



cmos028fdsoi Technology



LVT models

DK1.2_RF_mmW

Comparison with DK1.1_RF_mmW model(s)

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General information on LVT models

- Maximum supply voltage is - V.
- Validity domain is defined as follows:
 - ✓ Drawn gate length varies from 30nm to 10um.
 - ✓ Drawn transistor width varies from 80nm to 10um.
 - ✓ Device temperature varies from -40 °C to 125 °C.

Output parameters definitions

- Model(s): lvtnfet_acc, lvtpfet_acc

- ✓ Vt_lin : Threshold voltage defined as Vgs value for which drain current is $ivt * M * 1 * W / (1 * L + 0 + 1 * p_{la})$ at $Vds = 0.05V$.
- ✓ Ig_on : Gate current at $Vds = 0V$ and $Vgs = 1V$.
- ✓ Gm_c : Drain transconductance at $Vgs = Vt_{lin} + 0.2$, $Vds = Vdd/2V$, $f = 100kHz$.
- ✓ Gd_c : Drain conductance at $Vgs = Vt_{lin} + 0.2$, $Vds = Vdd/2V$, $f = 100kHz$.
- ✓ Logioff : $\log_{10}(I_{offsat})$.
- ✓ Gain_c : Voltage gain defined as Gm_c / Gd_c .
- ✓ Ilin : Drain current at $Vgs = 1V$, $Vds = 0.05V$.
- ✓ Dibl : $Vt_{lin} - Vt_{sat}$.
- ✓ Cbd_off : Bulk-to-Drain capacitance at $Vgs = 0V$, $Vds = 0V$, $f = 100kHz$.
- ✓ Cgg_inv : Total gate capacitance at $Vgs = 1V$, $Vds = 0V$, $f = 100kHz$.
- ✓ Ioff_g : Gate current at $Vgs = 0V$, $Vds = vds_{satV}$.
- ✓ Vt_sat : Threshold voltage defined as Vgs value for which drain current is $ivt * M * 1 * W / (1 * L + 0 + 1 * p_{la})$ at $Vds = vds_{satV}$.
- ✓ Ieff : Average drain current ($I_{low} + I_{high}$) / 2.
- ✓ Cggmean : Average total gate capacitance for Vgs values between 0V and 1, $Vds = 0V$, $f = 100kHz$.
- ✓ Slp_sat : Sub-threshold slope at $Vds = vds_{satV}$, extracted from drain current vs. Vgs curve between its minimum and $ivt * M * W / L$.
- ✓ Isat : Drain current at $Vgs = 1V$, $Vds = VddV$.
- ✓ Slp_lin : Sub-threshold slope at $Vds = 0.05V$, extracted from drain current vs. Vgs curve between its minimum and $ivt * M * W / L$.
- ✓ Cgd_0v : Gate-to-Drain capacitance at $Vgs = 0V$, $Vds = 0V$, $f = 100kHz$.

- ✓ $V_{tgmm\max}$: Threshold voltage at $V_{ds} = 0.05$ derived from Gm max method.

lvtnfet_acc

Electrical characteristics per geometry

lvtnfet_acc @ w=1e-6, l=1e-6, swshe=0, pre_layout_local=1, p_la=0, sa=2.325e-06, sb=2.325e-06, sd=1.140e-07, pcpastrx_top=3.2e-07, pcpastrx_bot=3.2e-07, devtype=PT, as=2.325e-12, ad=2.325e-12, ps=6.65e-06, pd=6.65e-06, vbs=0, vdd=1, temp=25.0

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	452.2 0.0mV	425.1 0.0mV	418.3 0.0mV	410.7 0.0mV	386.3 0.0mV
Ilin [μA]	12.27 0.0%	13.38 0.0%	14.12 0.0%	14.91 0.0%	15.88 0.0%
Slp_lin [mV/dec]	66.98 0.0%	66.63 0.0%	66.24 0.0%	65.9 0.0%	65.87 0.0%
VtGmmax [mV]	482 0.0mV	456.2 0.0mV	450.6 0.0mV	444.6 0.0mV	422.2 0.0mV
DIBL [mV]	8.94 0.0mV	8.88 0.0mV	8.67 0.0mV	8.43 0.0mV	8.33 0.0mV
Vt_sat [mV]	443.2 0.0mV	416.2 0.0mV	409.6 0.0mV	402.3 0.0mV	378 0.0mV
Isat [μA]	64.66 0.0%	73.25 0.0%	78.62 0.0%	84.5 0.0%	93.01 0.0%
Slp_sat [mV/dec]	65.29 0.0%	64.88 0.0%	64.7 0.0%	64.6 0.0%	64.67 0.0%
LogIoff [log(A)]	-13.12 -0.0%	-12.75 -0.0%	-12.59 -0.0%	-12.13 -0.0%	-11.8 -0.0%
Ieff [μA]	32.32 0.0%	36.74 0.0%	39.41 0.0%	42.34 0.0%	46.81 0.0%
Ig_on [nA]	0.24 0.0%	0.39 0.0%	1.42 0.0%	9.77 0.0%	7.27 0.0%
Ioff_g [fA]	-3.28 -0.0%	-6.63 -0.0%	-57.1 -0.0%	-493 -0.0%	-989.9 -0.0%
Gm_c [μS]	80.79 0.0%	83.36 0.0%	87.34 0.0%	91.35 0.0%	92.73 0.0%
Gd_c [nS]	140.4 0.0%	140.7 0.0%	164.2 0.0%	189.7 0.0%	192.1 0.0%
Gain_c []	575.3 0.0%	592.5 0.0%	531.8 0.0%	481.6 0.0%	482.8 0.0%
CGd_0V [aF]	205.9 0.0%	208.7 0.0%	216.3 0.0%	224.4 0.0%	230.9 0.0%

Cgg_inv [fF]	16.98 0.0%	17.31 0.0%	18.21 0.0%	19.21 0.0%	19.48 0.0%
Cggmean [fF]	8.84 0.0%	9.46 0.0%	9.93 0.0%	10.43 0.0%	10.92 0.0%
Cbd_off [fF]	2.58 0.0%	2.55 0.0%	2.48 0.0%	2.42 0.0%	2.39 0.0%

