e-06, pd=2.24e-06, vbs=1.8, vdd=1.8, temp=25

DK1.2_RF_mmW wrt DK1.1_RF_mmW

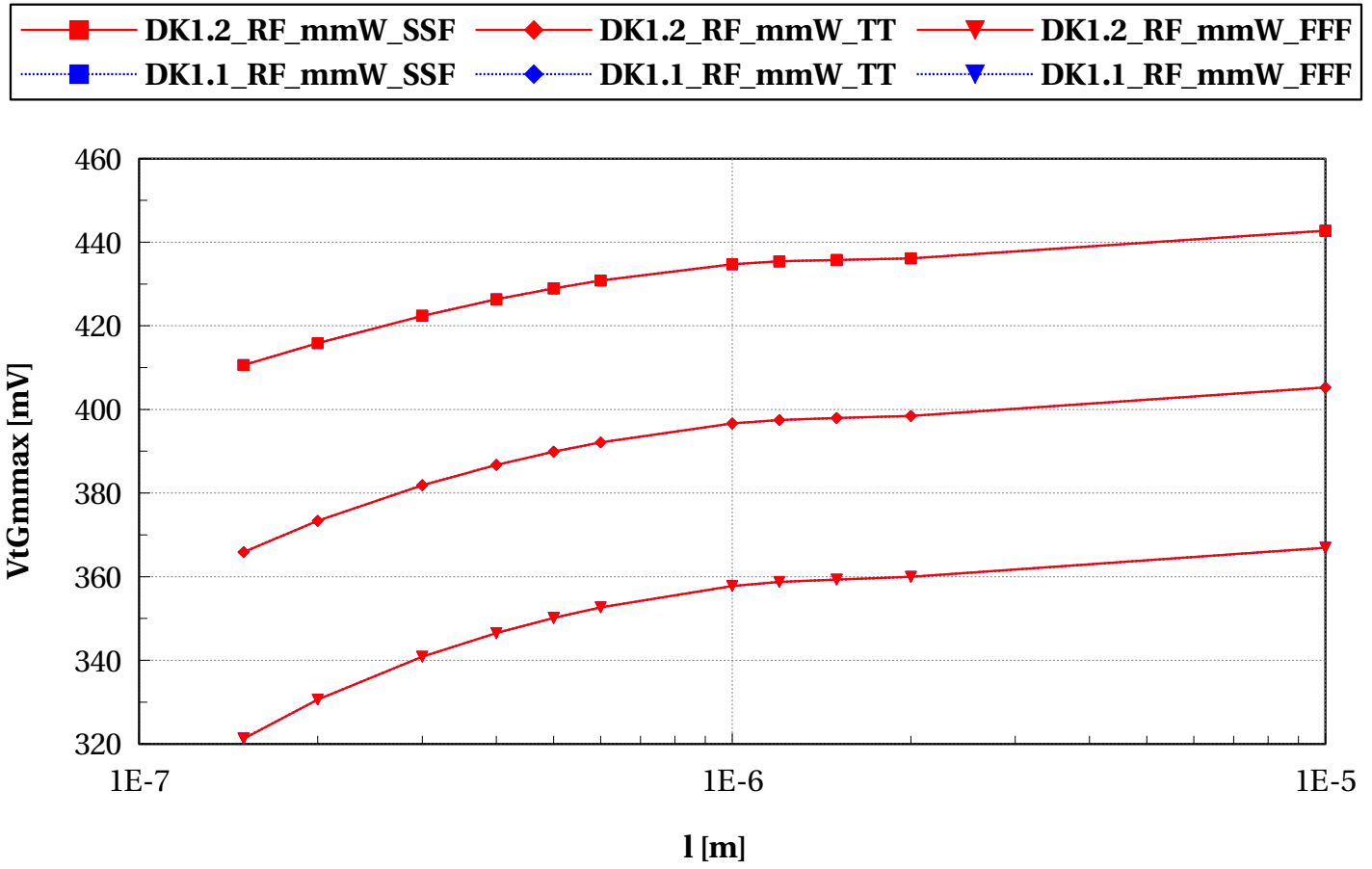
	SSF	TT	FFF
VtGmmax [mV]	375.4 0.0mV	342.7 0.0mV	309.3 0.0mV
Vgs_ana [mV]	541.7 0.0mV	501.4 0.0mV	460.8 0.0mV
GDC_ana []	349.4 0.0%	315.1 0.0%	286.4 0.0%
GBW_QS [GHz]	5.46 0.0%	5.42 0.0%	5.36 0.0%
Ft_ana [GHz]	0.17 0.0%	0.17 0.0%	0.17 0.0%
Gm_ana [µS]	17.3 0.0%	17.56 0.0%	17.77 0.0%
Gds_ana [nS]	49.5 0.0%	55.73 0.0%	62.06 0.0%
Cgg_ana [fF]	16.43 0.0%	16.43 0.0%	16.41 0.0%
Cdg_ana [fF]	6.28 0.0%	6.28 0.0%	6.27 0.0%
Cdd_ana [aF]	504.4 0.0%	515.9 0.0%	527.8 0.0%
Avt [mV.µm]	5.76 0.3%	5.55 0.3%	5.43 0.4%
Abeta [%.µm]	0.92 0.2%	0.94 -0.0%	0.98 -0.2%
AId [%.µm]	0.95 0.0%	0.94 -0.0%	0.94 -0.1%
Sv@1Hz [V/√Hz]	3.28e-06 0.0%	5.74e-06 0.0%	1e-05 0.0%
Sv@th [V/√Hz]	2.59e-08 0.0%	2.56e-08 0.0%	2.54e-08 0.0%

eglvtnfet_acc
Electrical characteristics scaling

Scaling versus Length (T=25C)

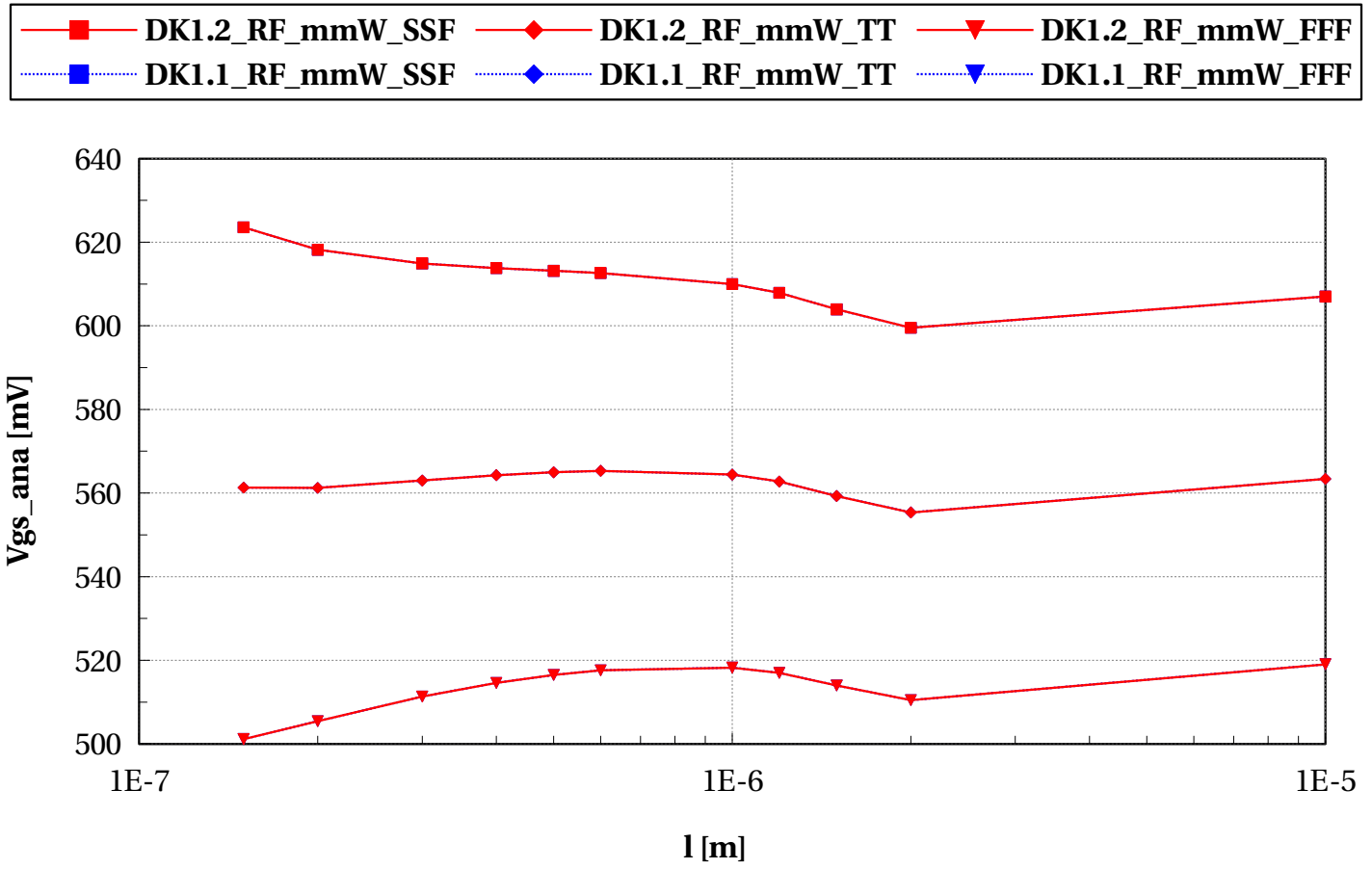
eglvtnfet_acc, VtGmmax [mV] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



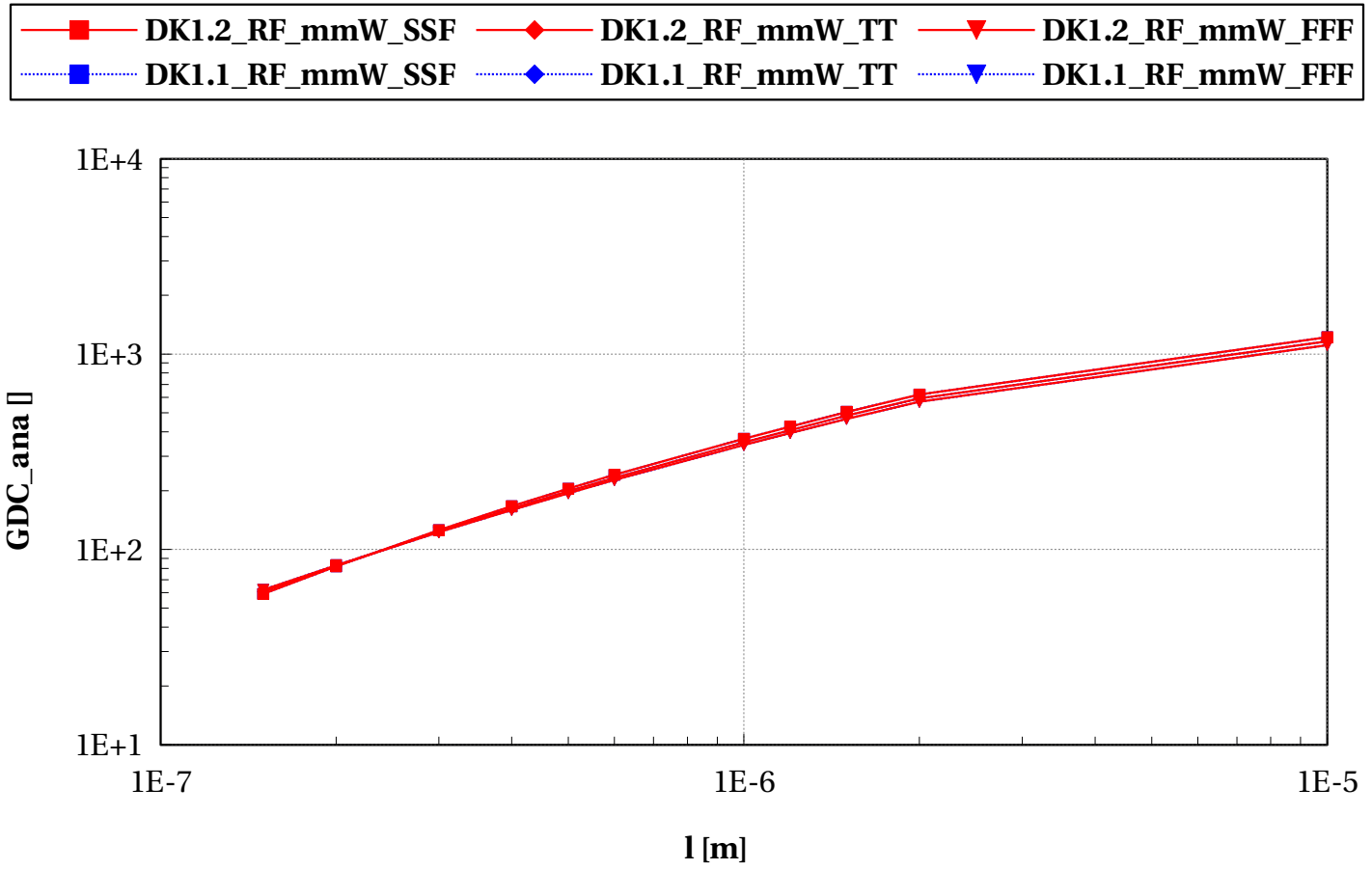
eglvtnfet_acc, Vgs_ana [mV] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



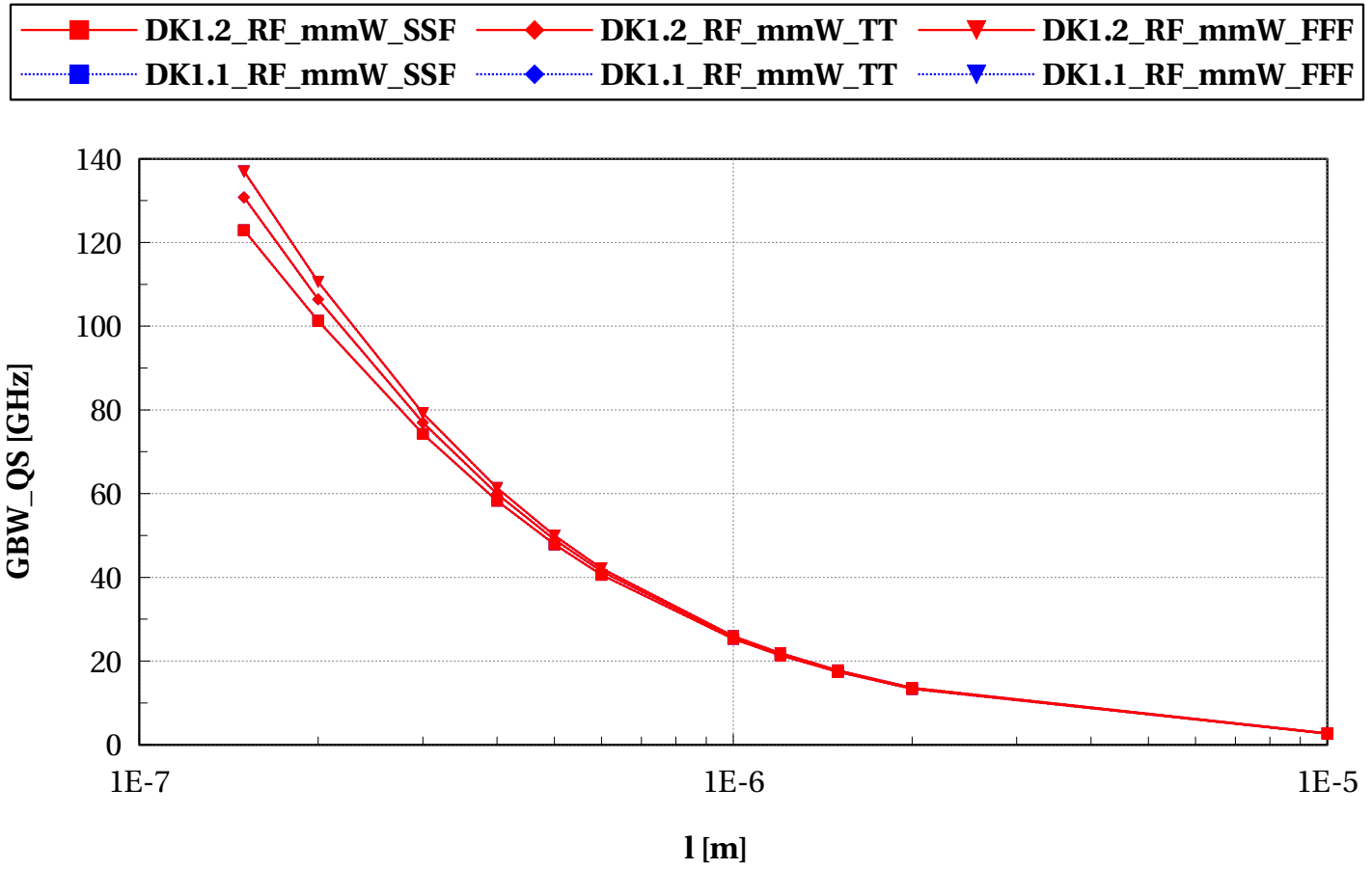
eglvtnfet_acc, GDC_ana [] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



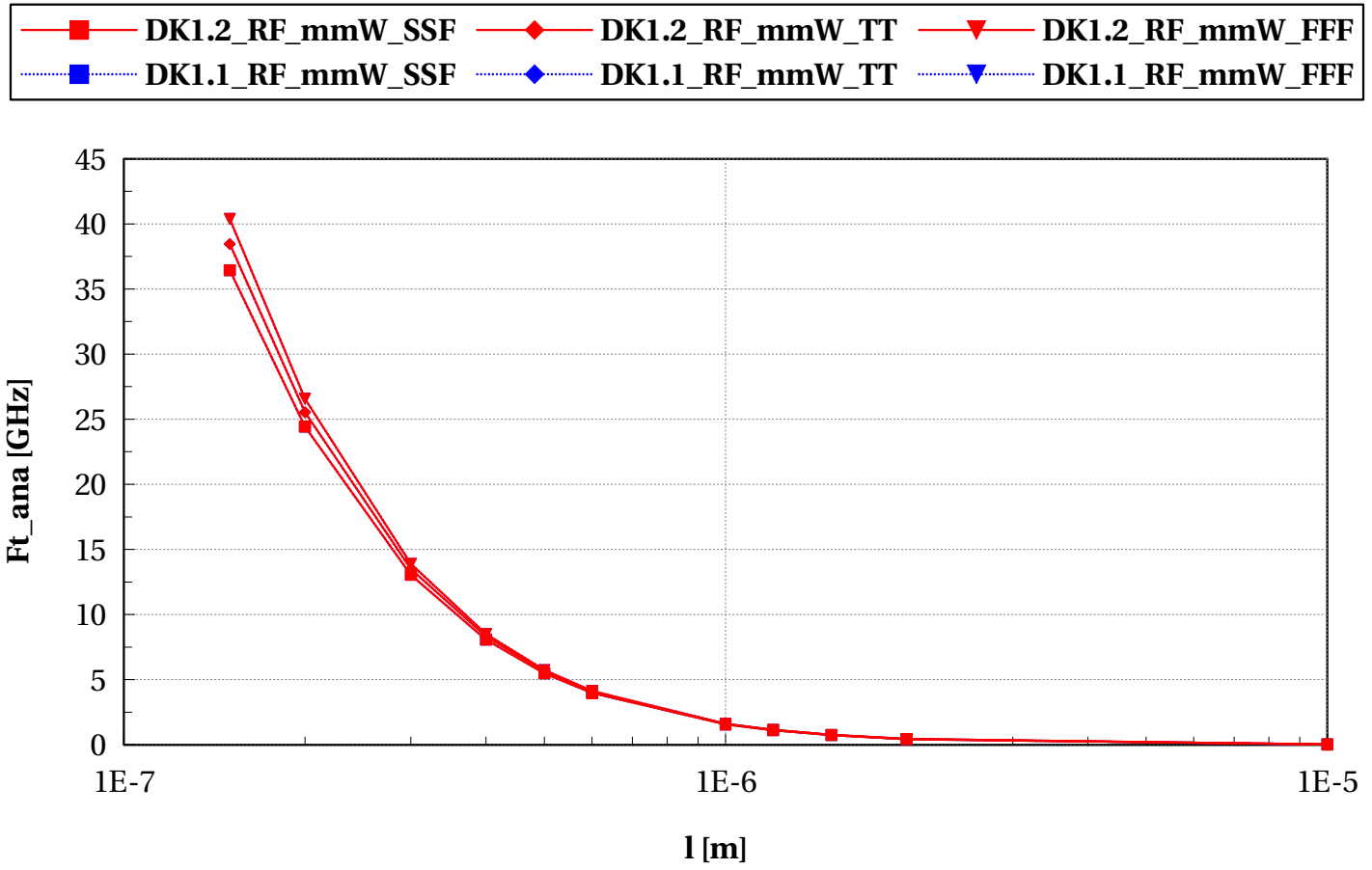
eglvtnfet_acc, GBW_QS [GHz] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



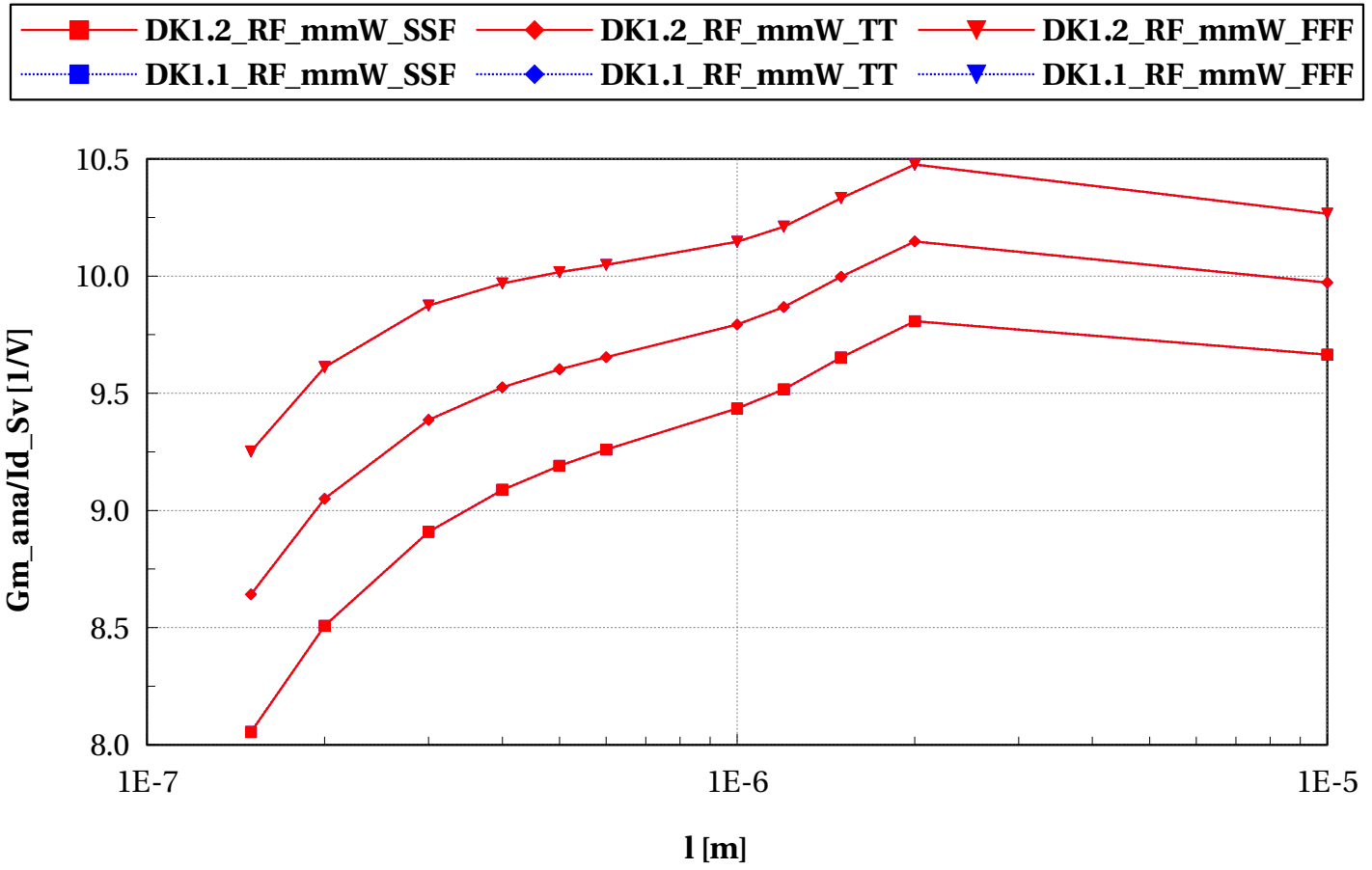
eglvtnfet_acc, Ft_ana [GHz] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



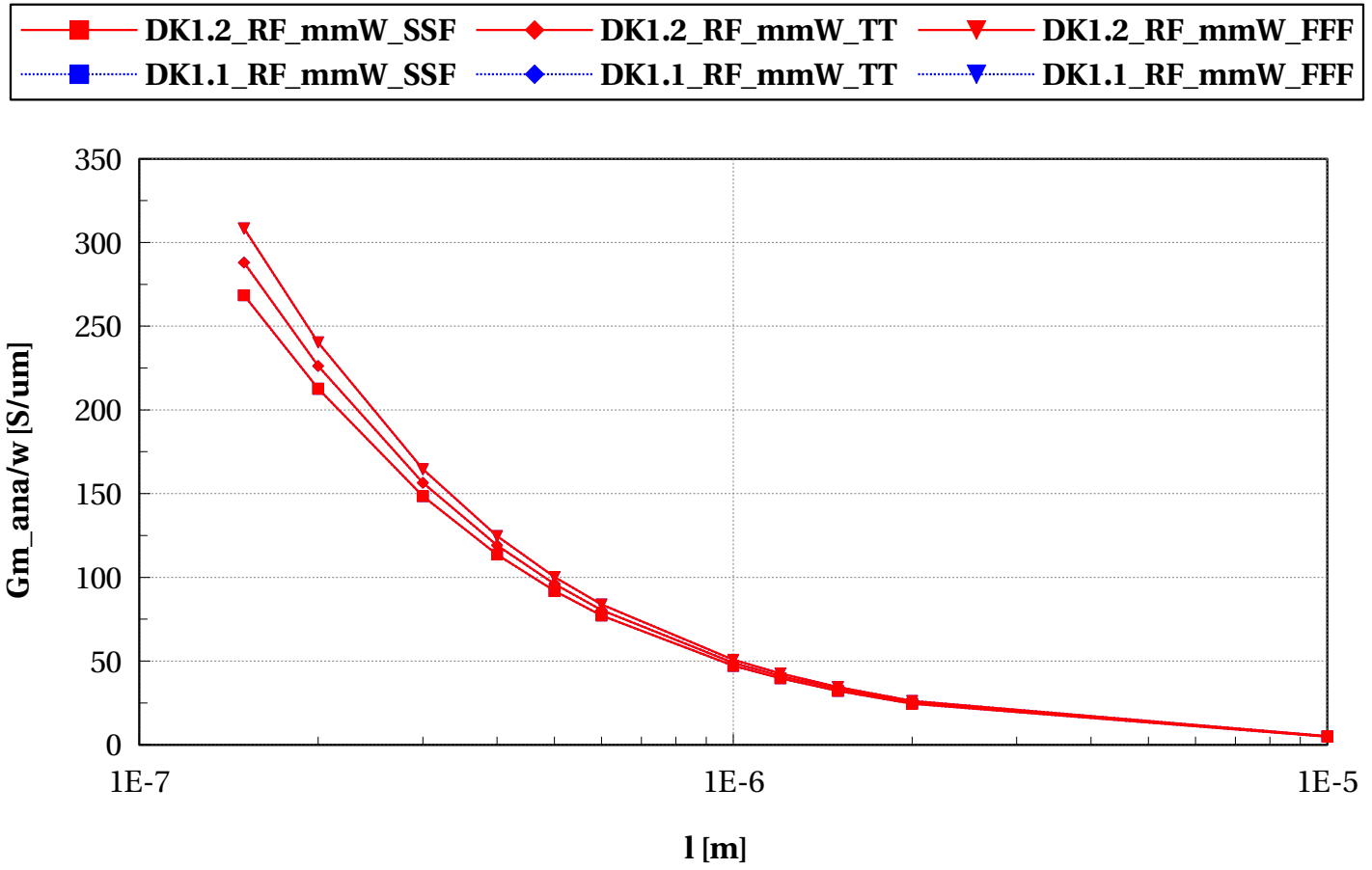
eglvtnfet_acc, Gm_ana/Id_Sv [1/V] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



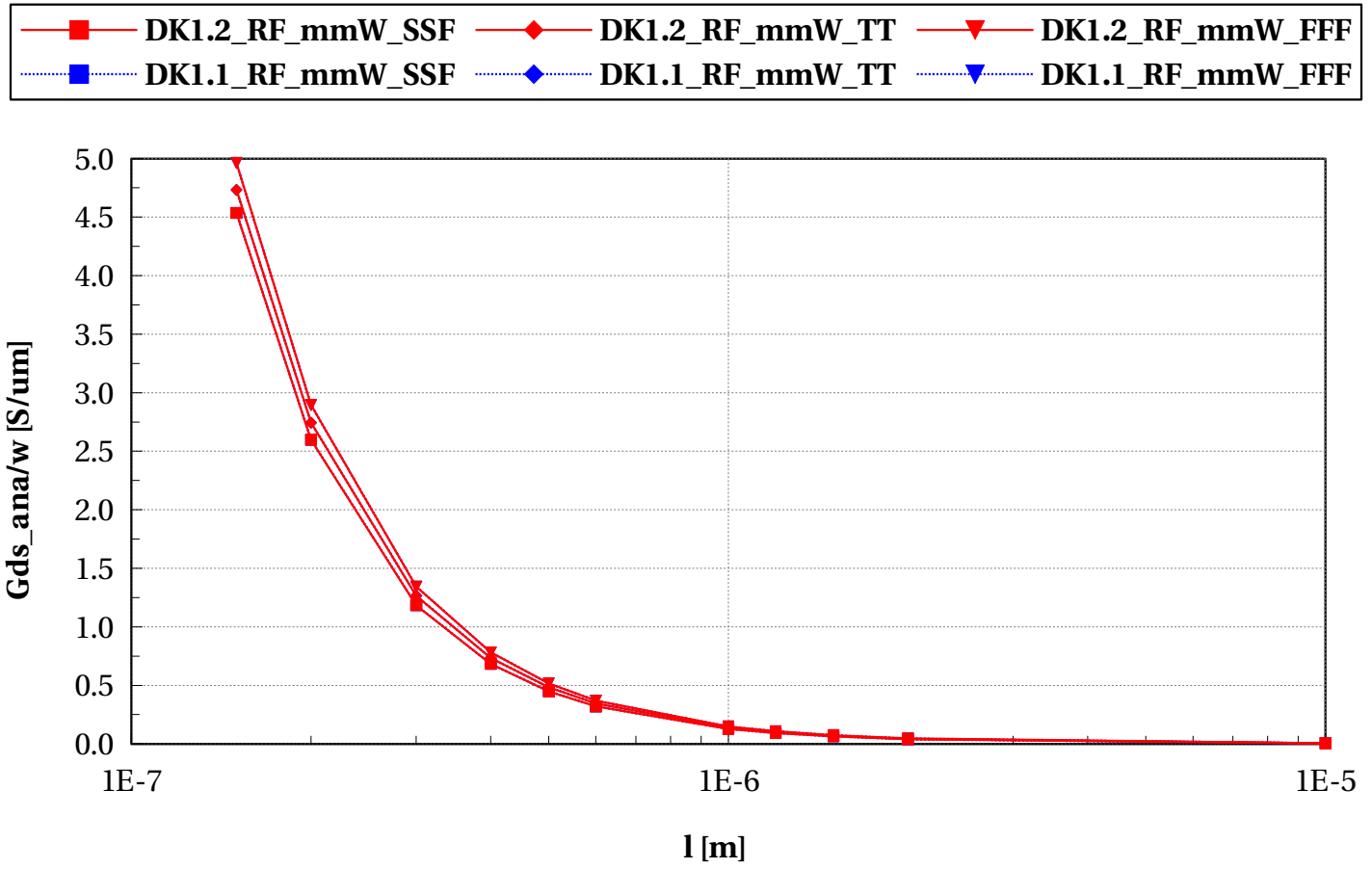
eglvtnfet_acc, Gm_ana/w [S/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



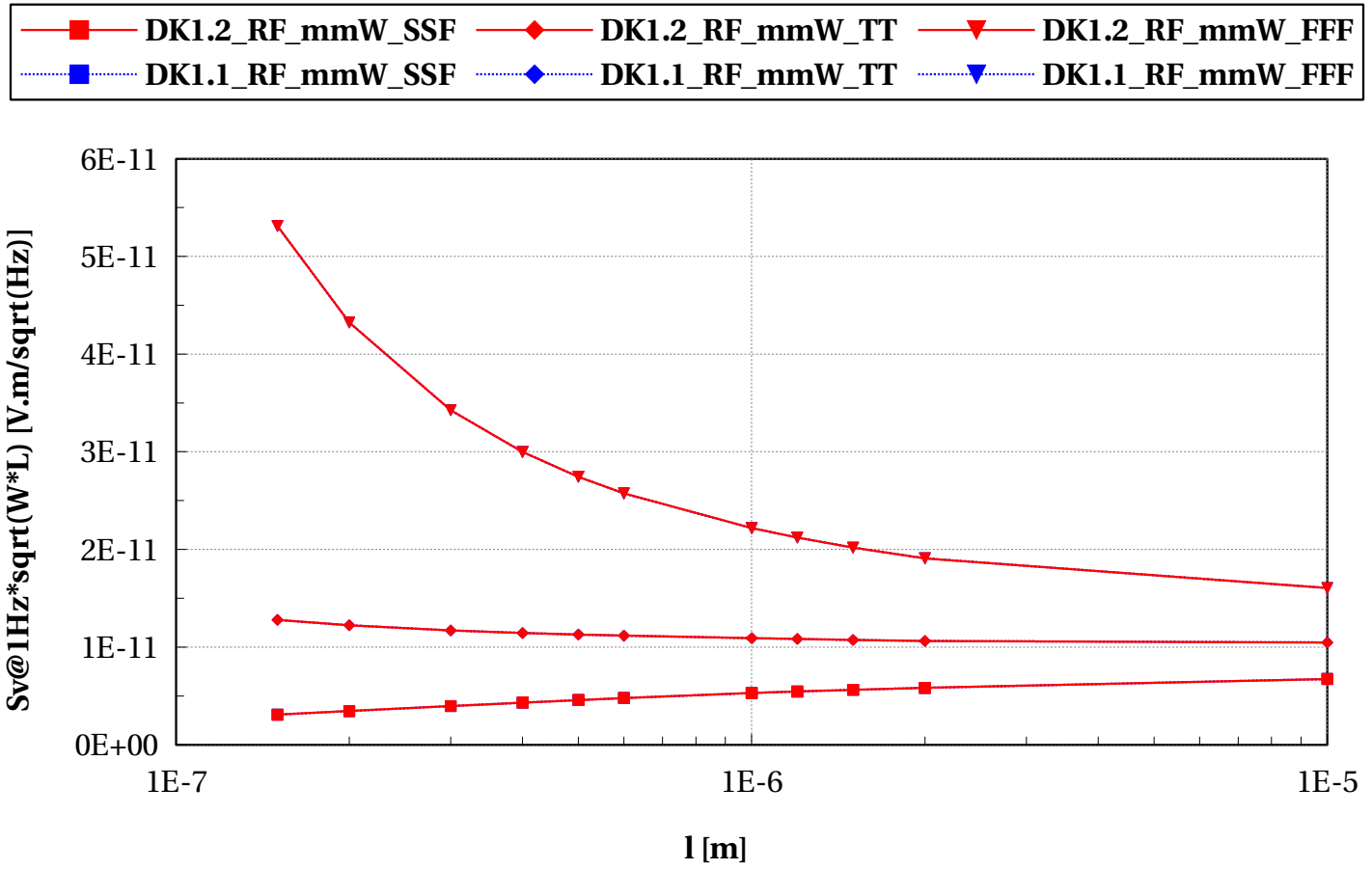
eglvtnfet_acc, Gds_ana/w [S/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



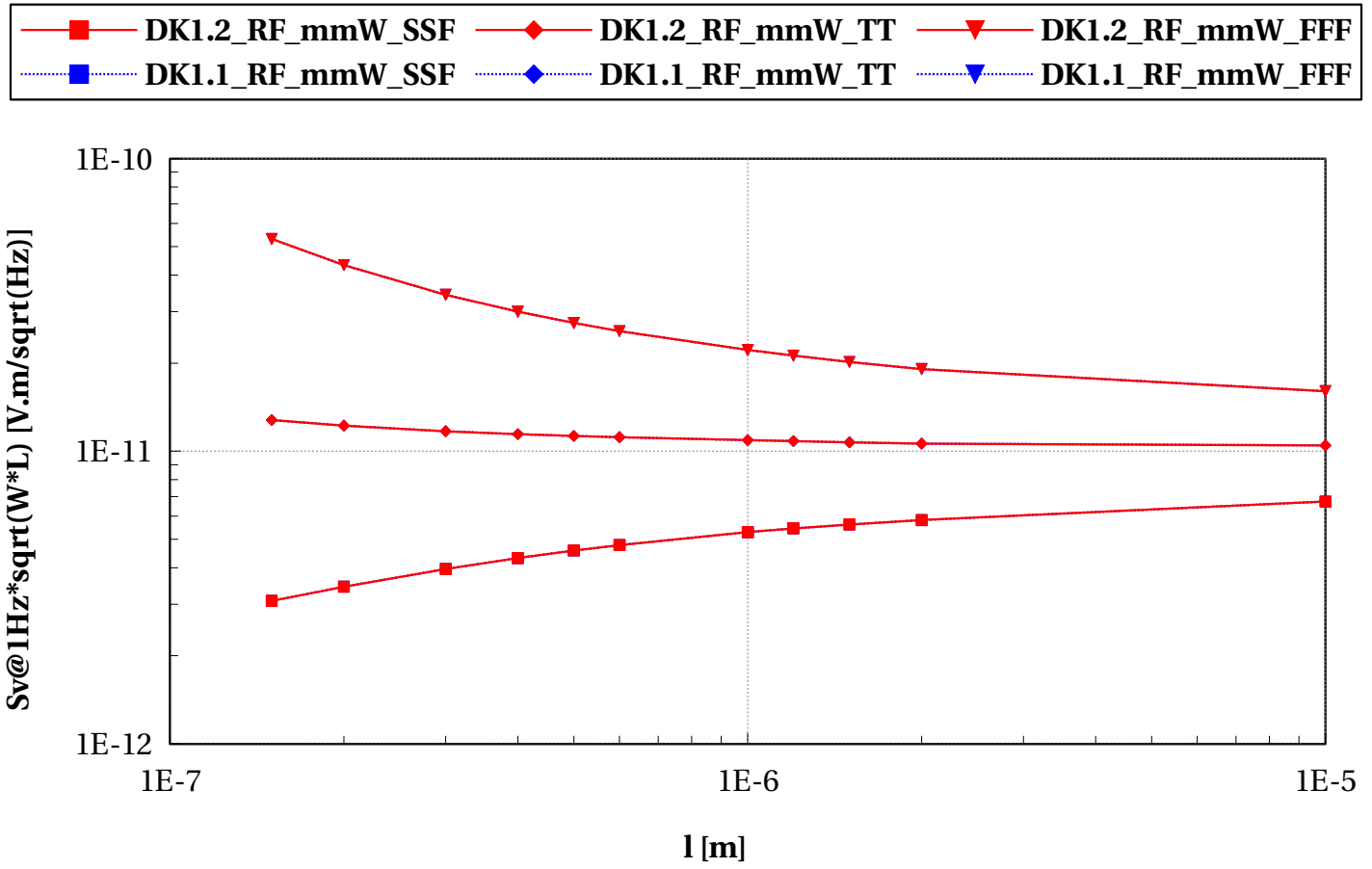
eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



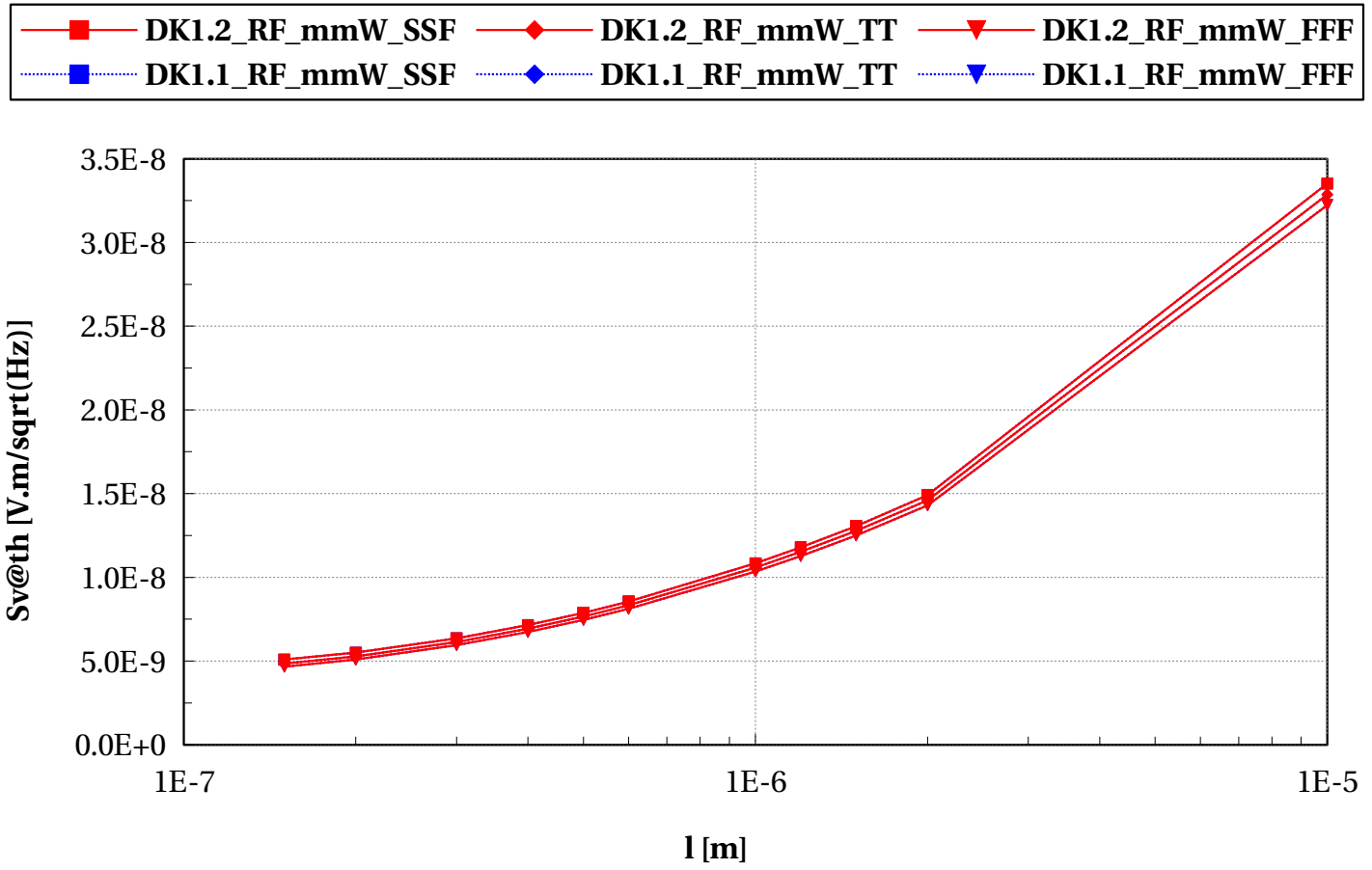
eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



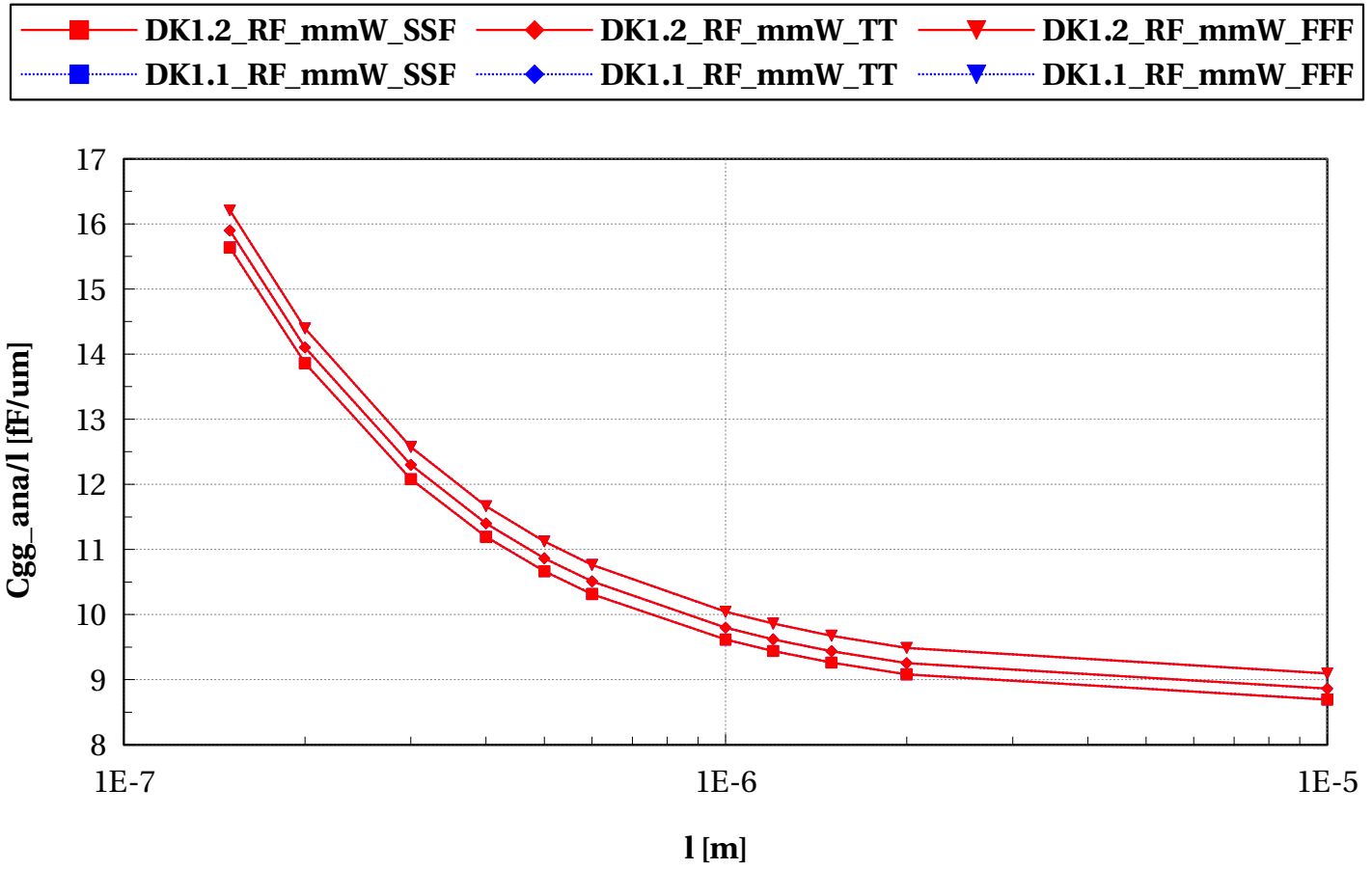
eglvtnfet_acc, Sv@th [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



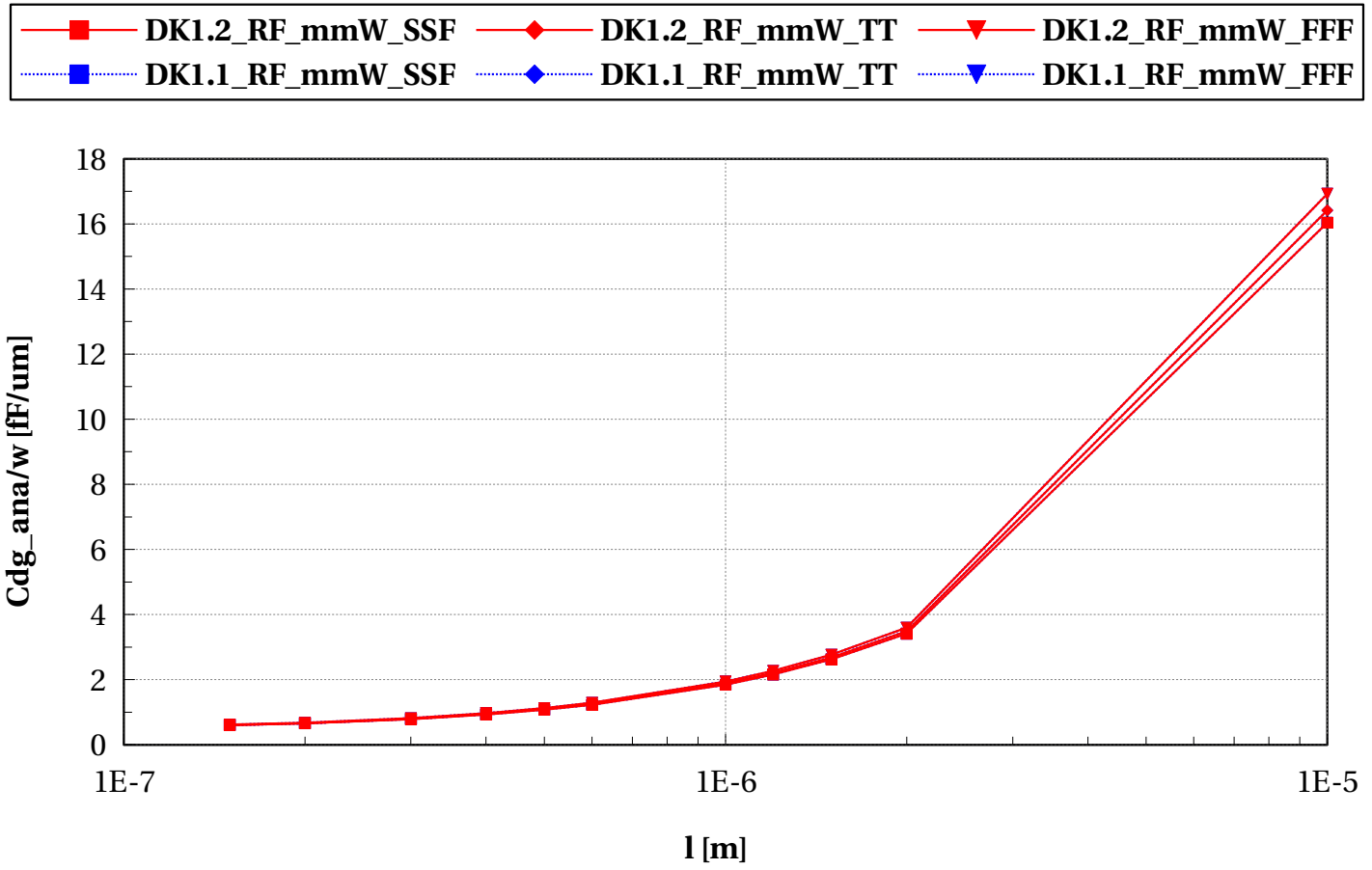
eglvtnfet_acc, Cgg_ana/l [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



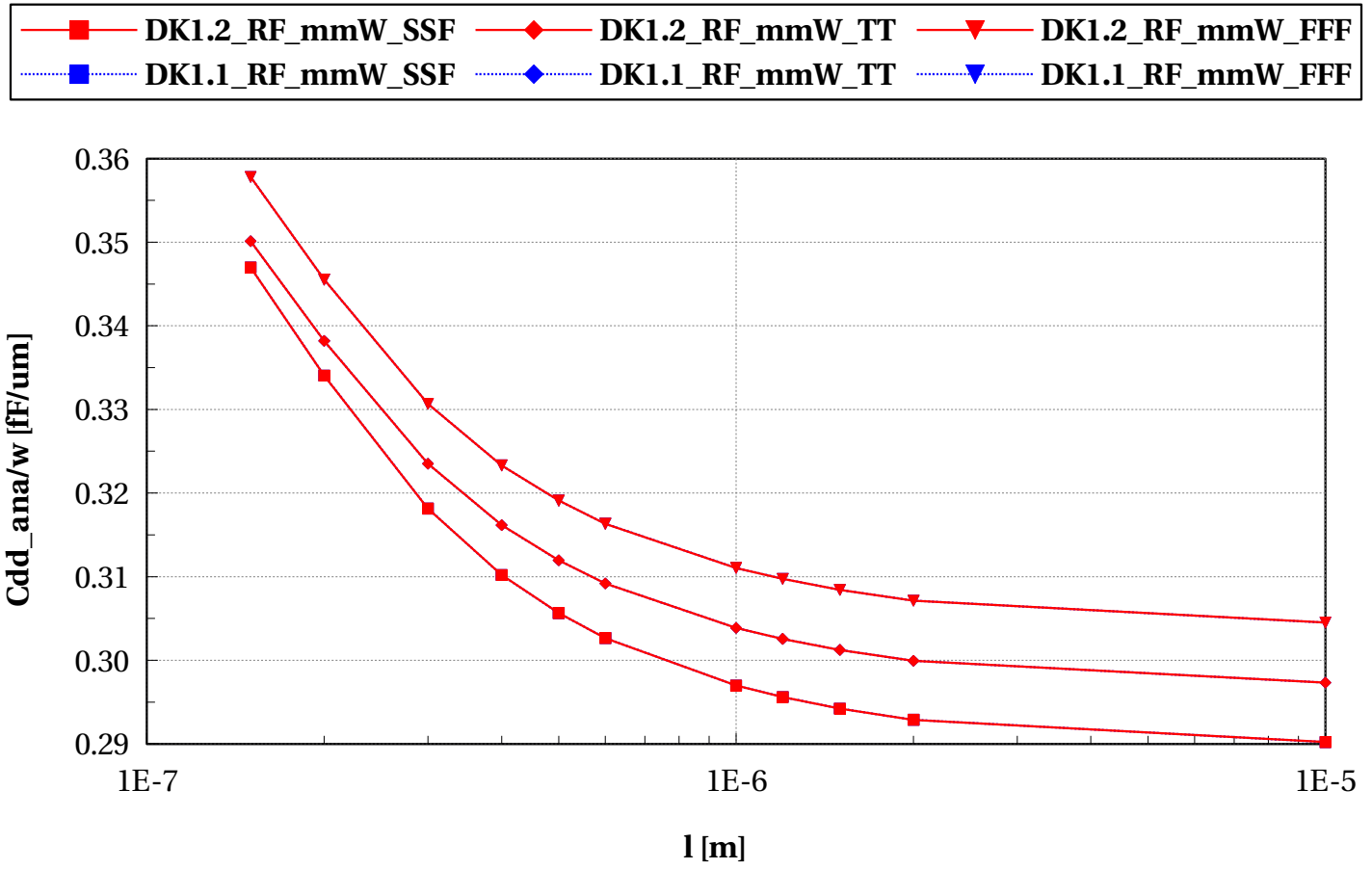
eglvtnfet_acc, Cdg_ana/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



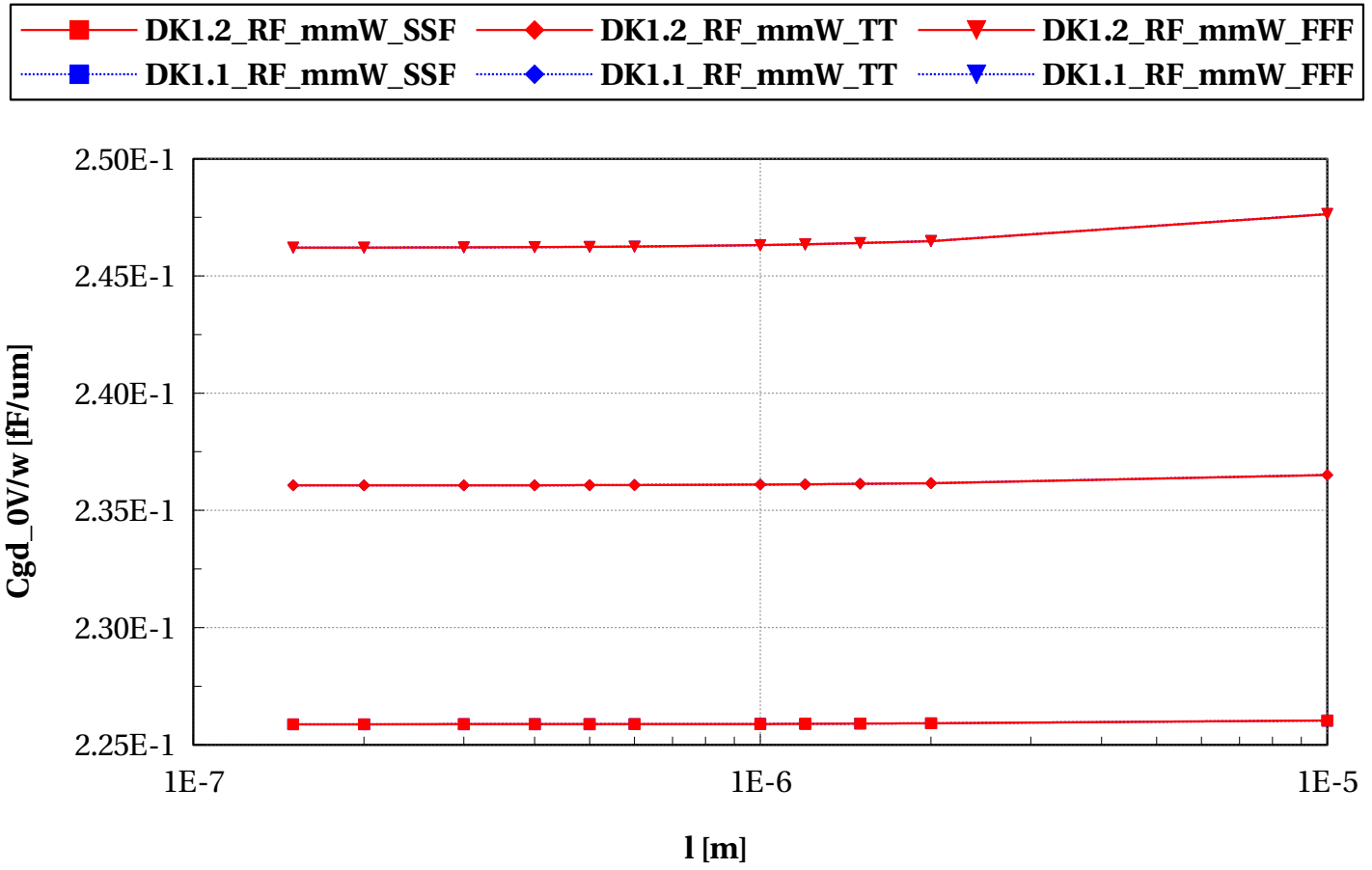
eglvtnfet_acc, Cdd_ana/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



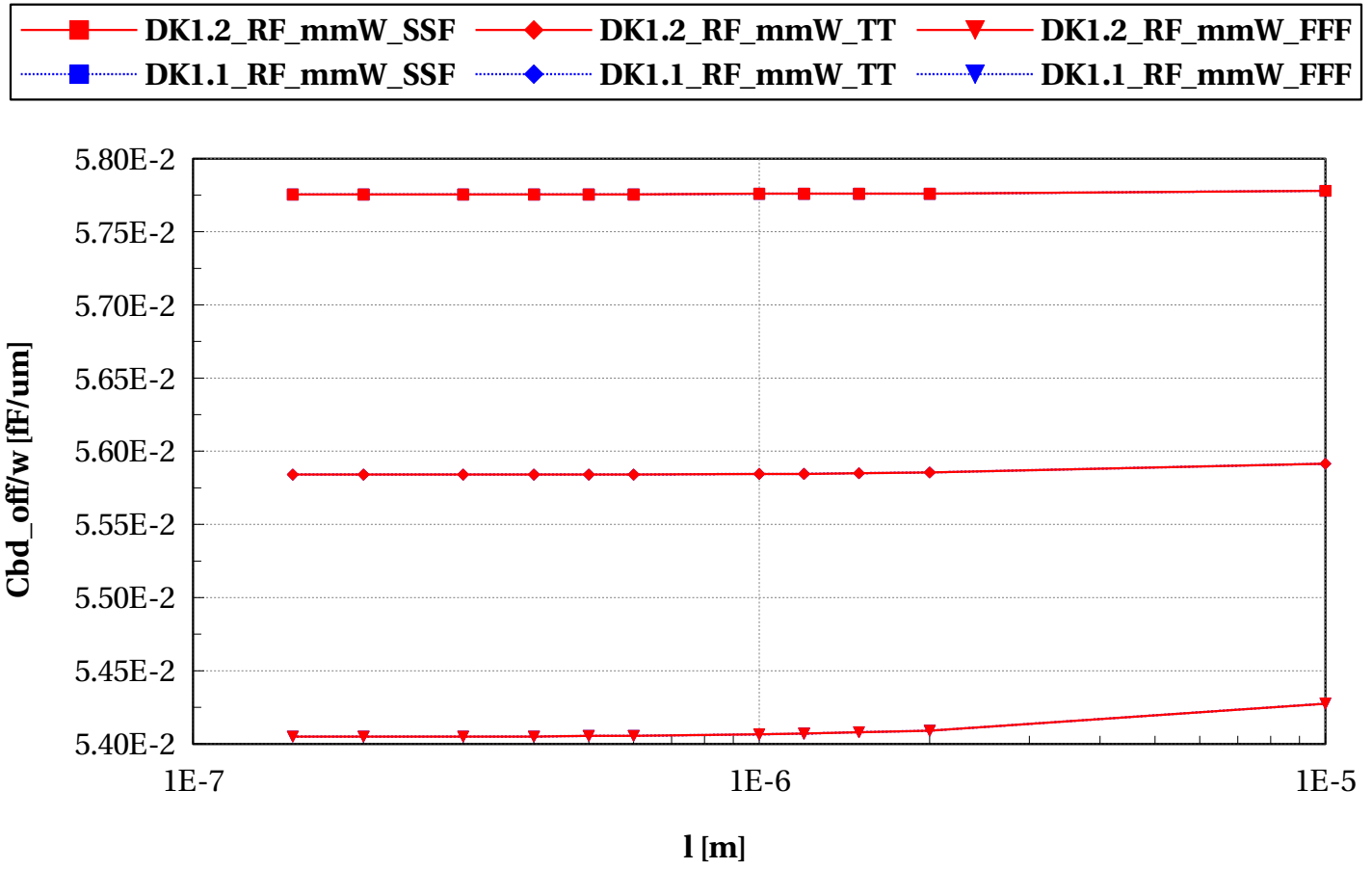
eglvtnfet_acc, Cgd_0V/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



eglvtnfet_acc, Cbd_off/w [fF/um] vs l [m]

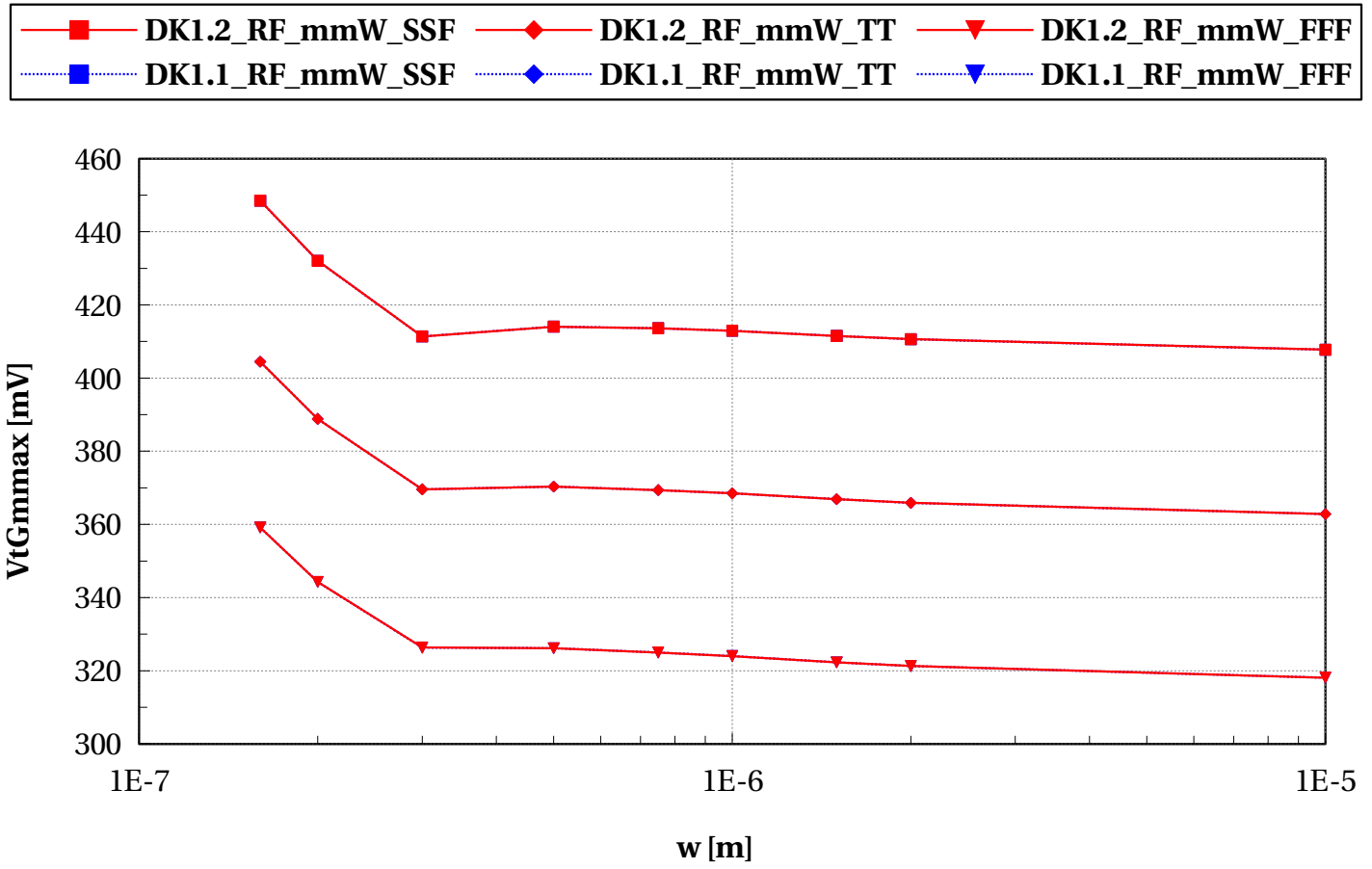
W==2e-6 and nf==2 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



Scaling versus Width (T=25C)

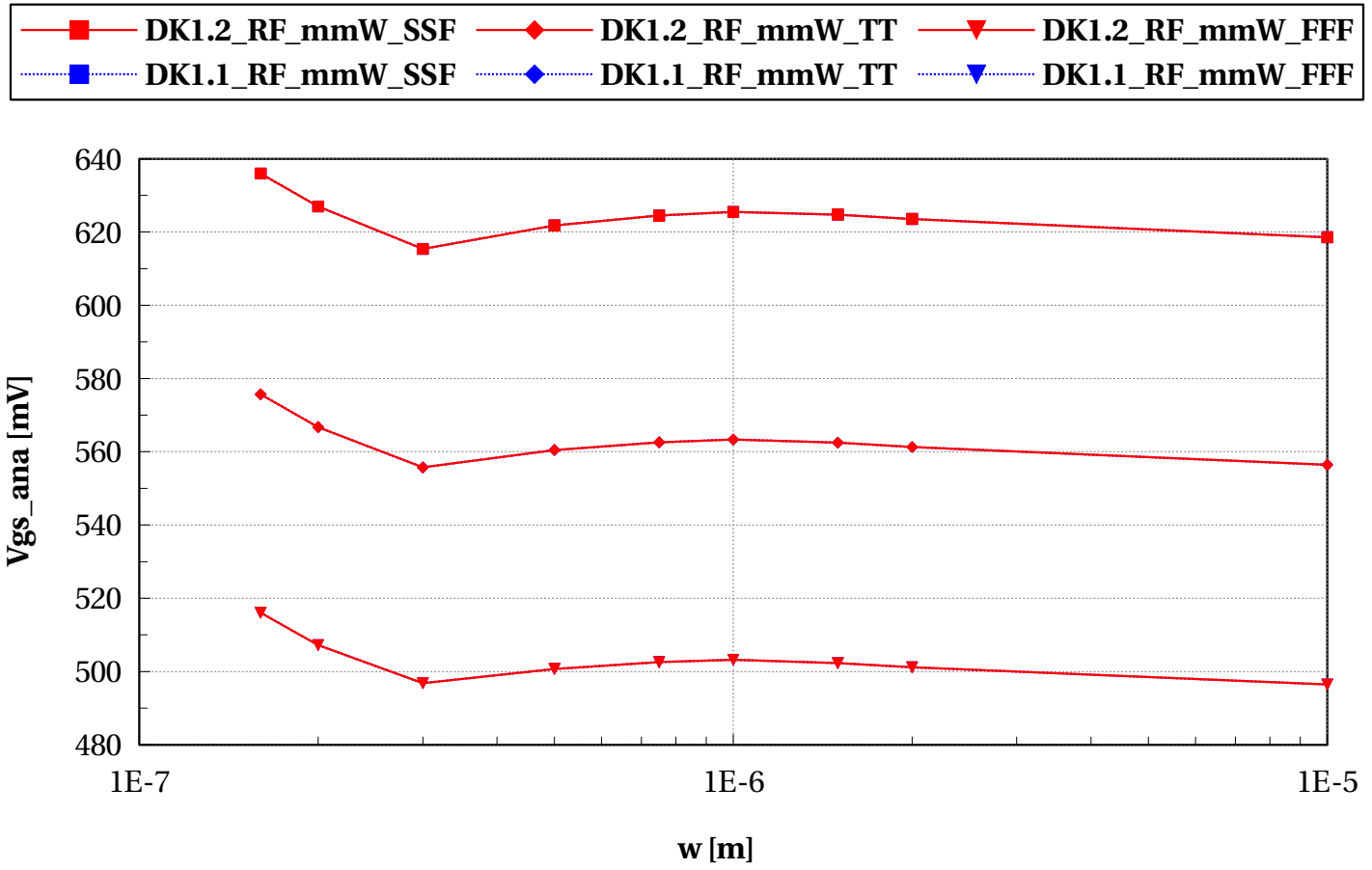
eglvtnfet_acc, VtGmmax [mV] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



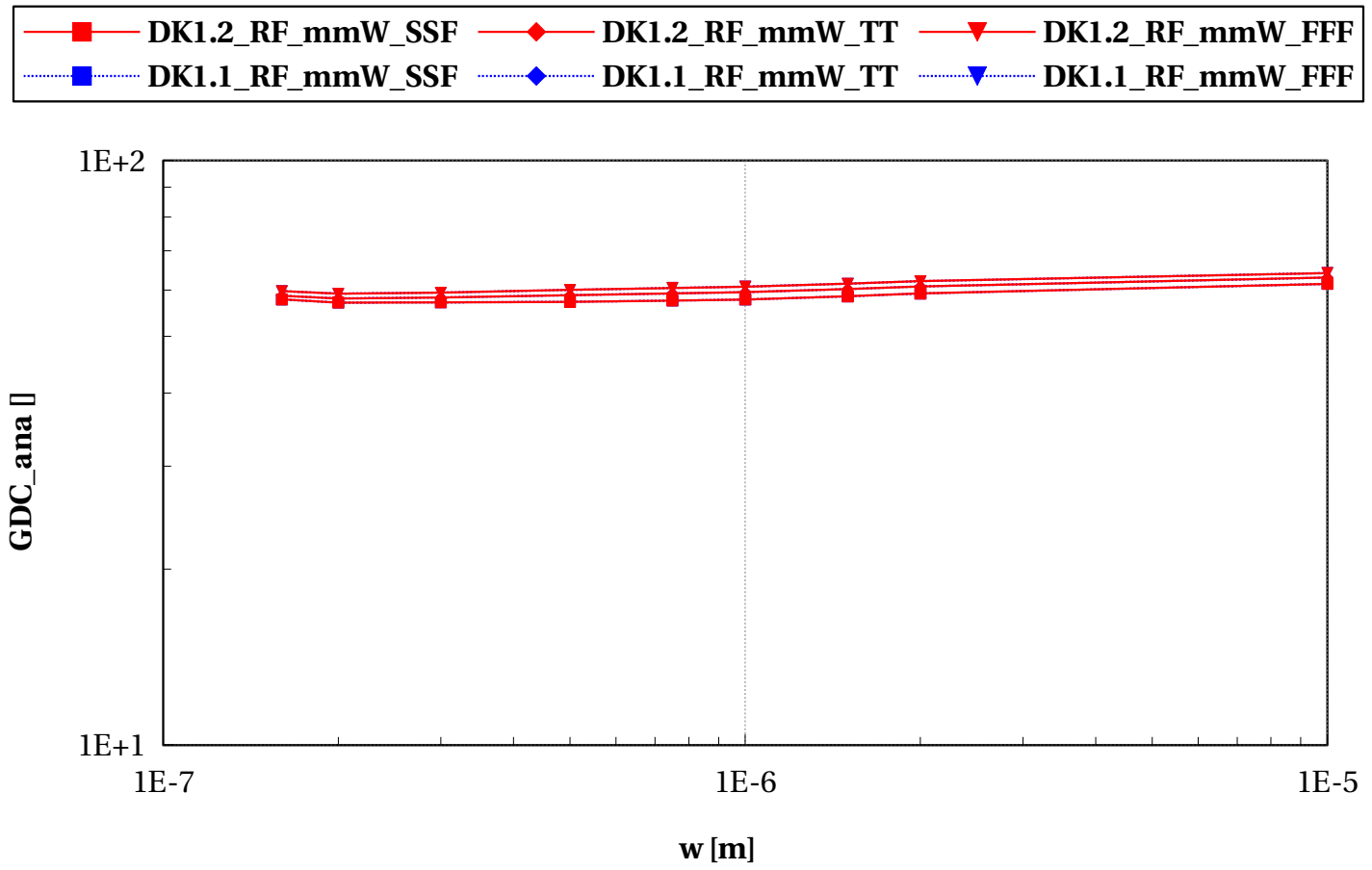
eglvtnfet_acc, Vgs_ana [mV] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



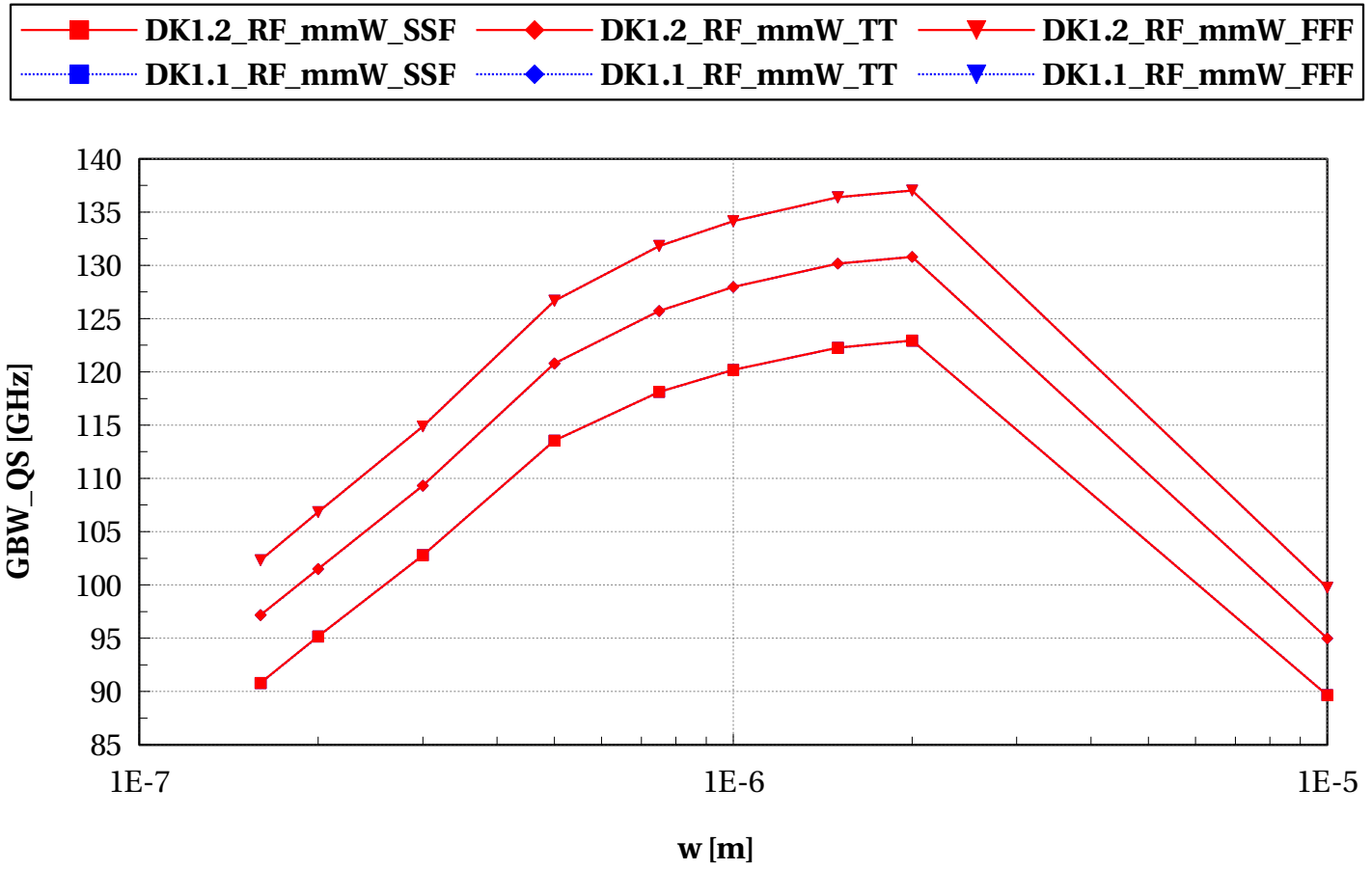
eglvtnfet_acc, GDC_ana [] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



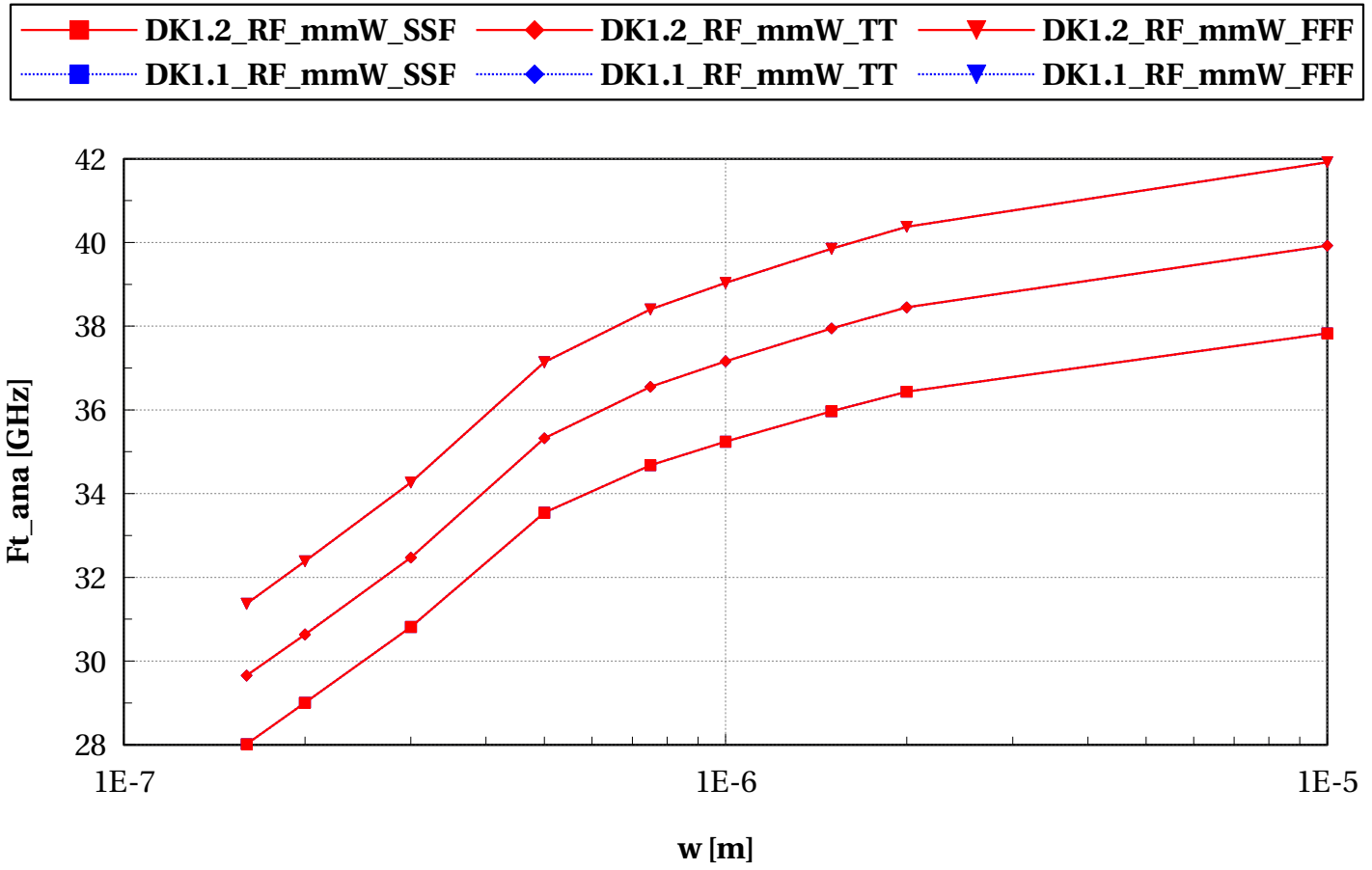
eglvtnfet_acc, GBW_QS [GHz] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



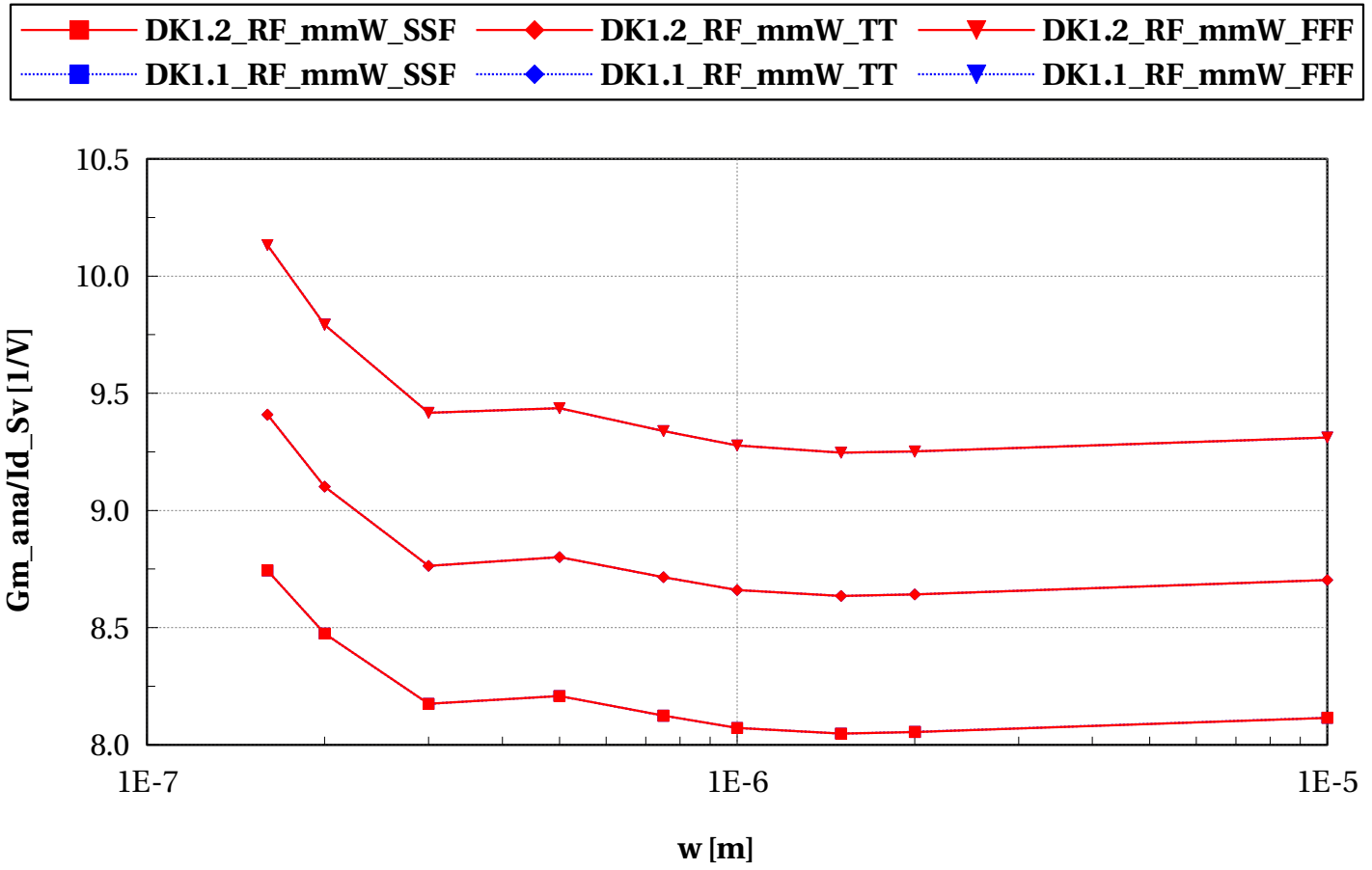
eglvtnfet_acc, Ft_ana [GHz] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



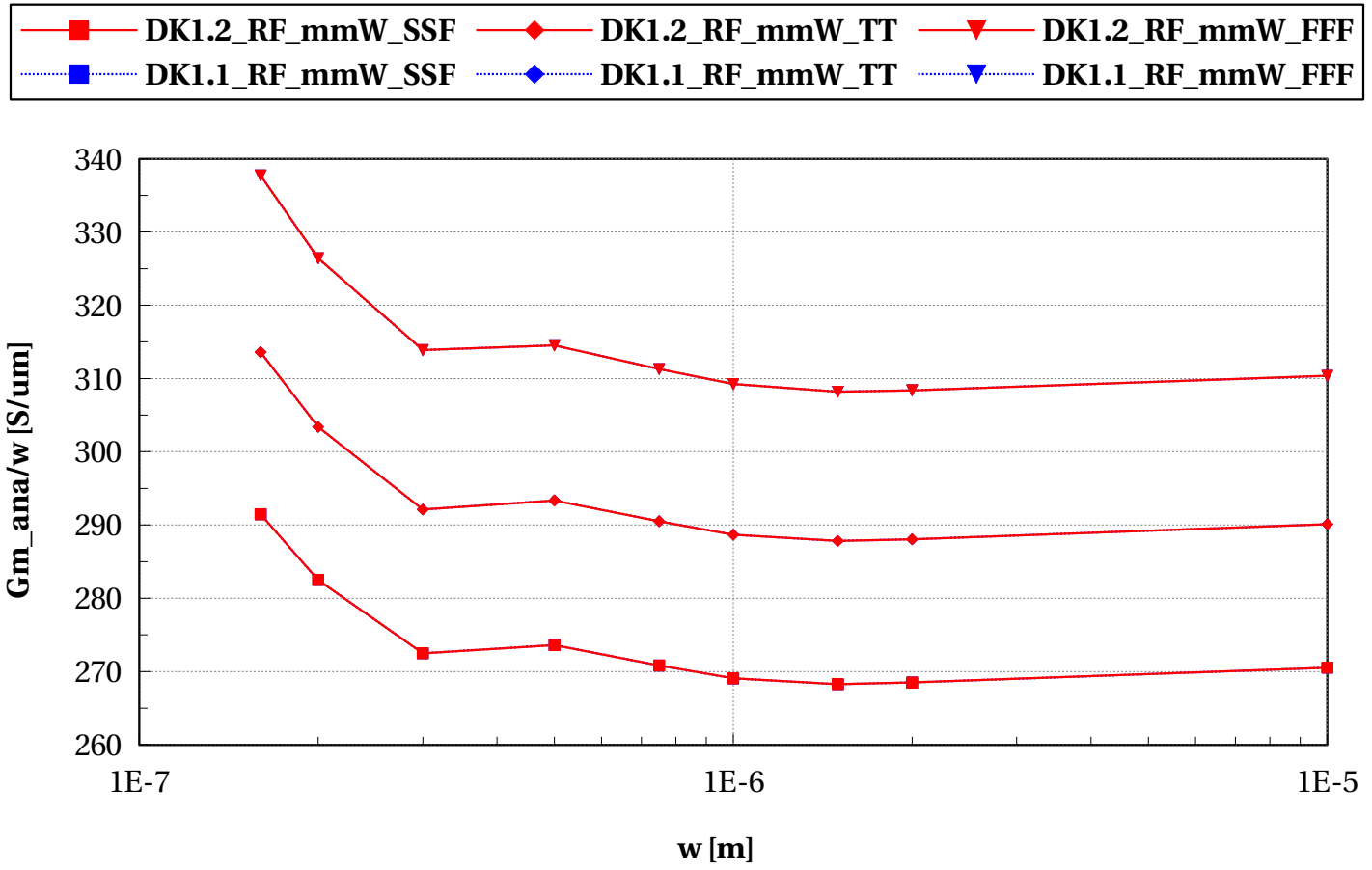
eglvtnfet_acc, Gm_ana/Id_Sv [1/V] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



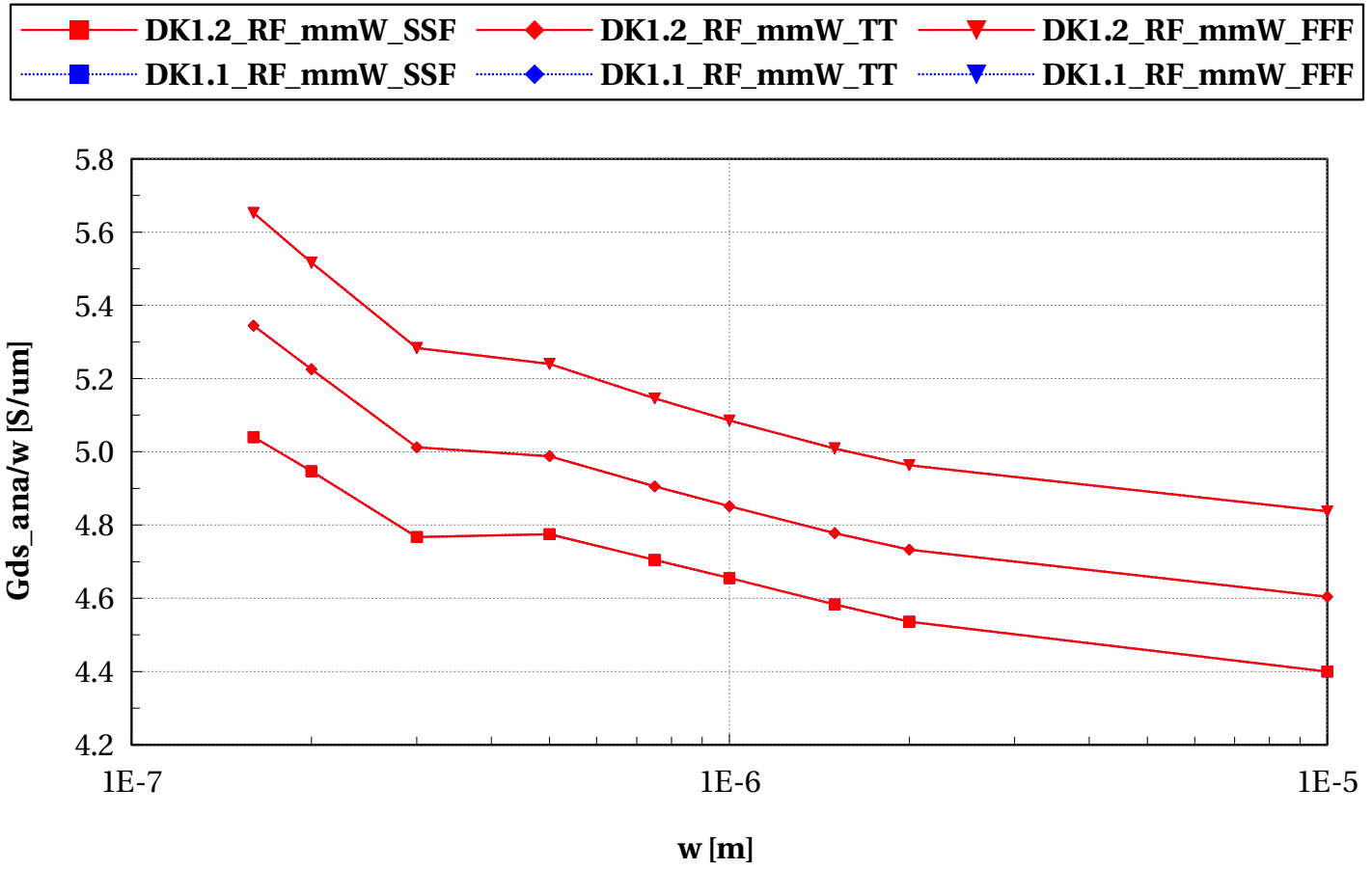
eglvtnfet_acc, Gm_ana/w [S/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"

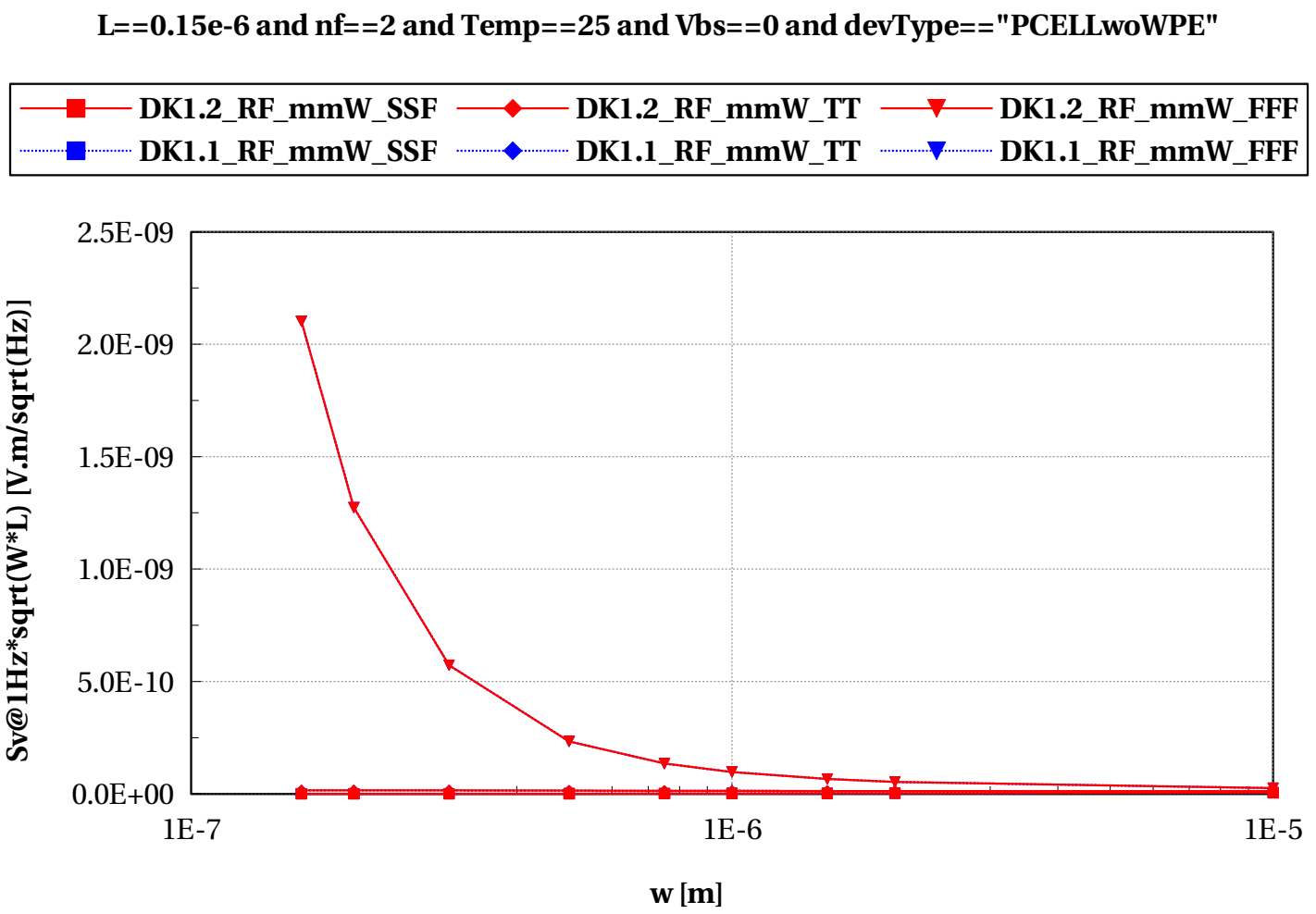


eglvtnfet_acc, Gds_ana/w [S/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"

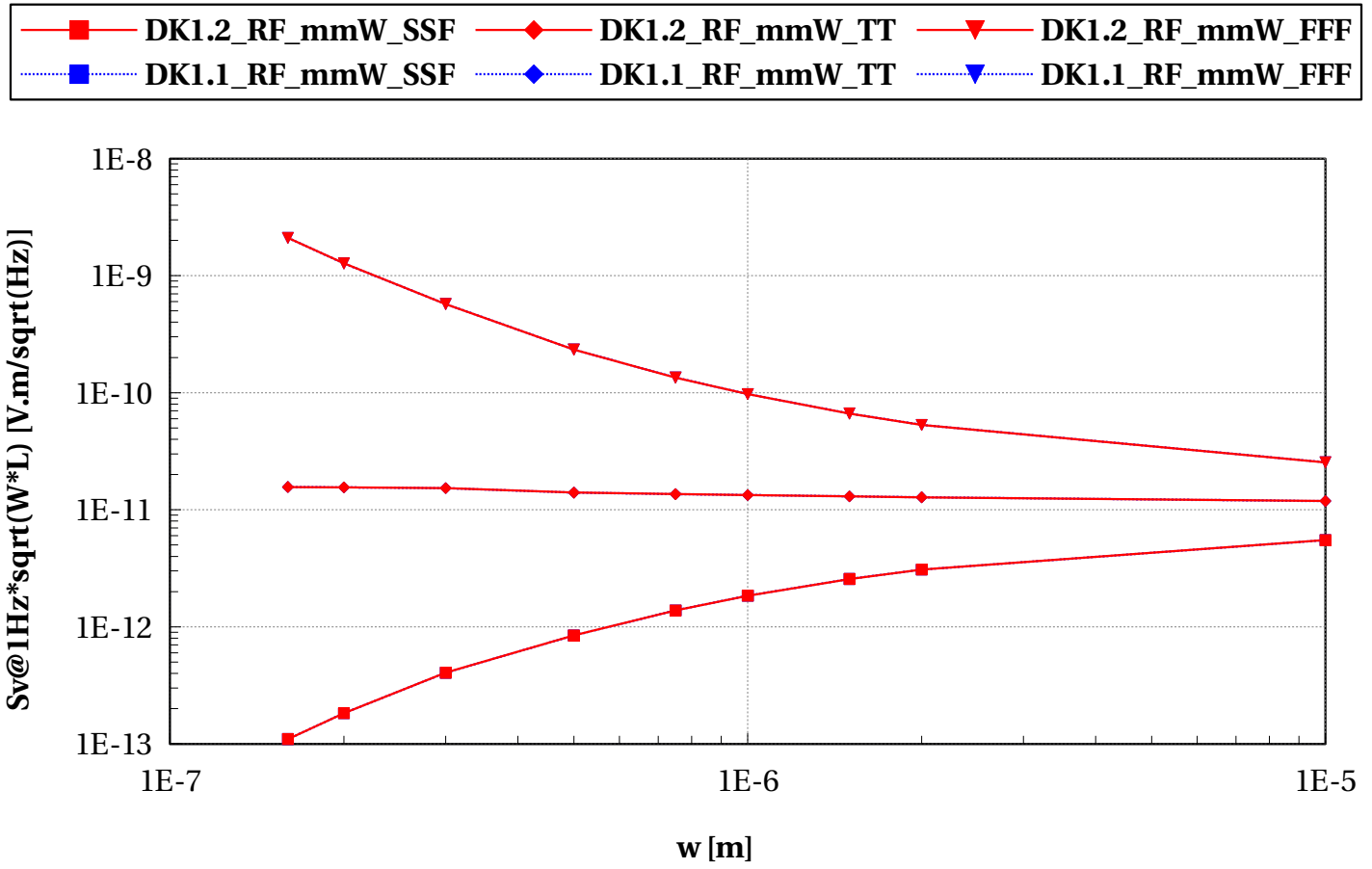


eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs w [m]