**lvtnfet_acc @ w=0.21e-6, l=0.03e-6, swshe=0, pre_layout_local=1, p_la=0,
sa=1.588e-06, sb=1.588e-06, sd=1.140e-07, pcpastrx_top=3.2e-07,
pcpastrx_bot=3.2e-07, devtype=PT, as=3.3348e-13, ad=3.3348e-13, ps=3.596e-06,
pd=3.596e-06, vbs=0, vdd=1, temp=25.0**

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	395.8 0.0mV	375.6 0.0mV	362.9 0.0mV	350.9 0.0mV	328.9 0.0mV
Ilin [μA]	24.82 0.0%	28.69 0.0%	30.7 0.0%	32.99 0.0%	37.5 0.0%
Slp_lin [mV/dec]	90.13 0.0%	89.62 0.0%	91.62 0.0%	94.4 0.0%	94.6 0.0%
VtGmmax [mV]	345.9 0.0mV	334.4 0.0mV	326.2 0.0mV	318.9 0.0mV	303 0.0mV
DIBL [mV]	75.92 0.0mV	74.88 0.0mV	87.52 0.0mV	104.4 0.0mV	107 0.0mV
Vt_sat [mV]	319.8 0.0mV	300.7 0.0mV	275.4 0.0mV	246.4 0.0mV	221.8 0.0mV
Isat [μA]	164.8 0.0%	176.7 0.0%	193.2 0.0%	208.9 0.0%	223.8 0.0%
Slp_sat [mV/dec]	77.8 0.0%	77.36 0.0%	80.01 0.0%	83.72 0.0%	84.78 0.0%
LogIoff [log(A)]	-9.41 -0.0%	-9.18 -0.0%	-8.78 -0.0%	-8.33 -0.0%	-8.04 -0.0%
Ieff [μA]	84.85 0.0%	94.27 0.0%	105.1 0.0%	116.5 0.0%	129 0.0%
Ig_on [pA]	2.19 0.0%	2.7 0.0%	7.66 0.0%	41.81 0.0%	28.5 0.0%
Ioff_g [fA]	-0.72 -0.0%	-1.5 -0.0%	-13.17 -0.0%	-114.9 -0.0%	-238 -0.0%
Gm_c [μS]	247 0.0%	267.3 0.0%	288.1 0.0%	307.6 0.0%	323.7 0.0%
Gd_c [μS]	19.24 0.0%	20.78 0.0%	26.43 0.0%	33.35 0.0%	35.64 0.0%
Gain_c []	12.84 0.0%	12.86 0.0%	10.9 0.0%	9.22 0.0%	9.08 0.0%
CGd_0V [aF]	50.67 0.0%	52.38 0.0%	54.25 0.0%	56.27 0.0%	58.8 0.0%

Cgg_inv [aF]	202.9 0.0%	205.5 0.0%	206.9 0.0%	209.7 0.0%	218.7 0.0%
Cggmean [aF]	162.5 0.0%	167 0.0%	169.2 0.0%	172.2 0.0%	180.6 0.0%
Cbd_off [aF]	370.3 0.0%	365.4 0.0%	356.2 0.0%	347.4 0.0%	343.1 0.0%

**lvtnfet_acc @ w=0.21e-6, l=0.03e-6, swshe=0, pre_layout_local=1, p_la=0,
sa=1.588e-06, sb=1.588e-06, sd=1.140e-07, pcpastrx_top=3.2e-07,
pcpastrx_bot=3.2e-07, devtype=PT, as=3.3348e-13, ad=3.3348e-13, ps=3.596e-06,
pd=3.596e-06, vbs=0, vdd=1, temp=125.0**

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	342.1 0.0mV	319.6 0.0mV	305.4 0.0mV	291.9 0.0mV	269.1 0.0mV
Ilin [μA]	21.81 0.0%	25.41 0.0%	27.27 0.0%	29.3 0.0%	33.04 0.0%
Slp_lin [mV/dec]	122.8 0.0%	120.9 0.0%	123.5 0.0%	127.2 0.0%	127.5 0.0%
VtGmmax [mV]	281.5 0.0mV	270.4 0.0mV	262.1 0.0mV	254.6 0.0mV	238.9 0.0mV
DIBL [mV]	85.77 0.0mV	84.12 0.0mV	96.52 0.0mV	113.3 0.0mV	115.8 0.0mV
Vt_sat [mV]	256.3 0.0mV	235.5 0.0mV	208.8 0.0mV	178.6 0.0mV	153.3 0.0mV
Isat [μA]	150.9 0.0%	161.8 0.0%	177 0.0%	191.8 0.0%	205 0.0%
Slp_sat [mV/dec]	102.4 0.0%	101.8 0.0%	105.2 0.0%	109.8 0.0%	111.2 0.0%
LogIoff [log(A)]	-7.9 -0.0%	-7.72 -0.0%	-7.42 -0.0%	-7.1 -0.0%	-6.88 -0.0%
Ieff [μA]	80.94 0.0%	90.27 0.0%	100.4 0.0%	110.9 0.0%	121.9 0.0%
Ig_on [pA]	3.88 0.0%	4.8 0.0%	13.56 0.0%	73.58 0.0%	50.23 0.0%
Ioff_g [fA]	-1.44 -0.0%	-3 -0.0%	-26.18 -0.0%	-229.1 -0.0%	-472.8 -0.0%
Gm_c [μS]	194.4 0.0%	210.3 0.0%	226.6 0.0%	242.3 0.0%	253.7 0.0%
Gd_c [μS]	14.54 0.0%	15.53 0.0%	19.76 0.0%	25.11 0.0%	26.77 0.0%
Gain_c []	13.37 0.0%	13.54 0.0%	11.47 0.0%	9.65 0.0%	9.48 0.0%
CGd_0V [aF]	51.56 0.0%	53.28 0.0%	55.23 0.0%	57.35 0.0%	60.08 0.0%