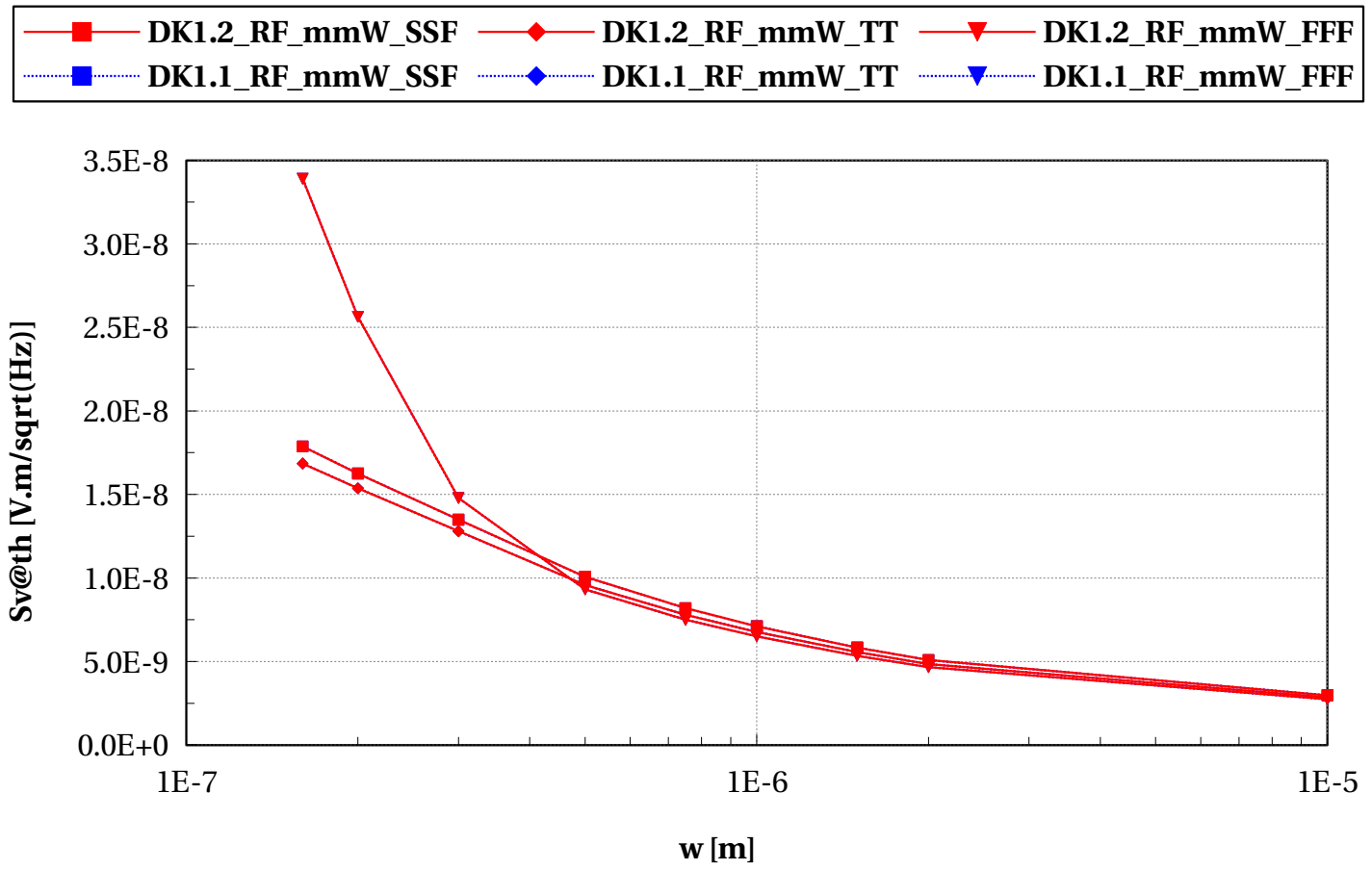
eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



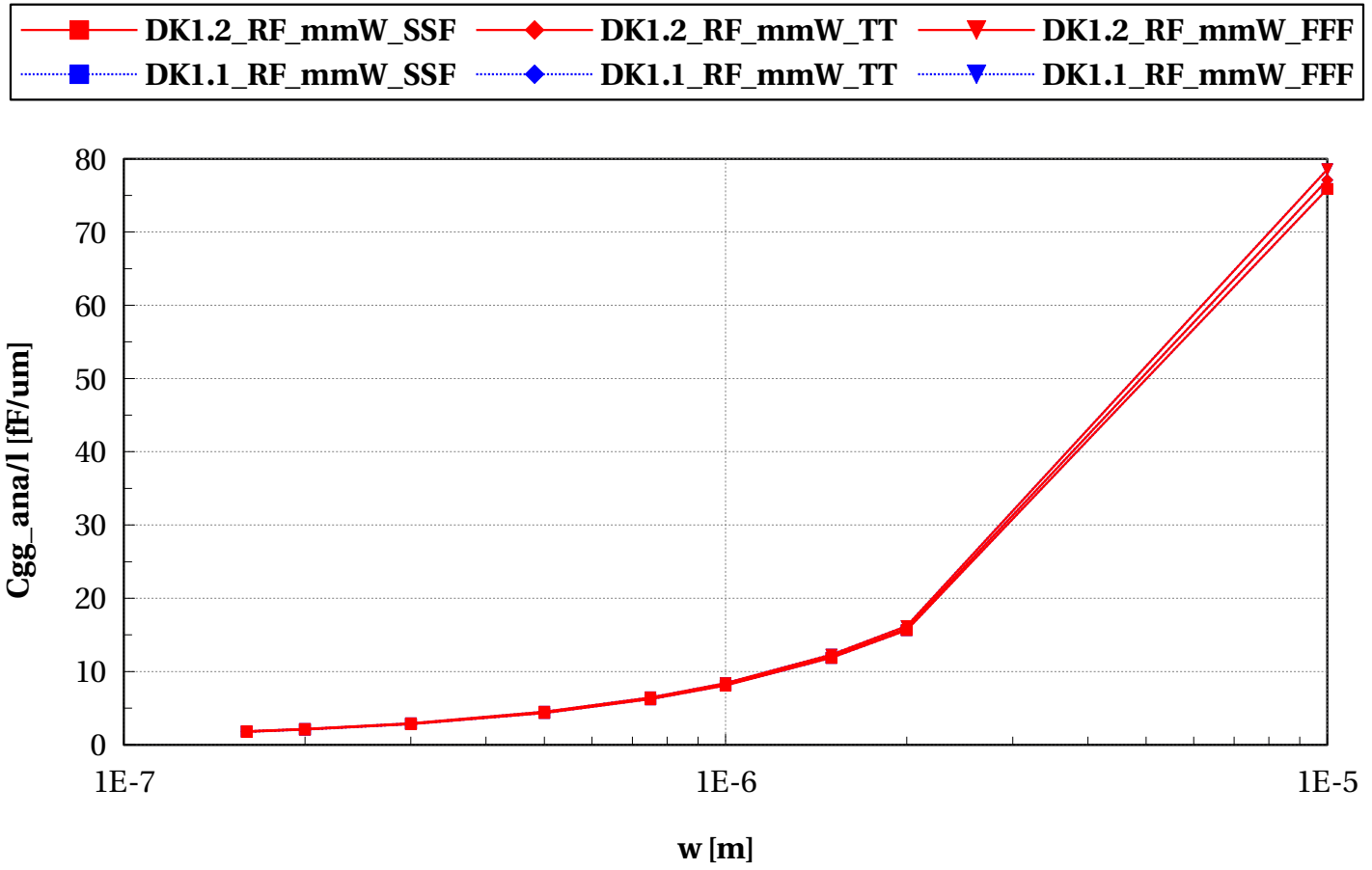
eglvtnfet_acc, Sv@th [V.m/sqrt(Hz)] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



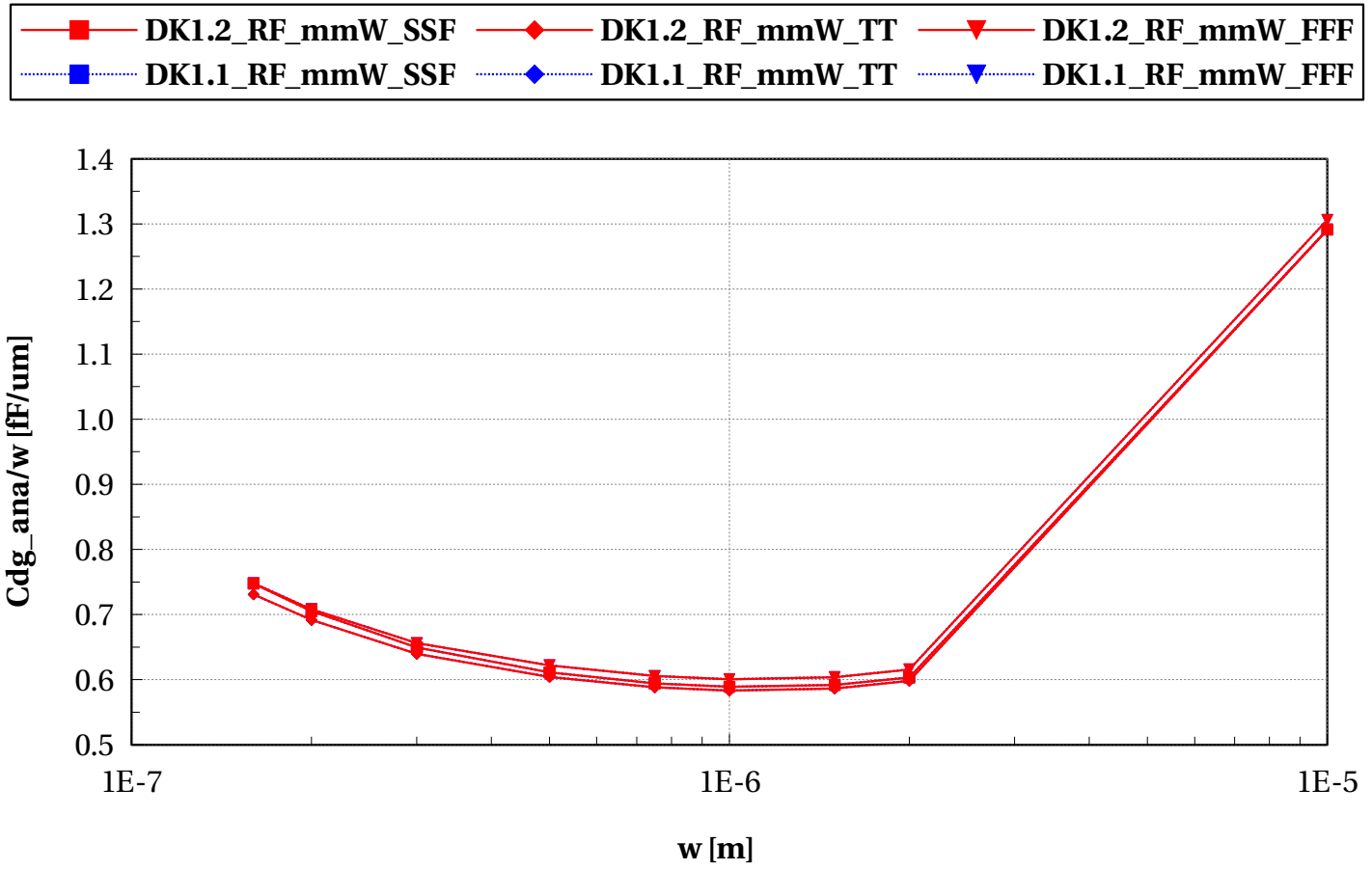
eglvtnfet_acc, Cgg_ana/l [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



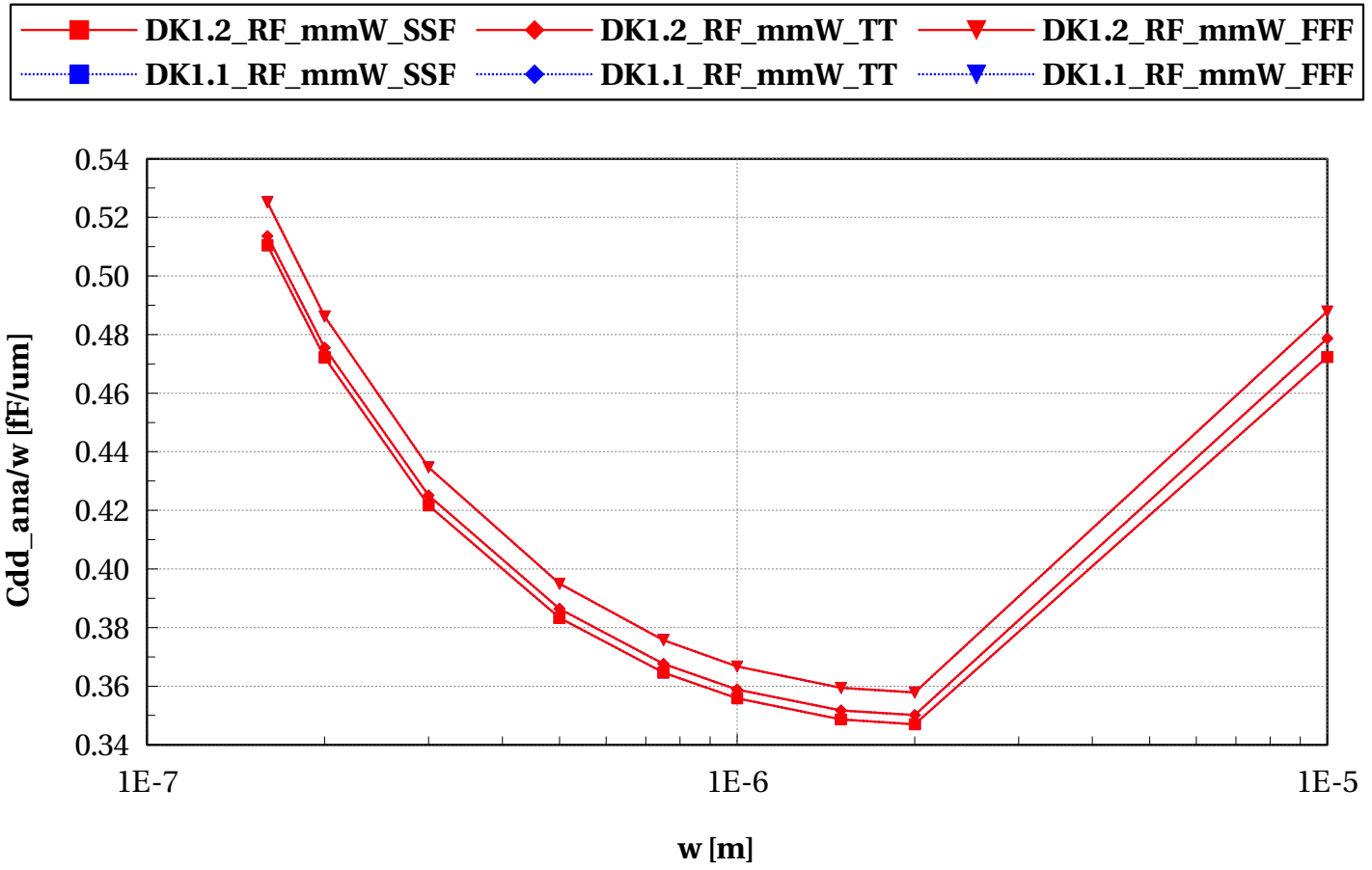
eglvtnfet_acc, Cdg_ana/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



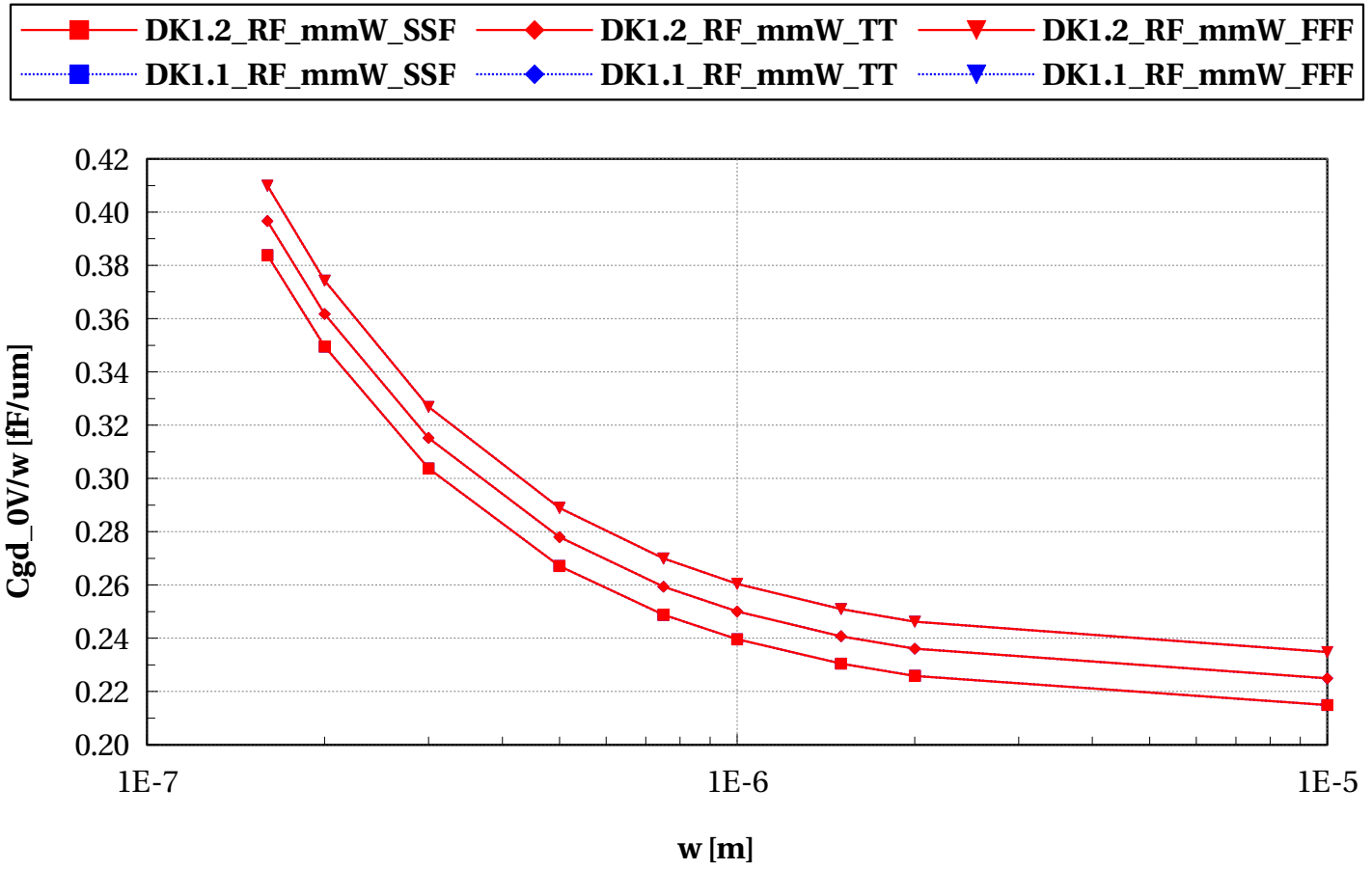
eglvtnfet_acc, Cdd_ana/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



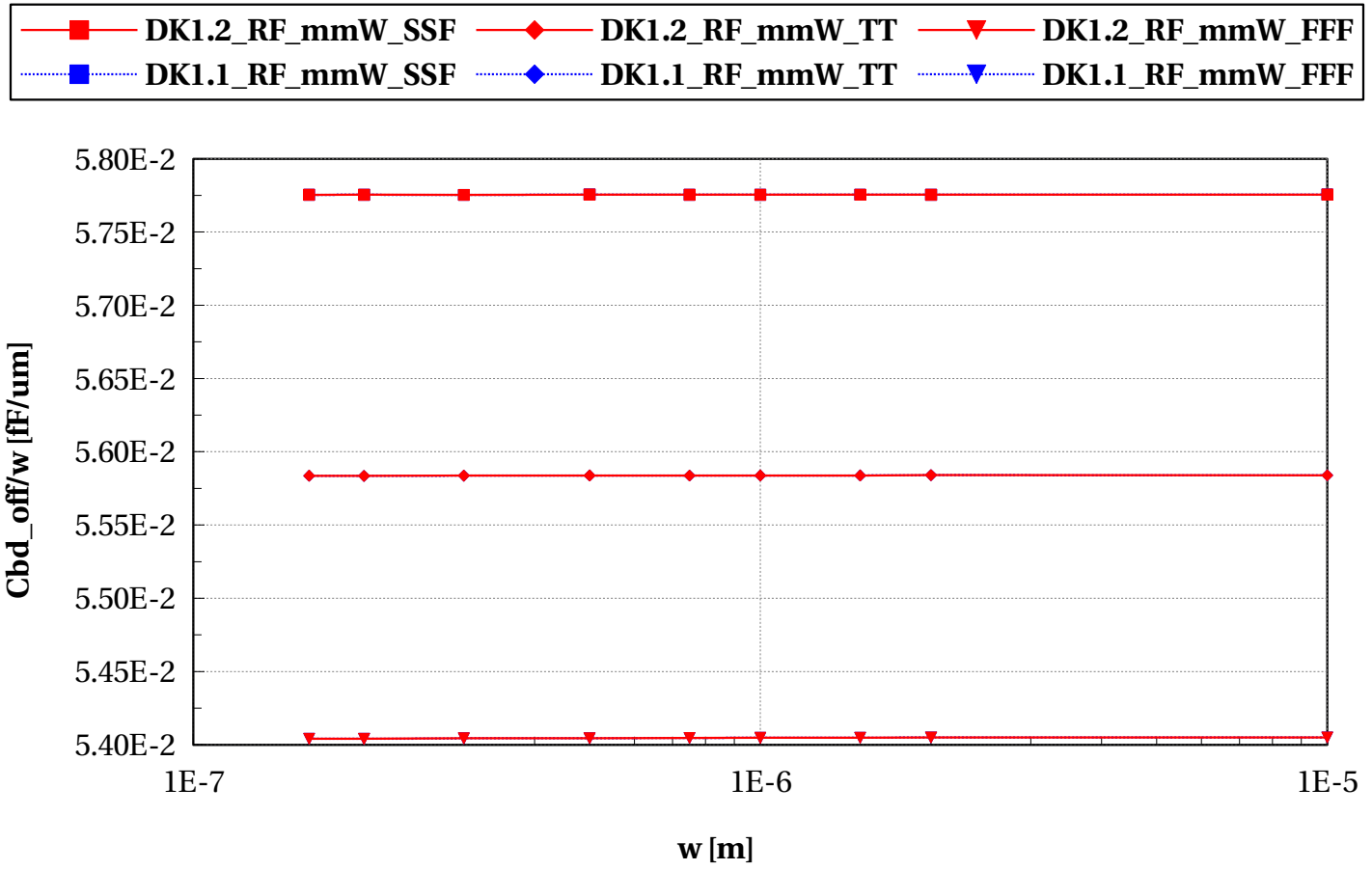
eglvtnfet_acc, Cgd_0V/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



eglvtnfet_acc, Cbd_off/w [fF/um] vs w [m]

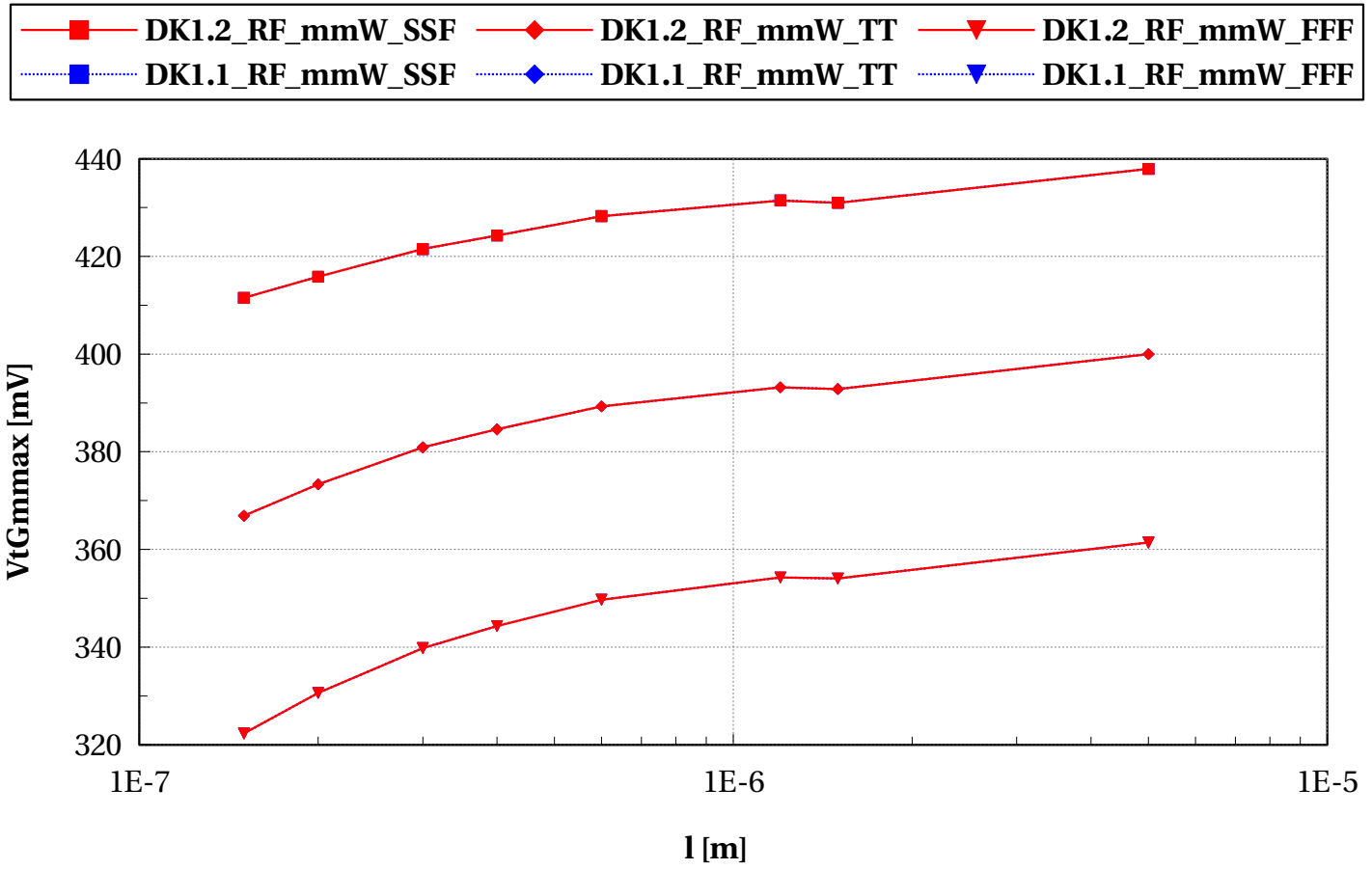
L==0.15e-6 and nf==2 and Temp==25 and Vbs==0 and devType=="PCELLwoWPE"



Scaling versus Length @ W/L=10&&W/nf<5um

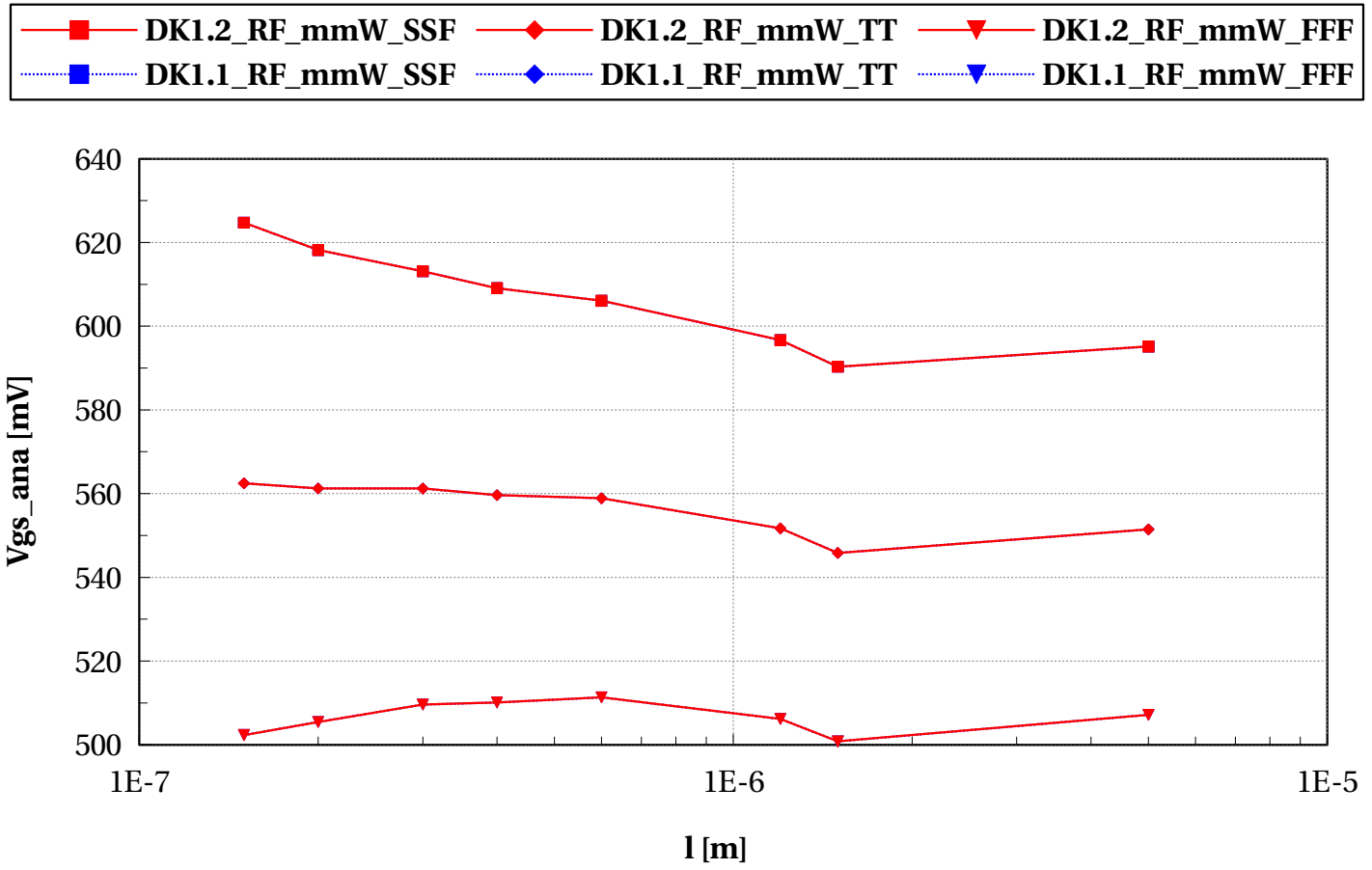
eglvtnfet_acc, VtGmmax [mV] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



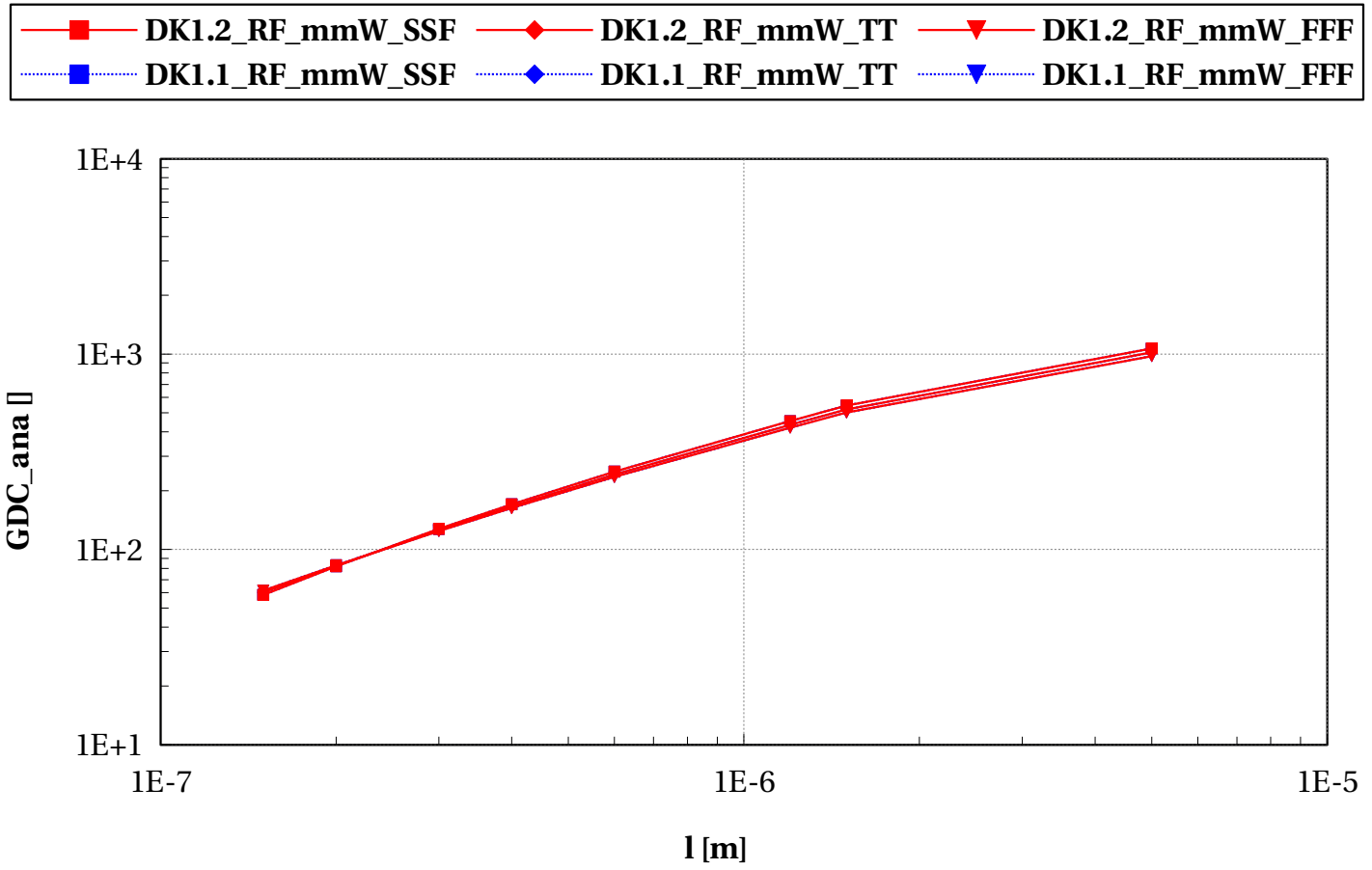
eglvtnfet_acc, Vgs_ana [mV] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



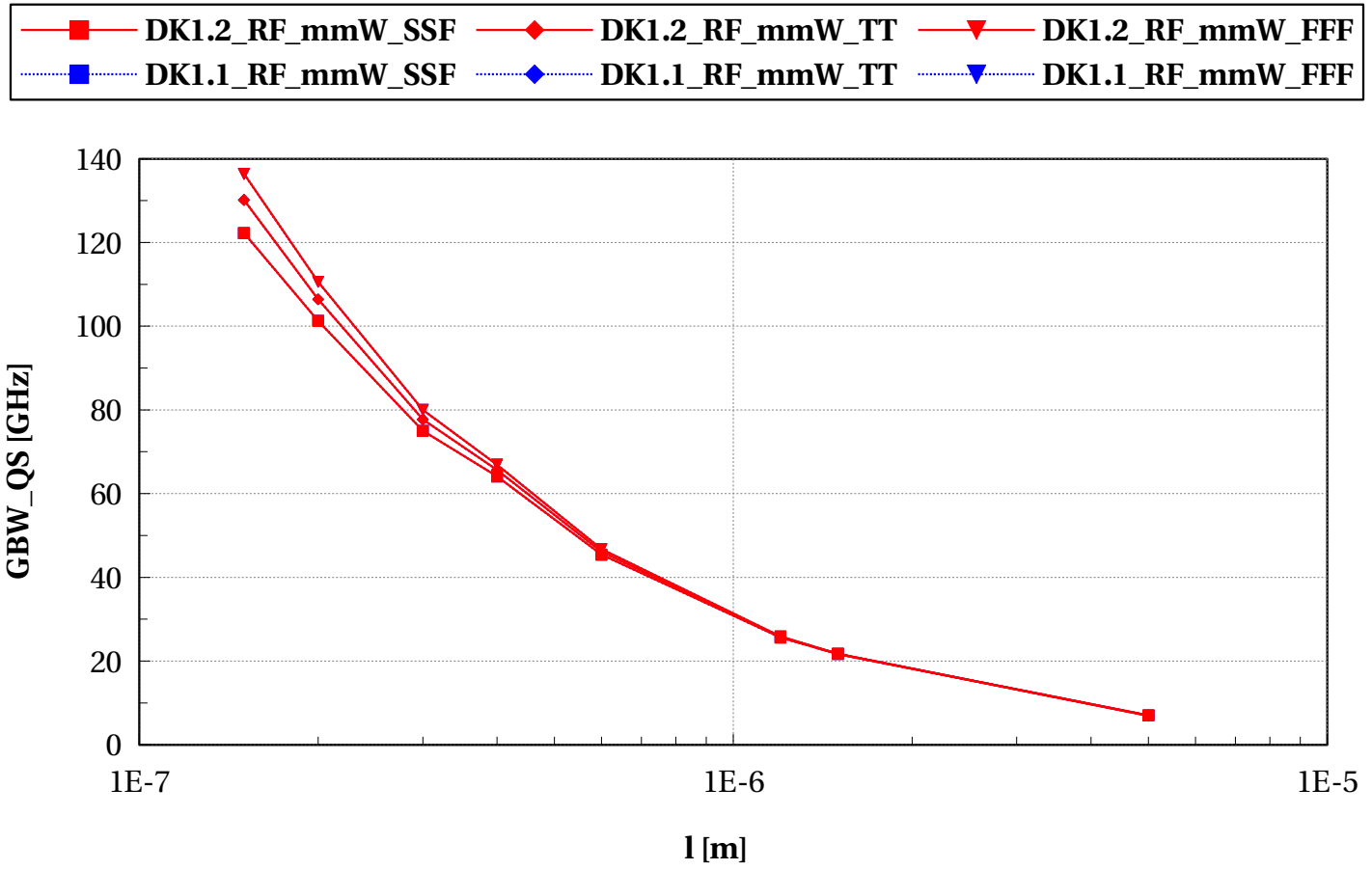
eglvtnfet_acc, GDC_ana [] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



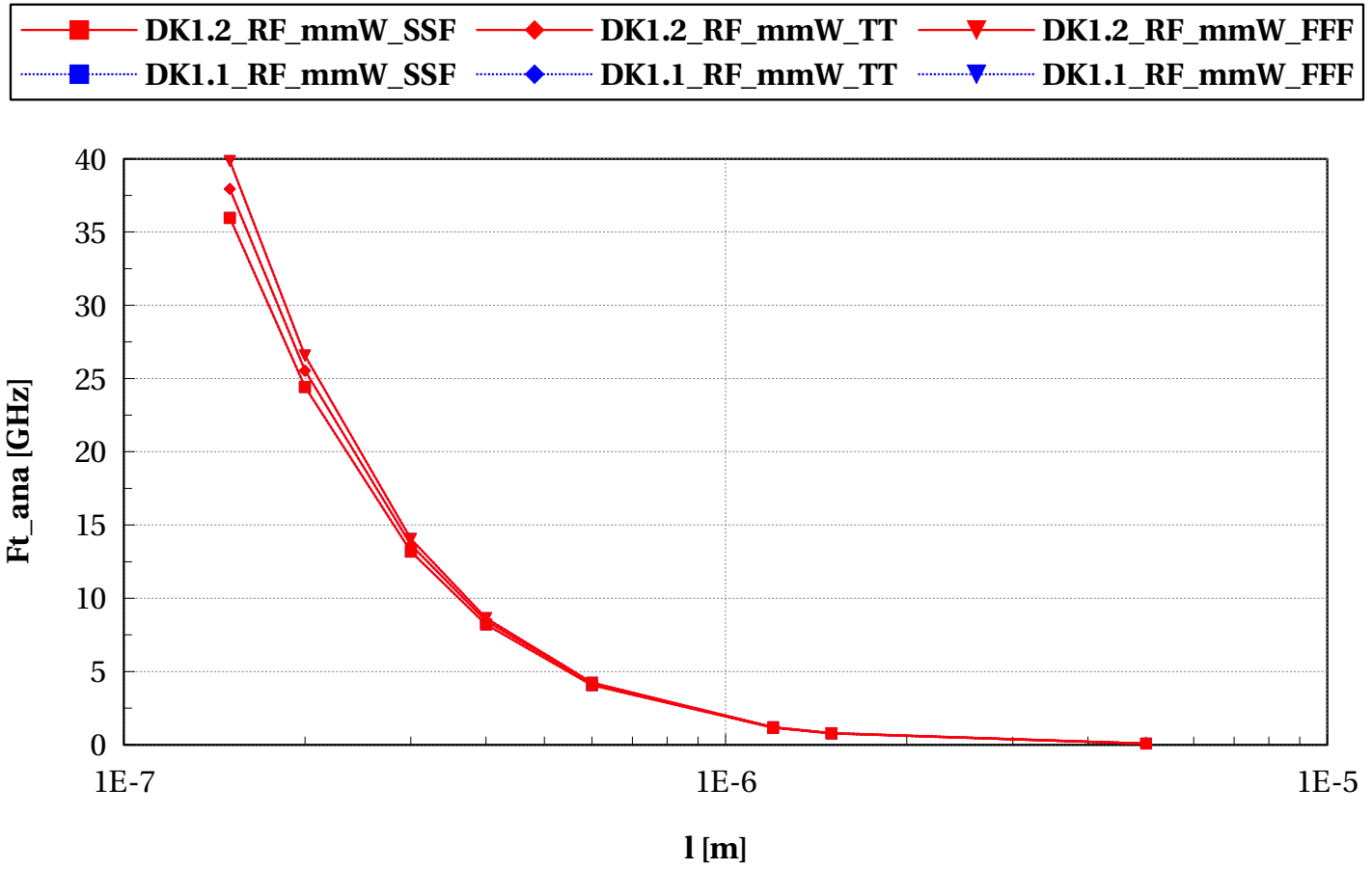
eglvtnfet_acc, GBW_QS [GHz] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



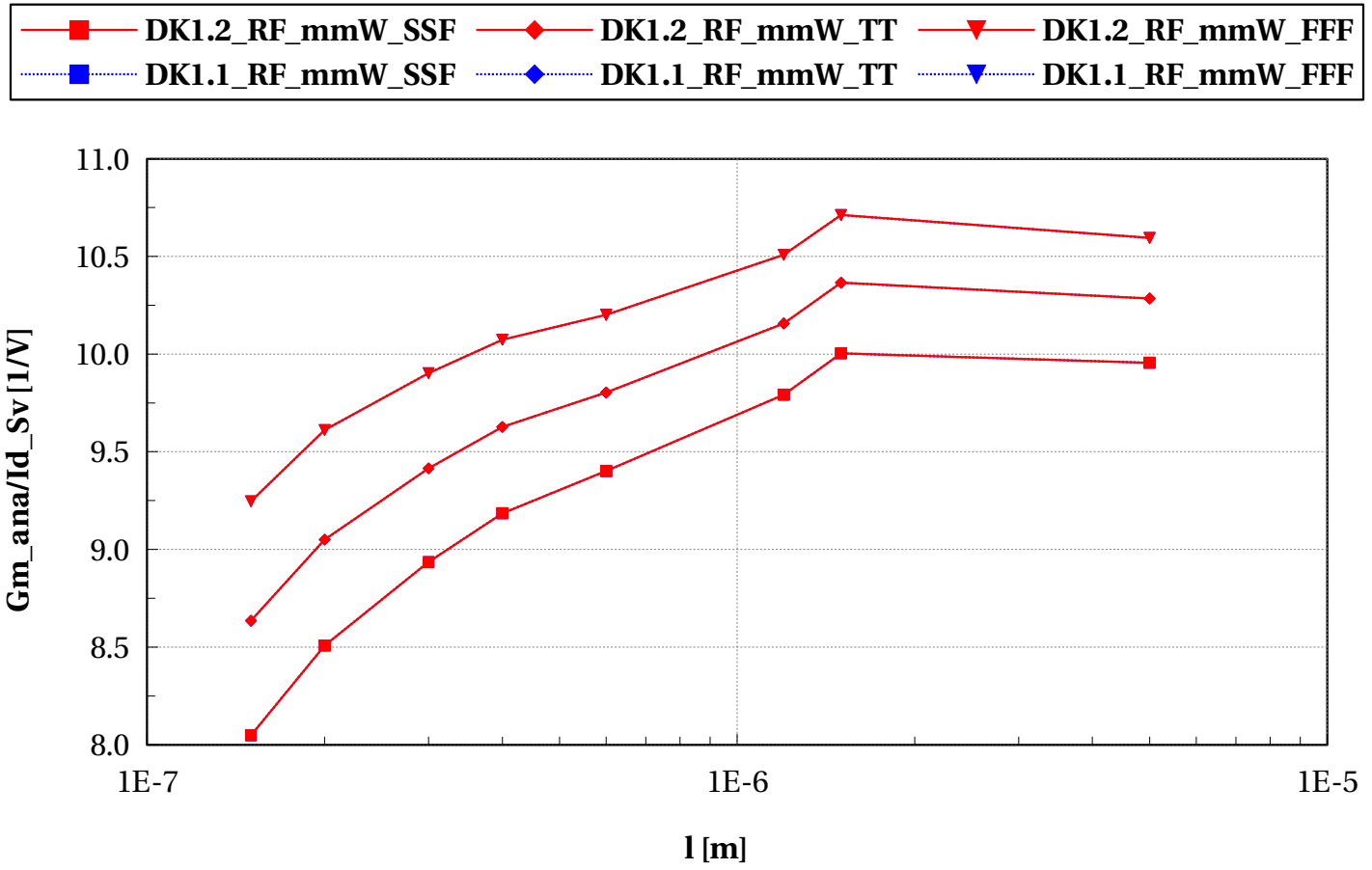
eglvtnfet_acc, Ft_ana [GHz] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



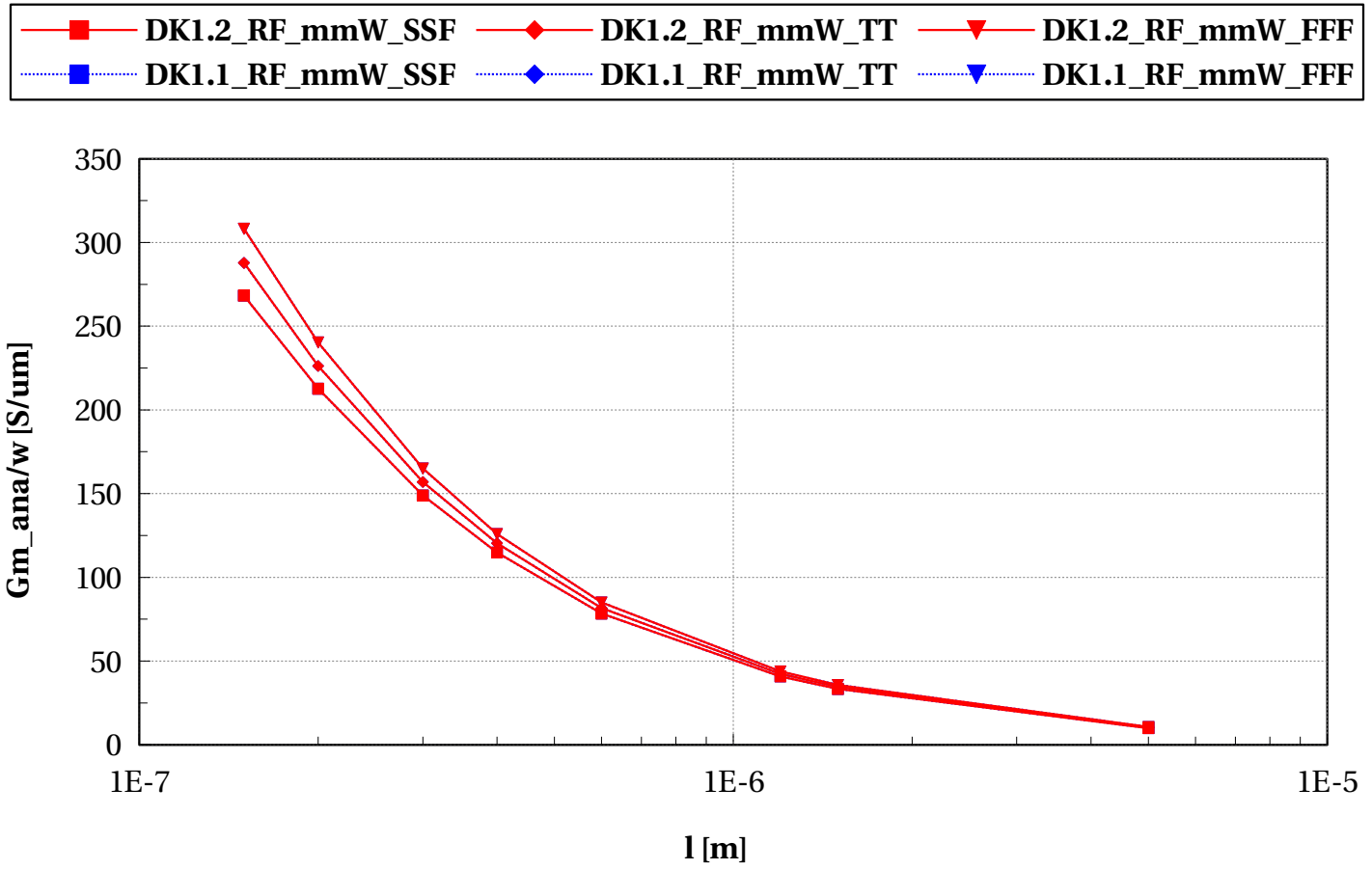
eglvtnfet_acc, Gm_ana/Id_Sv [1/V] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