Cgg_inv [aF]	201.3 0.0%	204 0.0%	205.3 0.0%	208.1 0.0%	217 0.0%
Cggmean [aF]	163.4 0.0%	167.8 0.0%	169.8 0.0%	172.6 0.0%	180.9 0.0%
Cbd_off [aF]	370.4 0.0%	365.5 0.0%	356.3 0.0%	347.4 0.0%	343.3 0.0%

lvtpfet_acc

Electrical characteristics per geometry

lvtpfet_acc @ w=1e-6, l=1e-6, swshe=0, pre_layout_local=1, p_la=0, sa=2.325e-06, sb=2.325e-06, sd=1.140e-07, pcpastrx_top=3.2e-07, pcpastrx_bot=3.2e-07, devtype=PT, as=2.325e-12, ad=2.325e-12, ps=6.65e-06, pd=6.65e-06, vbs=1, vdd=1, temp=25.0

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	453 0.0mV	420.2 0.0mV	422.3 0.0mV	416.6 0.0mV	392.3 0.0mV
Ilin [μA]	3.47 0.0%	3.9 0.0%	4 0.0%	4.16 0.0%	4.59 0.0%
Slp_lin [mV/dec]	68.51 0.0%	68.55 0.0%	68.24 0.0%	68.02 0.0%	68.05 0.0%
VtGmmax [mV]	503.3 0.0mV	475.6 0.0mV	478 0.0mV	473.5 0.0mV	455.3 0.0mV
DIBL [mV]	9.96 0.0mV	9.78 0.0mV	9.64 0.0mV	9.54 0.0mV	9.4 0.0mV
Vt_sat [mV]	443 0.0mV	410.4 0.0mV	412.6 0.0mV	407 0.0mV	382.9 0.0mV
Isat [μA]	17.84 0.0%	21.24 0.0%	21.8 0.0%	22.86 0.0%	26.32 0.0%
Slp_sat [mV/dec]	66.05 0.0%	66.26 0.0%	66.19 0.0%	66.31 0.0%	66.71 0.0%
LogIoff [log(A)]	-12.46 -0.0%	-12.26 -0.0%	-11.71 -0.0%	-10.97 -0.0%	-10.55 -0.0%
Ieff [μA]	8.86 0.0%	10.57 0.0%	10.83 0.0%	11.35 0.0%	13.09 0.0%
Ig_on [pA]	33.34 0.0%	42.84 0.0%	144.3 0.0%	935.9 0.0%	619.8 0.0%
Ioff_g [pA]	-0.3 -0.0%	-0.41 -0.0%	-1.16 -0.0%	-3.29 -0.0%	-4.46 -0.0%
Gm_c [μS]	21.44 0.0%	22.27 0.0%	23.12 0.0%	23.84 0.0%	24.59 0.0%
Gd_c [nS]	45.62 0.0%	47.37 0.0%	55.02 0.0%	63.06 0.0%	64.51 0.0%
Gain_c []	470 0.0%	470 0.0%	420.2 0.0%	378.1 0.0%	381.1 0.0%
CGd_0V [aF]	220.1 0.0%	226.7 0.0%	233.7 0.0%	242 0.0%	248 0.0%

Cgg_inv [fF]	16.59 0.0%	16.63 0.0%	17.26 0.0%	17.97 0.0%	18.03 0.0%
Cggmean [fF]	8.52 0.0%	8.77 0.0%	8.95 0.0%	9.21 0.0%	9.39 0.0%
Cbd_off [fF]	2.58 0.0%	2.55 0.0%	2.48 0.0%	2.42 0.0%	2.39 0.0%

**lvtpfet_acc @ w=0.3e-6, l=0.03e-6, swshe=0, pre_layout_local=1, p_la=0,
sa=1.588e-06, sb=1.588e-06, sd=1.140e-07, pcpastrx_top=3.2e-07,
pcpastrx_bot=3.2e-07, devtype=PT, as=4.764e-13, ad=4.764e-13, ps=3.776e-06,
pd=3.776e-06, vbs=1, vdd=1, temp=25.0**

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	382 0.0mV	364.3 0.0mV	348.3 0.0mV	328.6 0.0mV	312.8 0.0mV
Ilin [μA]	14.93 0.0%	16.31 0.0%	17.4 0.0%	18.39 0.0%	20.31 0.0%
Slp_lin [mV/dec]	104.4 0.0%	106.6 0.0%	115.8 0.0%	127.6 0.0%	130.4 0.0%
VtGmmax [mV]	378.3 0.0mV	368.7 0.0mV	359.8 0.0mV	348.2 0.0mV	345.7 0.0mV
DIBL [mV]	103.6 0.0mV	107.8 0.0mV	136.8 0.0mV	174.7 0.0mV	182.4 0.0mV
Vt_sat [mV]	278.4 0.0mV	256.5 0.0mV	211.6 0.0mV	153.9 0.0mV	130.4 0.0mV
Isat [μA]	111.9 0.0%	123.3 0.0%	133.8 0.0%	143.1 0.0%	160.7 0.0%
Slp_sat [mV/dec]	81.75 0.0%	82.86 0.0%	87.14 0.0%	92.75 0.0%	95.14 0.0%
LogIoff [log(A)]	-9.16 -0.0%	-8.85 -0.0%	-8.24 -0.0%	-7.57 -0.0%	-7.31 -0.0%
Ieff [μA]	52.68 0.0%	57.73 0.0%	64.19 0.0%	71.32 0.0%	78.34 0.0%
Ig_on [pA]	0.29 0.0%	0.37 0.0%	1.06 0.0%	5.82 0.0%	3.88 0.0%
Ioff_g [pA]	-8.07e-02 -0.0%	-0.11 -0.0%	-0.31 -0.0%	-0.89 -0.0%	-1.22 -0.0%
Gm_c [μS]	139.3 0.0%	135.5 0.0%	145 0.0%	152.3 0.0%	149.3 0.0%
Gd_c [μS]	14.08 0.0%	13.87 0.0%	18.82 0.0%	25.07 0.0%	25.06 0.0%
Gain_c []	9.89 0.0%	9.77 0.0%	7.7 0.0%	6.08 0.0%	5.96 0.0%
CGd_0V [aF]	73.74 0.0%	75.61 0.0%	77.8 0.0%	80.31 0.0%	82.29 0.0%

Cgg_inv [aF]	273.7 0.0%	282.5 0.0%	274.4 0.0%	269.9 0.0%	276.3 0.0%
Cggmean [aF]	217.6 0.0%	224.3 0.0%	220.5 0.0%	218.7 0.0%	223.8 0.0%
Cbd_off [aF]	529.4 0.0%	522.6 0.0%	509.3 0.0%	496.7 0.0%	490.7 0.0%