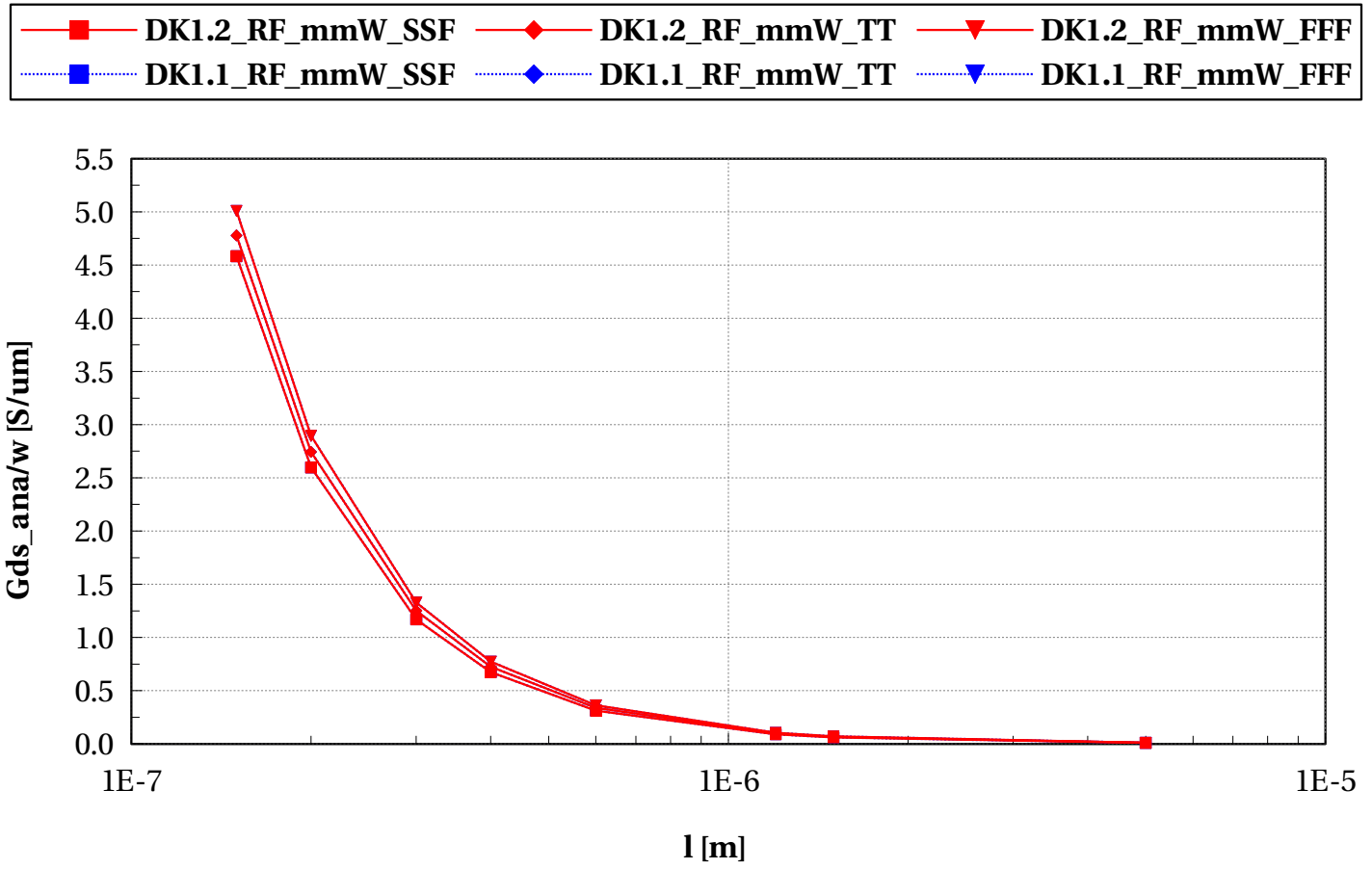
eglvtnfet_acc, Gm_ana/w [S/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



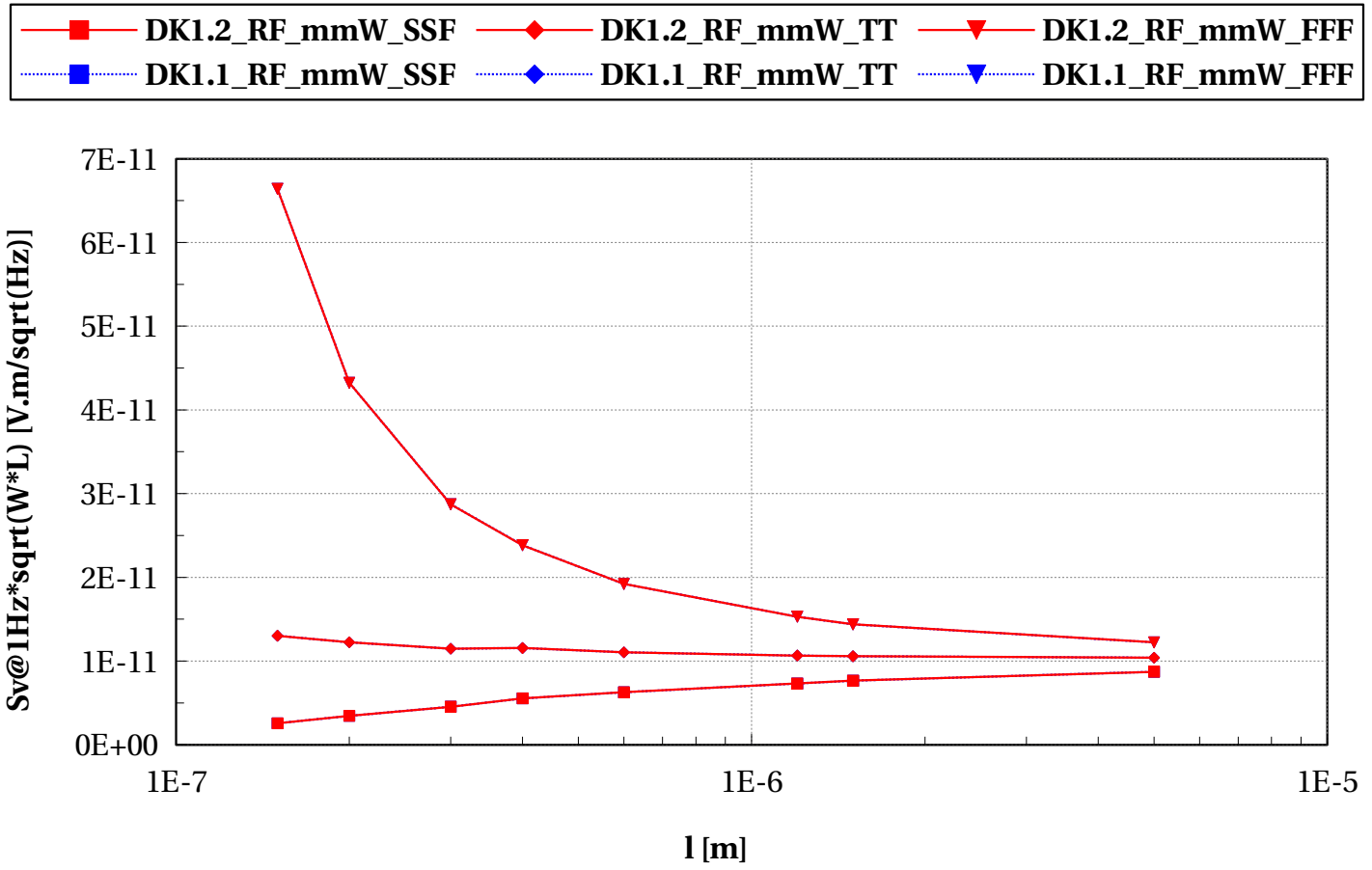
eglvtnfet_acc, Gds_ana/w [S/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



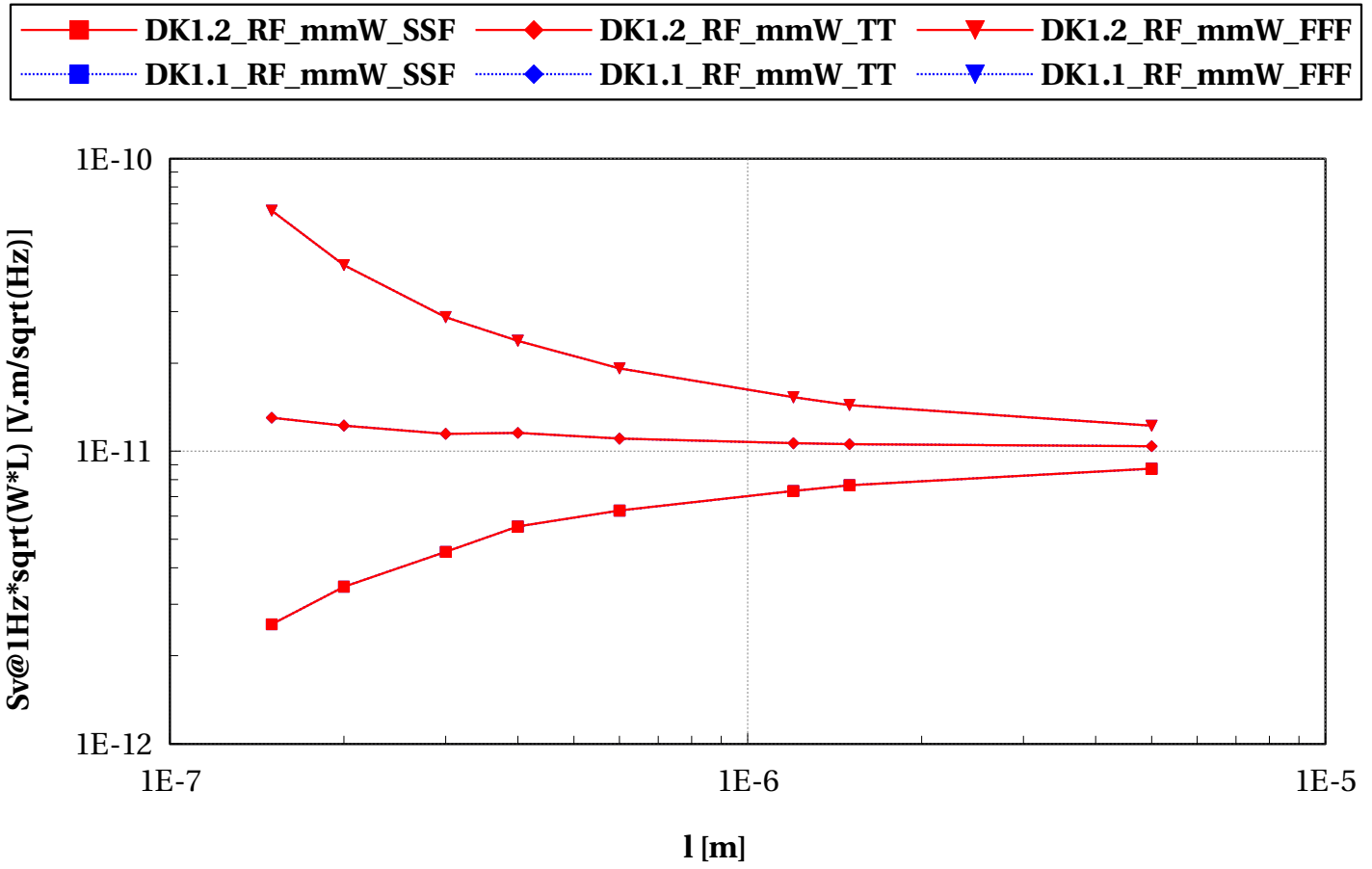
eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



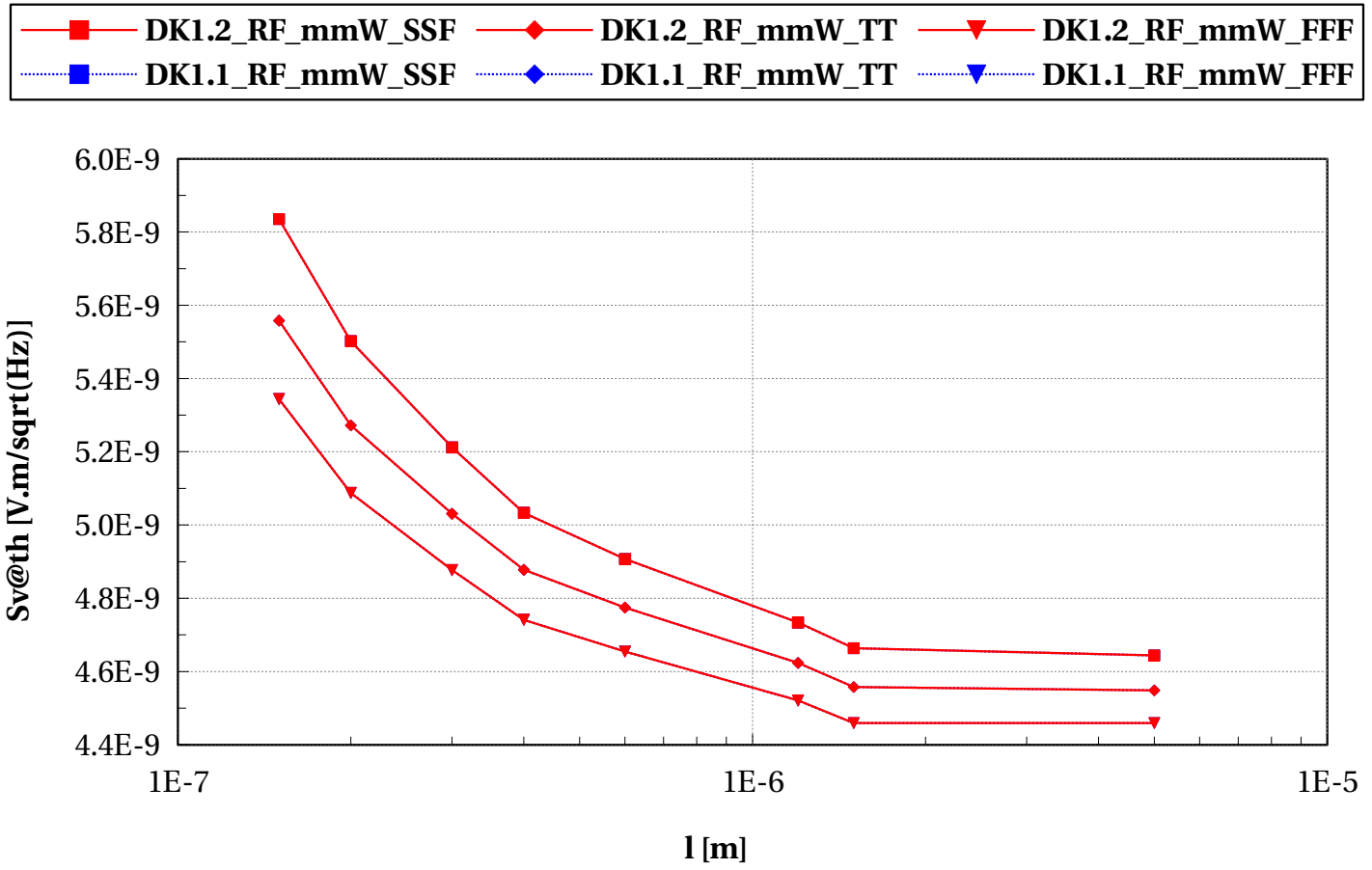
eglvtnfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



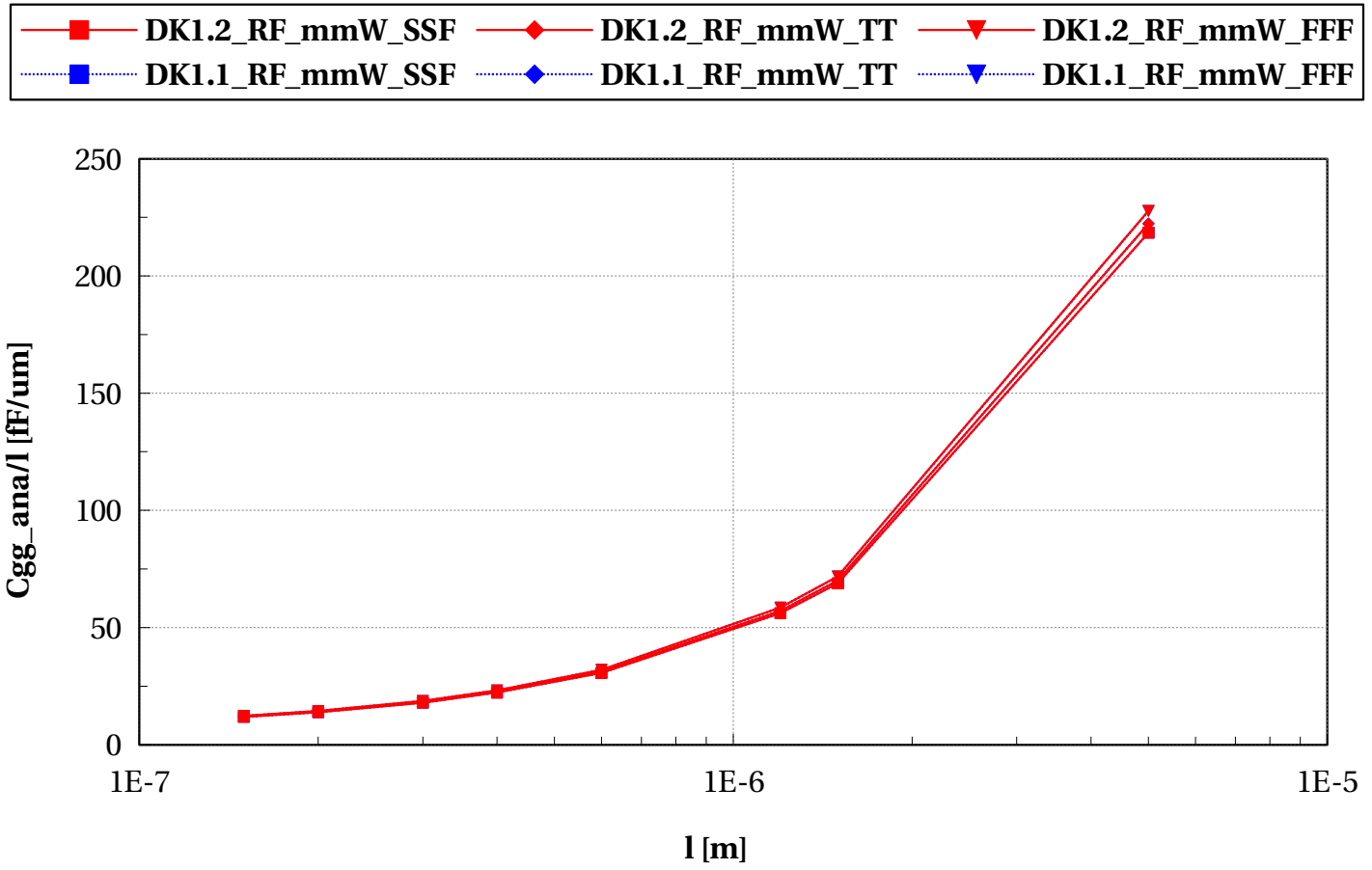
eglvtnfet_acc, Sv@th [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



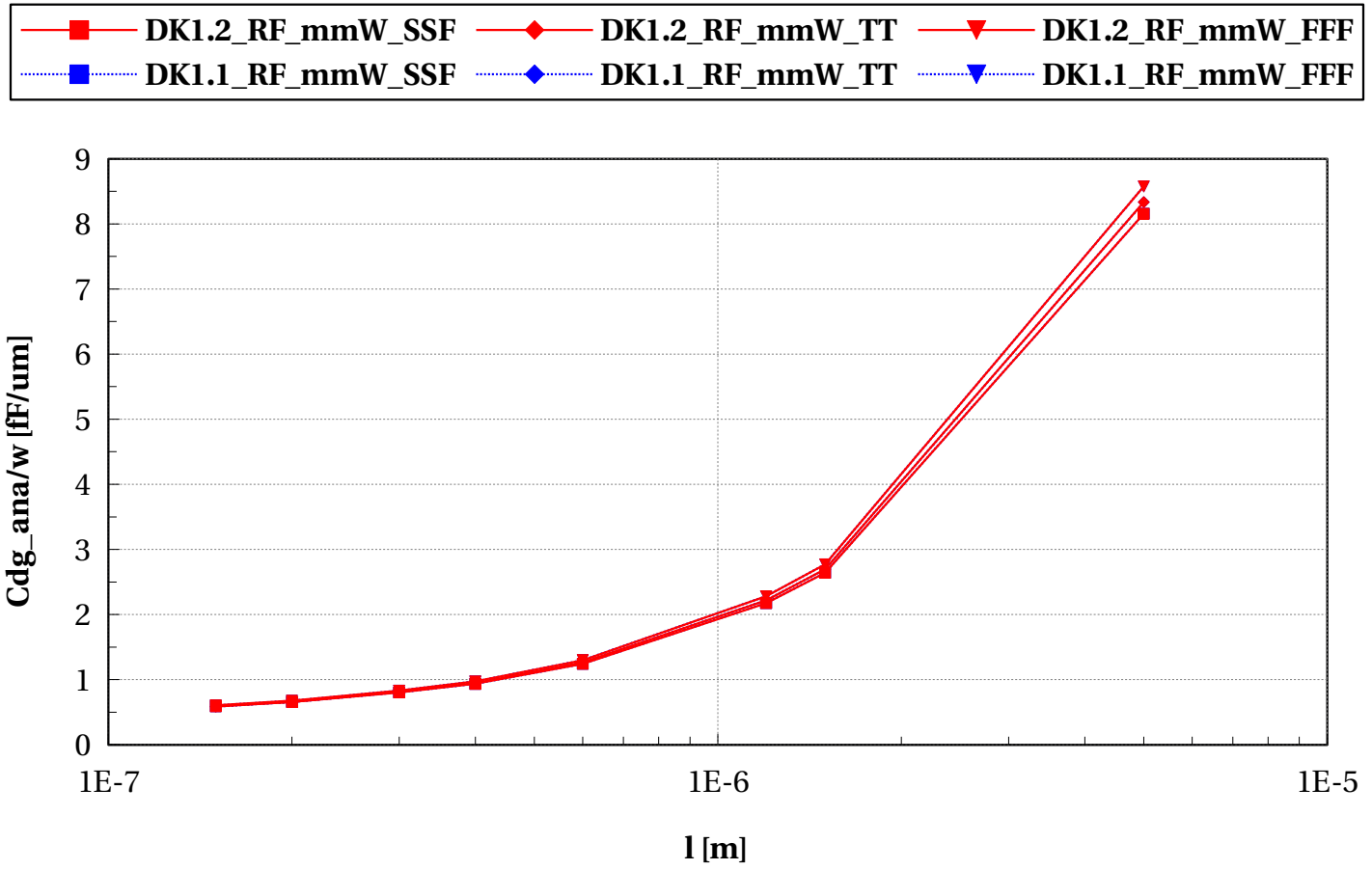
eglvtnfet_acc, Cgg_ana/l [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



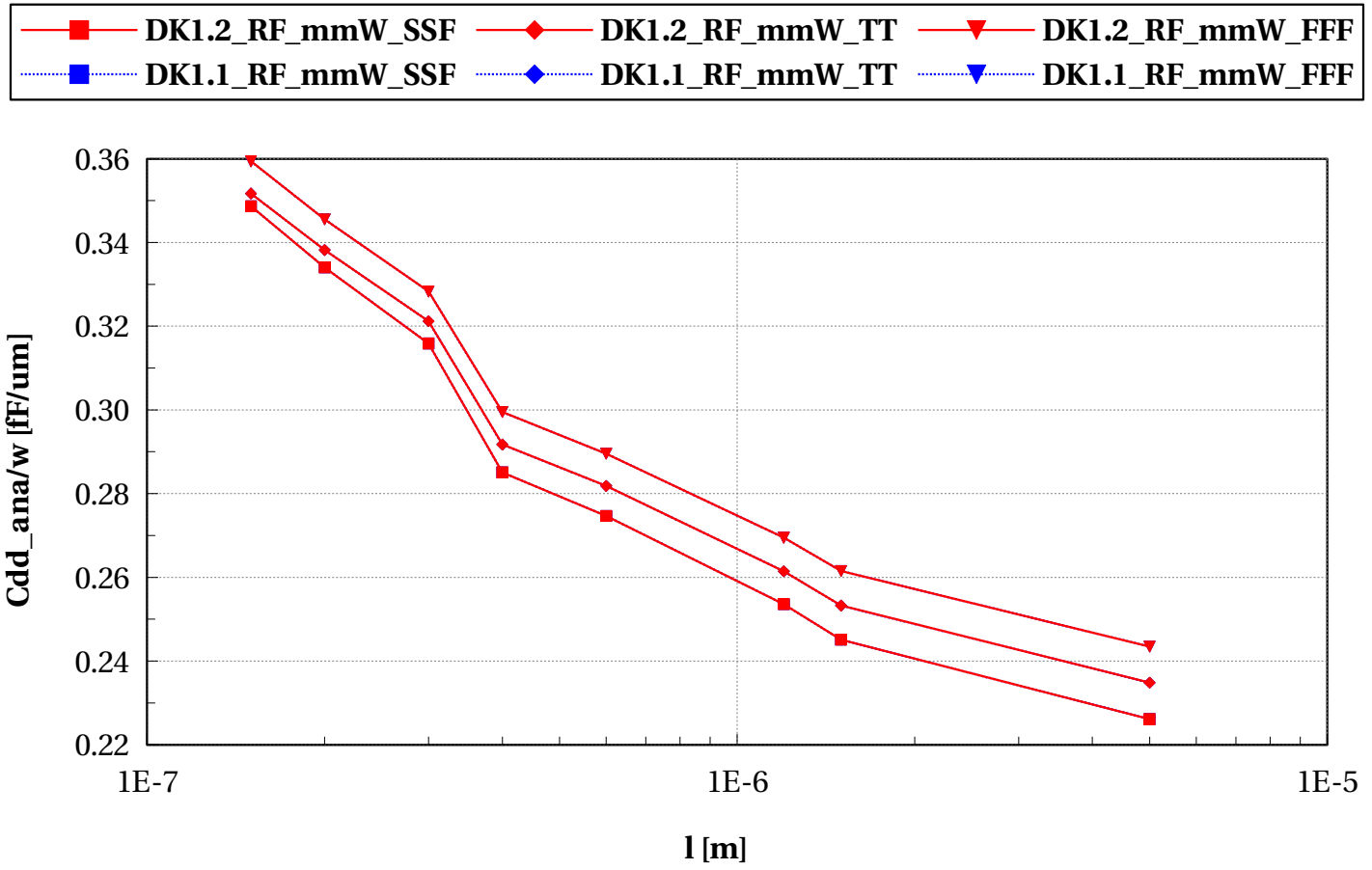
eglvtnfet_acc, Cdg_ana/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



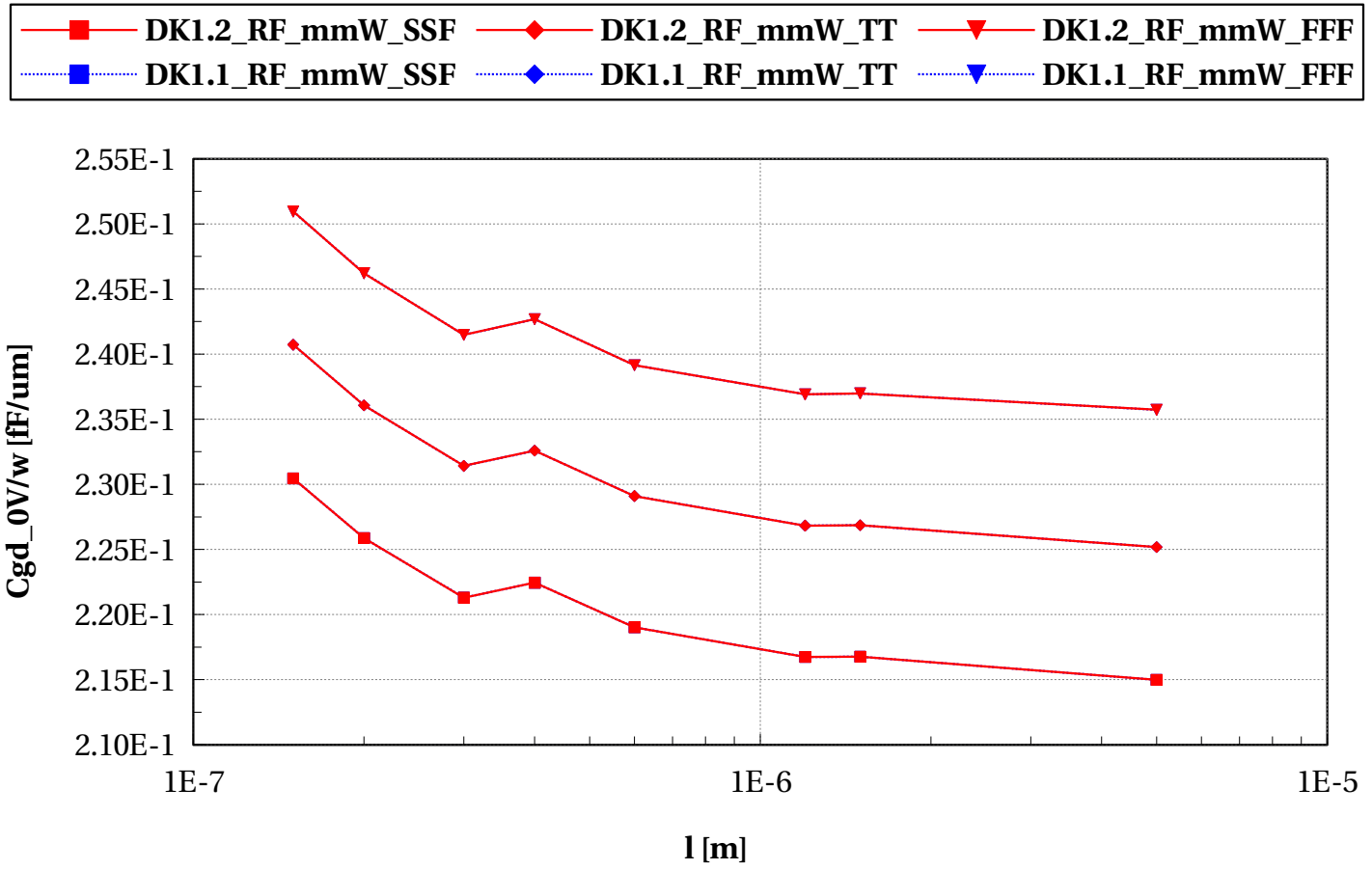
eglvtnfet_acc, Cdd_ana/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



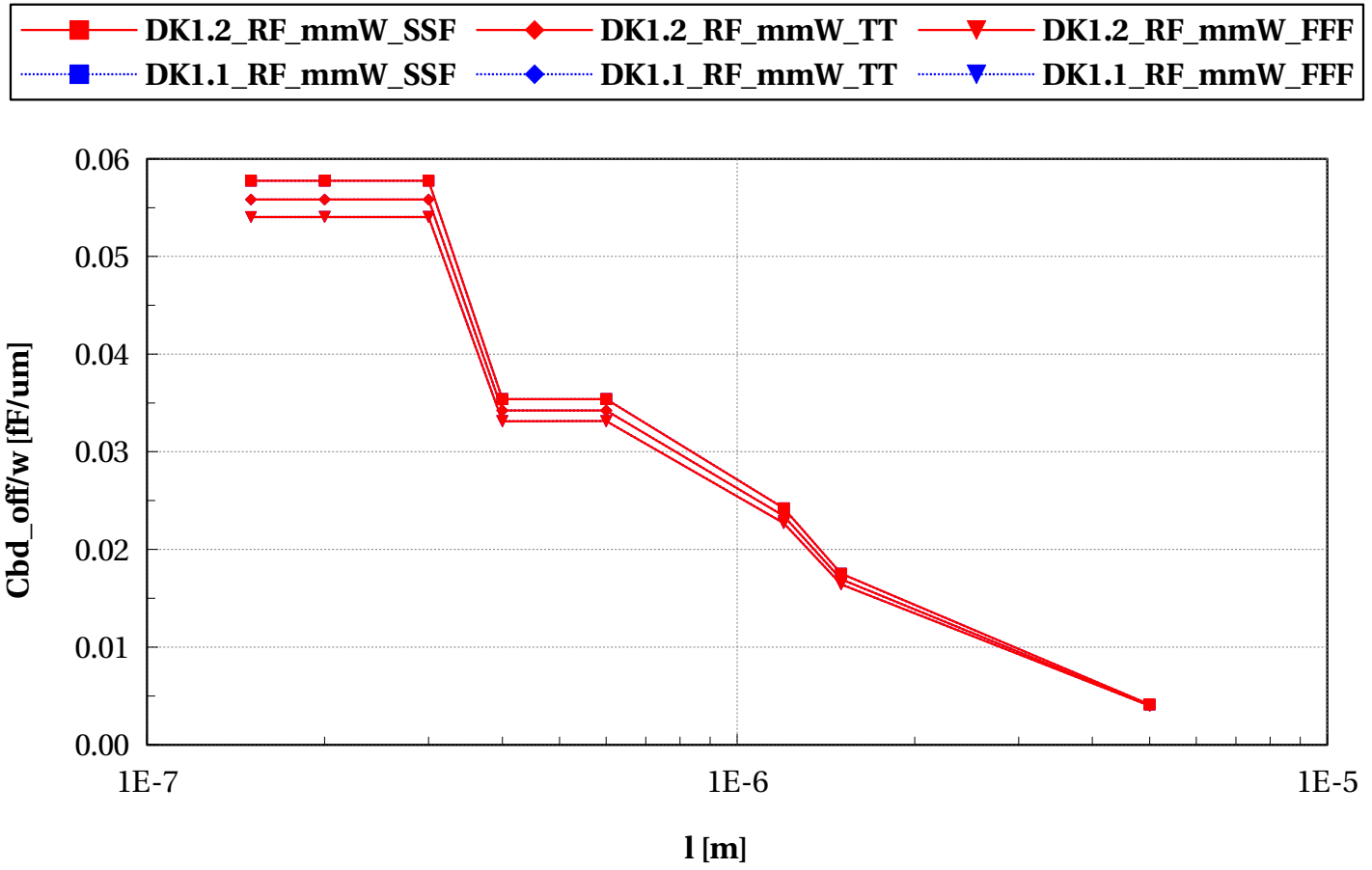
eglvtnfet_acc, Cgd_0V/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



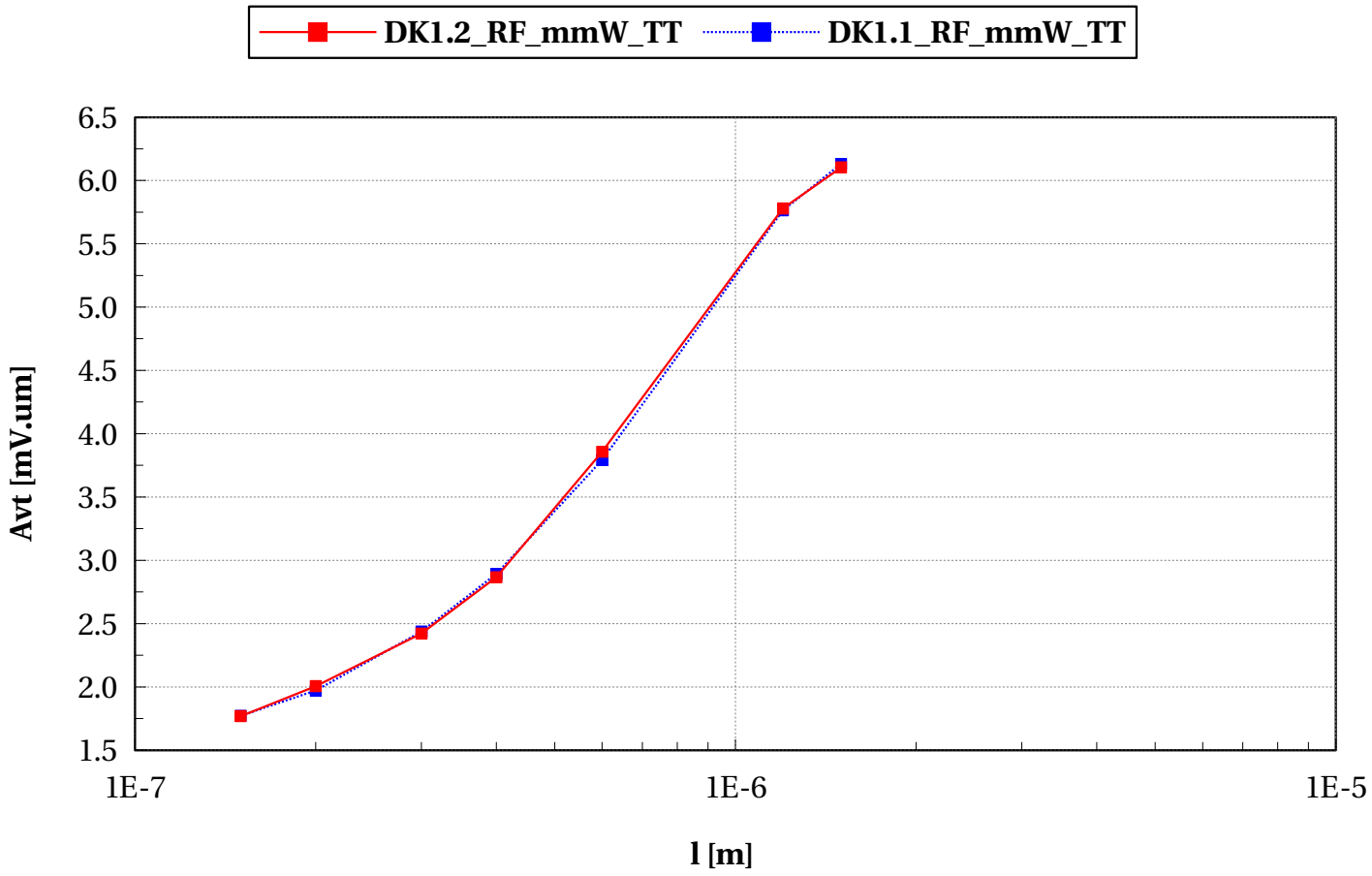
eglvtnfet_acc, Cbd_off/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==0 and devType=="PCELLwoWPE"



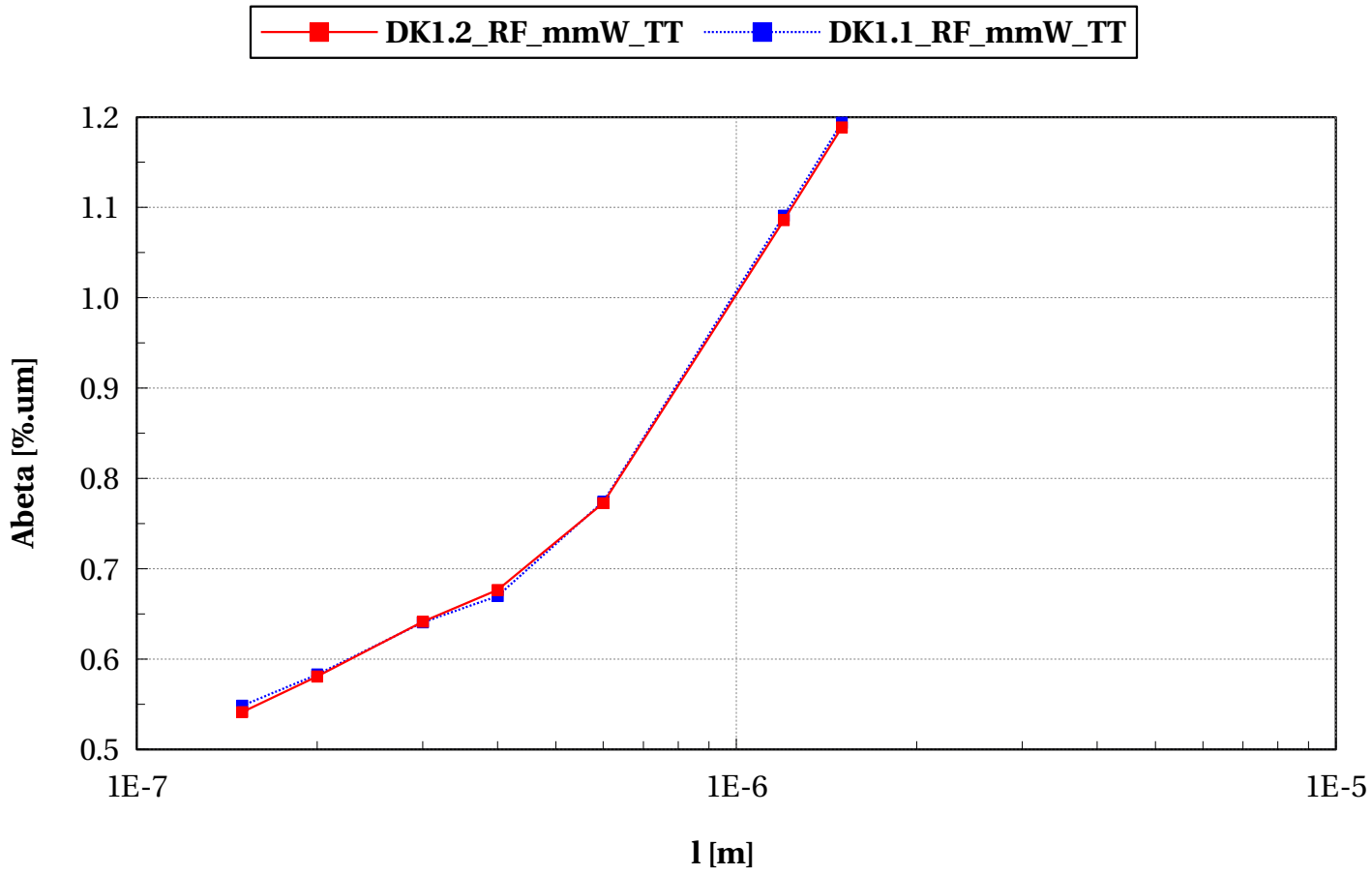
eglvtnfet_acc, Avt [mV.um] vs l [m]

/L==10 and w/nf<5 and Temp==25 and vbs==0 and stratn==2 and l<5e-6 and devType=="PCELLwoWP



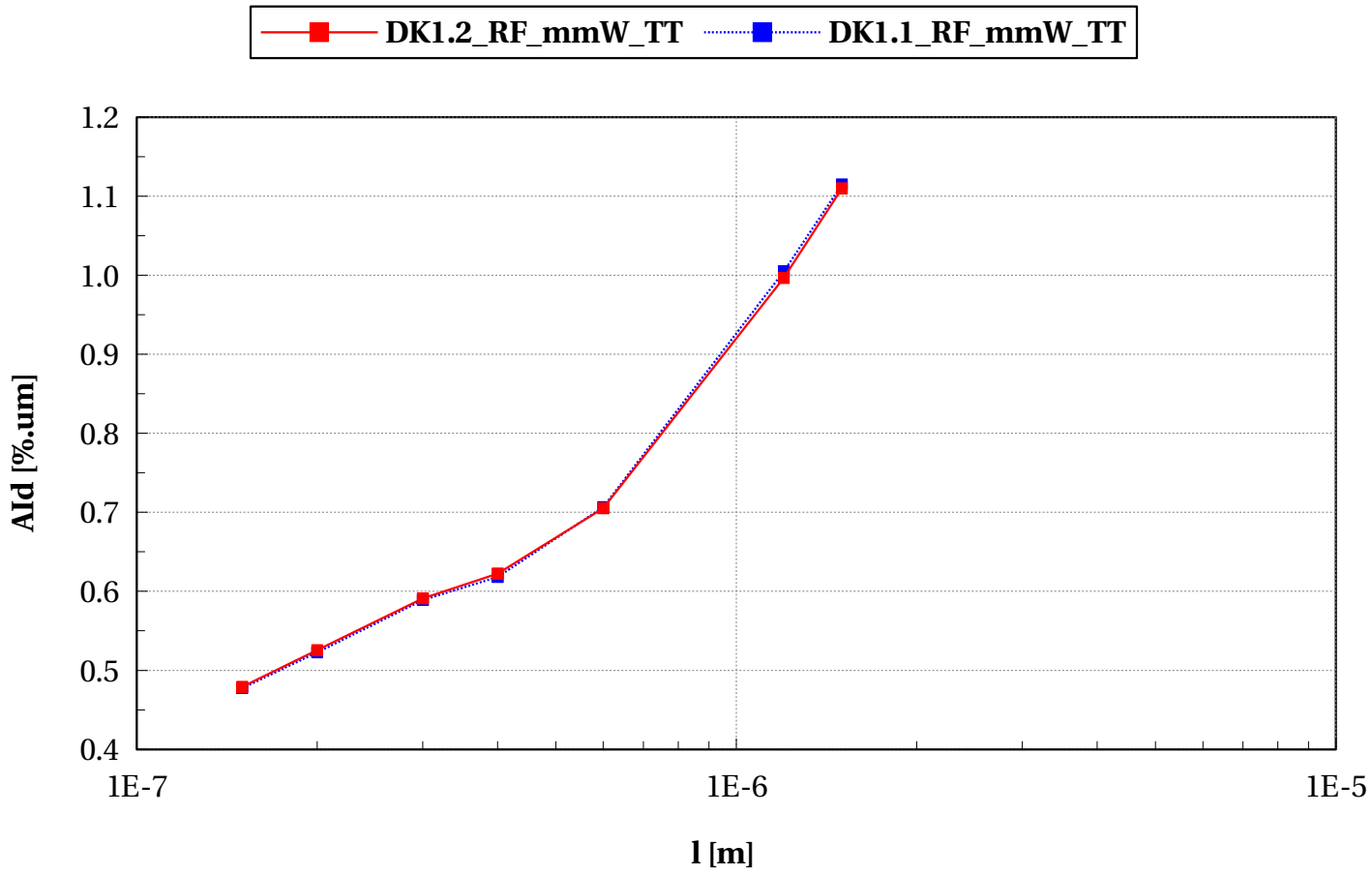
eglvtnfet_acc, Abeta [%.um] vs l [m]

/L==10 and w/nf<5 and Temp==25 and vbs==0 and stratn==2 and l<5e-6 and devType=="PCELLwoWP



eglvtnfet_acc, AId [%.um] vs l [m]

/L==10 and w/nf<5 and Temp==25 and vbs==0 and stratn==2 and l<5e-6 and devType=="PCELLwoWP

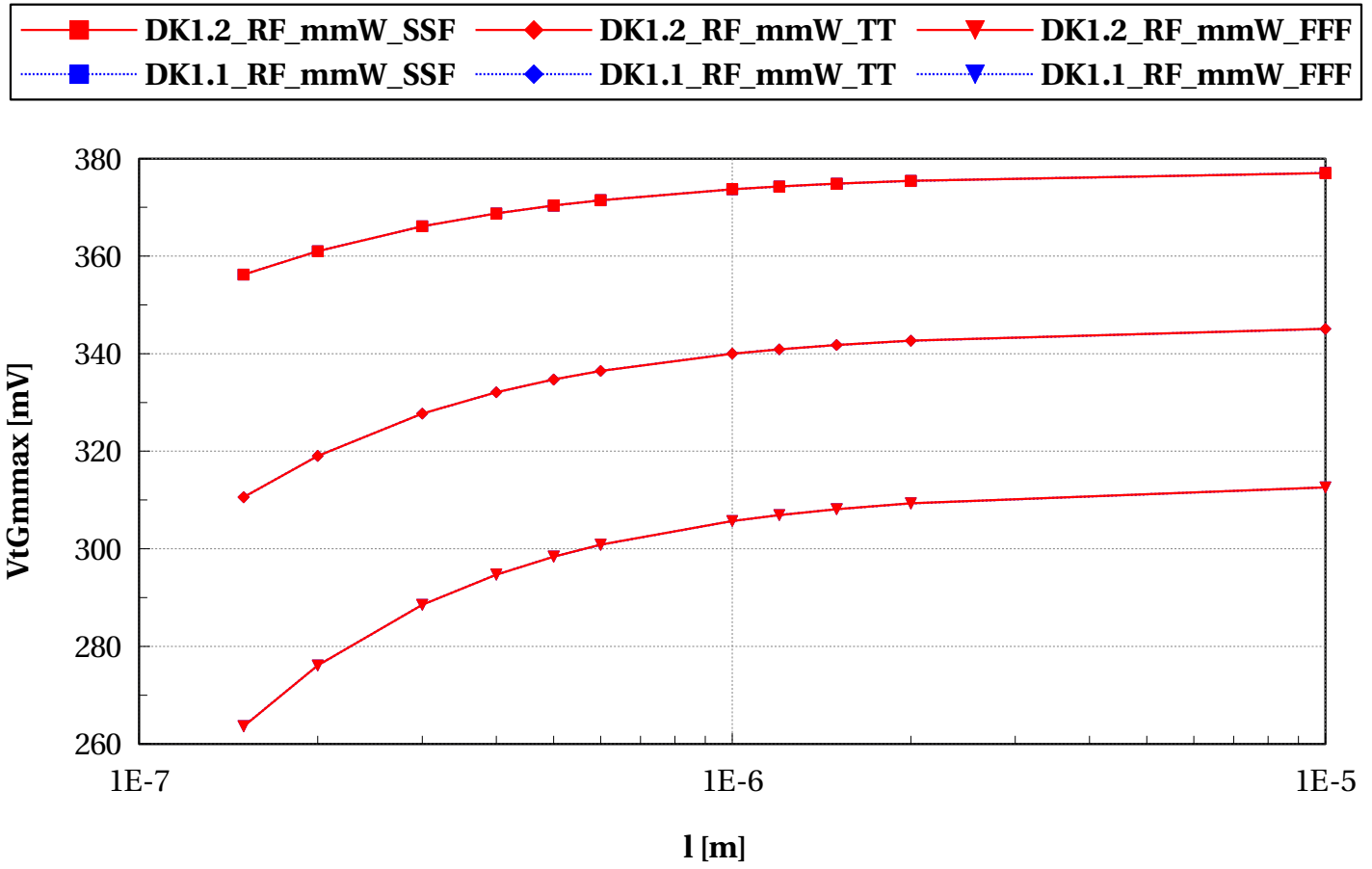


eglvtpfet_acc
Electrical characteristics scaling

Scaling versus Length (T=25C)