**lvtpfet_acc @ w=0.3e-6, l=0.03e-6, swshe=0, pre_layout_local=1, p_la=0,
sa=1.588e-06, sb=1.588e-06, sd=1.140e-07, pcpastrx_top=3.2e-07,
pcpastrx_bot=3.2e-07, devtype=PT, as=4.764e-13, ad=4.764e-13, ps=3.776e-06,
pd=3.776e-06, vbs=1, vdd=1, temp=125.0**

DK1.2_RF_mmW wrt DK1.1_RF_mmW

	SSF	SS	TT	FF	FFF
Vt_lin [mV]	299.6 0.0mV	284.5 0.0mV	266 0.0mV	244 0.0mV	230.5 0.0mV
Ilin [μA]	13.65 0.0%	14.74 0.0%	15.79 0.0%	16.69 0.0%	18.28 0.0%
Slp_lin [mV/dec]	136.1 0.0%	139.3 0.0%	150.2 0.0%	164.3 0.0%	168.2 0.0%
VtGmmax [mV]	296.6 0.0mV	289 0.0mV	280 0.0mV	268.6 0.0mV	268.6 0.0mV
DIBL [mV]	111.7 0.0mV	115.8 0.0mV	143.4 0.0mV	179.1 0.0mV	186.3 0.0mV
Vt_sat [mV]	187.8 0.0mV	168.7 0.0mV	122.6 0.0mV	64.92 0.0mV	44.2 0.0mV
Isat [μA]	114 0.0%	121 0.0%	133.2 0.0%	144.8 0.0%	156.1 0.0%
Slp_sat [mV/dec]	106.7 0.0%	108.1 0.0%	113.5 0.0%	121 0.0%	124.5 0.0%
LogIoff [log(A)]	-7.66 -0.0%	-7.46 -0.0%	-7.04 -0.0%	-6.59 -0.0%	-6.44 -0.0%
Ieff [μA]	55.48 0.0%	58.77 0.0%	65.71 0.0%	73.15 0.0%	77.94 0.0%
Ig_on [pA]	0.4 0.0%	0.52 0.0%	1.44 0.0%	7.73 0.0%	5.16 0.0%
Ioff_g [pA]	-0.11 -0.0%	-0.15 -0.0%	-0.44 -0.0%	-1.27 -0.0%	-1.73 -0.0%
Gm_c [μS]	107.7 0.0%	103.3 0.0%	110.3 0.0%	115.9 0.0%	112.3 0.0%
Gd_c [μS]	10.34 0.0%	10.14 0.0%	13.64 0.0%	18.13 0.0%	18.01 0.0%
Gain_c []	10.41 0.0%	10.19 0.0%	8.09 0.0%	6.39 0.0%	6.24 0.0%
CGd_0V [aF]	75.83 0.0%	78.2 0.0%	80.39 0.0%	82.78 0.0%	84.85 0.0%

Cgg_inv [aF]	272.7 0.0%	281.4 0.0%	273 0.0%	268.1 0.0%	274.5 0.0%
Cggmean [aF]	220.9 0.0%	227.8 0.0%	222.9 0.0%	220.2 0.0%	225.2 0.0%
Cbd_off [aF]	529.6 0.0%	522.9 0.0%	509.6 0.0%	497 0.0%	491 0.0%