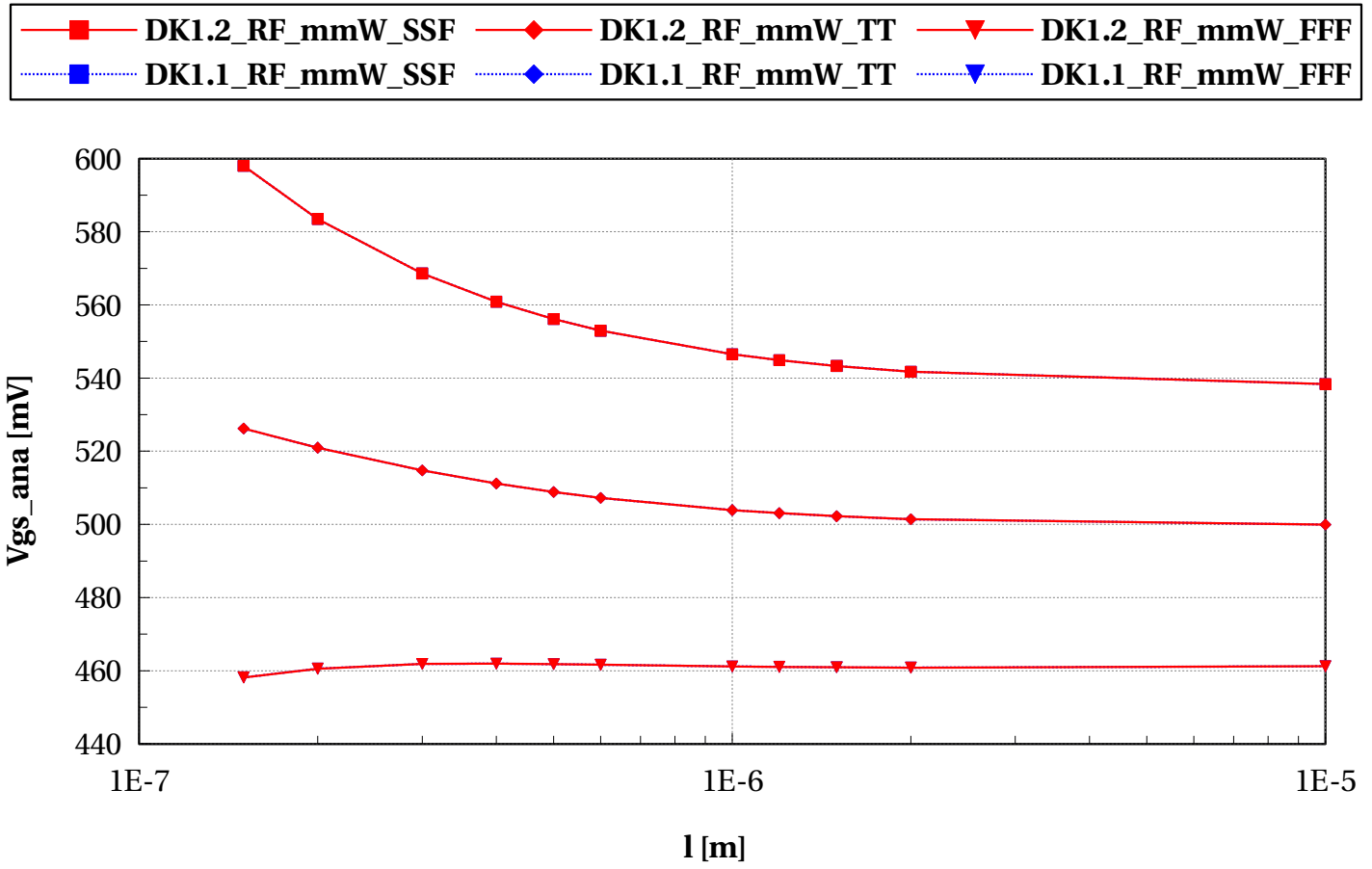
eglvtpfet_acc, VtGmmax [mV] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



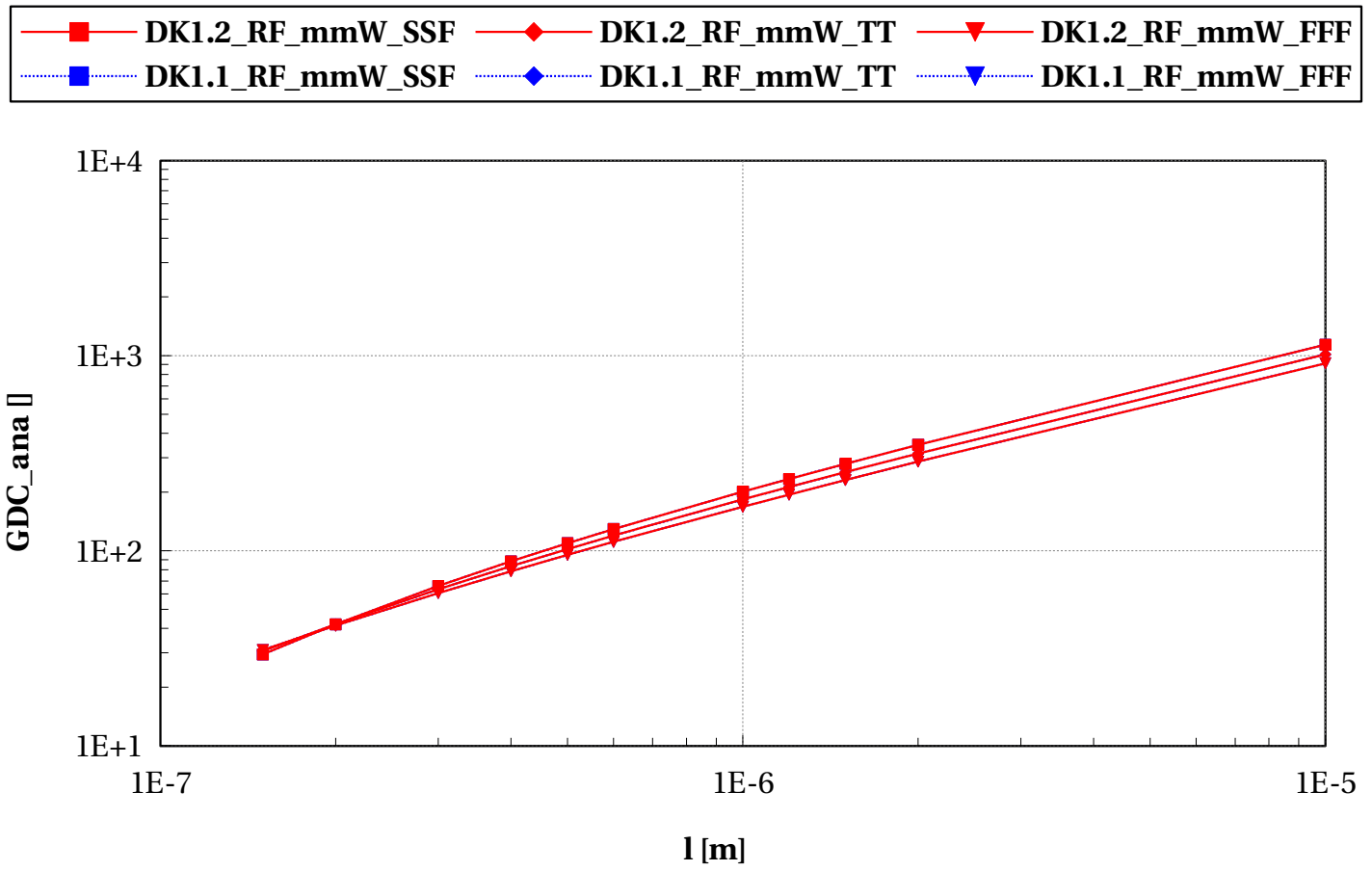
eglvtpfet_acc, Vgs_ana [mV] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



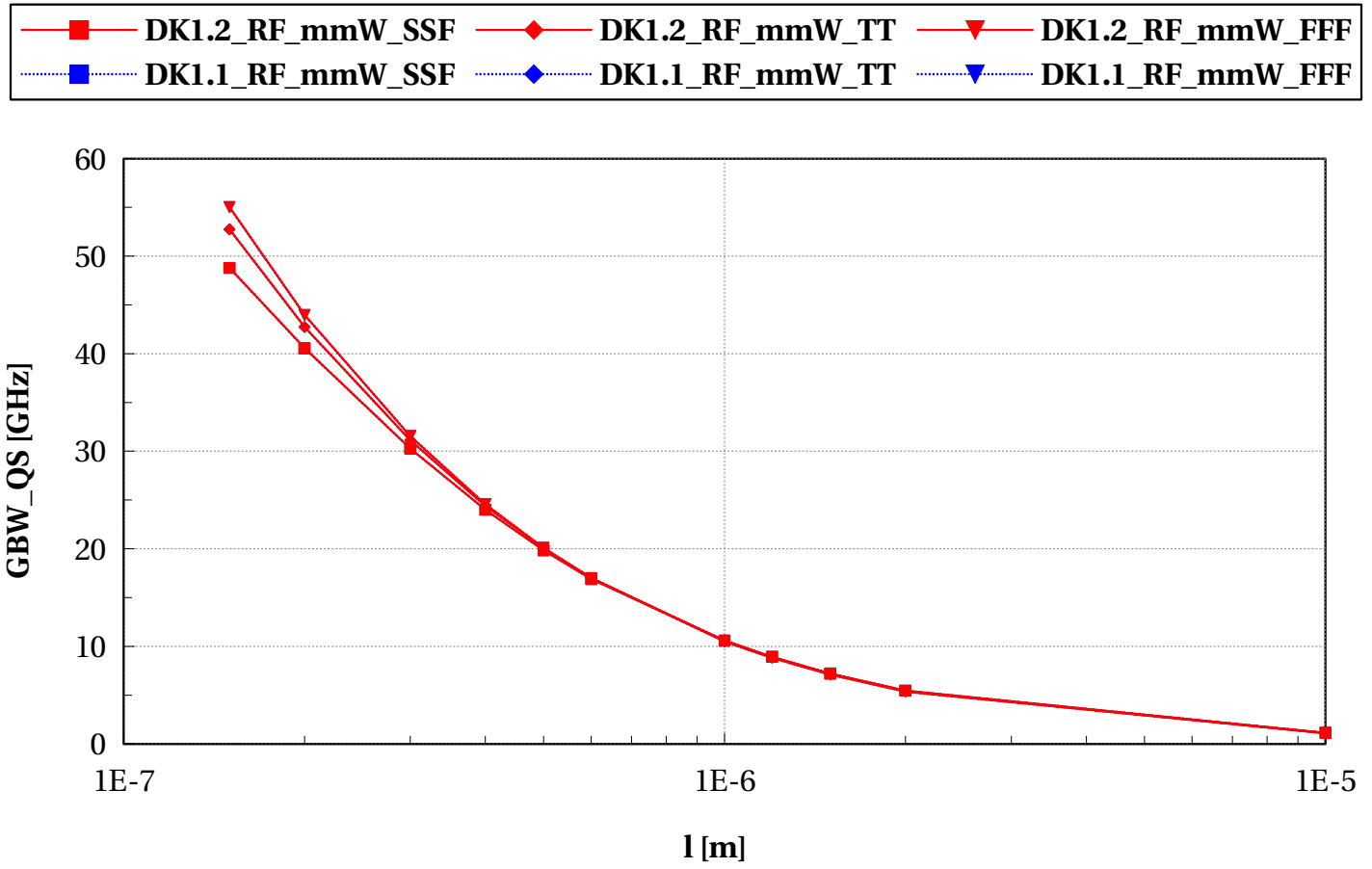
eglvtpfet_acc, GDC_ana [] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



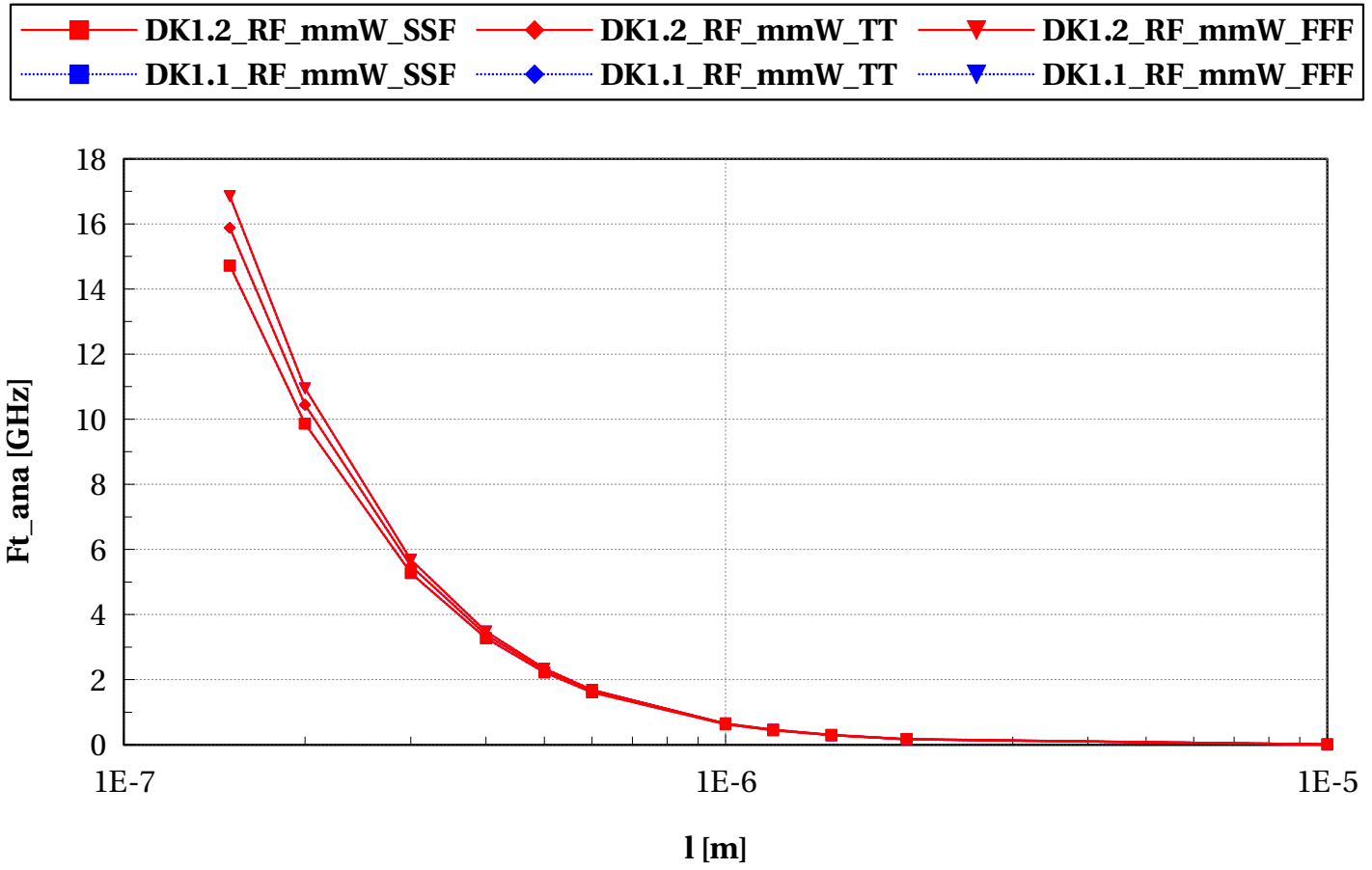
eglvtpfet_acc, GBW_QS [GHz] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



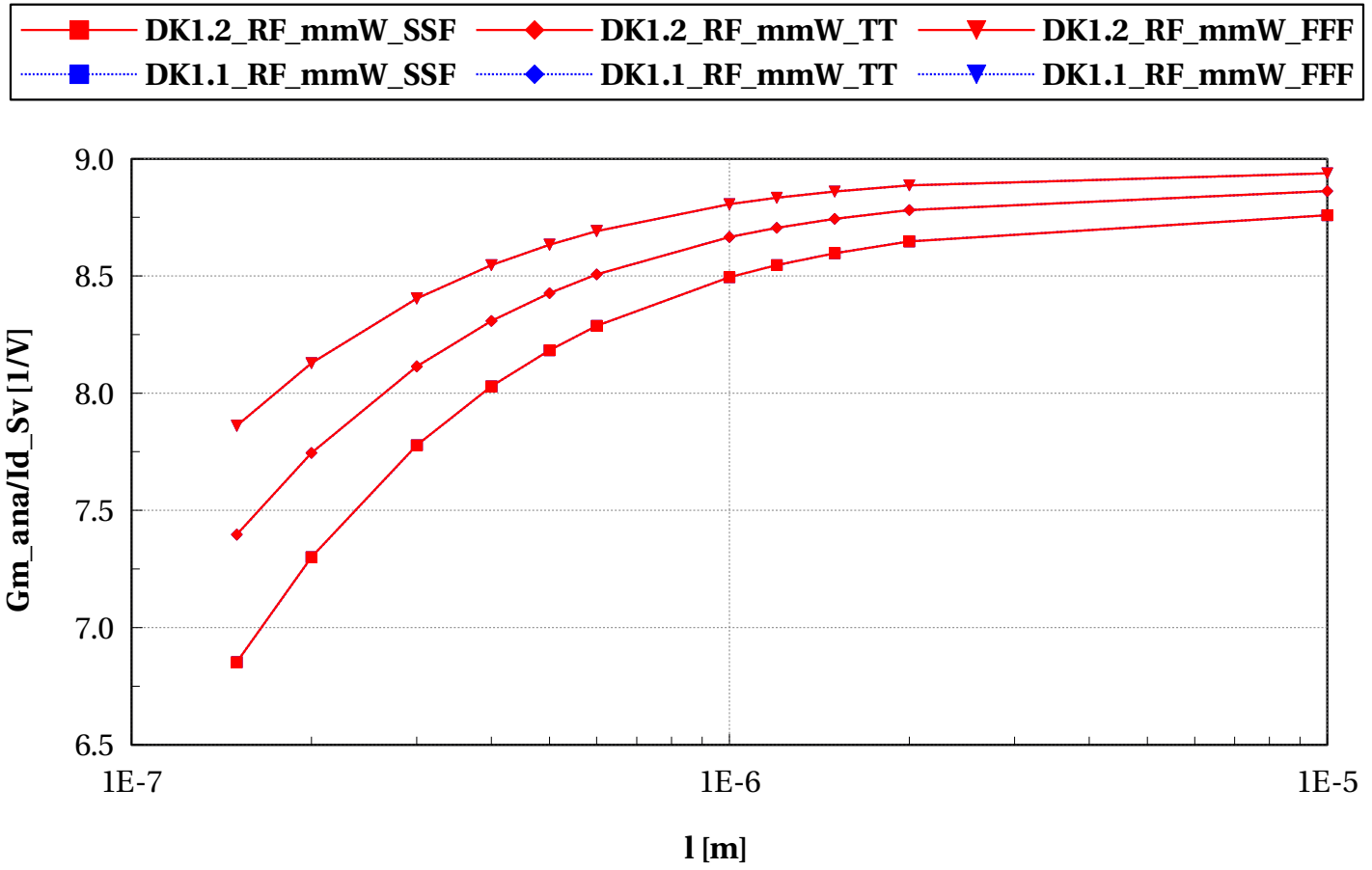
eglvtpfet_acc, Ft_ana [GHz] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



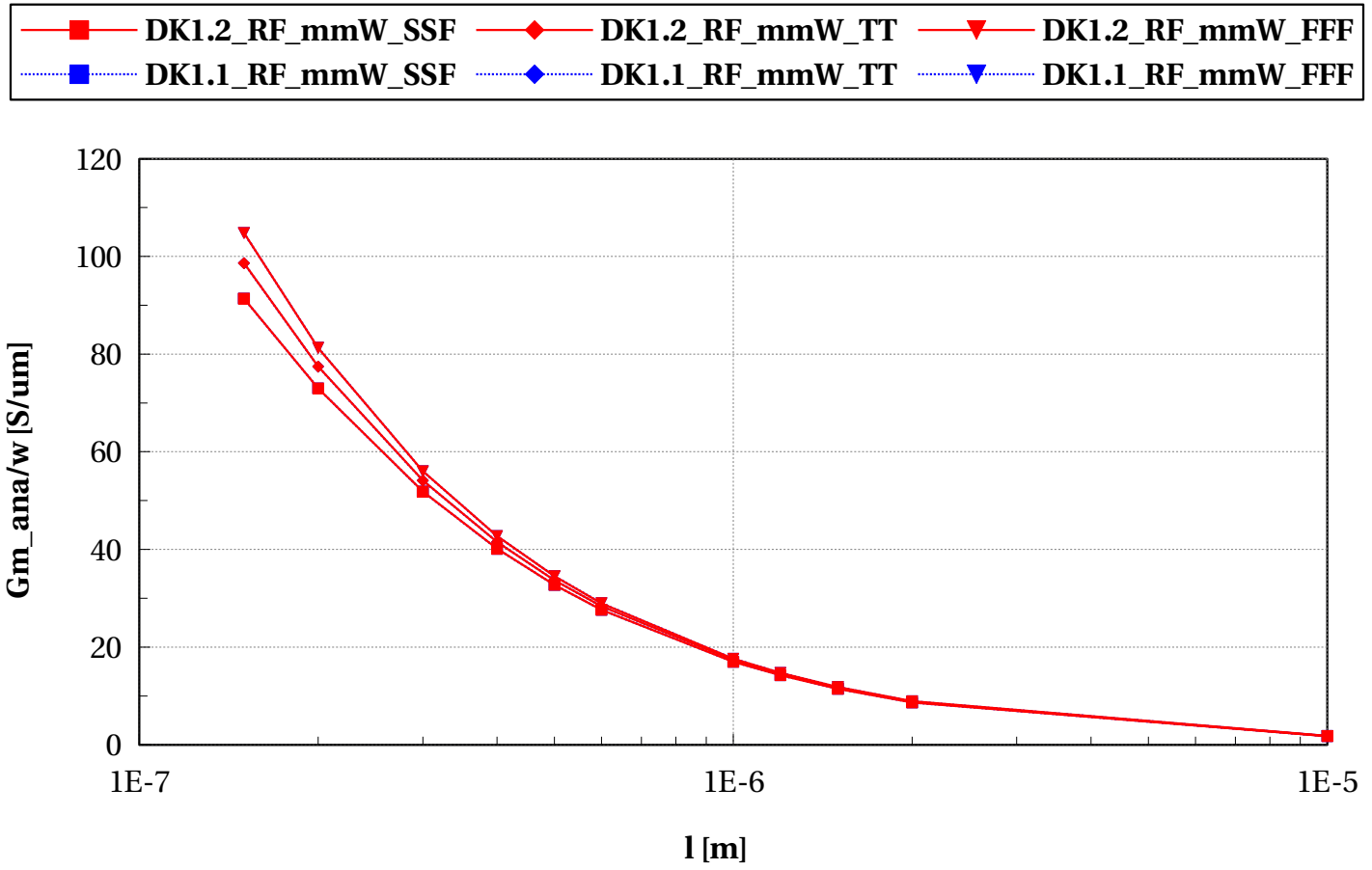
eglvtpfet_acc, Gm_ana/Id_Sv [1/V] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



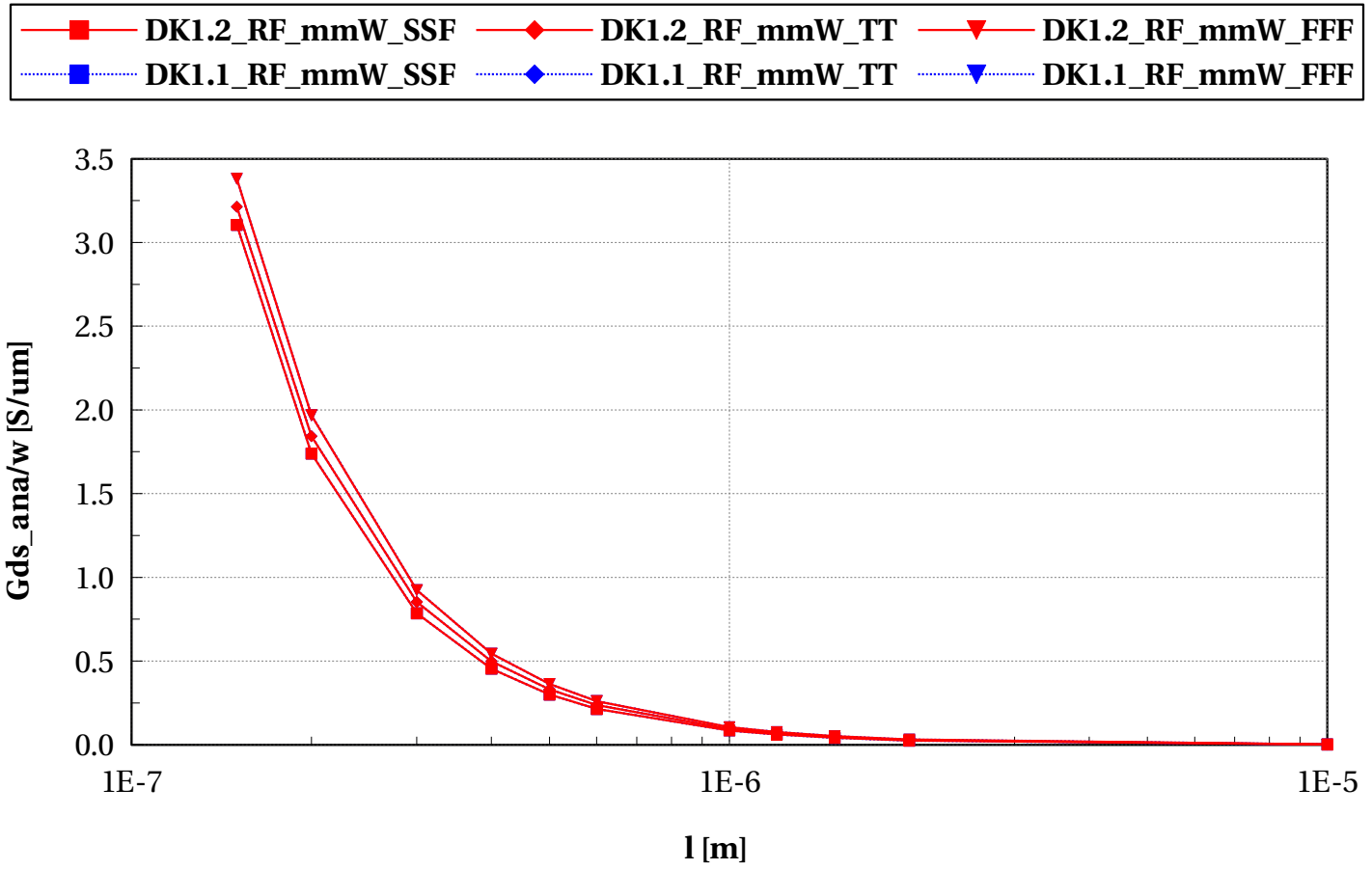
eglvtpfet_acc, Gm_ana/w [S/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



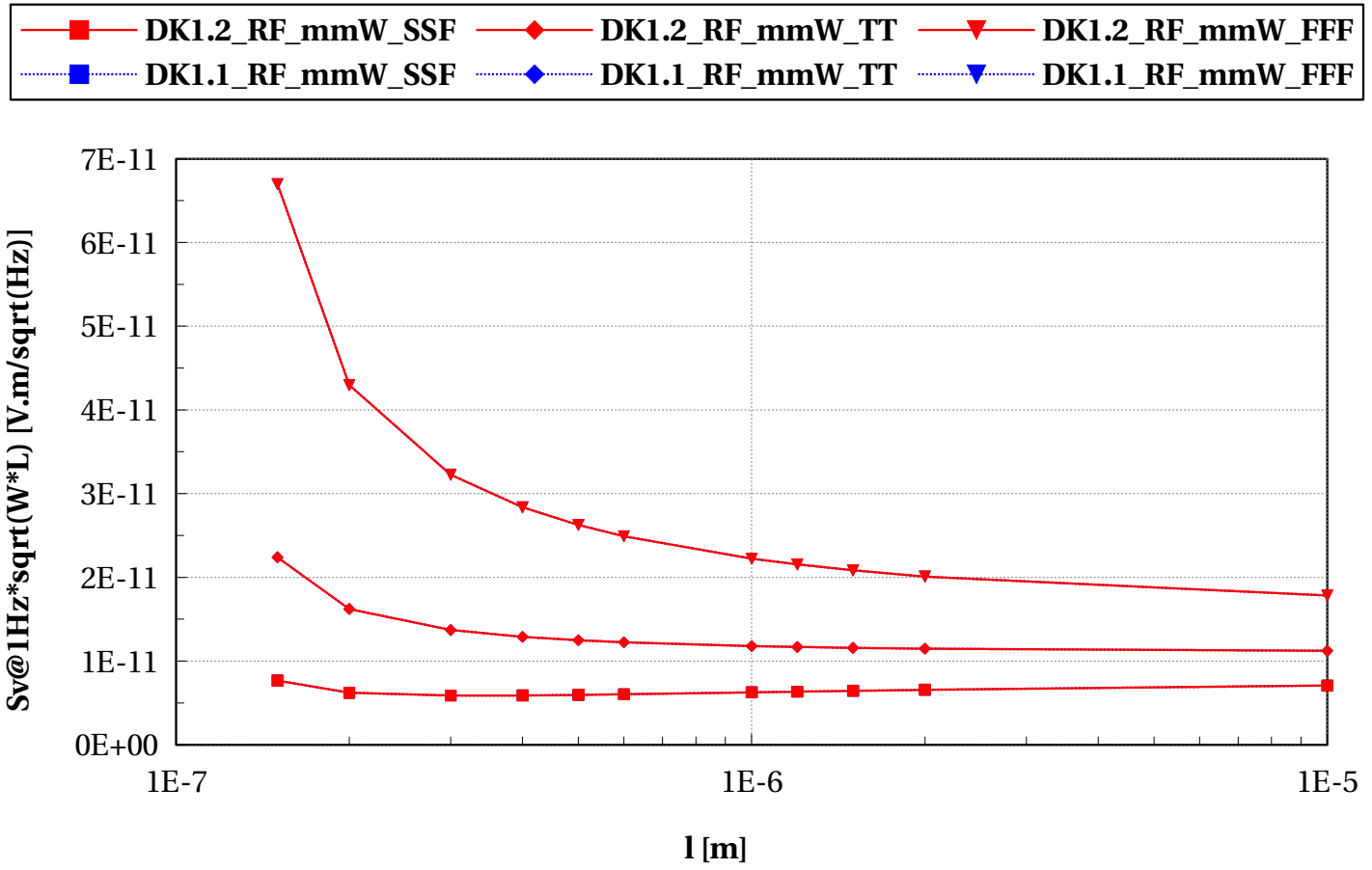
eglvtpfet_acc, Gds_ana/w [S/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



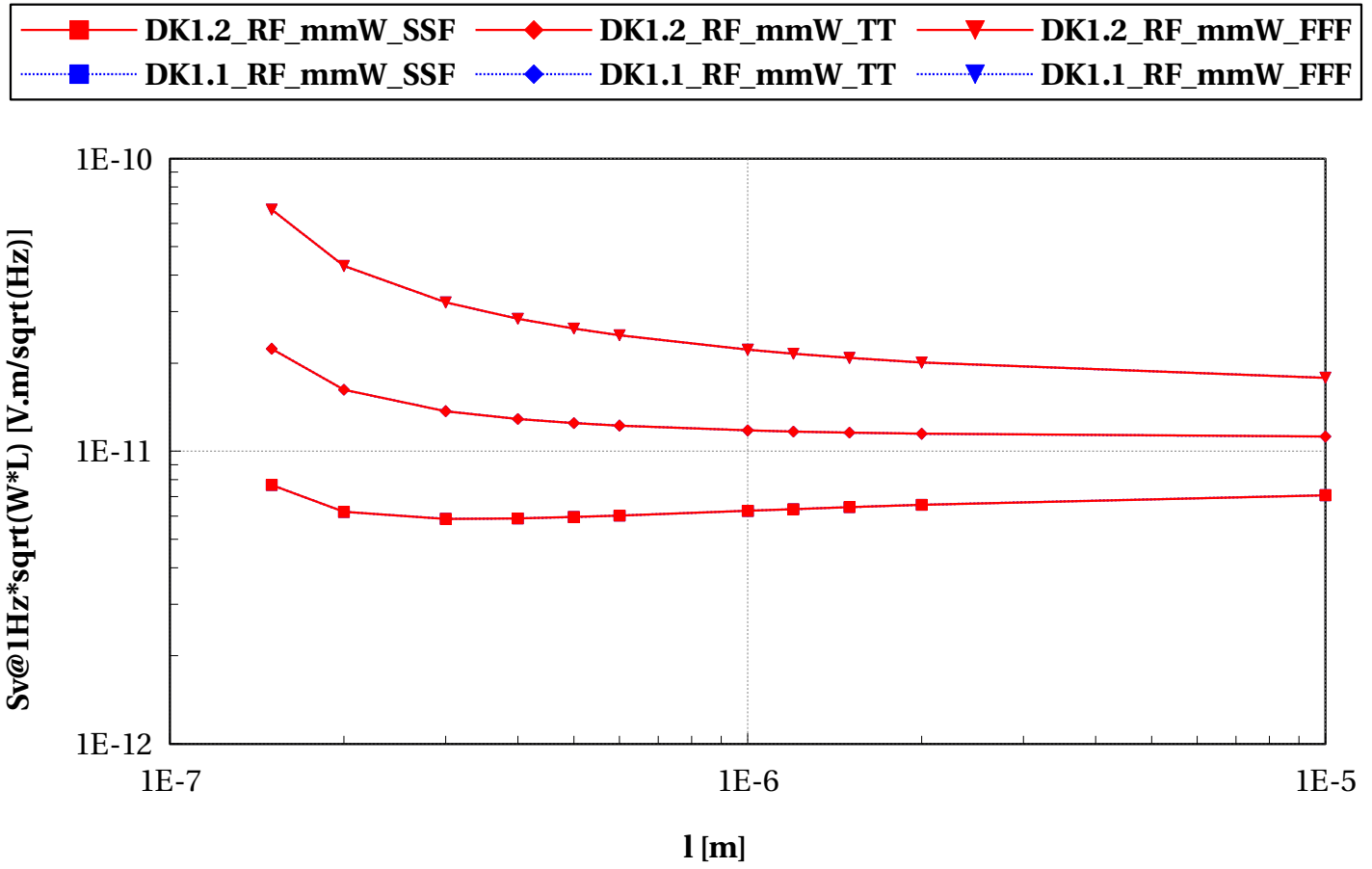
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



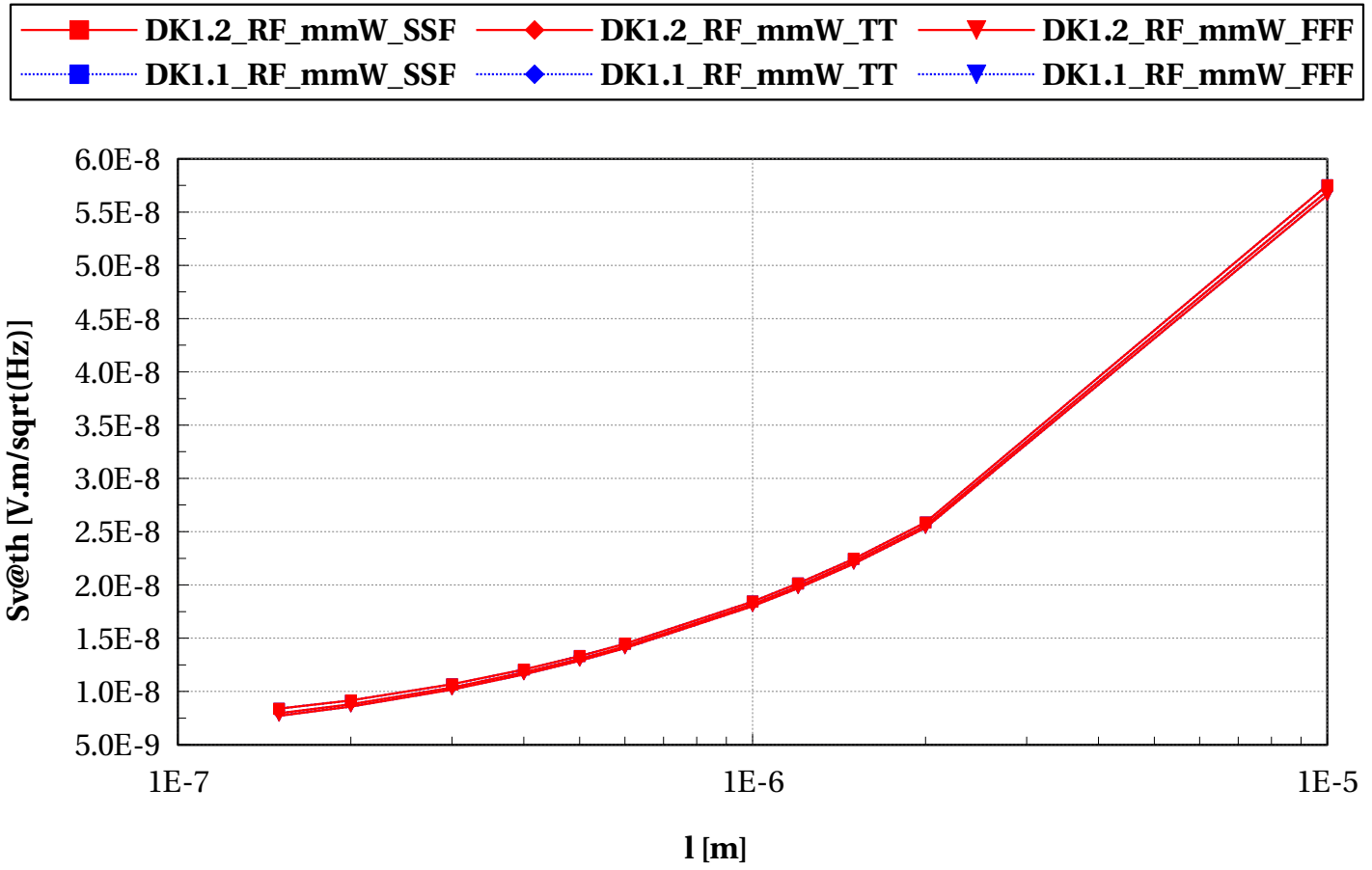
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



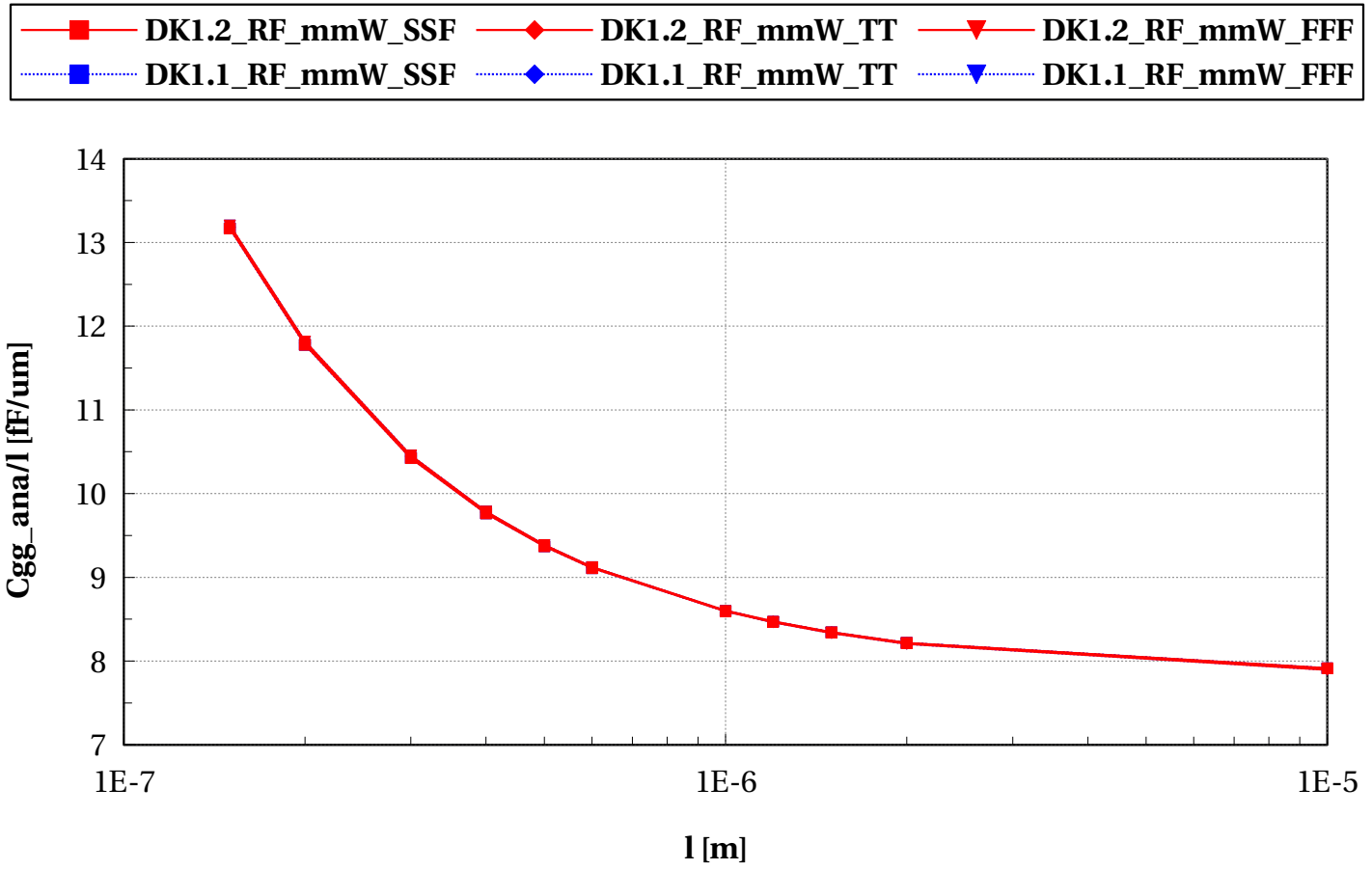
eglvtpfet_acc, Sv@th [V.m/sqrt(Hz)] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



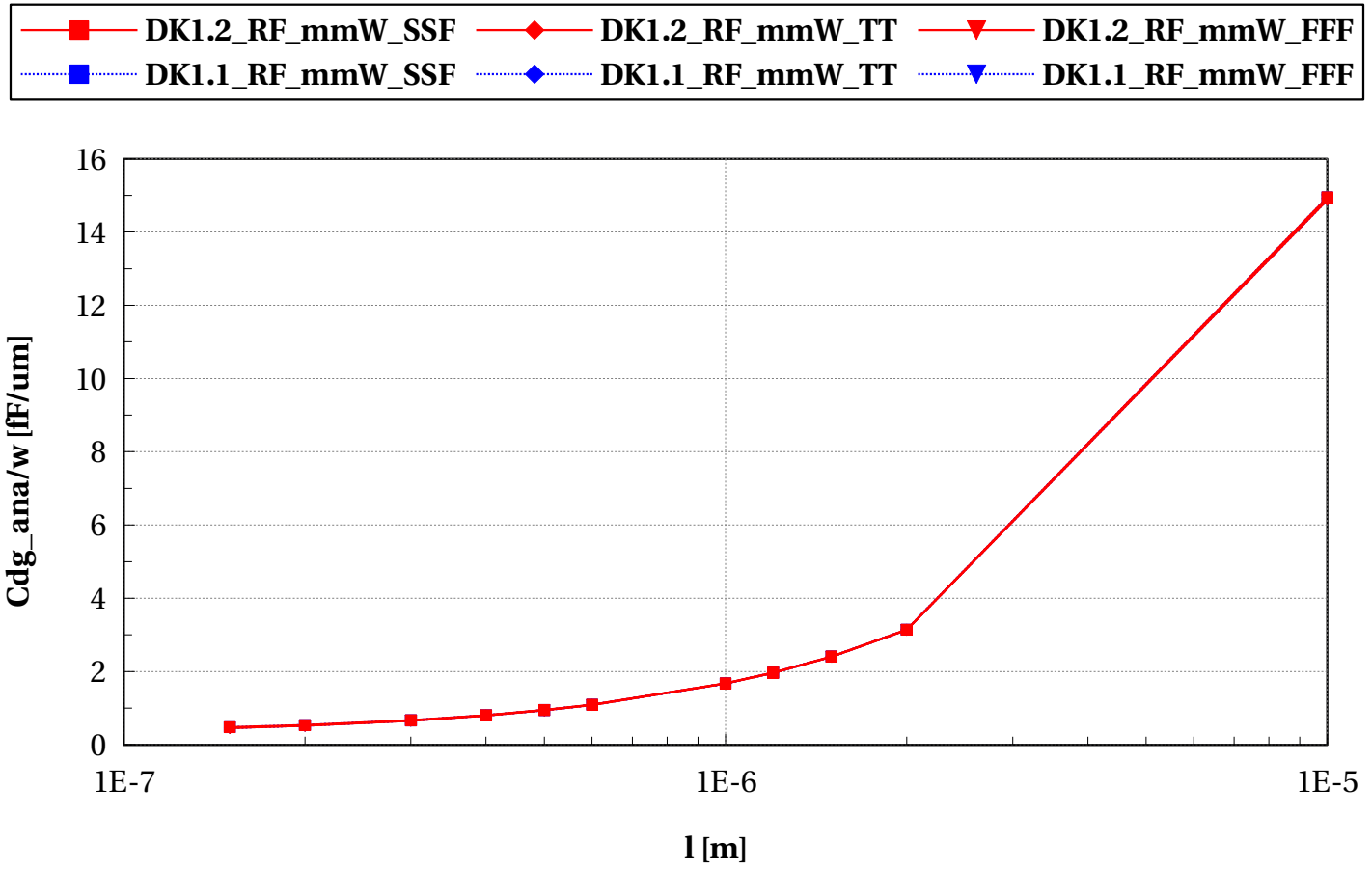
eglvtpfet_acc, Cgg_ana/l [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



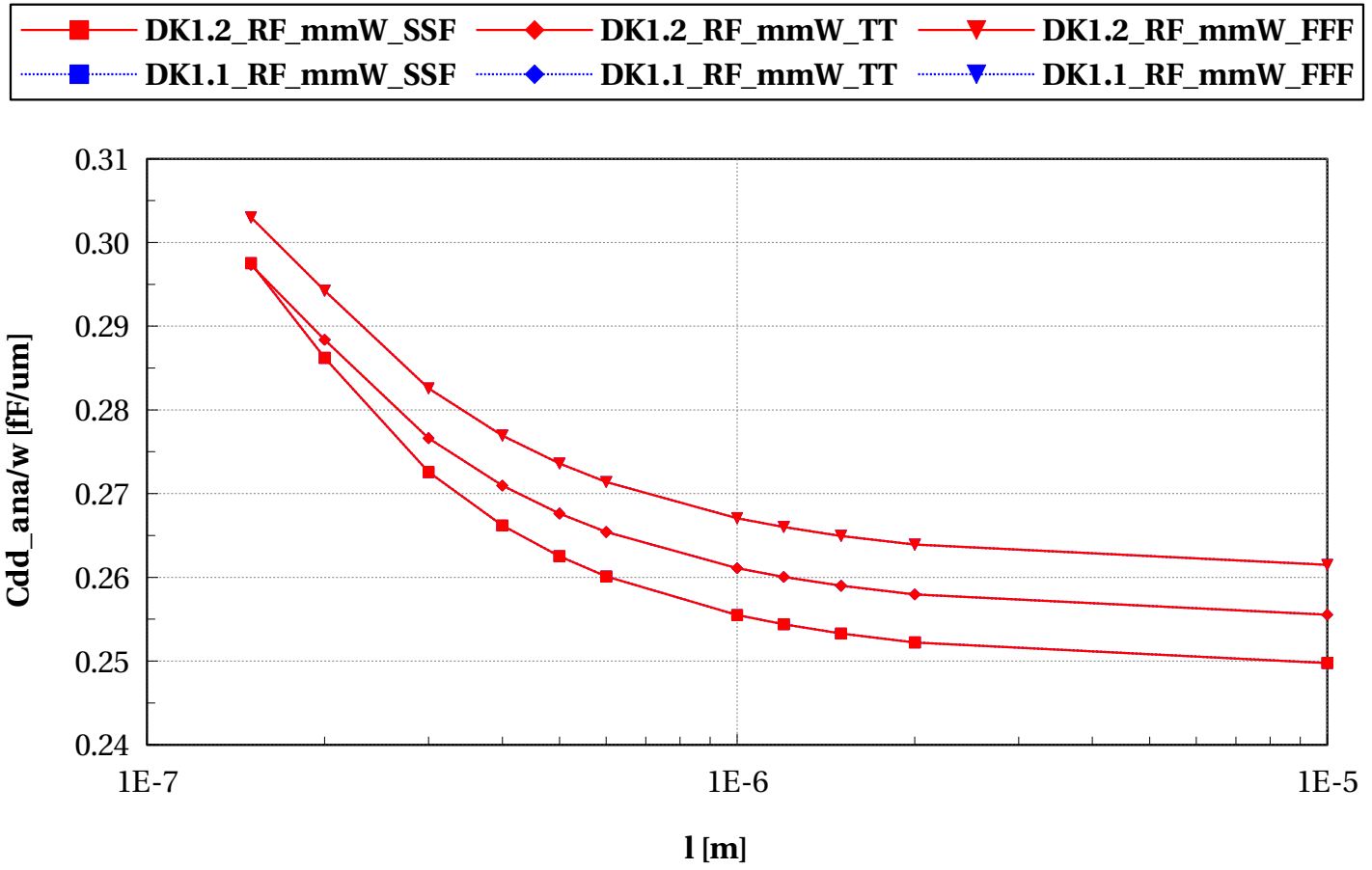
eglvtpfet_acc, Cdg_ana/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



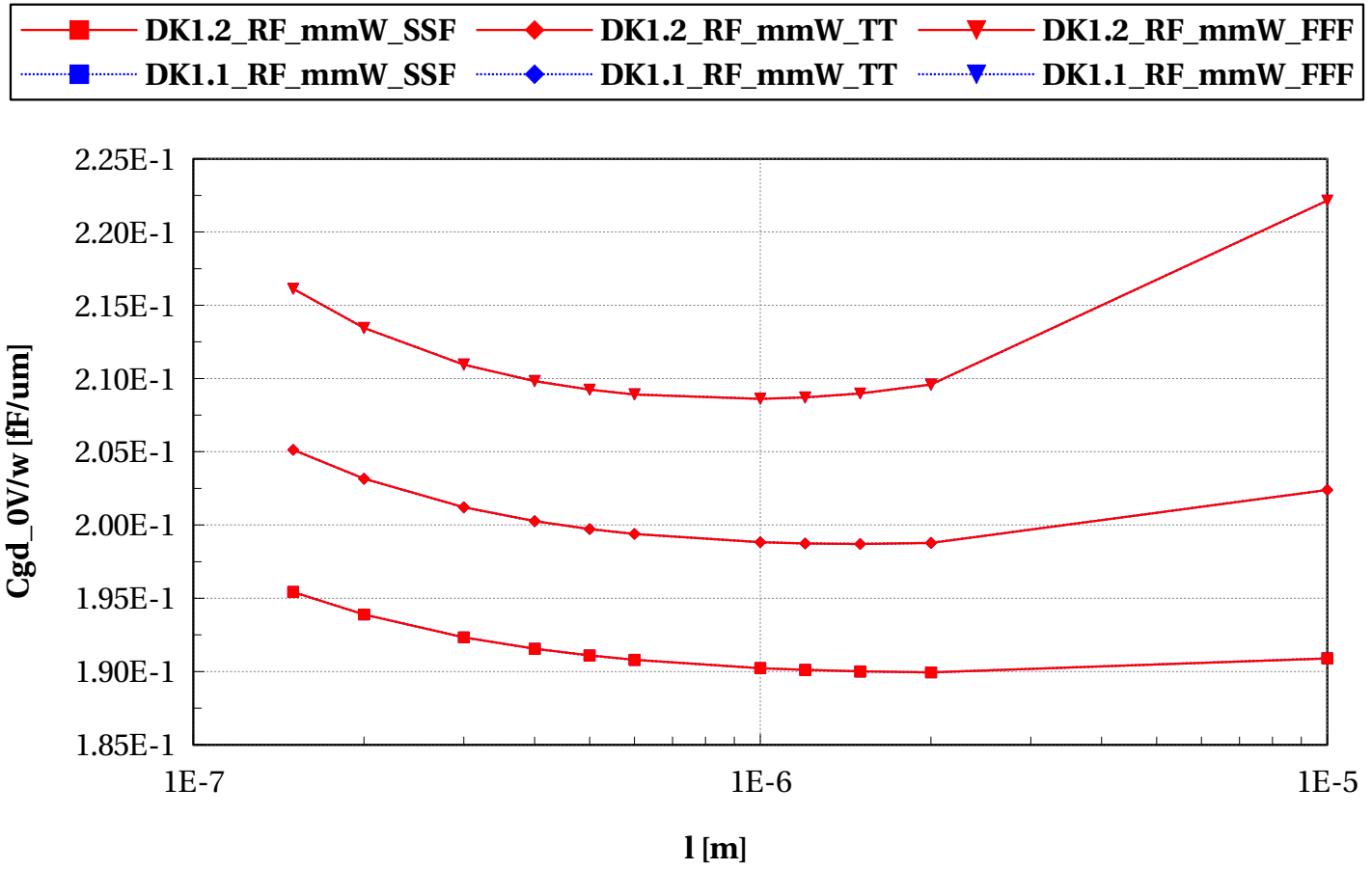
eglvtpfet_acc, Cdd_ana/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



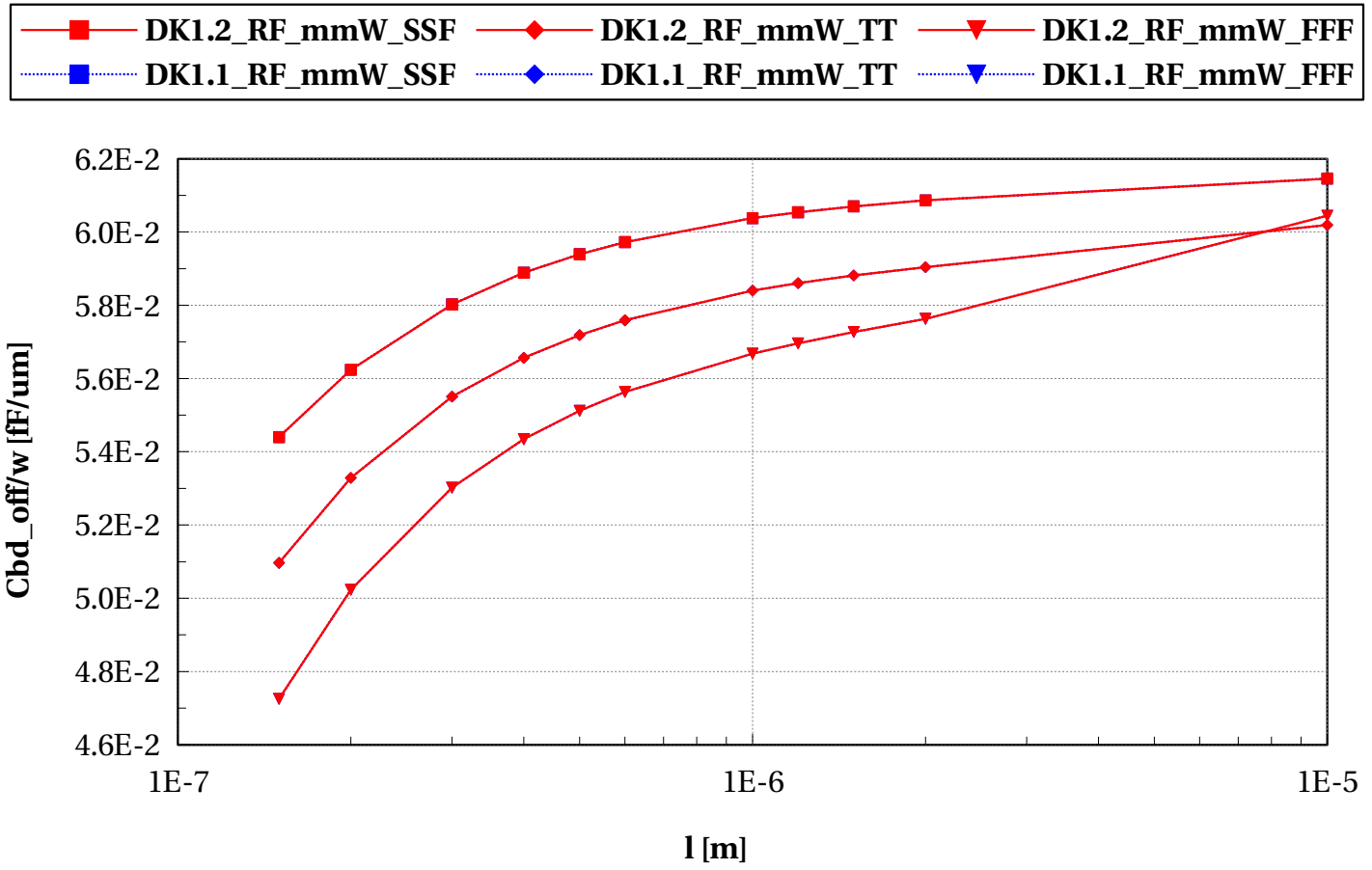
eglvtpfet_acc, Cgd_0V/w [fF/um] vs l [m]

W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



eglvtpfet_acc, Cbd_off/w [fF/um] vs l [m]

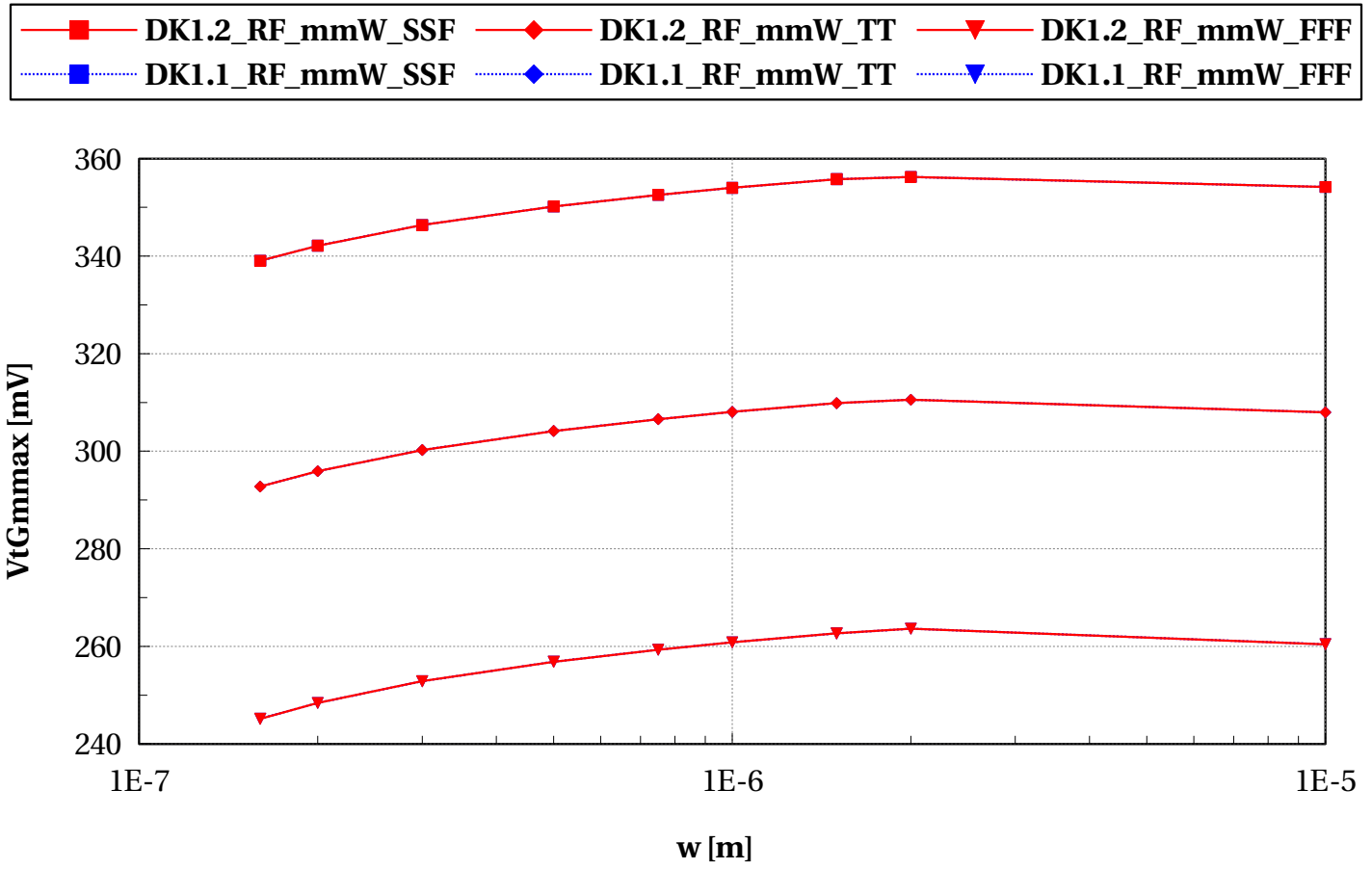
W==2e-6 and nf==2 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



Scaling versus Width (T=25C)

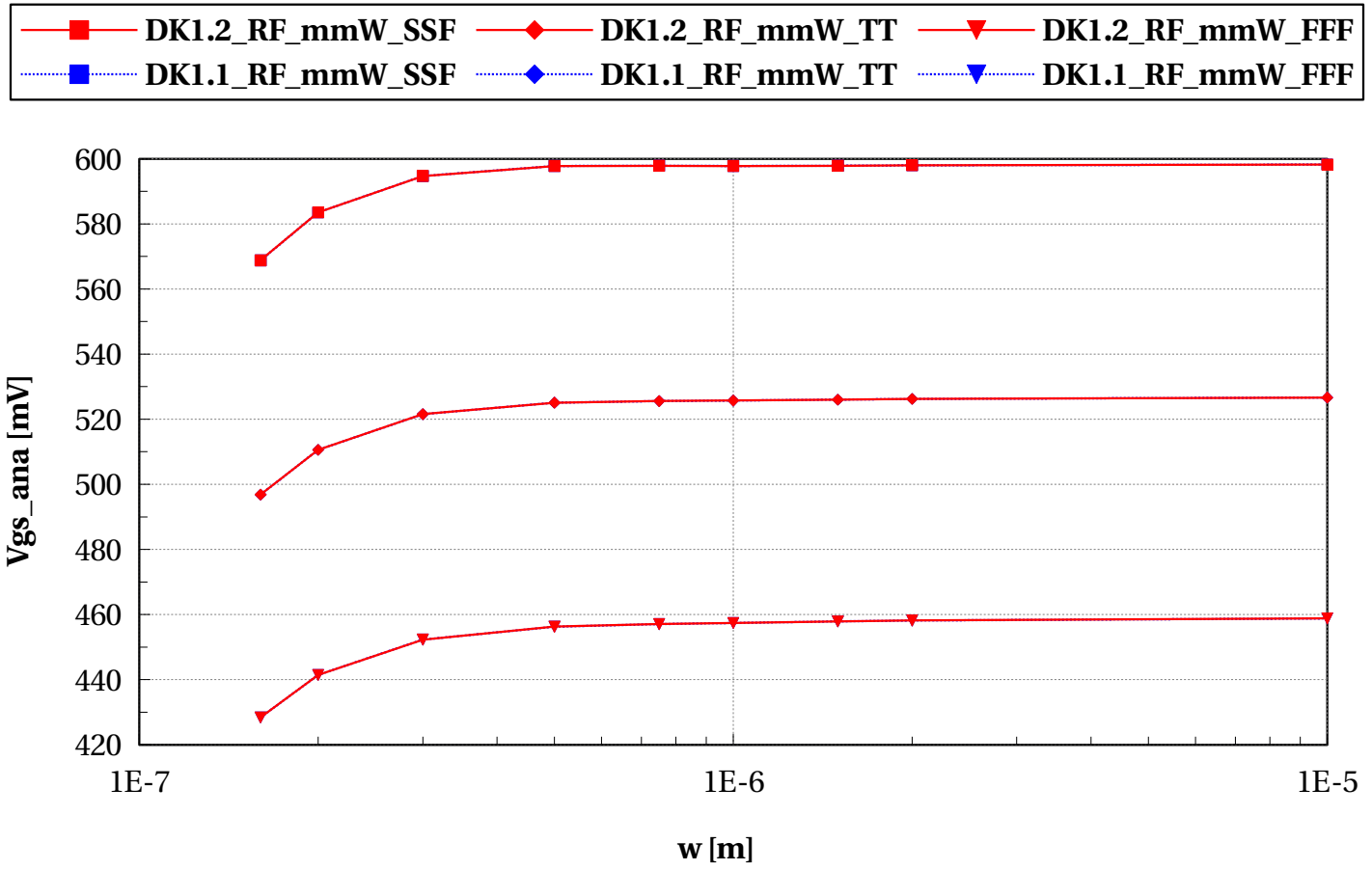
eglvtpfet_acc, VtGmmax [mV] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



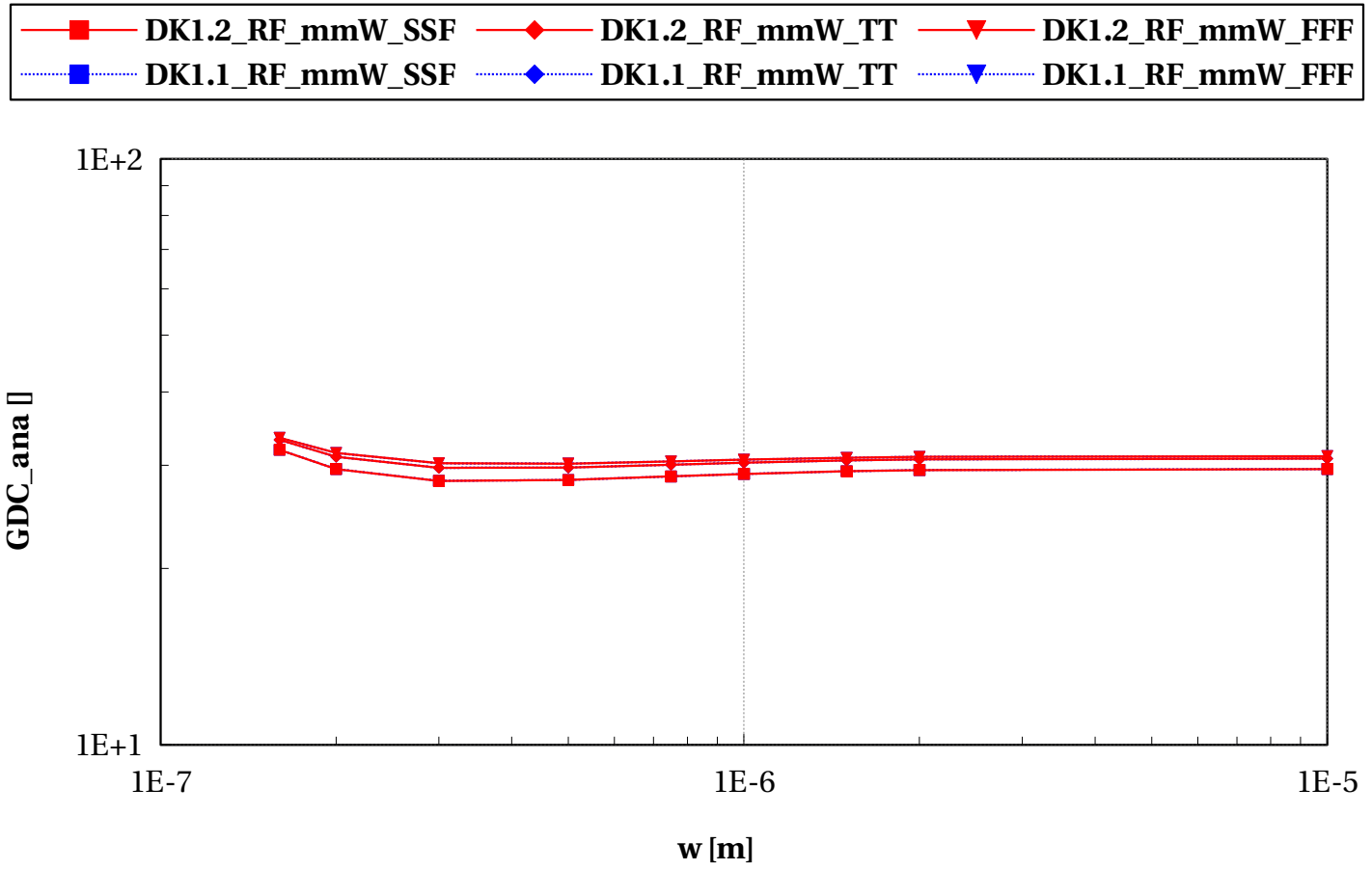
eglvtpfet_acc, Vgs_ana [mV] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



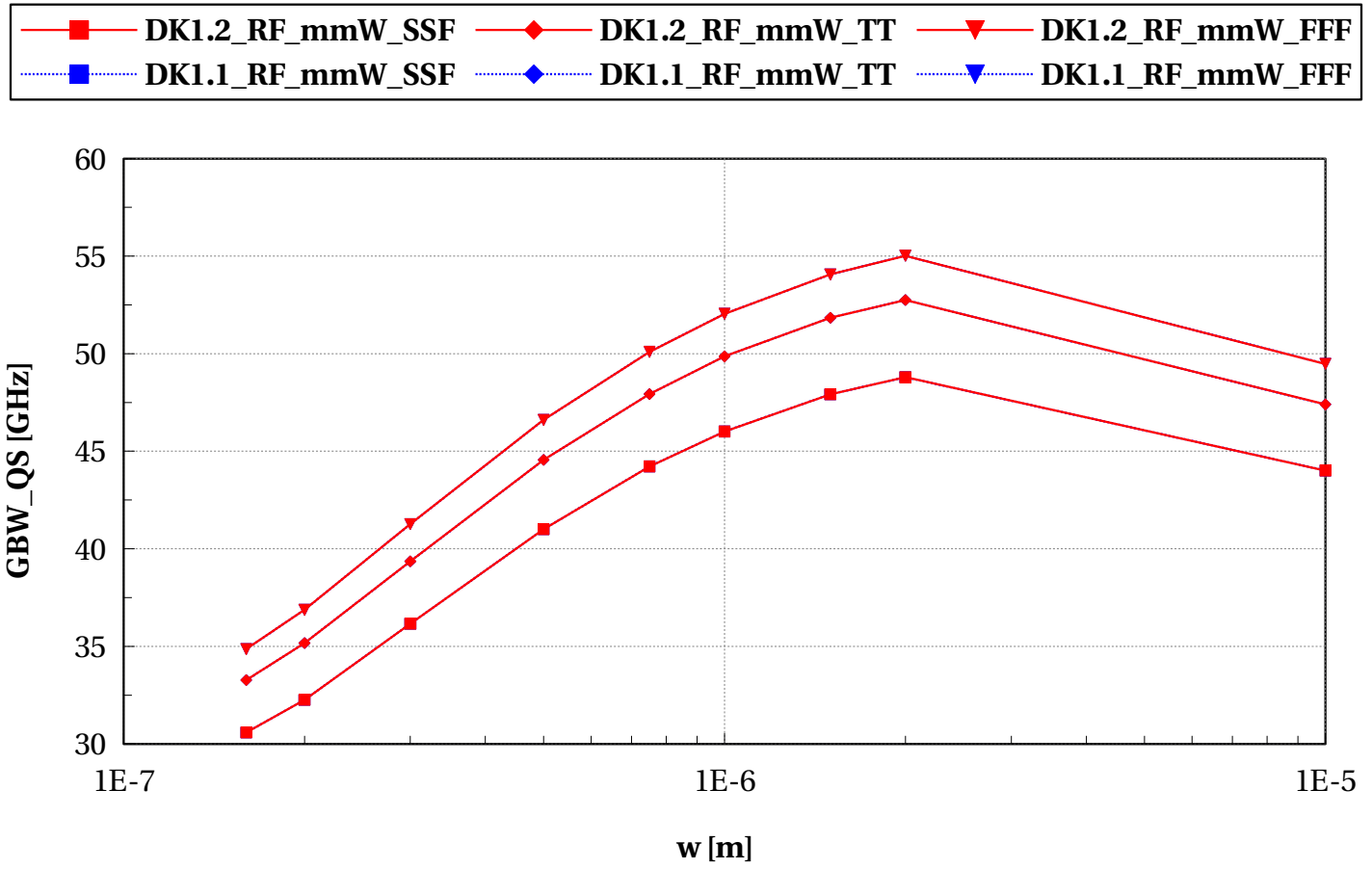
eglvtpfet_acc, GDC_ana [] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



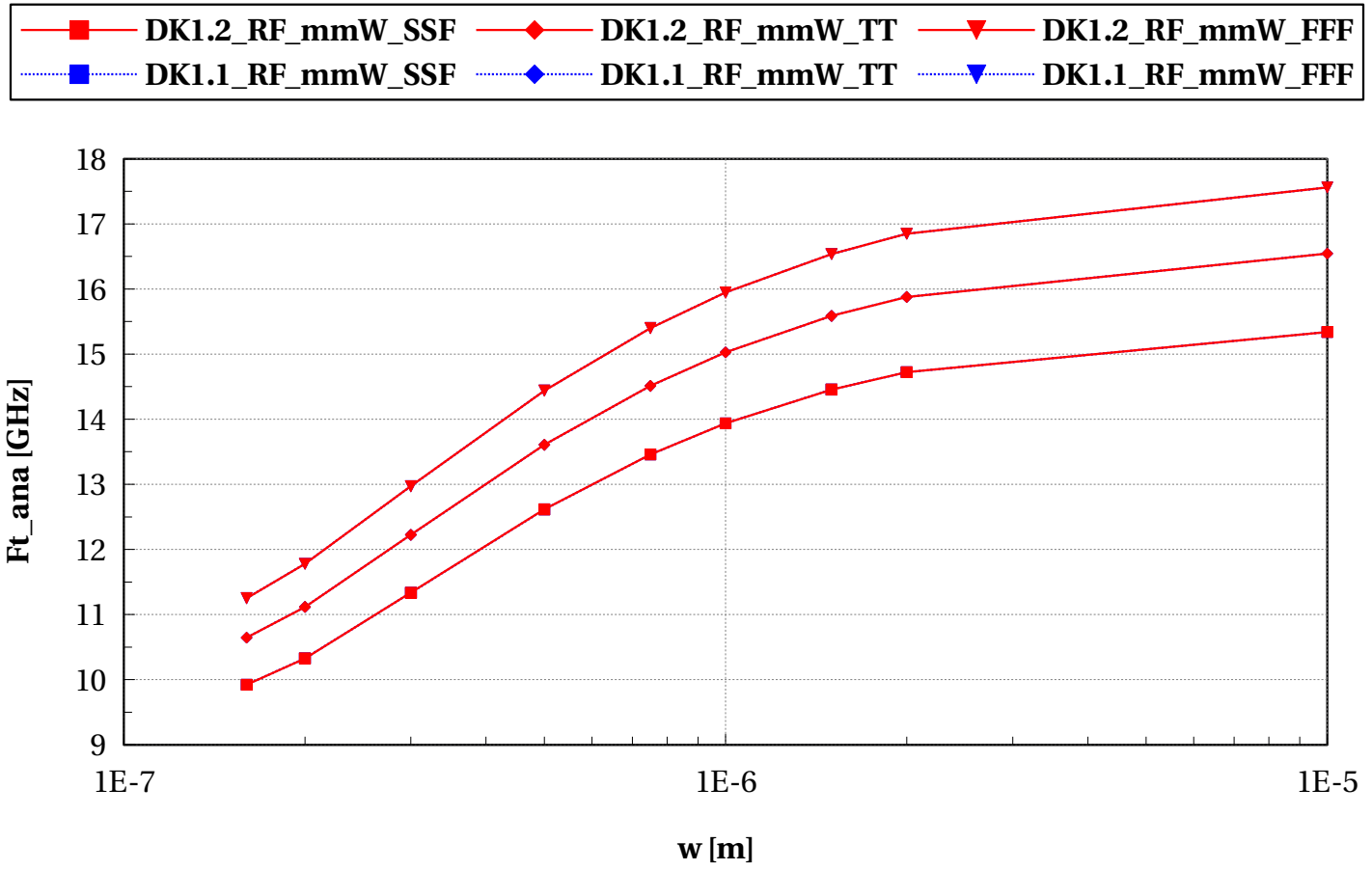
eglvtpfet_acc, GBW_QS [GHz] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



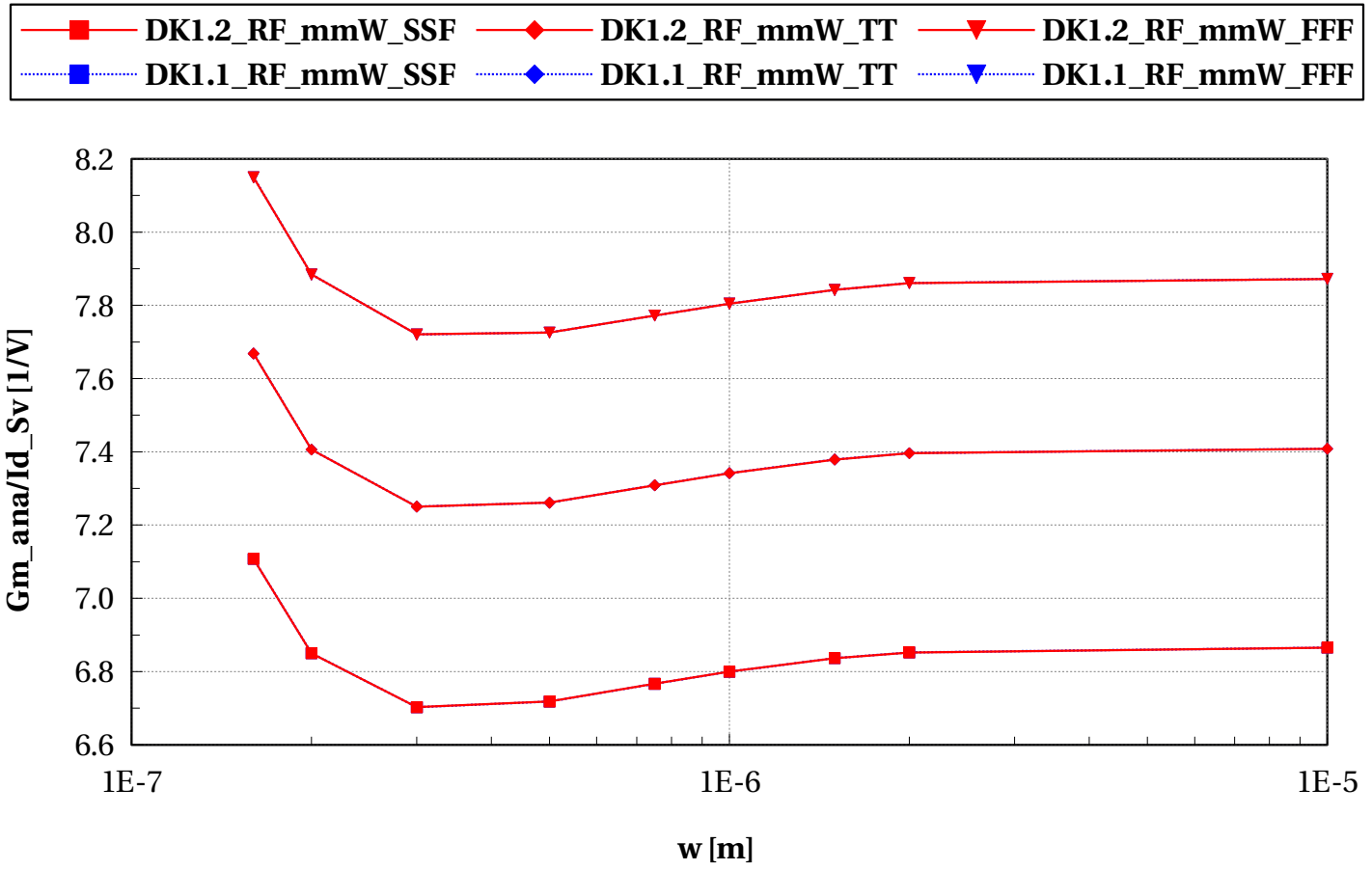
eglvtpfet_acc, Ft_ana [GHz] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



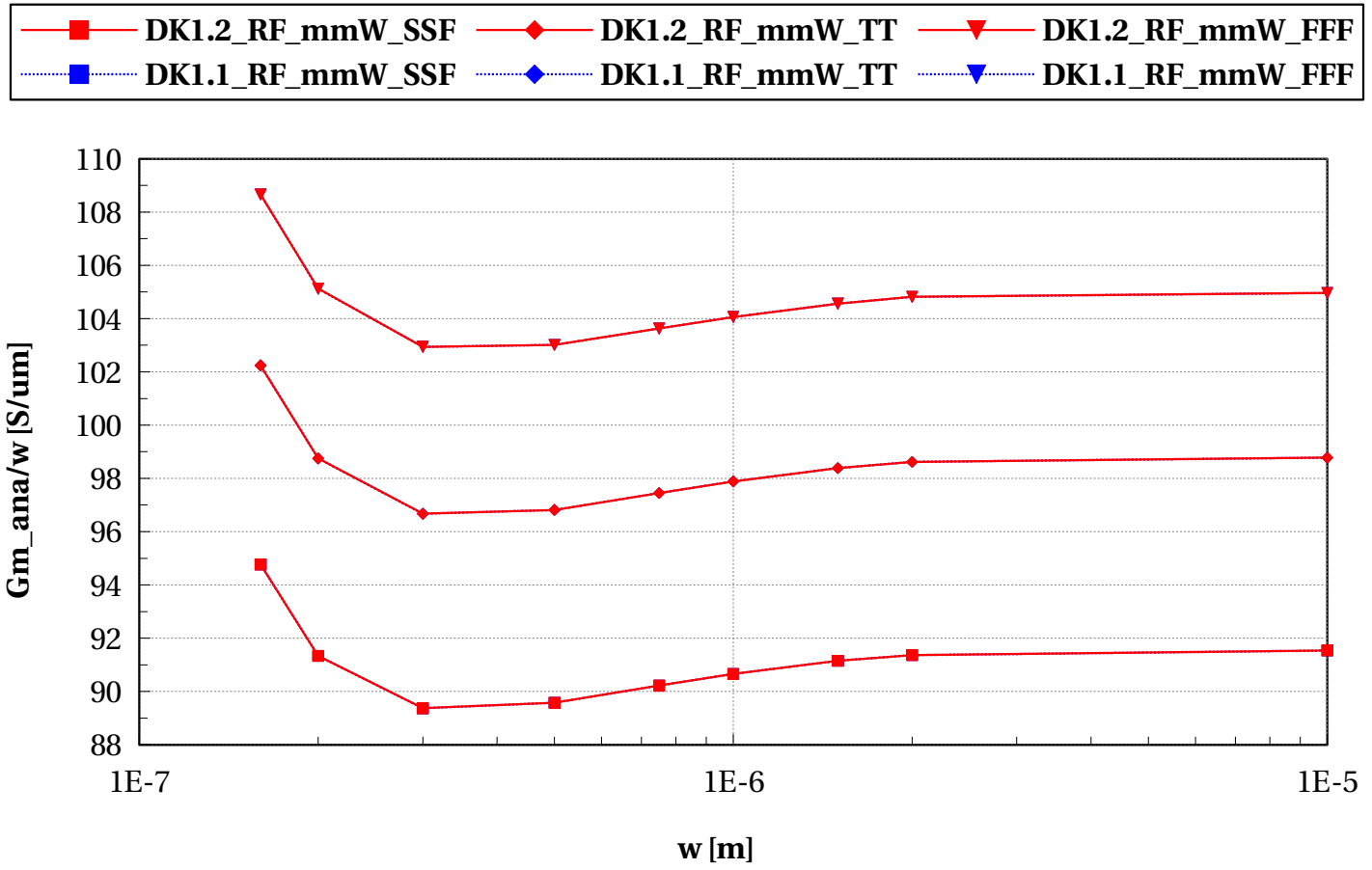
eglvtpfet_acc, Gm_ana/Id_Sv [1/V] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



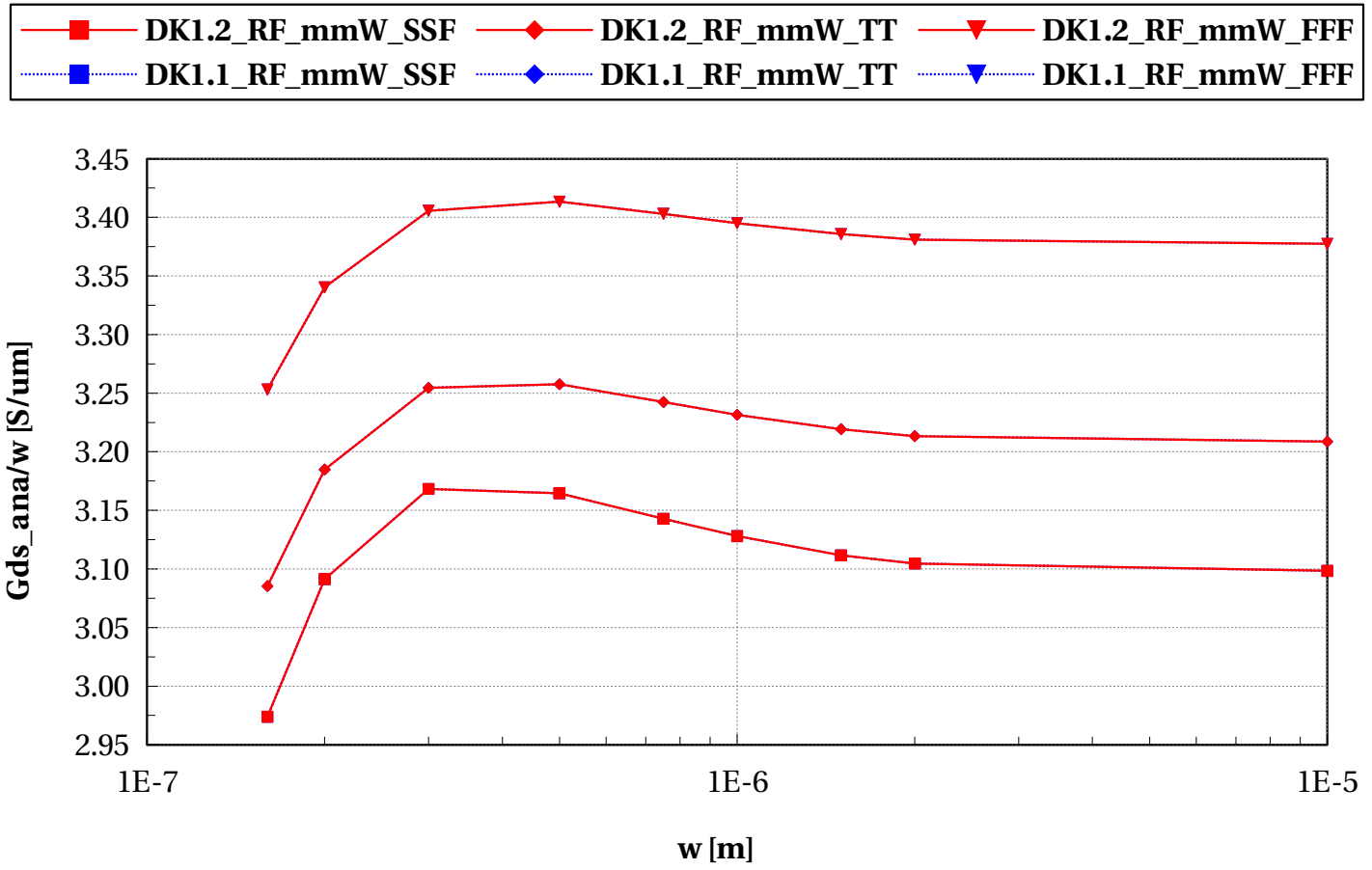
eglvtpfet_acc, Gm_ana/w [S/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



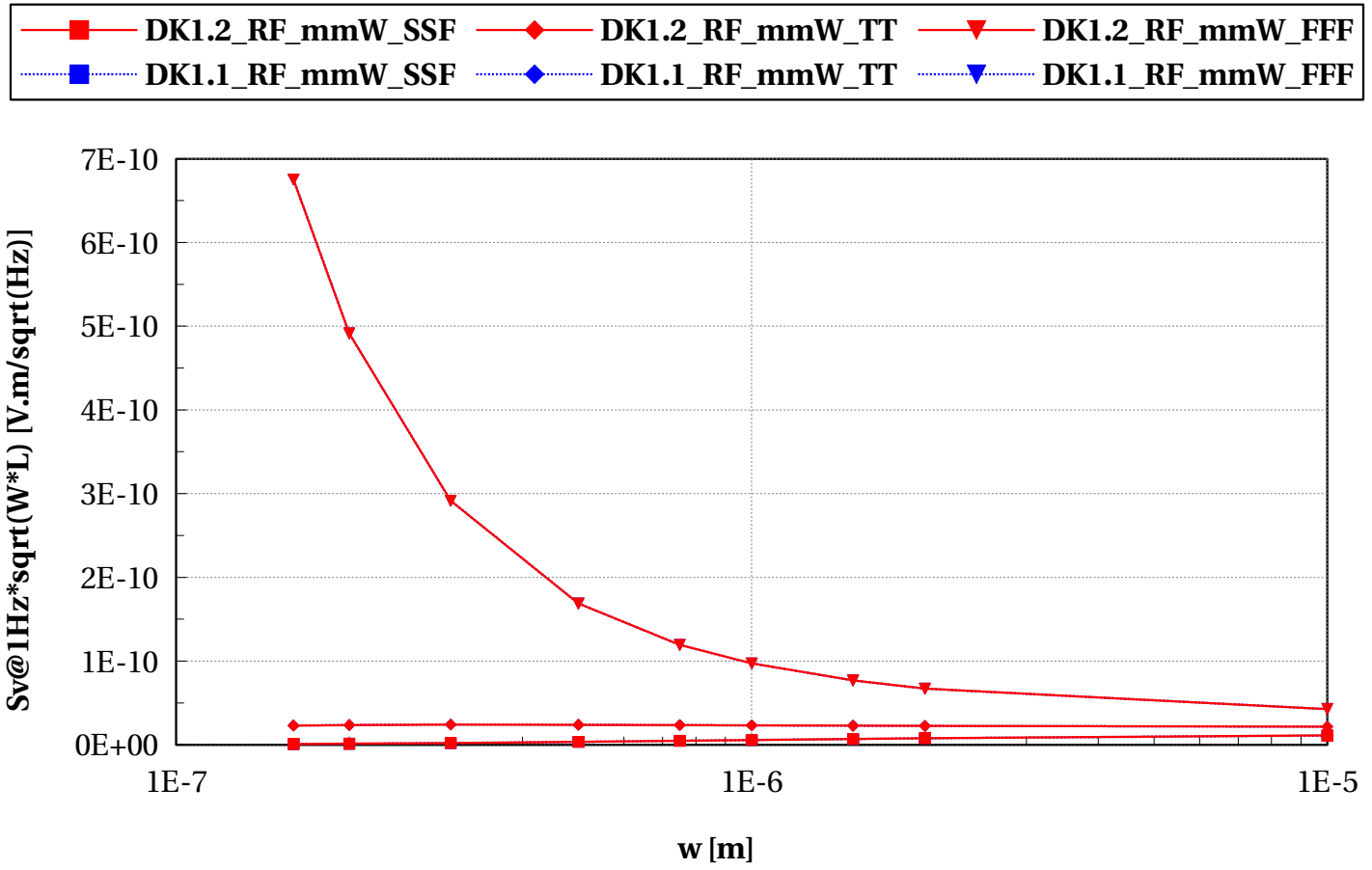
eglvtpfet_acc, Gds_ana/w [S/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



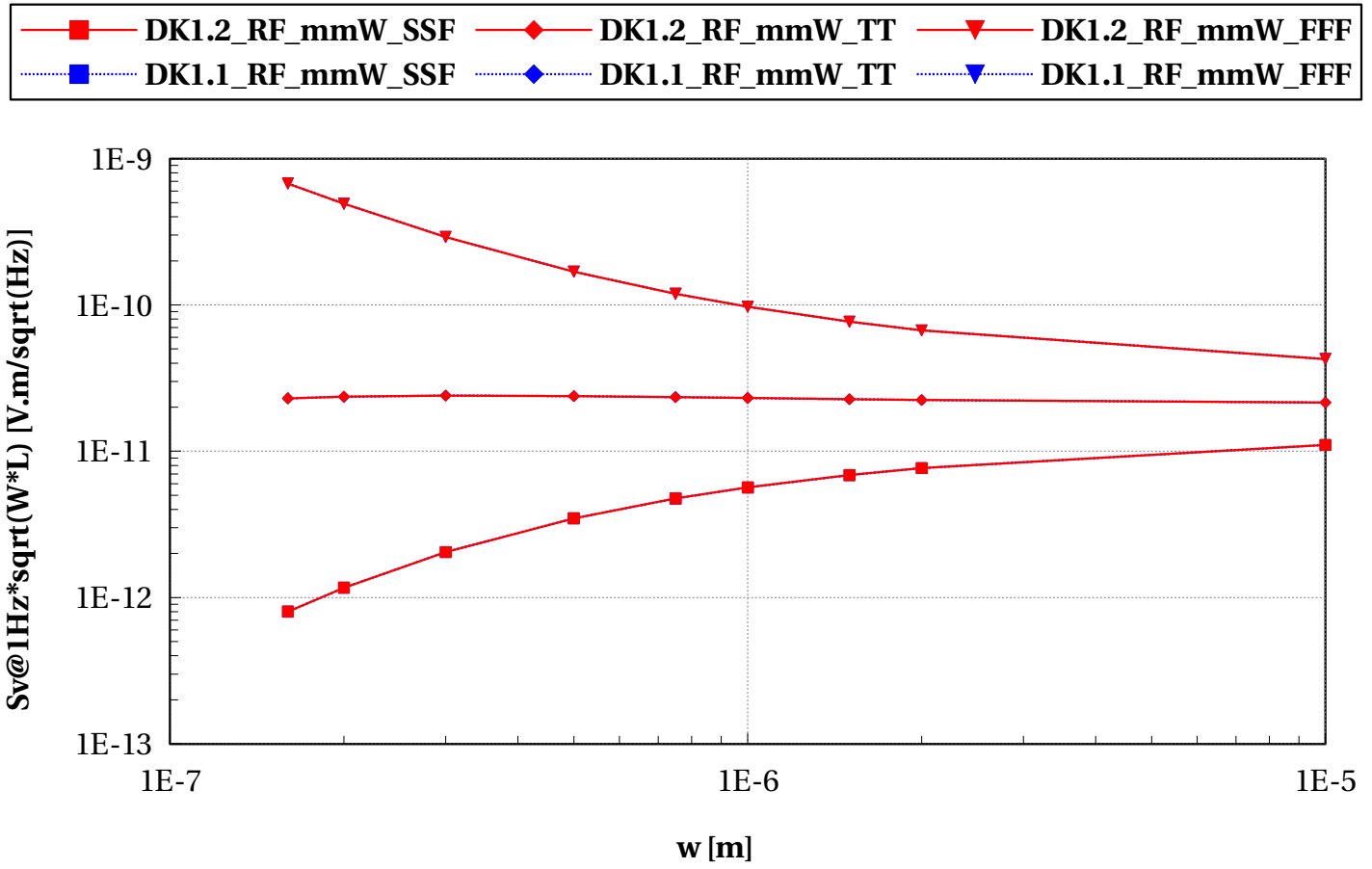
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



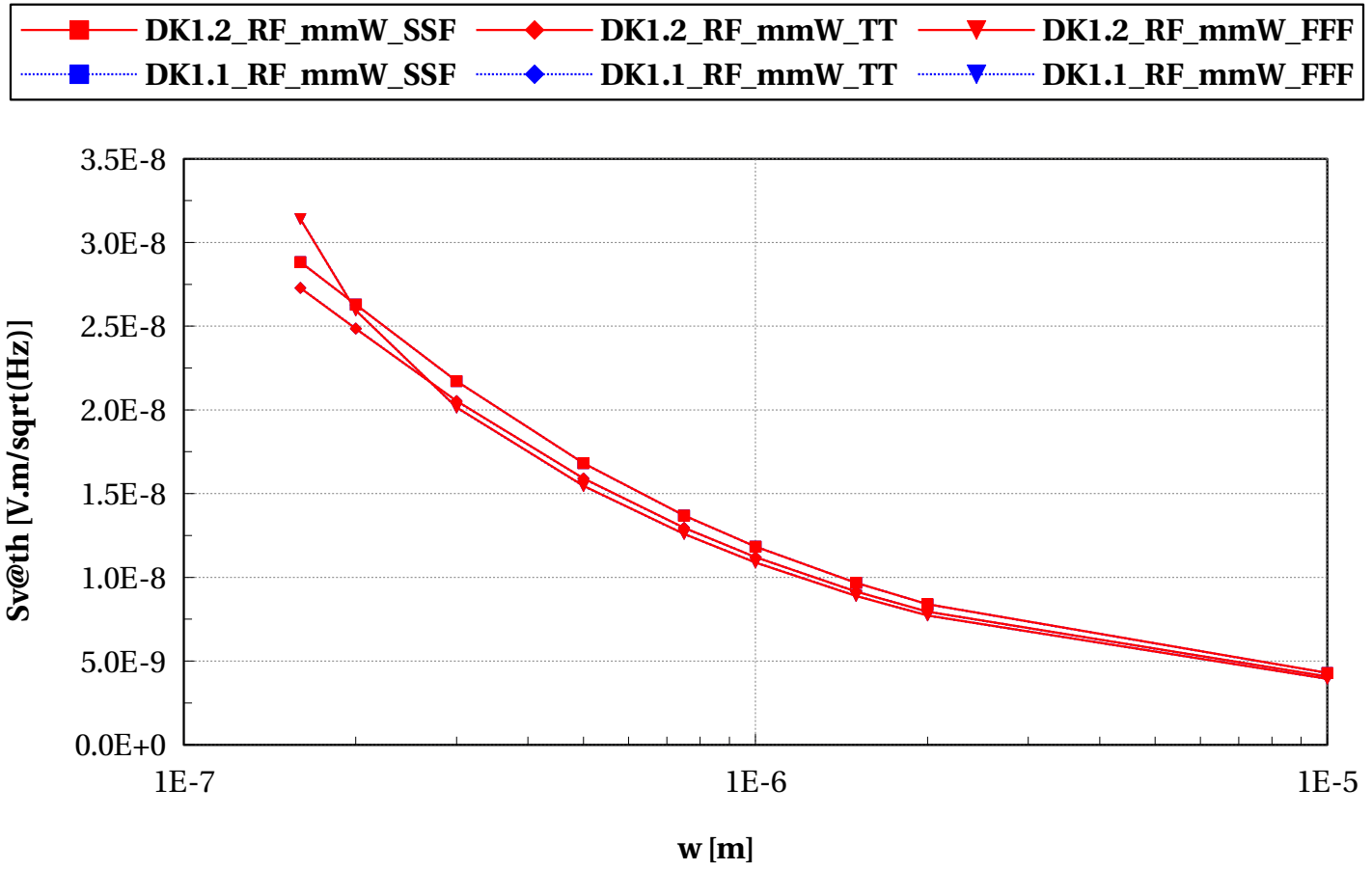
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