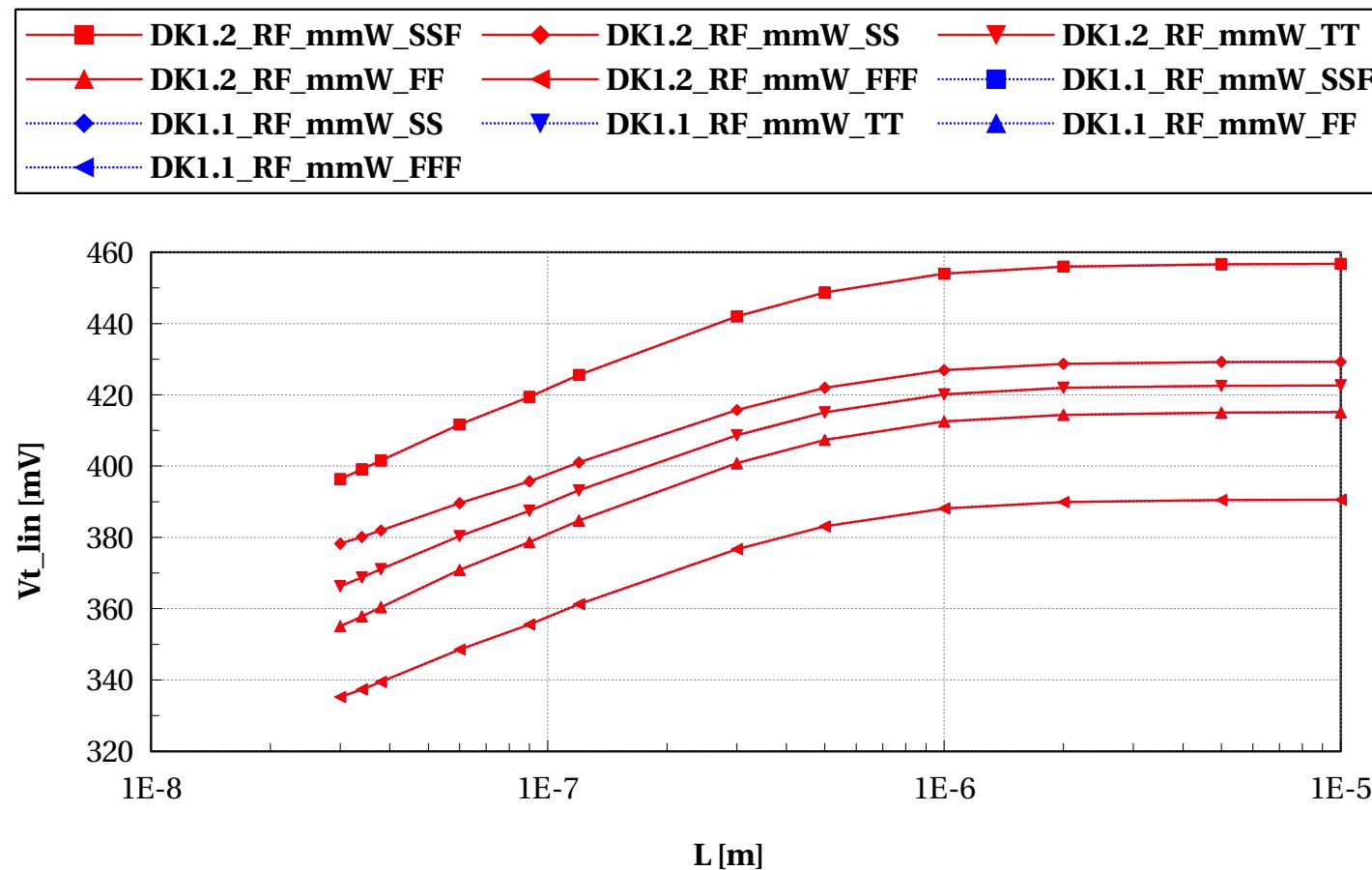
lvtnfet_acc

Electrical characteristics scaling

Scaling versus Length ($W=1\text{ }\mu\text{m}$)

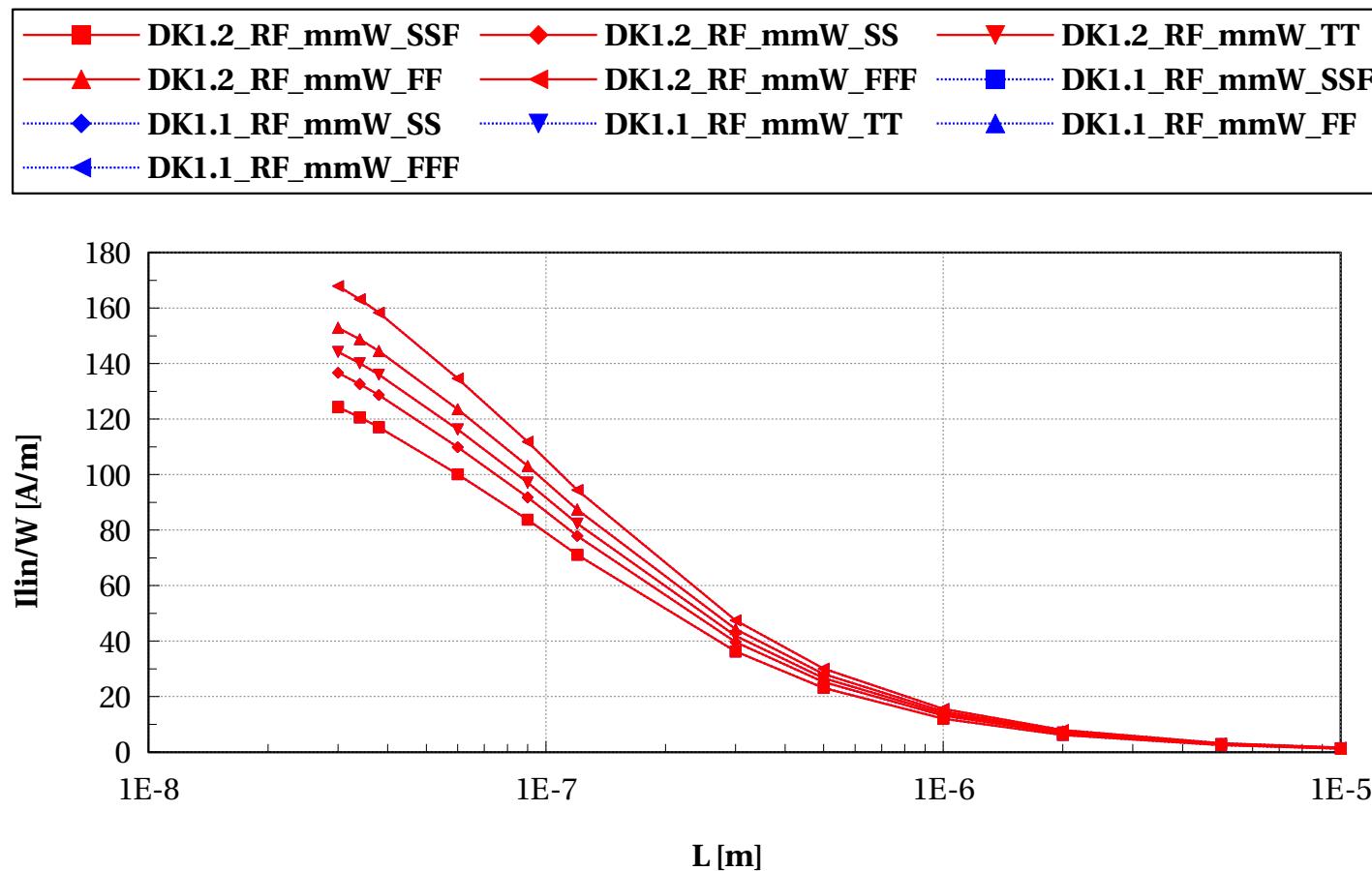
lvtnfet_acc, Vt_lin [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



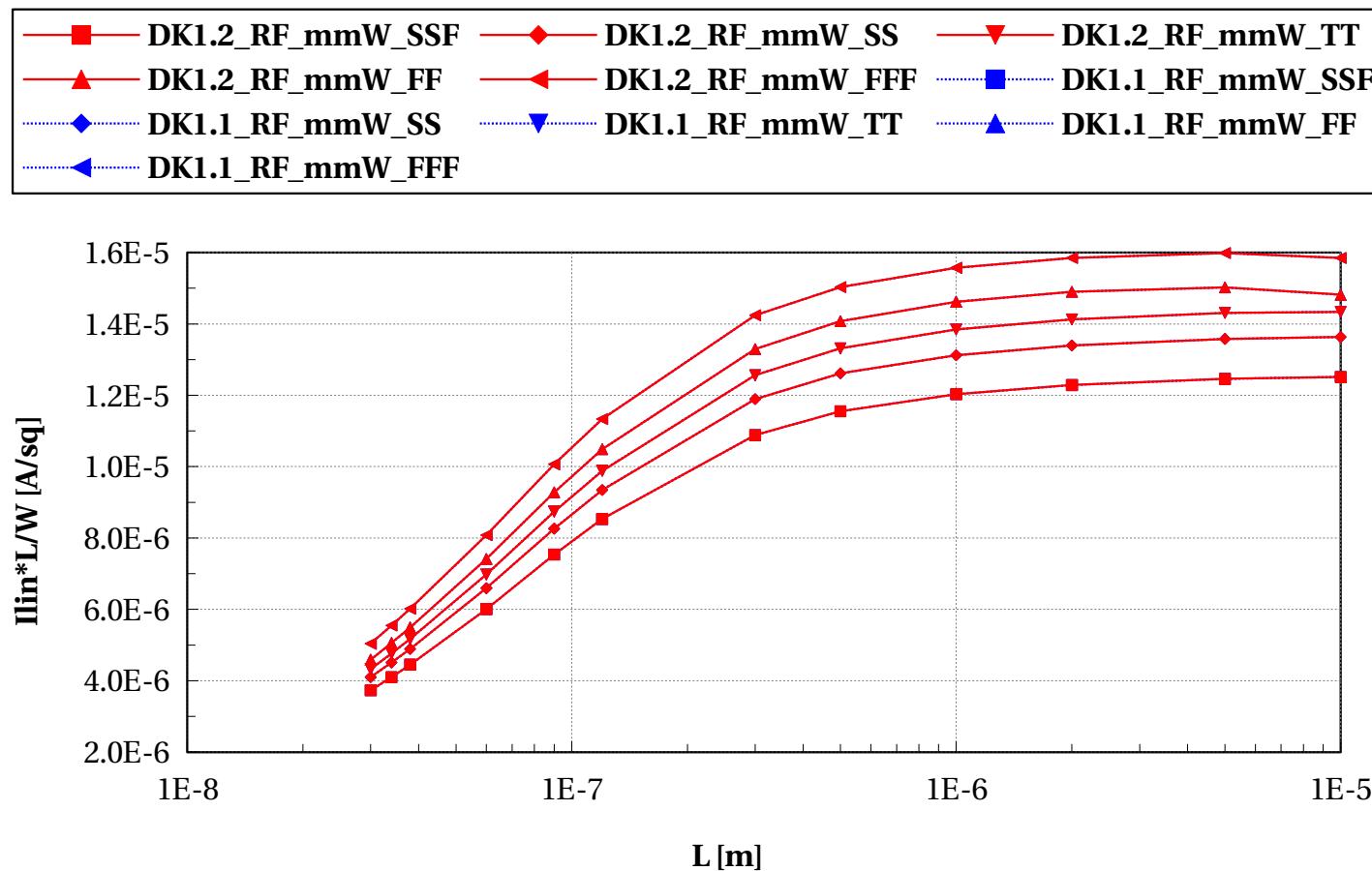
lvtnfet_acc, Ilin/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



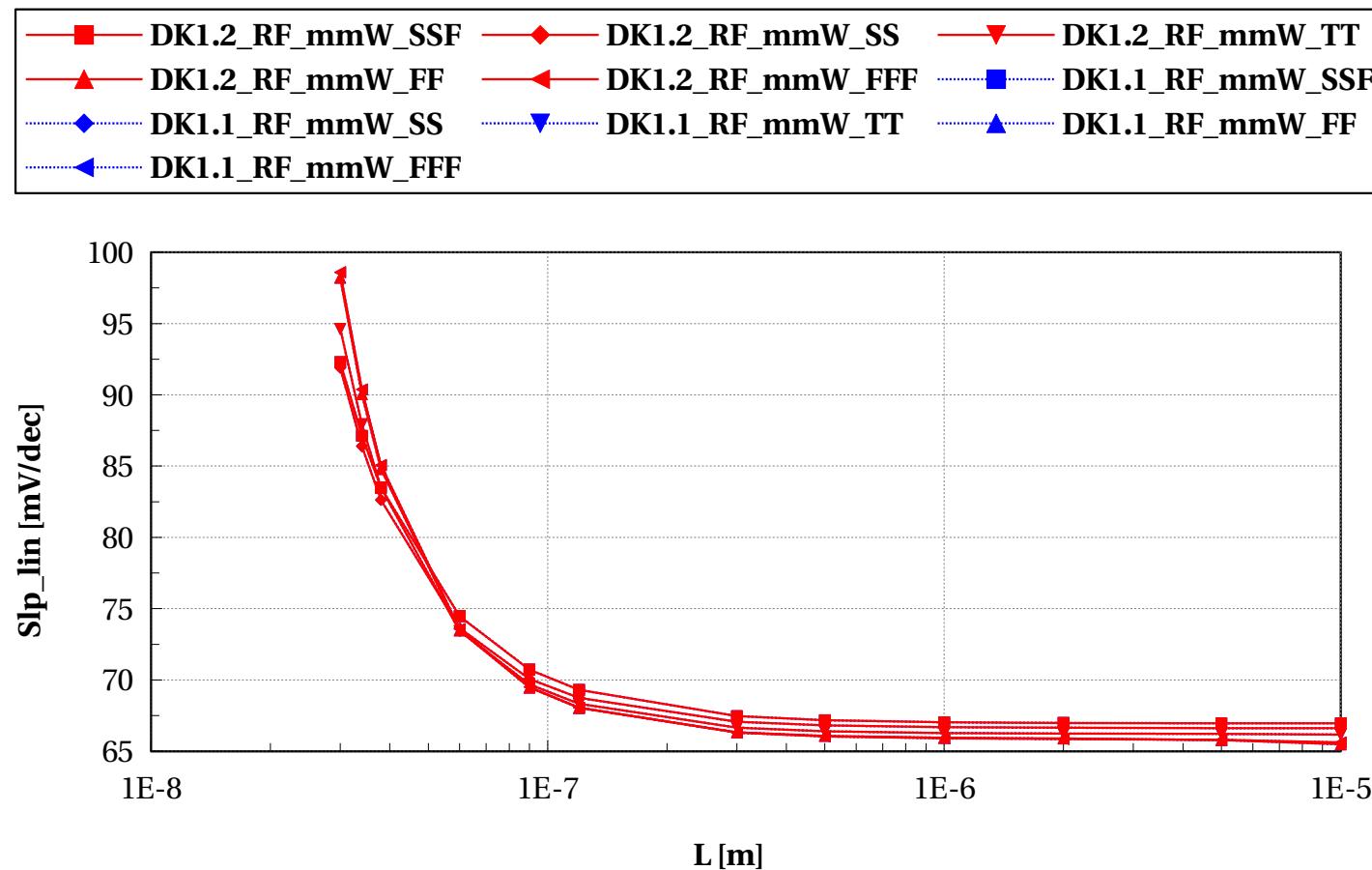
lvtnfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