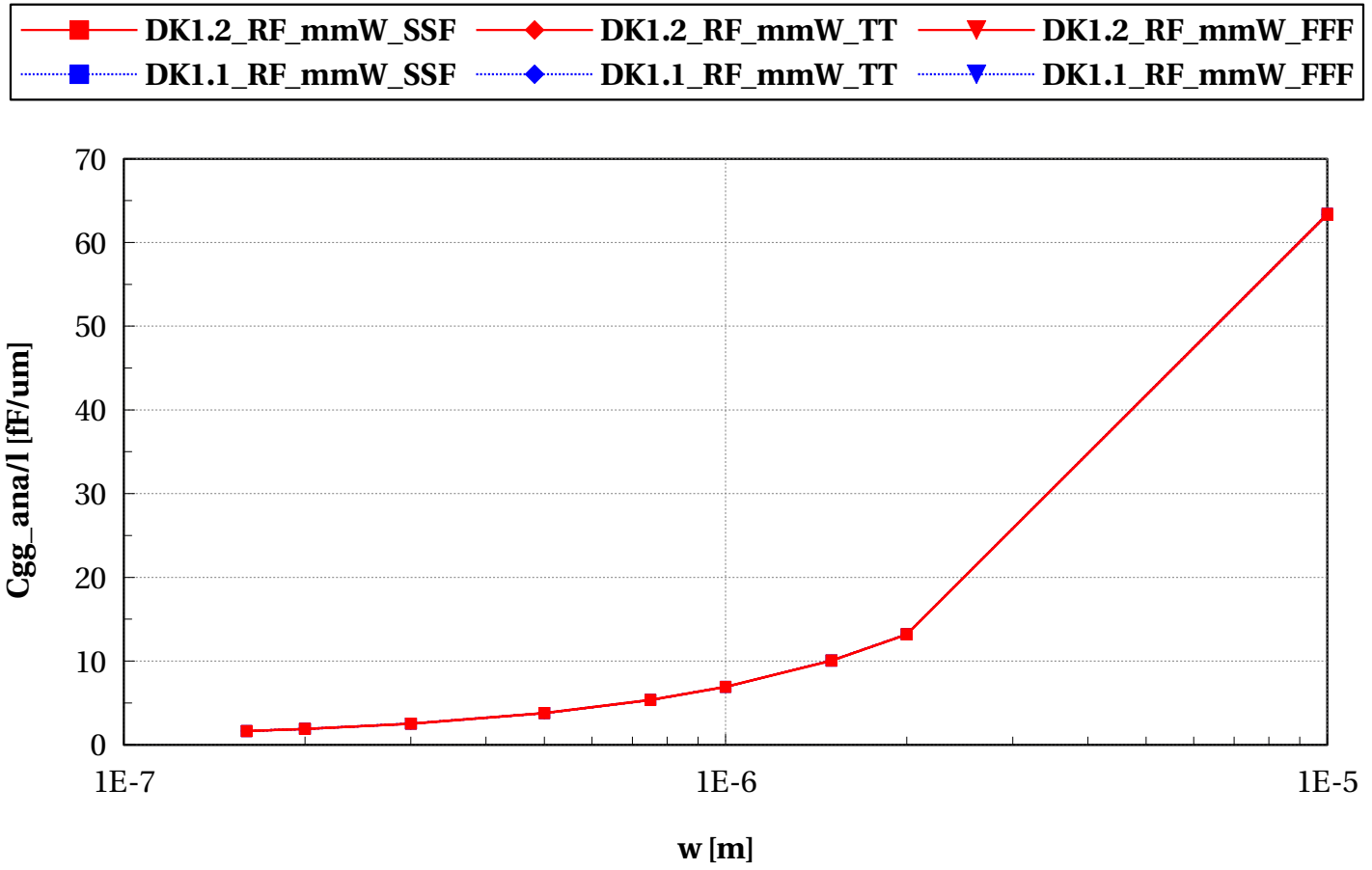
eglvtpfet_acc, Sv@th [V.m/sqrt(Hz)] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



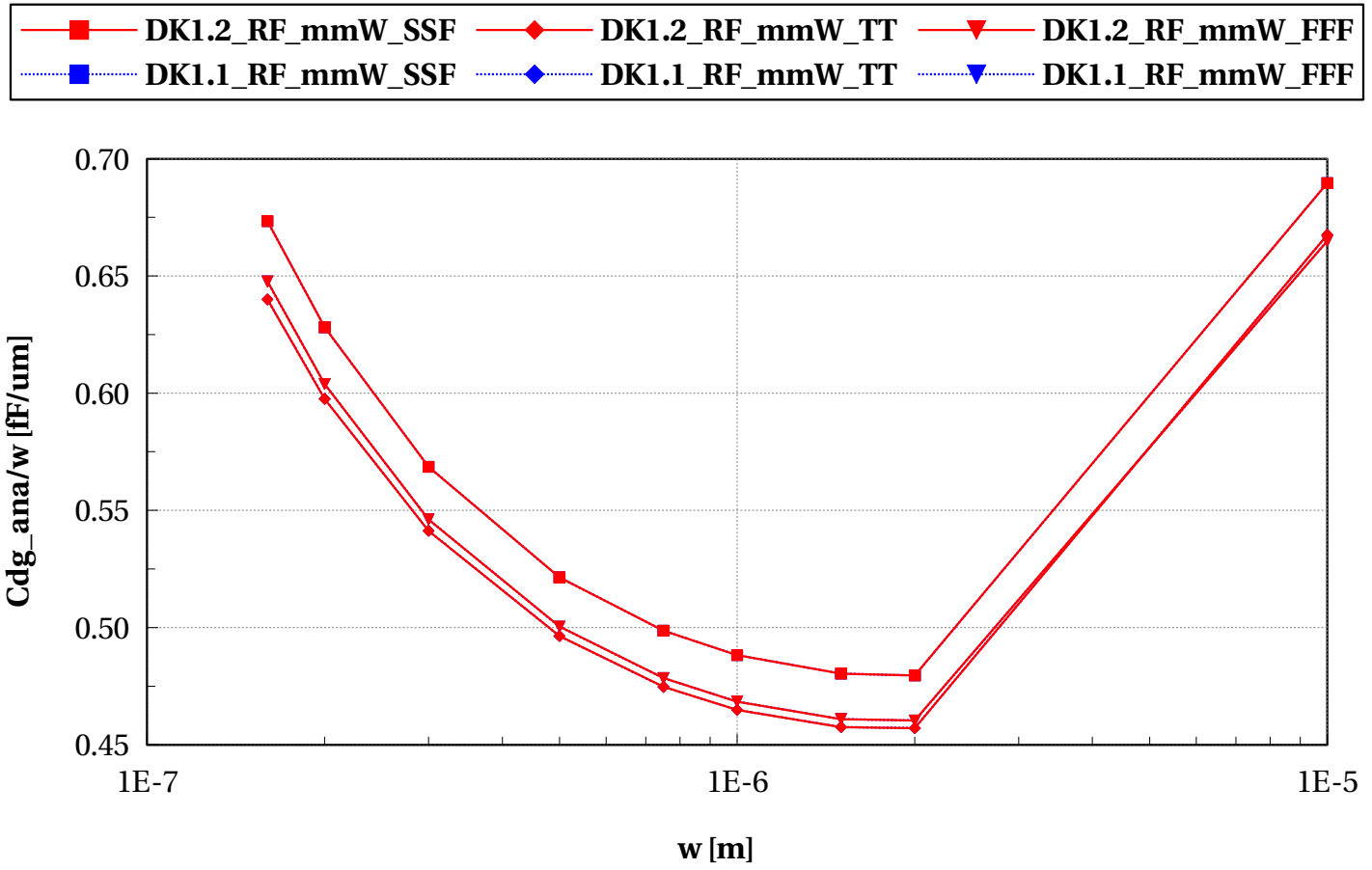
eglvtpfet_acc, Cgg_ana/l [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



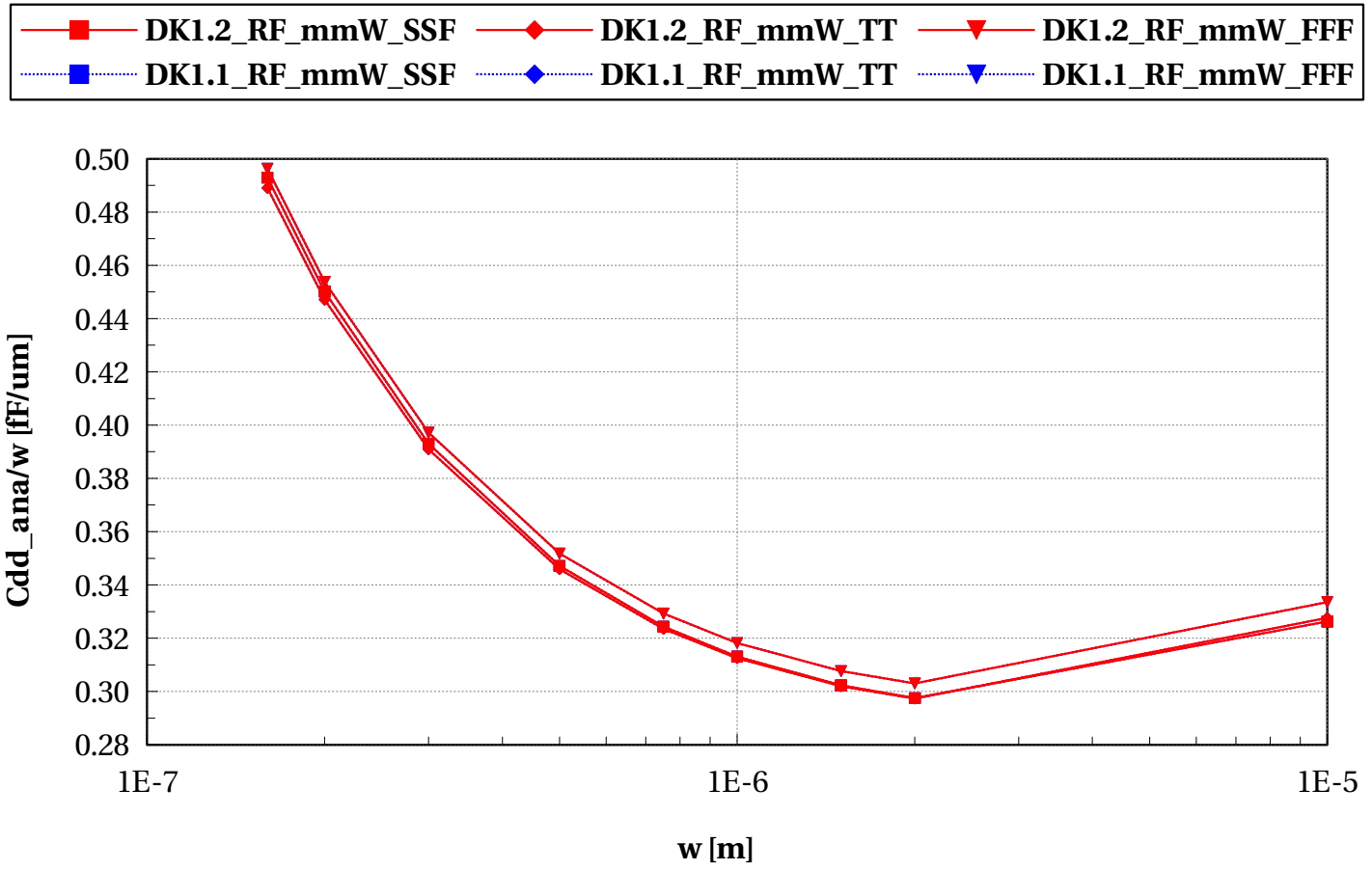
eglvtpfet_acc, Cdg_ana/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



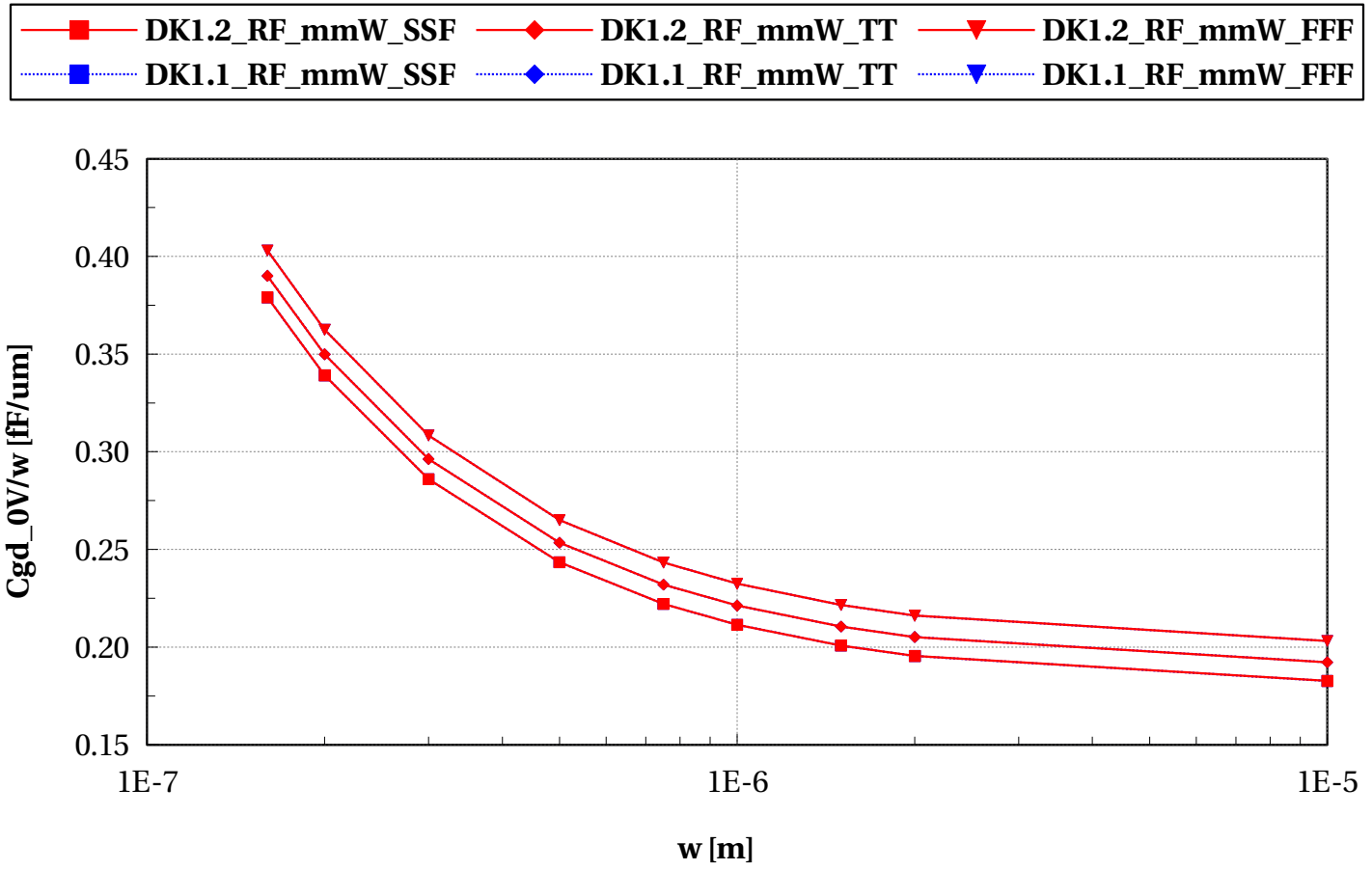
eglvtpfet_acc, Cdd_ana/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



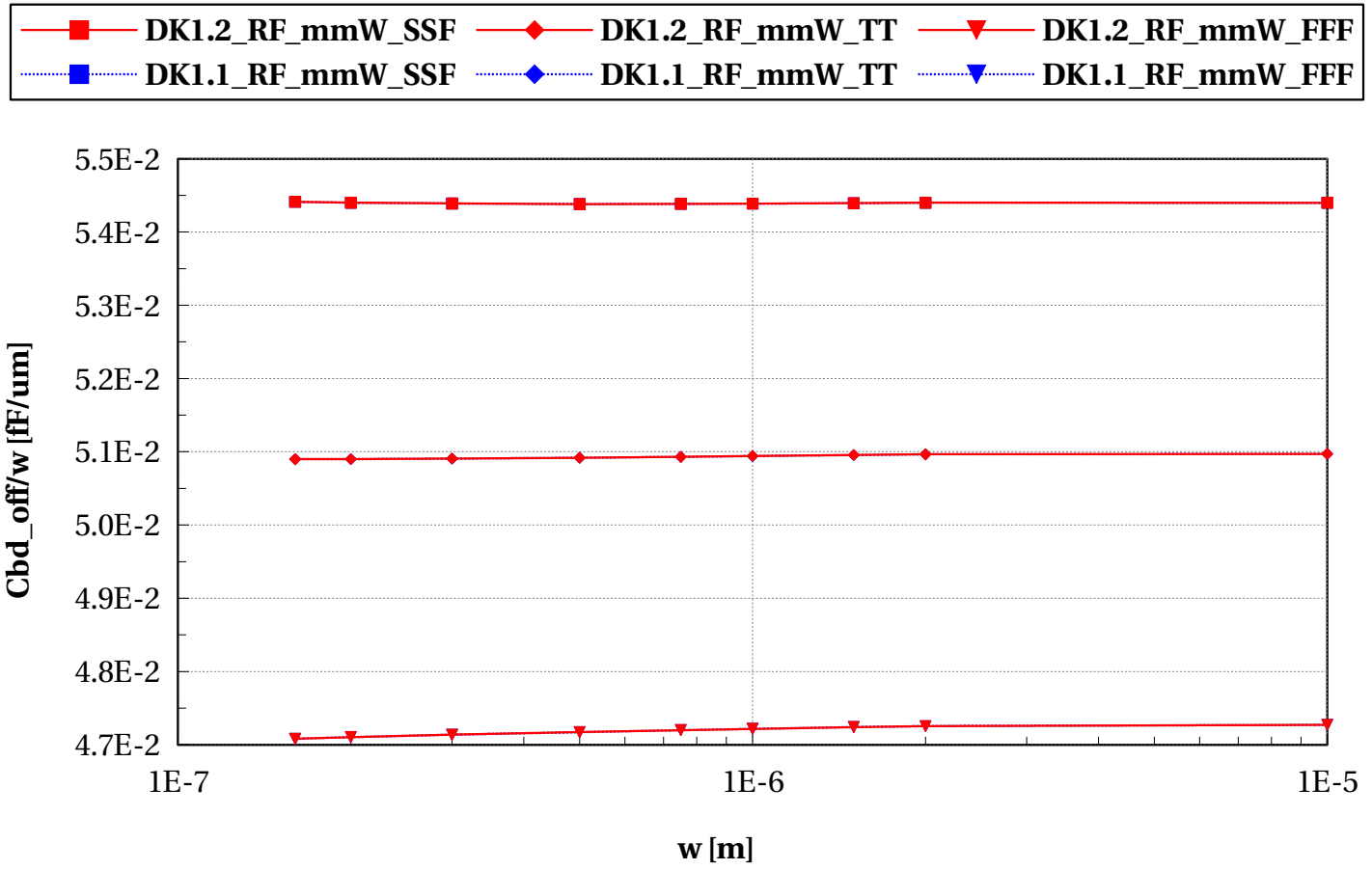
eglvtpfet_acc, Cgd_0V/w [fF/um] vs w [m]

L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



eglvtpfet_acc, Cbd_off/w [fF/um] vs w [m]

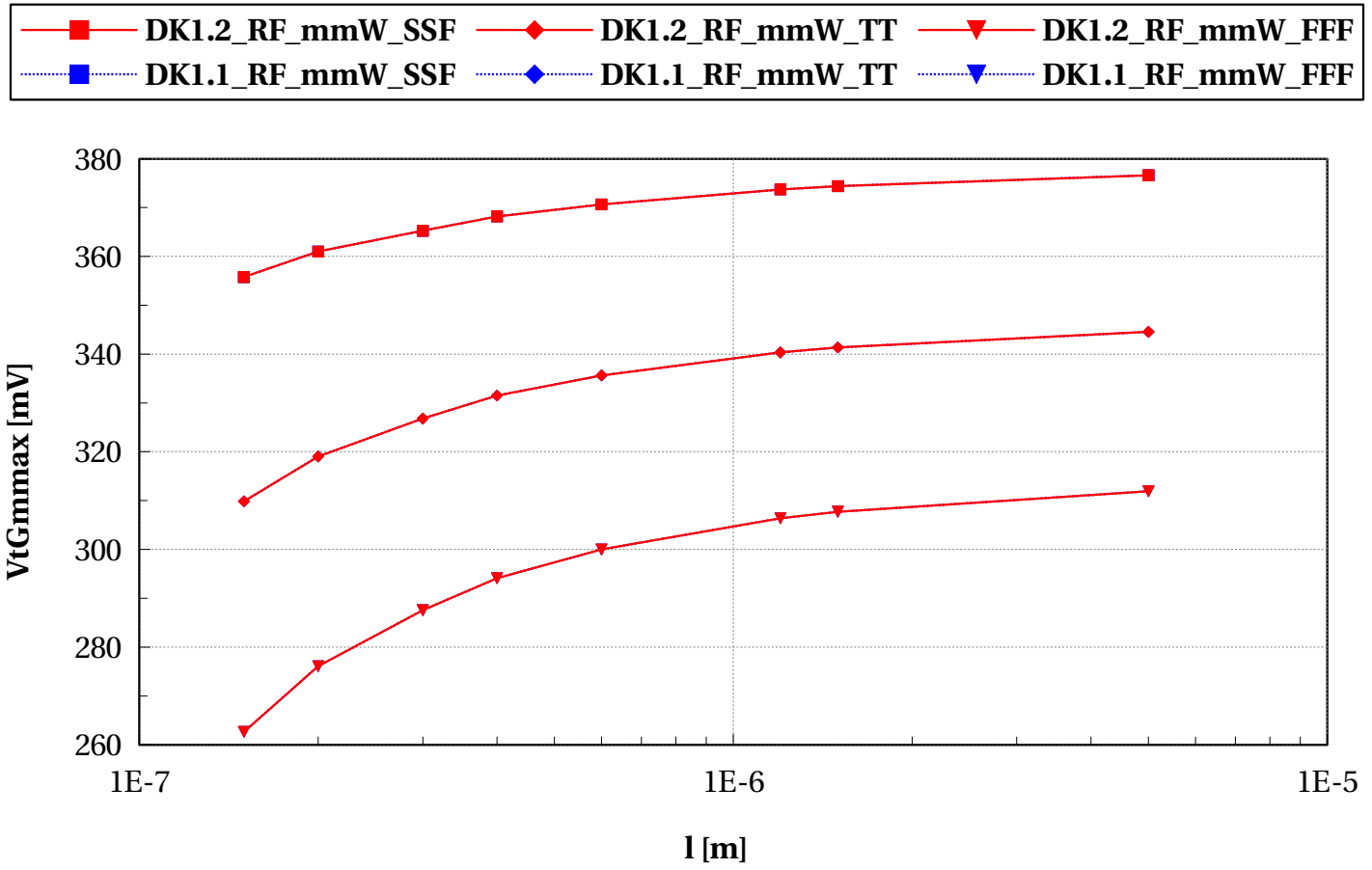
L==0.15e-6 and nf==2 and Temp==25 and Vbs==1.8 and devType=="PCELLwoWPE"



Scaling versus Length @ W/L=10&&W/nf<5um

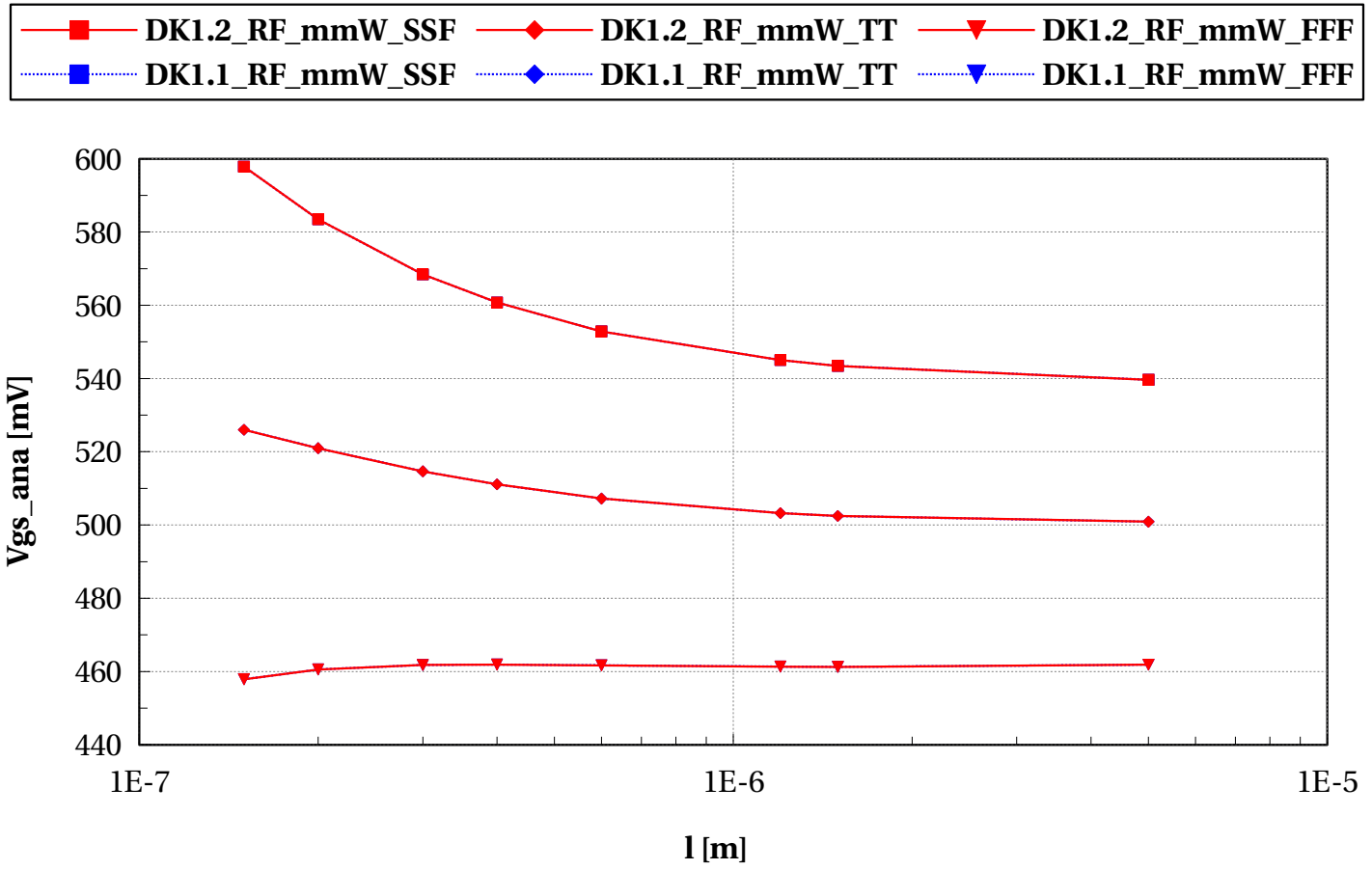
eglvtpfet_acc, VtGmmax [mV] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



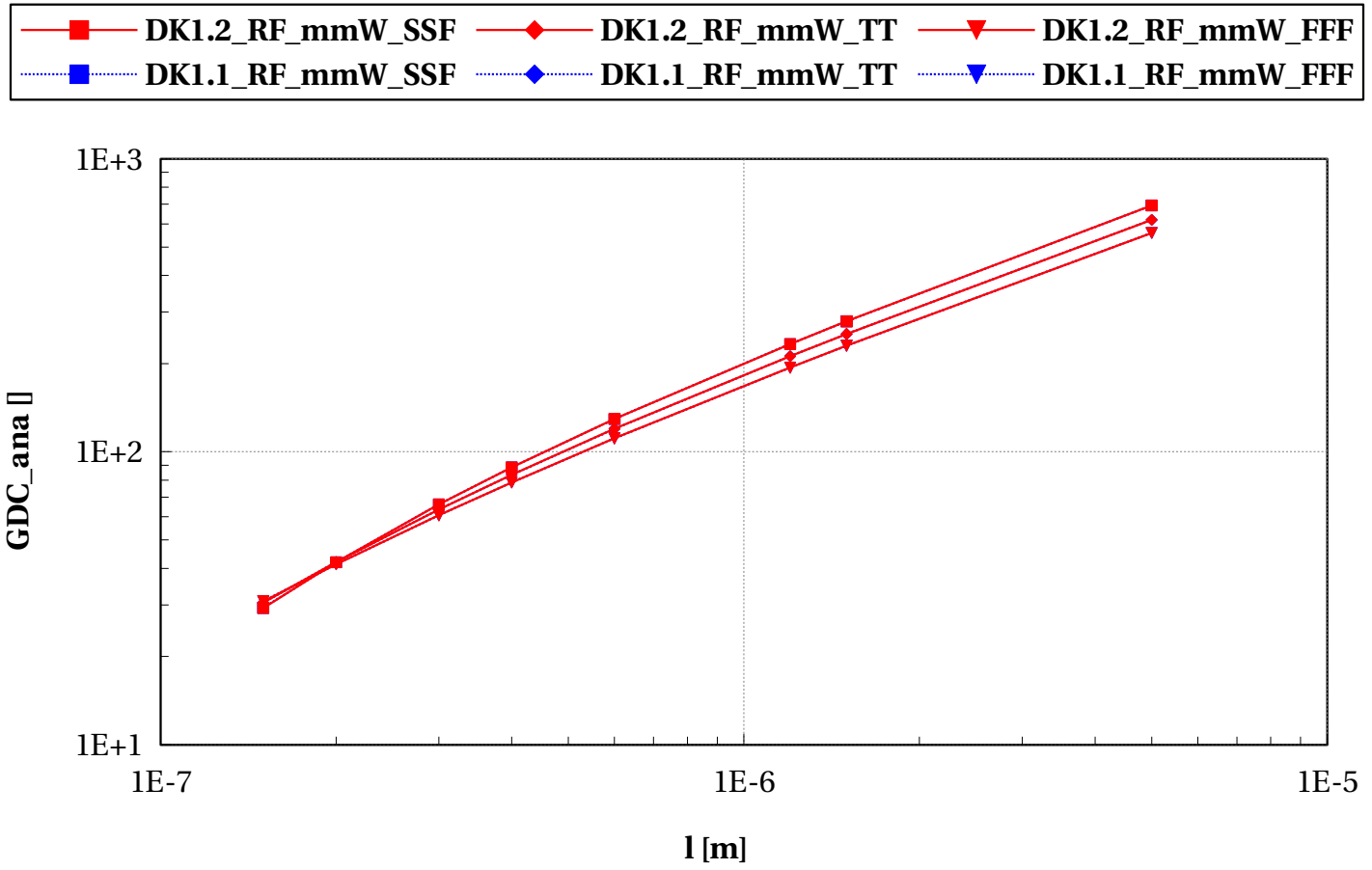
eglvtpfet_acc, Vgs_ana [mV] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



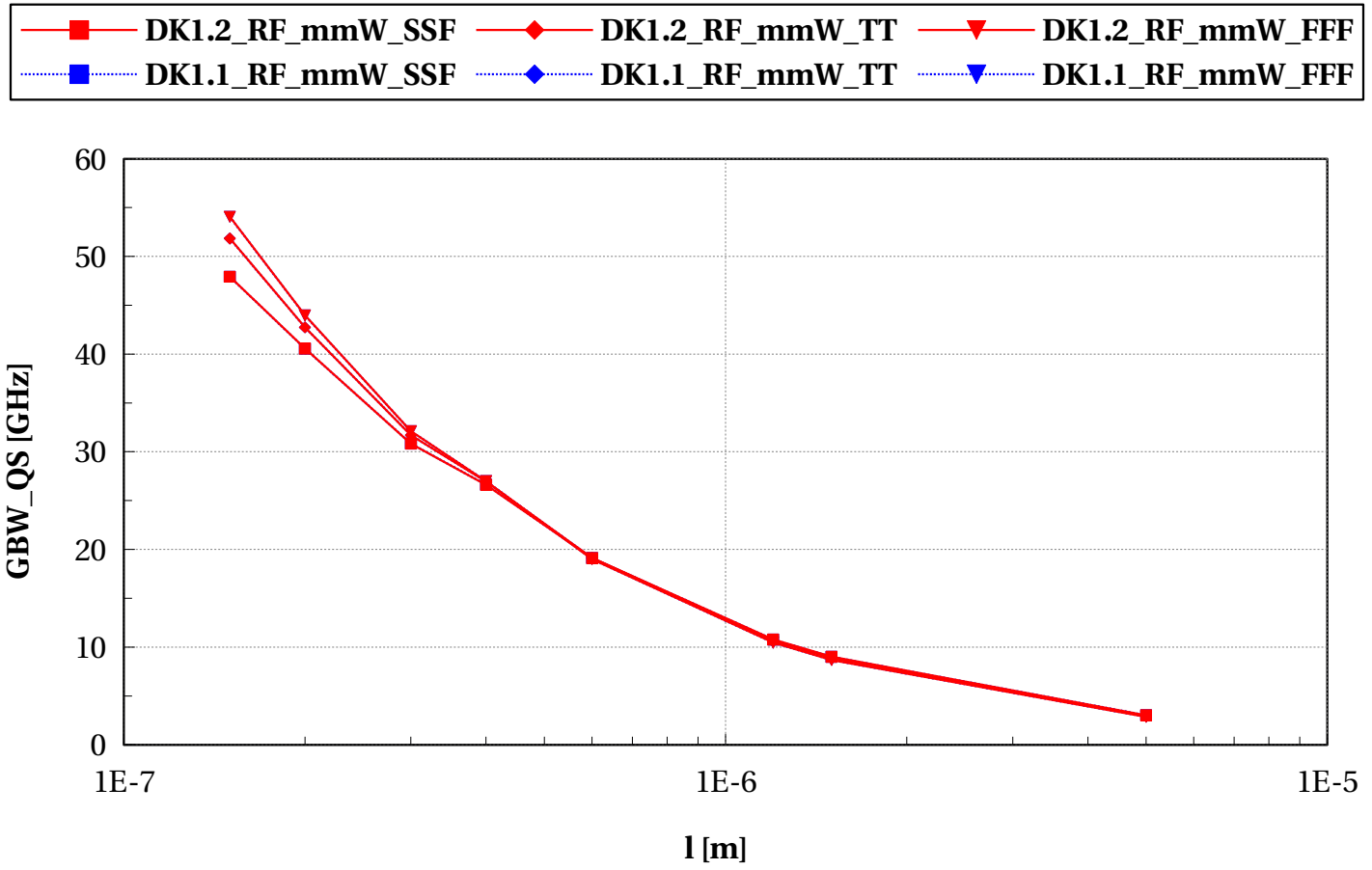
eglvtpfet_acc, GDC_ana [] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



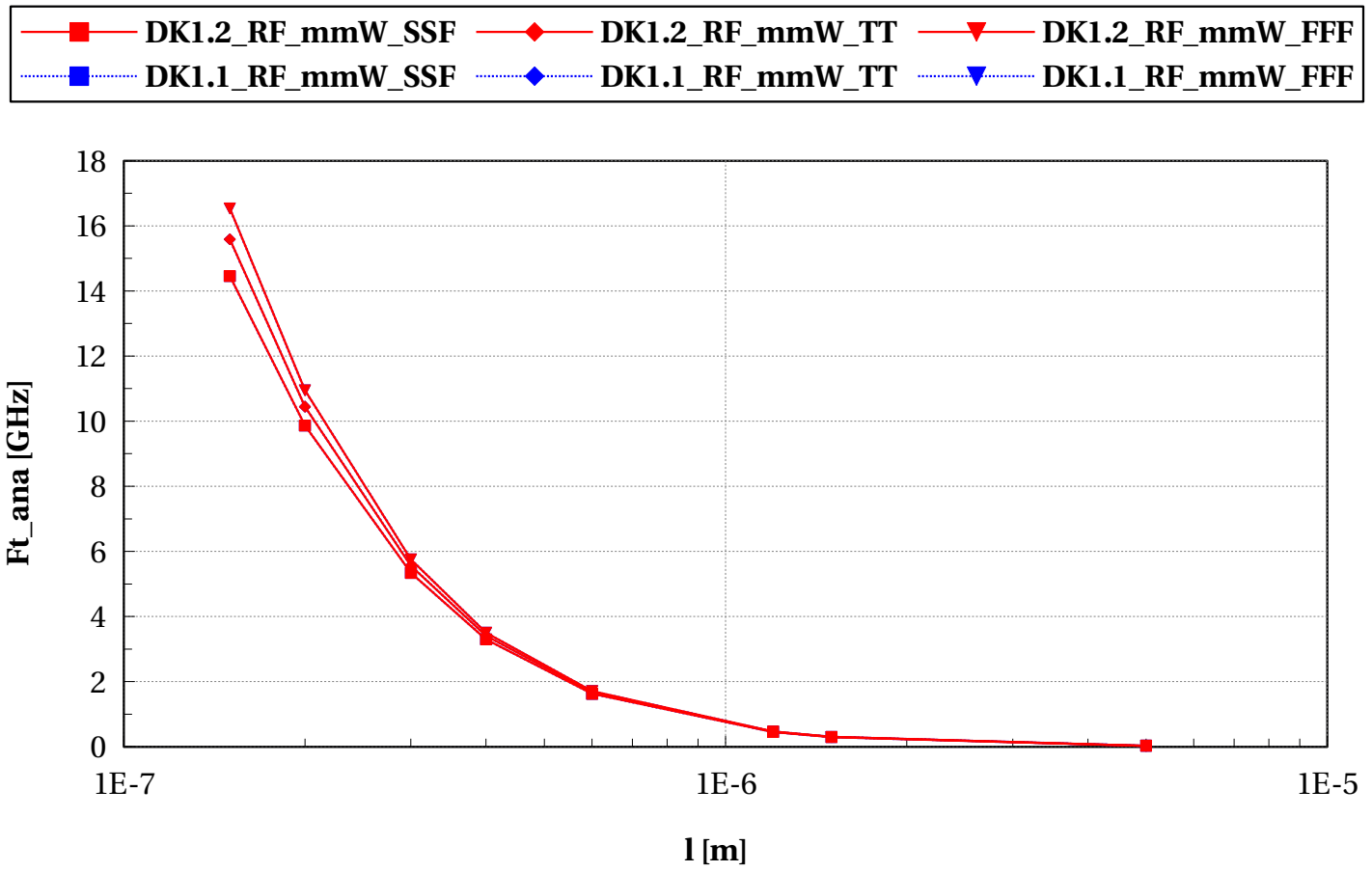
eglvtpfet_acc, GBW_QS [GHz] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



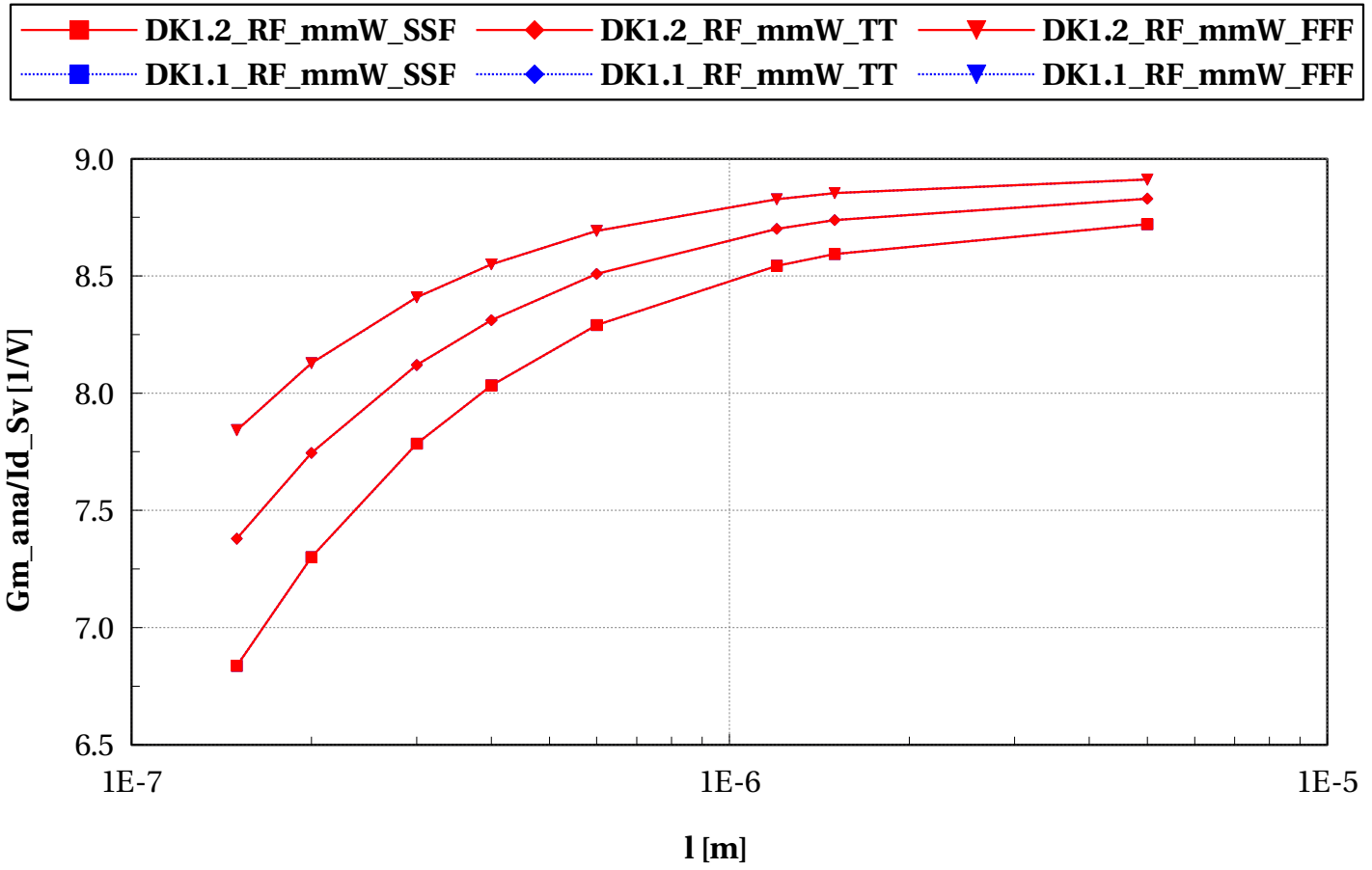
eglvtpfet_acc, Ft_ana [GHz] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



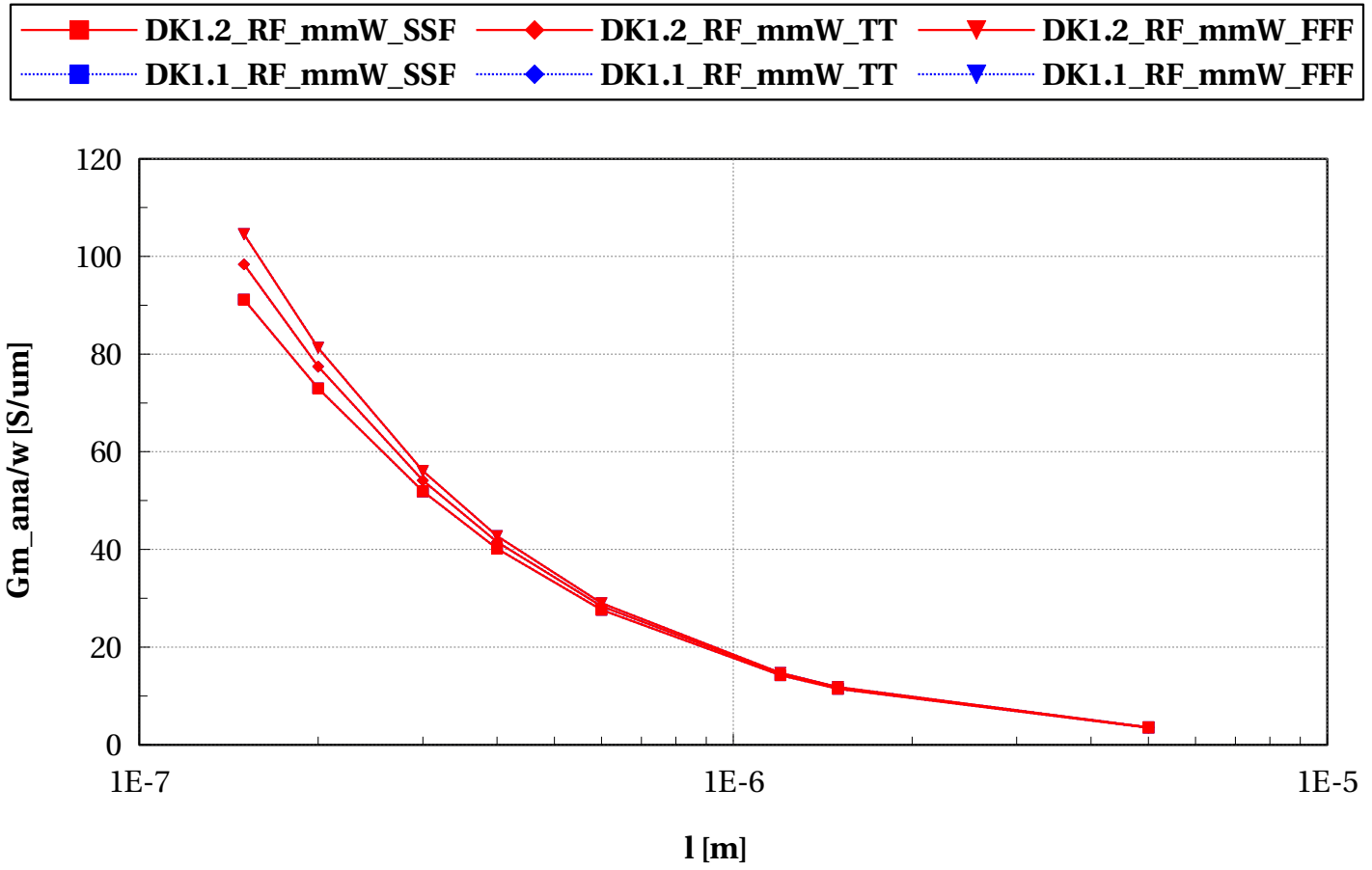
eglvtpfet_acc, Gm_ana/Id_Sv [1/V] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



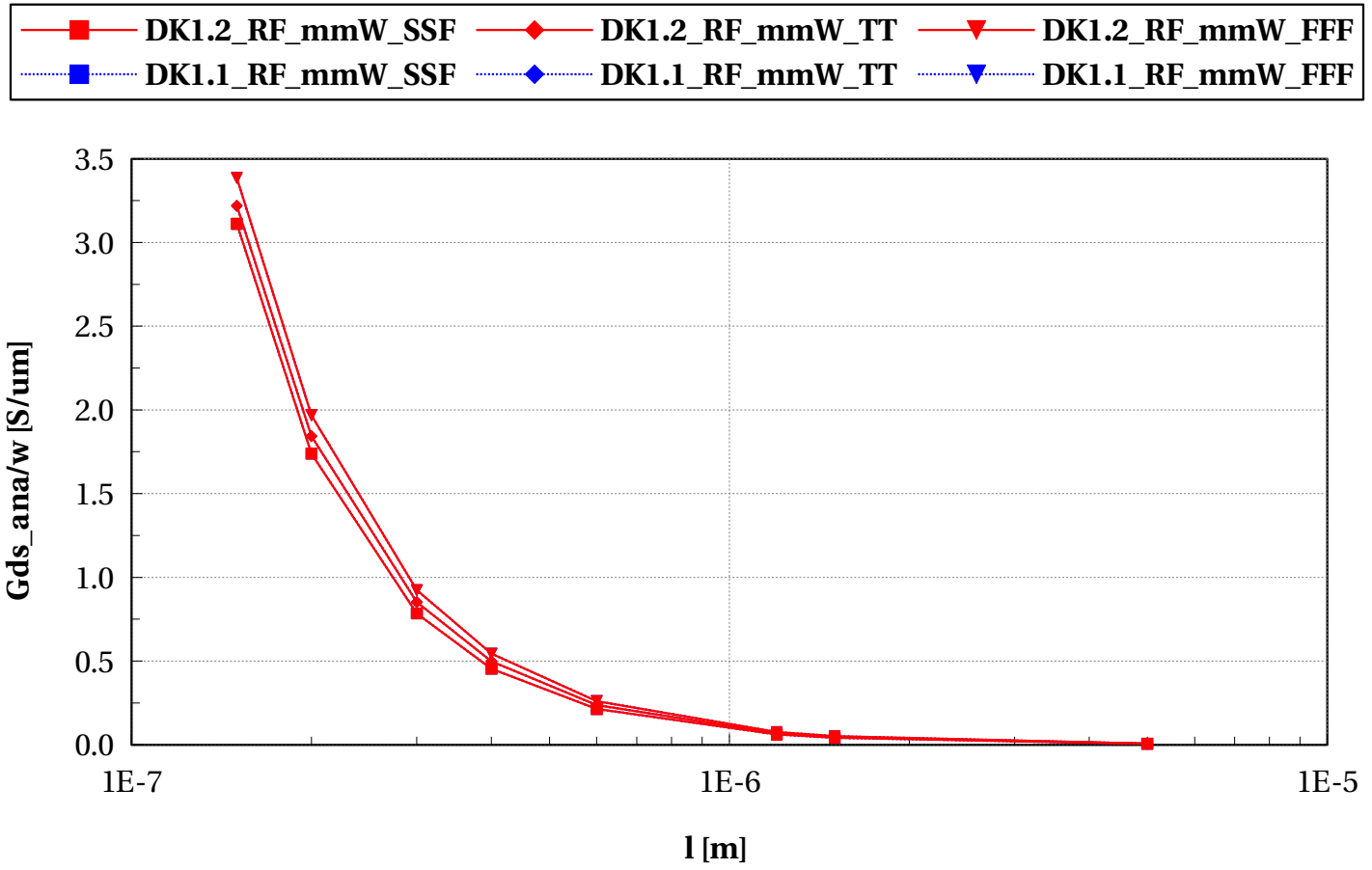
eglvtpfet_acc, Gm_ana/w [S/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