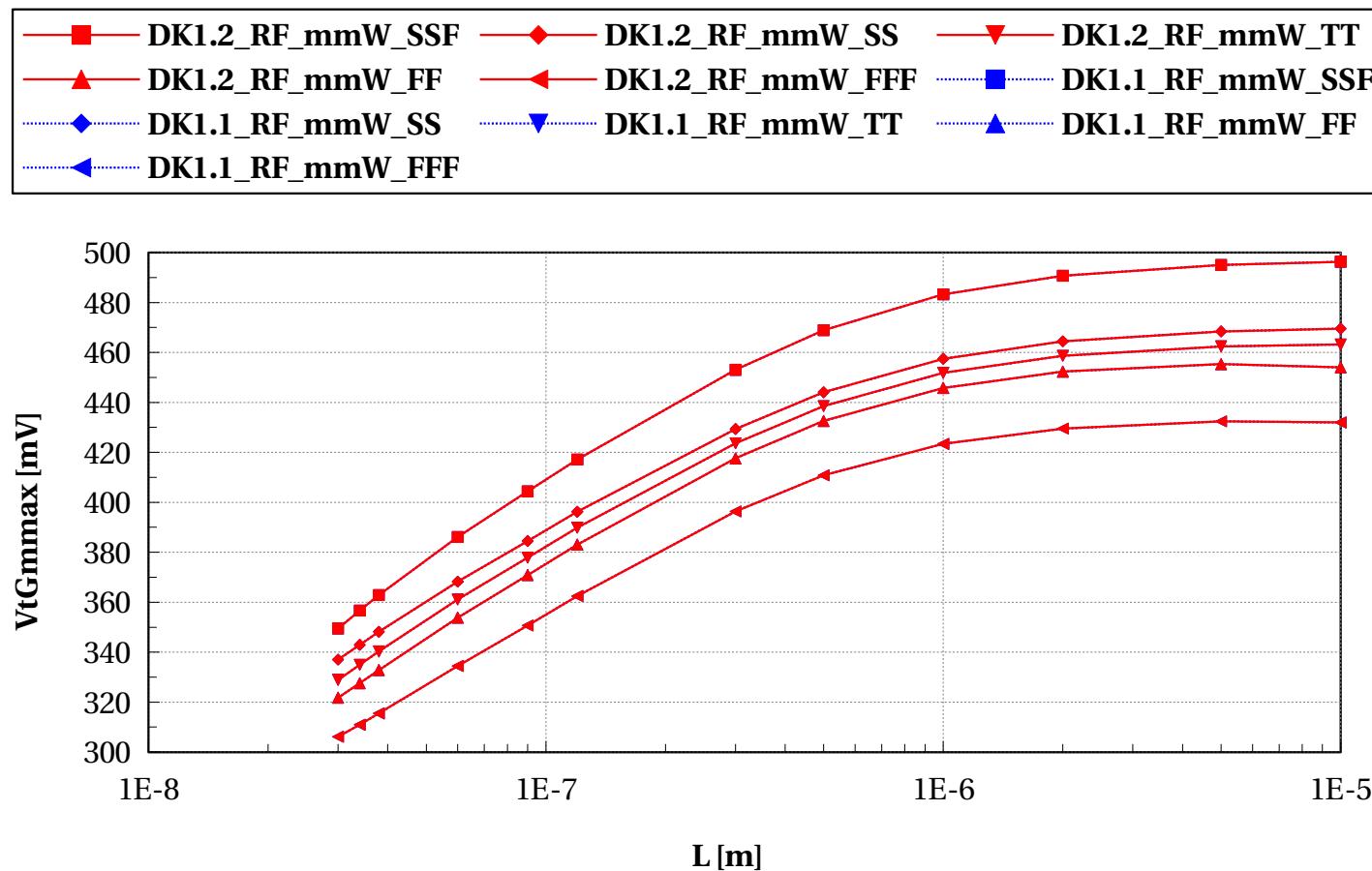
lvtnfet_acc, Slp_lin [mV/dec] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