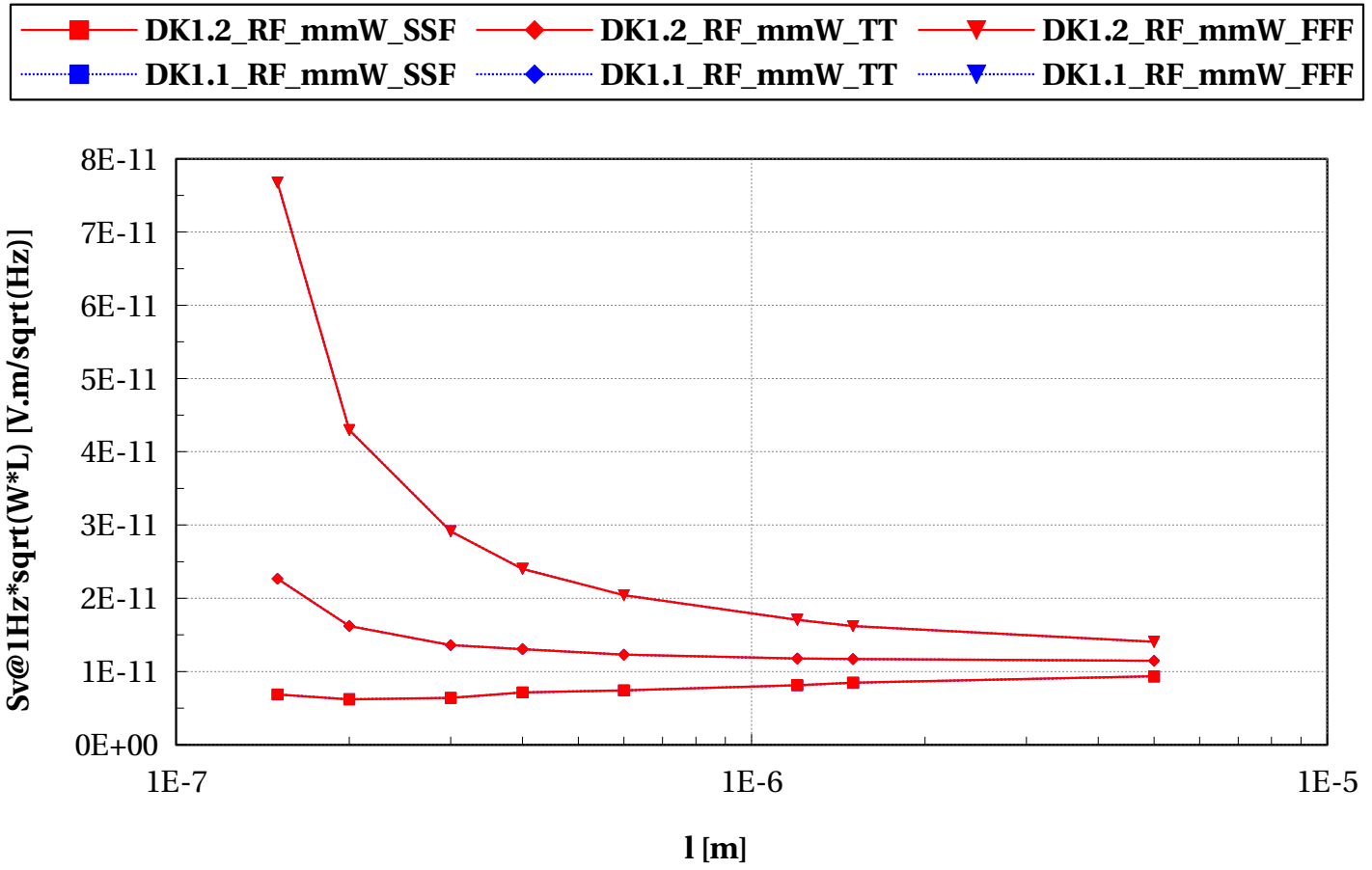
eglvtpfet_acc, Gds_ana/w [S/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



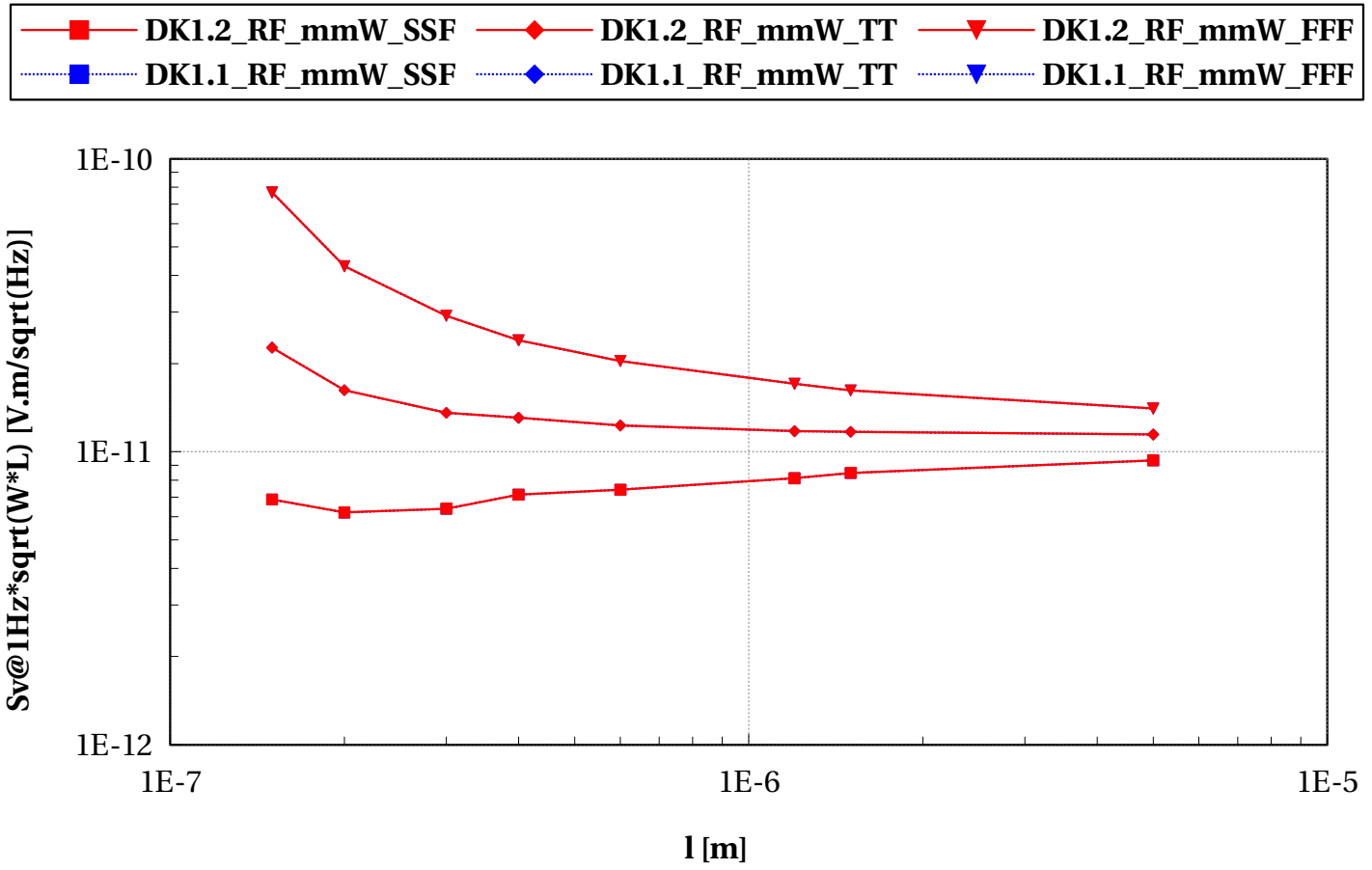
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



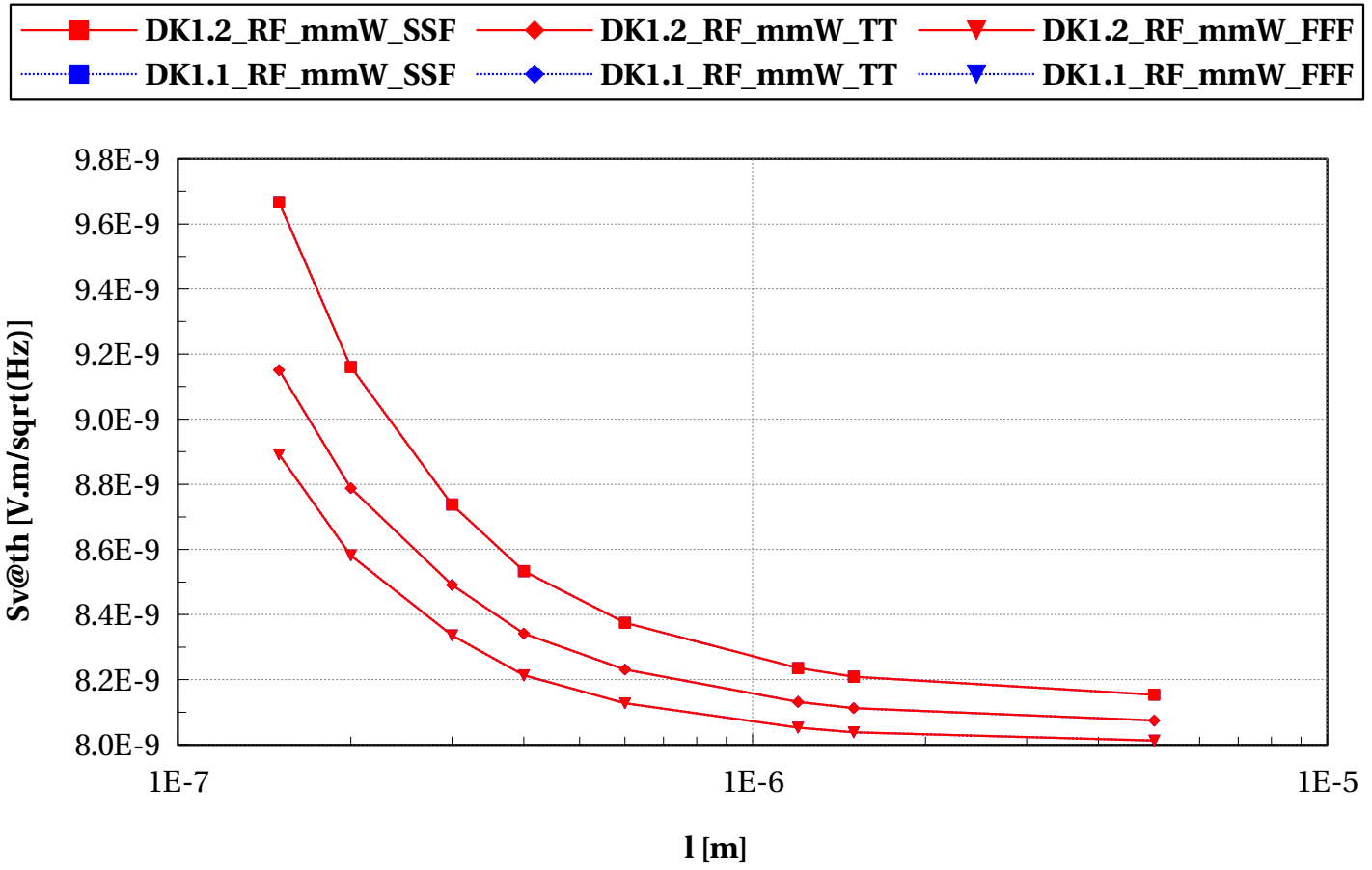
eglvtpfet_acc, Sv@1Hz*sqrt(W*L) [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



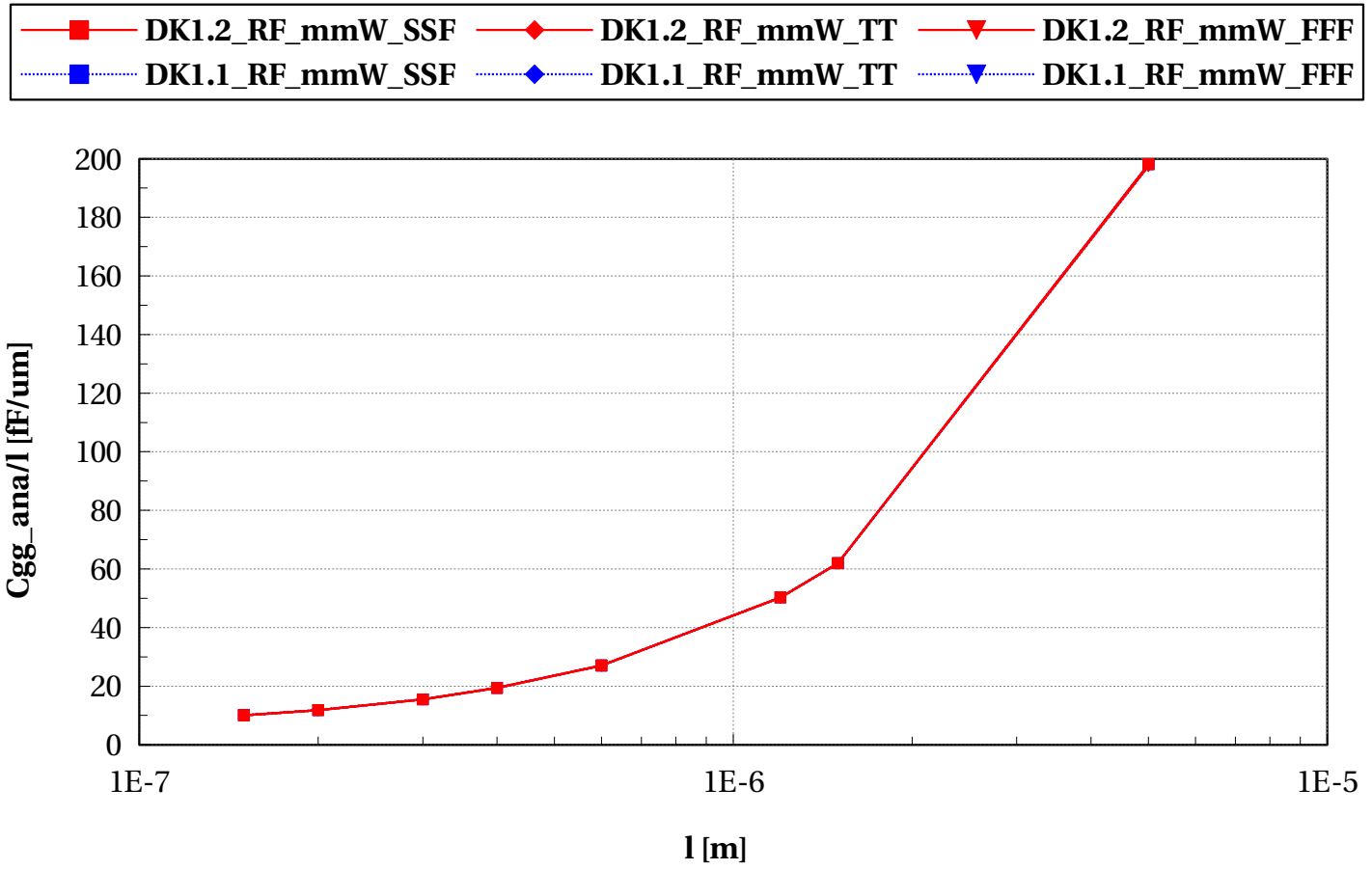
eglvtpfet_acc, Sv@th [V.m/sqrt(Hz)] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"

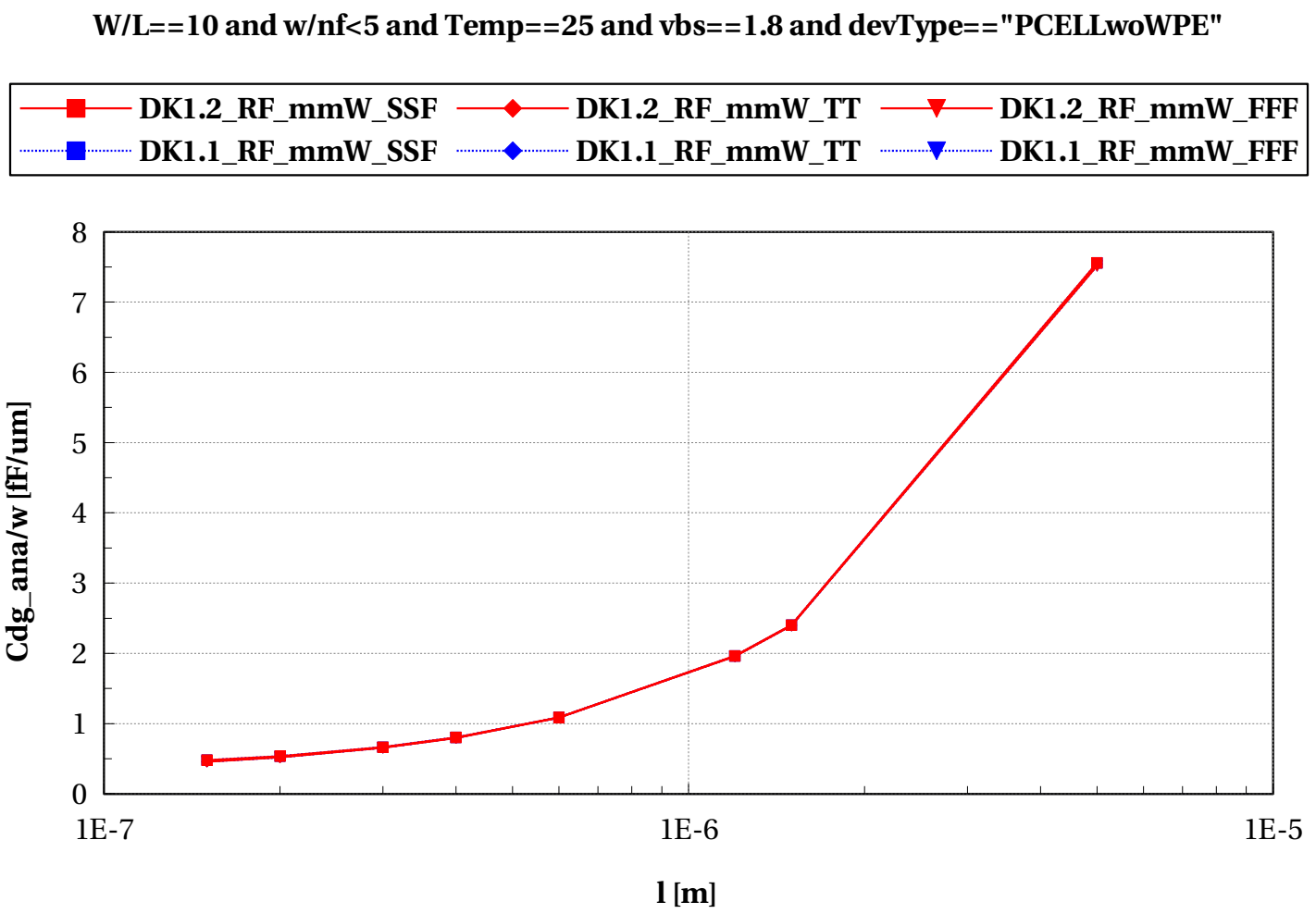


eglvtpfet_acc, Cgg_ana/l [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"

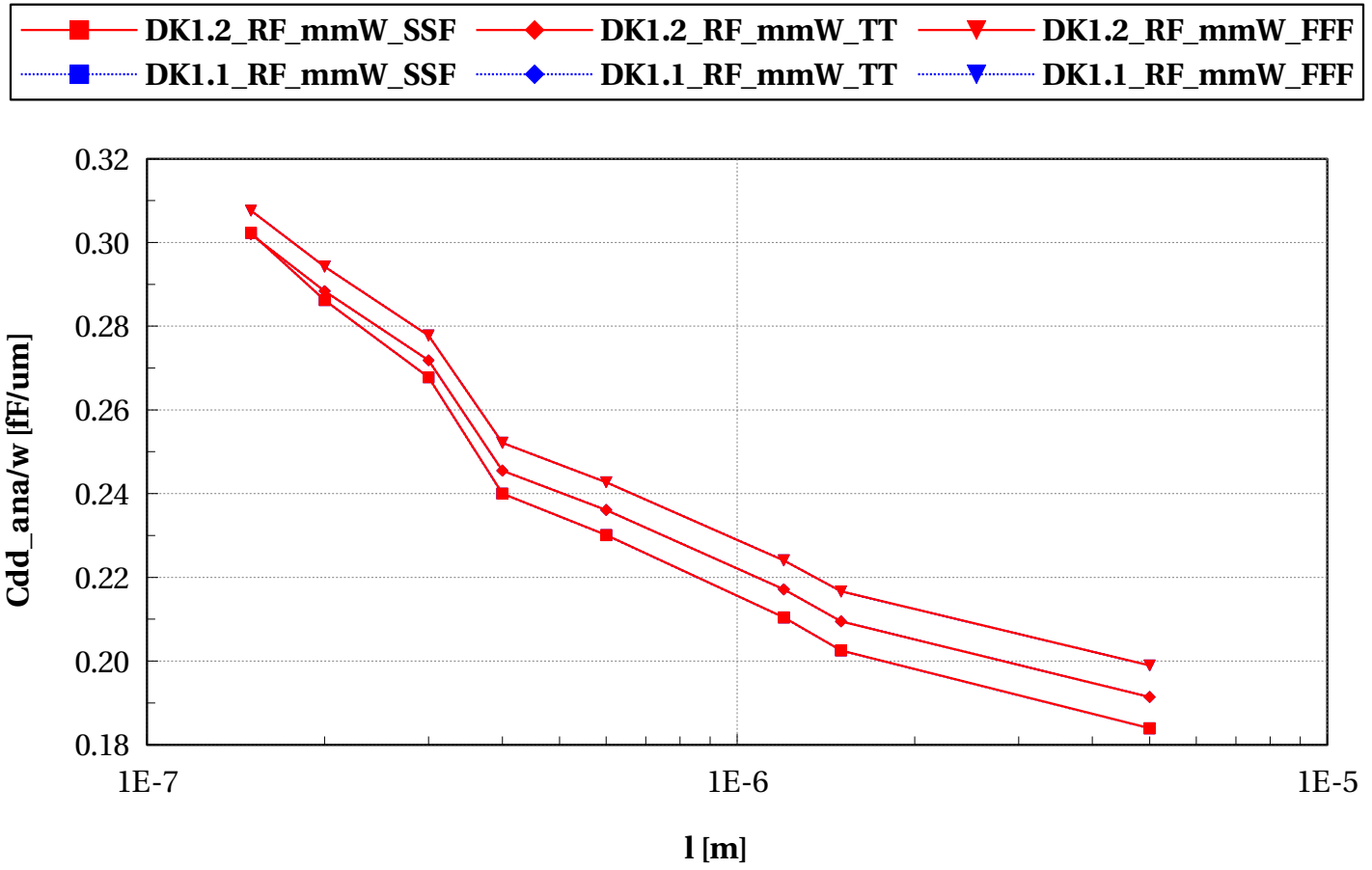


eglvtpfet_acc, Cdg_ana/w [fF/um] vs l [m]



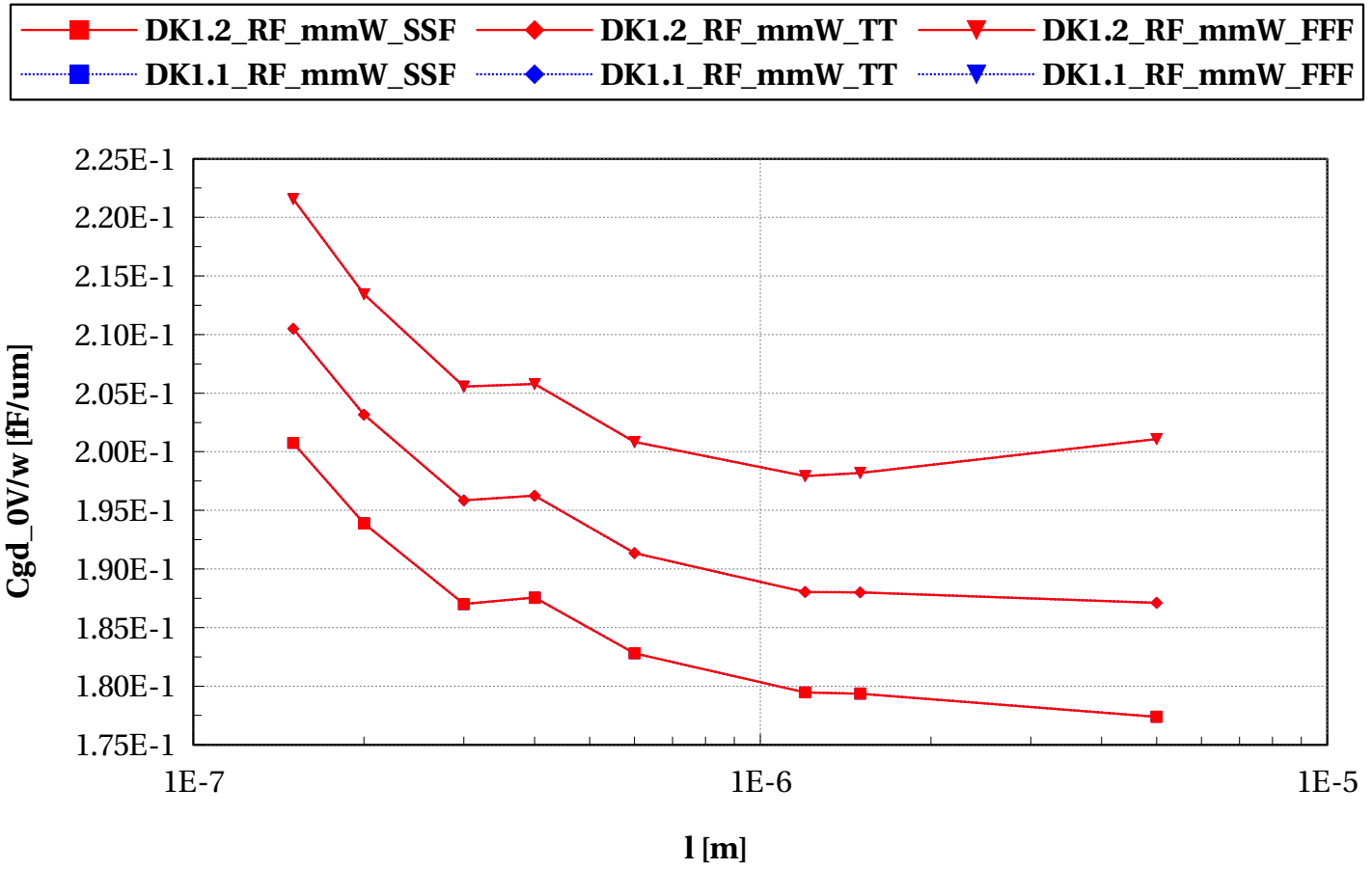
eglvtpfet_acc, Cdd_ana/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



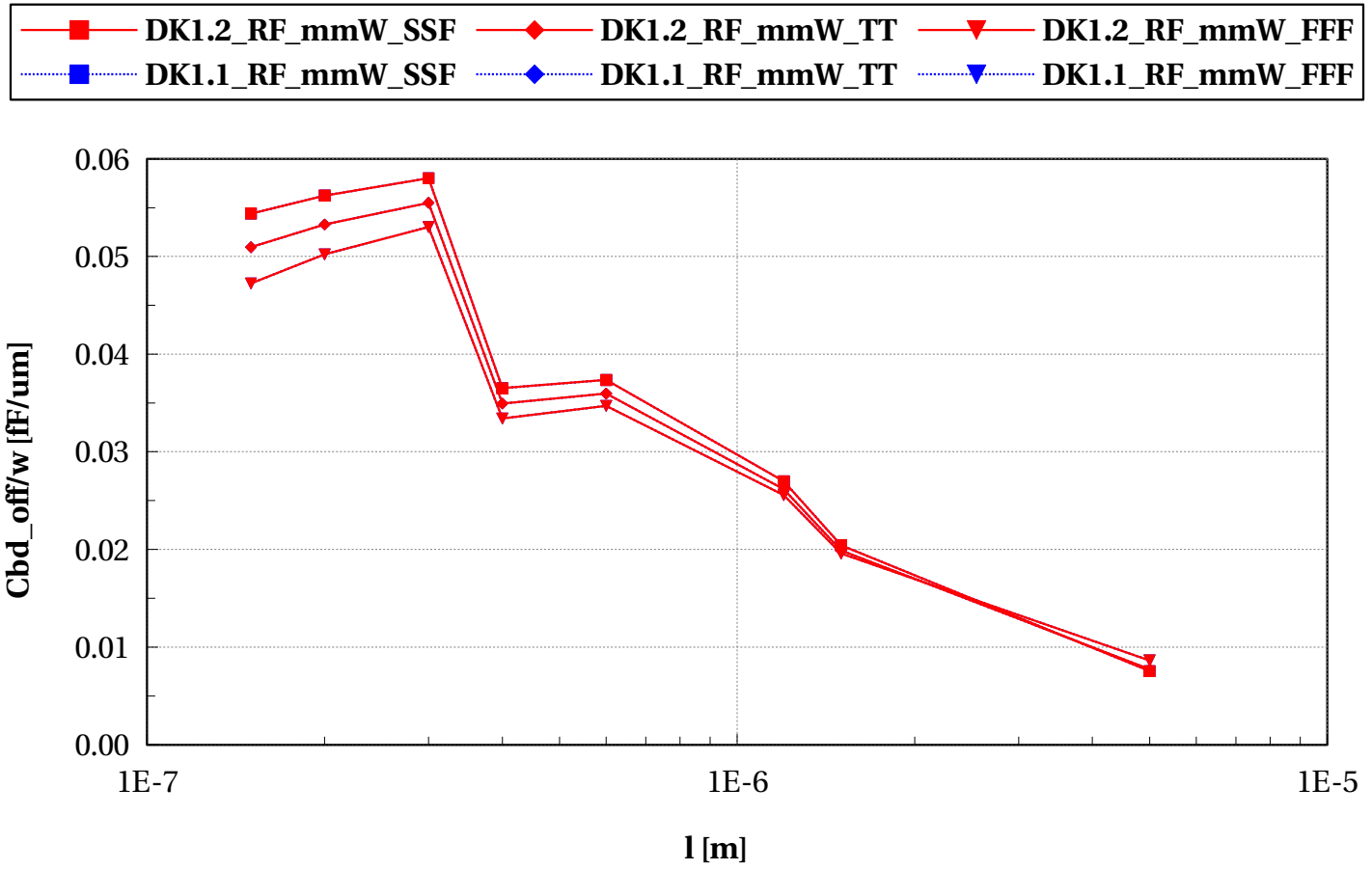
eglvtpfet_acc, Cgd_0V/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



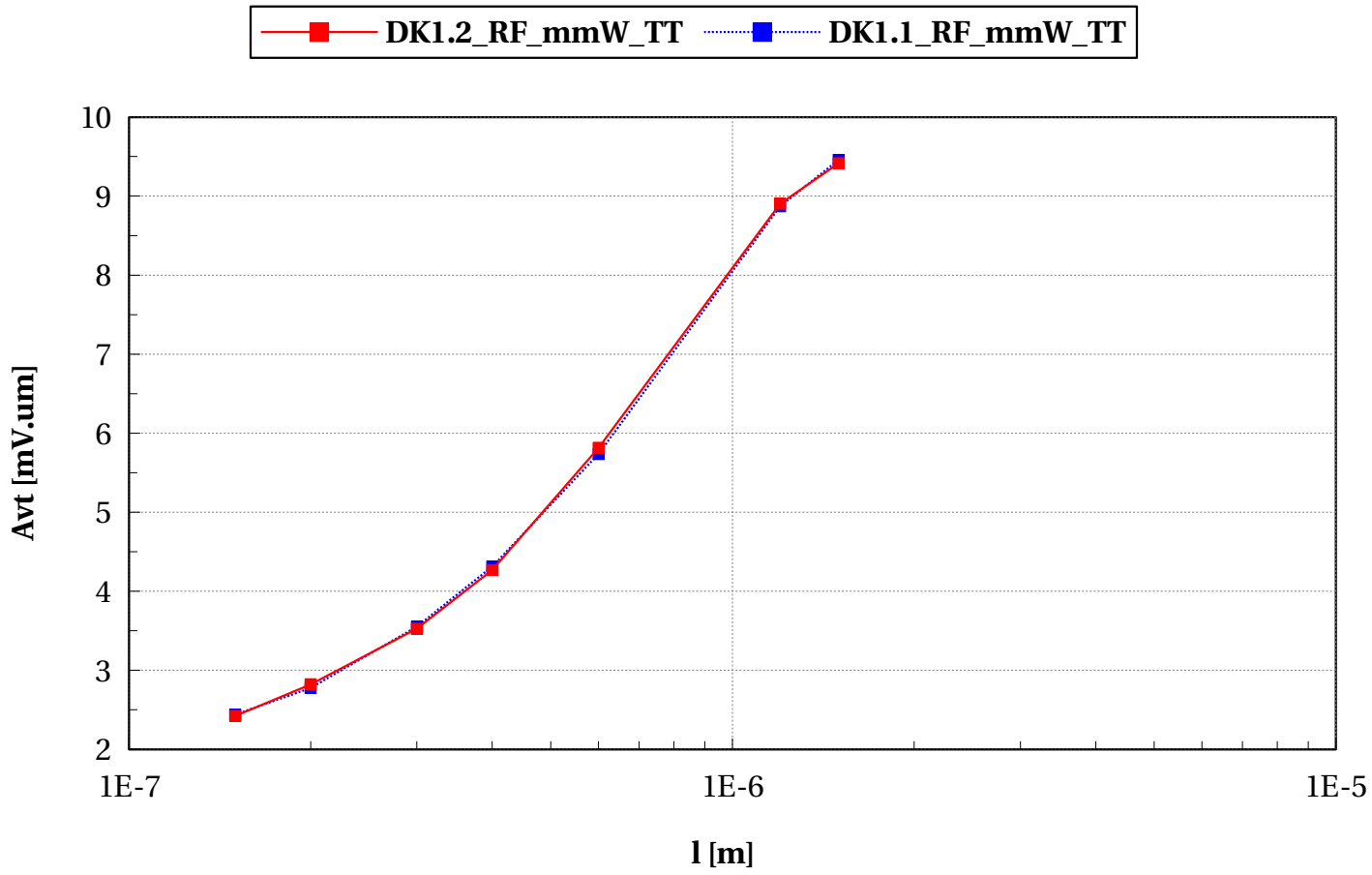
eglvtpfet_acc, Cbd_off/w [fF/um] vs l [m]

W/L==10 and w/nf<5 and Temp==25 and vbs==1.8 and devType=="PCELLwoWPE"



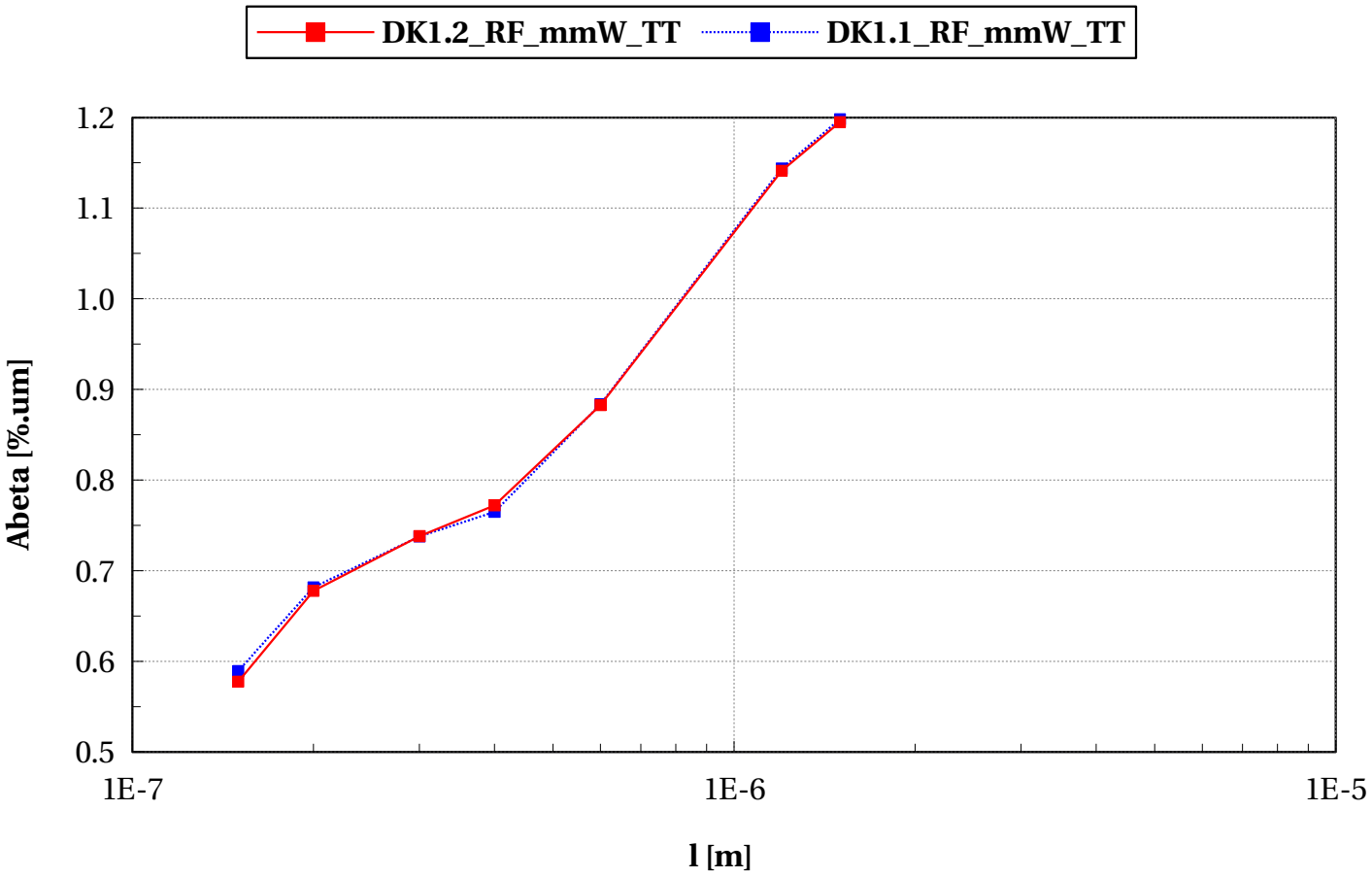
eglvtpfet_acc, Avt [mV.um] vs l [m]

L==10 and w/nf<5 and Temp==25 and vbs==1.8 and stratn==2 and l<5e-6 and devType=="PCELLwoWI



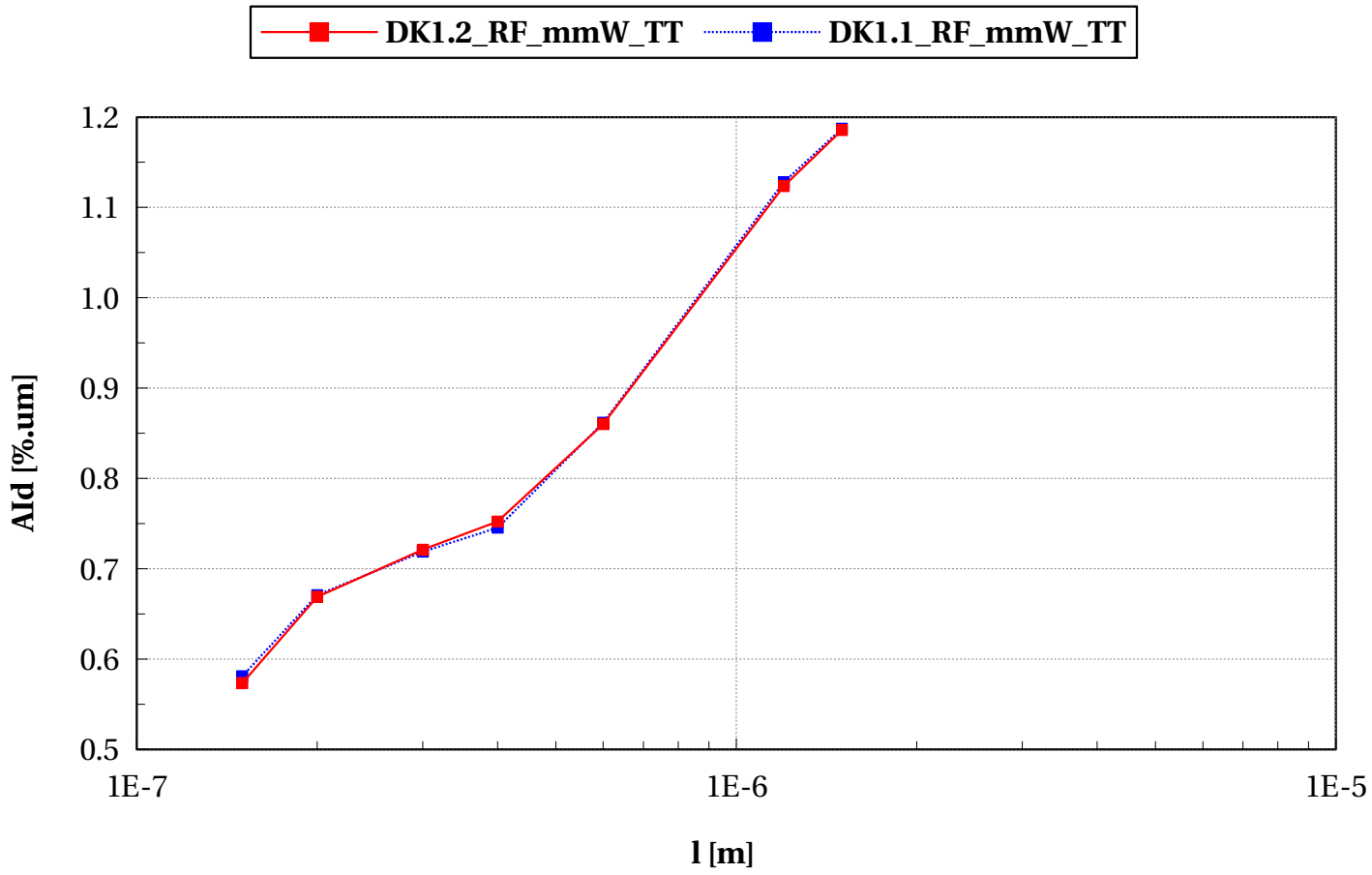
eglvtpfet_acc, Abeta [%.um] vs l [m]

L==10 and w/nf<5 and Temp==25 and vbs==1.8 and stratn==2 and l<5e-6 and devType=="PCELLwoWI



eglvtpfet_acc, AId [%.um] vs l [m]

L==10 and w/nf<5 and Temp==25 and vbs==1.8 and stratn==2 and l<5e-6 and devType=="PCELLwoWI



Annex

Conditions of simulations

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

- Model eglvtnfet_acc (DK1.2_RF_mmW)
  - ✔ Input Parameters
    - ✘ vds_off = vds_sat V
    - ✘ vds_cgd = 0 V
    - ✘ mc_sens = 0
    - ✘ vds_lin = 0.05 V
    - ✘ ivt = 300e-9 A
    - ✘ model_version = 1.2.e
    - ✘ vstep_ivt = 0.005 V
    - ✘ iana = 5e-6 A
    - ✘ vds_mm = 0.05 V
    - ✘ ams_release = 2018.3
    - ✘ vgs_stop = vdd V
    - ✘ dlshrink_ivt = 0
    - ✘ sbenchlsf_release = Alpha
    - ✘ vds_sat = Vdd V

- ✘ mc_nsigma = 3
- ✘ vgs_start = 0 V
- ✘ plashrink_ivt = 1
- ✘ ithslwi = 10e-9 A
- ✘ vds_ana = Vdd/4 V
- ✘ vds_cbd = 0 V
- ✘ vddmax = vdd
- ✘ mc_runs = 5000
- ✘ shrink_ivt = 1
- ✘ vgs_off = 0 V
- ✘ temp = 25 °C
- ✘ f_ext = 100k Hz
- ✘ vbs = 0 V
- ✘ vdd = 1.8 V

✔ Sweep Parameters

✔ Extra parameters

- ✘ eglvt_dev = 1

● Model eglvtpfet_acc (DK1.2_RF_mmW)

✔ Input Parameters

- ✘ vds_off = vds_sat V
- ✘ vds_cgd = 0 V
- ✘ mc_sens = 0
- ✘ vds_lin = 0.05 V
- ✘ ivt = 70e-9 A
- ✘ model_version = 1.2.e

- ✘ vstep_ivt = 0.005 V
- ✘ iana = 2e-6 A
- ✘ vds_mm = 0.05 V
- ✘ ams_release = 2018.3
- ✘ vgs_stop = vdd V
- ✘ dlshrink_ivt = 0
- ✘ sbenchlsf_release = Alpha
- ✘ vds_sat = Vdd V
- ✘ mc_nsigma = 3
- ✘ vgs_start = 0 V
- ✘ plashrink_ivt = 1
- ✘ ithslwi = 10e-9 A
- ✘ vds_ana = Vdd/4 V
- ✘ vds_cbd = 0 V
- ✘ vddmax = vdd
- ✘ mc_runs = 5000
- ✘ shrink_ivt = 1
- ✘ vgs_off = 0 V
- ✘ temp = 25 °C
- ✘ f_ext = 100k Hz
- ✘ vbs = 1.8 V
- ✘ vdd = 1.8 V

✔ Sweep Parameters

✔ Extra parameters

- ✘ eglvt_dev = 1

- Model eglvtnfet_acc (DK1.1_RF_mmW)
  - ✔ Input Parameters
    - ✘ vds_off = vds_sat V
    - ✘ vds_cgd = 0 V
    - ✘ mc_sens = 0
    - ✘ vds_lin = 0.05 V
    - ✘ ivt = 300e-9 A
    - ✘ model_version = 1.2.d
    - ✘ vstep_ivt = 0.005 V
    - ✘ iana = 5e-6 A
    - ✘ vds_mm = 0.05 V
    - ✘ ams_release = 2018.3
    - ✘ vgs_stop = vdd V
    - ✘ dlshrink_ivt = 0
    - ✘ sbenchlsf_release = Alpha
    - ✘ vds_sat = Vdd V
    - ✘ mc_nsigma = 3
    - ✘ vgs_start = 0 V
    - ✘ plashrink_ivt = 1
    - ✘ ithslwi = 10e-9 A
    - ✘ vds_ana = Vdd/4 V
    - ✘ vds_cbd = 0 V
    - ✘ vddmax = vdd
    - ✘ mc_runs = 5000
    - ✘ shrink_ivt = 1

- ✘ vgs_off = 0 V
- ✘ temp = 25 °C
- ✘ f_ext = 100k Hz
- ✘ vbs = 0 V
- ✘ vdd = 1.8 V

✔ Sweep Parameters

✔ Extra parameters

- ✘ eglvt_dev = 1

● Model eglvtpfet_acc (DK1.1_RF_mmW)

✔ Input Parameters

- ✘ vds_off = vds_sat V
- ✘ vds_cgd = 0 V
- ✘ mc_sens = 0
- ✘ vds_lin = 0.05 V
- ✘ ivt = 70e-9 A
- ✘ model_version = 1.2.d
- ✘ vstep_ivt = 0.005 V
- ✘ iana = 2e-6 A
- ✘ vds_mm = 0.05 V
- ✘ ams_release = 2018.3
- ✘ vgs_stop = vdd V
- ✘ dlshrink_ivt = 0
- ✘ sbenchlsf_release = Alpha
- ✘ vds_sat = Vdd V
- ✘ mc_nsigma = 3

- ✘ vgs_start = 0 V
- ✘ plashrink_ivt = 1
- ✘ ithslwi = 10e-9 A
- ✘ vds_ana = Vdd/4 V
- ✘ vds_cbd = 0 V
- ✘ vddmax = vdd
- ✘ mc_runs = 5000
- ✘ shrink_ivt = 1
- ✘ vgs_off = 0 V
- ✘ temp = 25 °C
- ✘ f_ext = 100k Hz
- ✘ vbs = 1.8 V
- ✘ vdd = 1.8 V

✔ Sweep Parameters

✔ Extra parameters

- ✘ eglvt_dev = 1