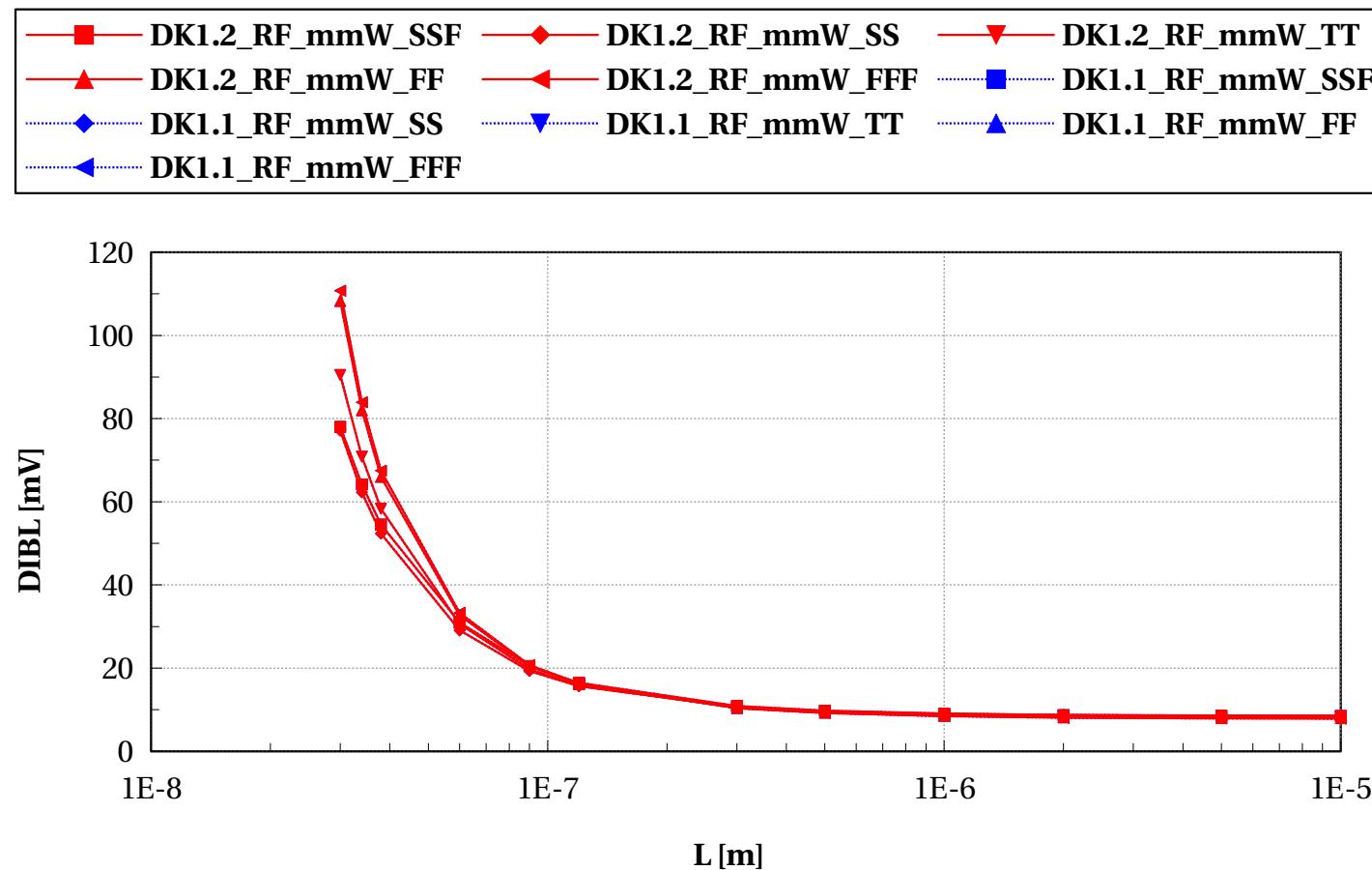
lvtnfet_acc, VtGmmax [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



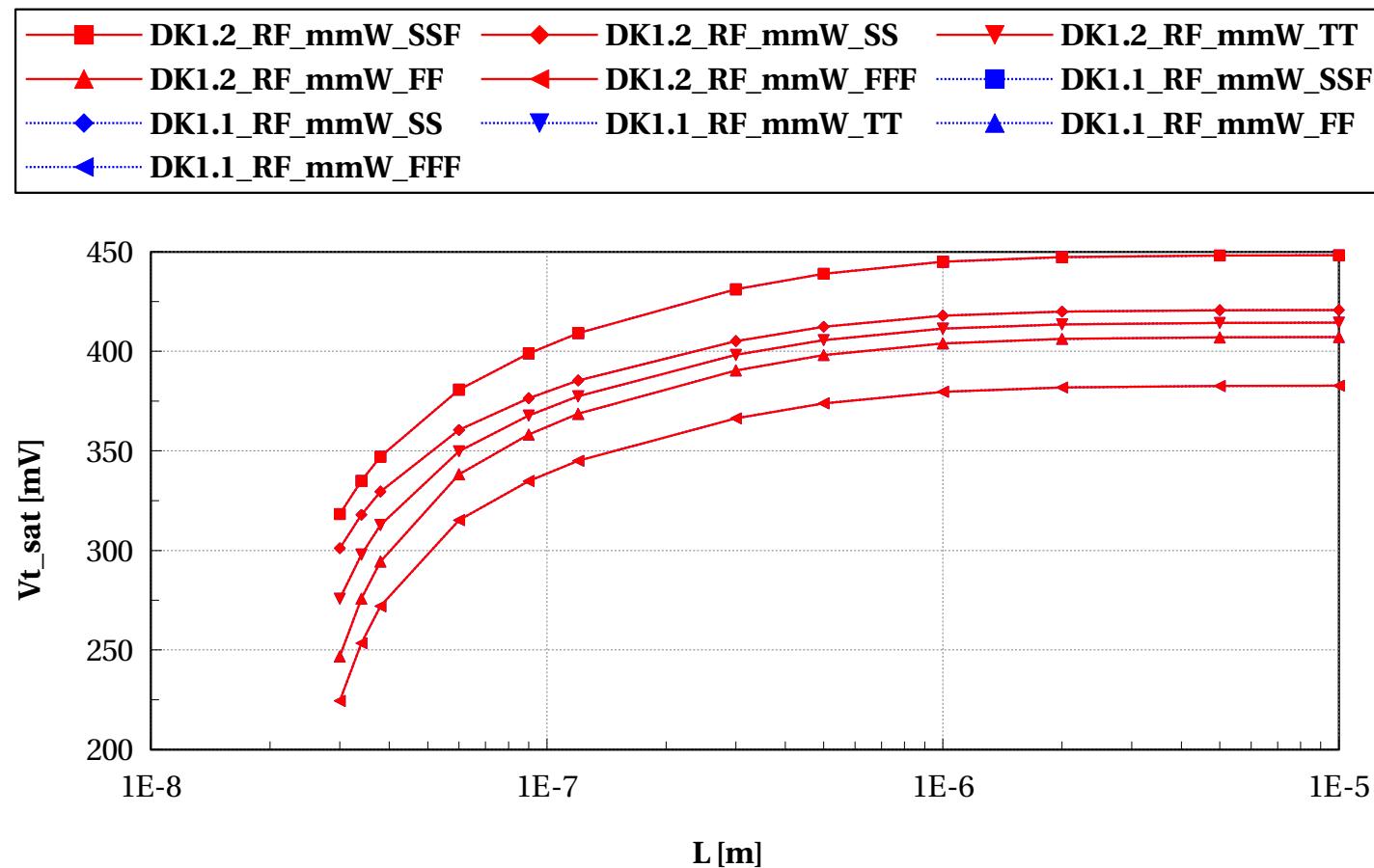
lvtnfet_acc, DIBL [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



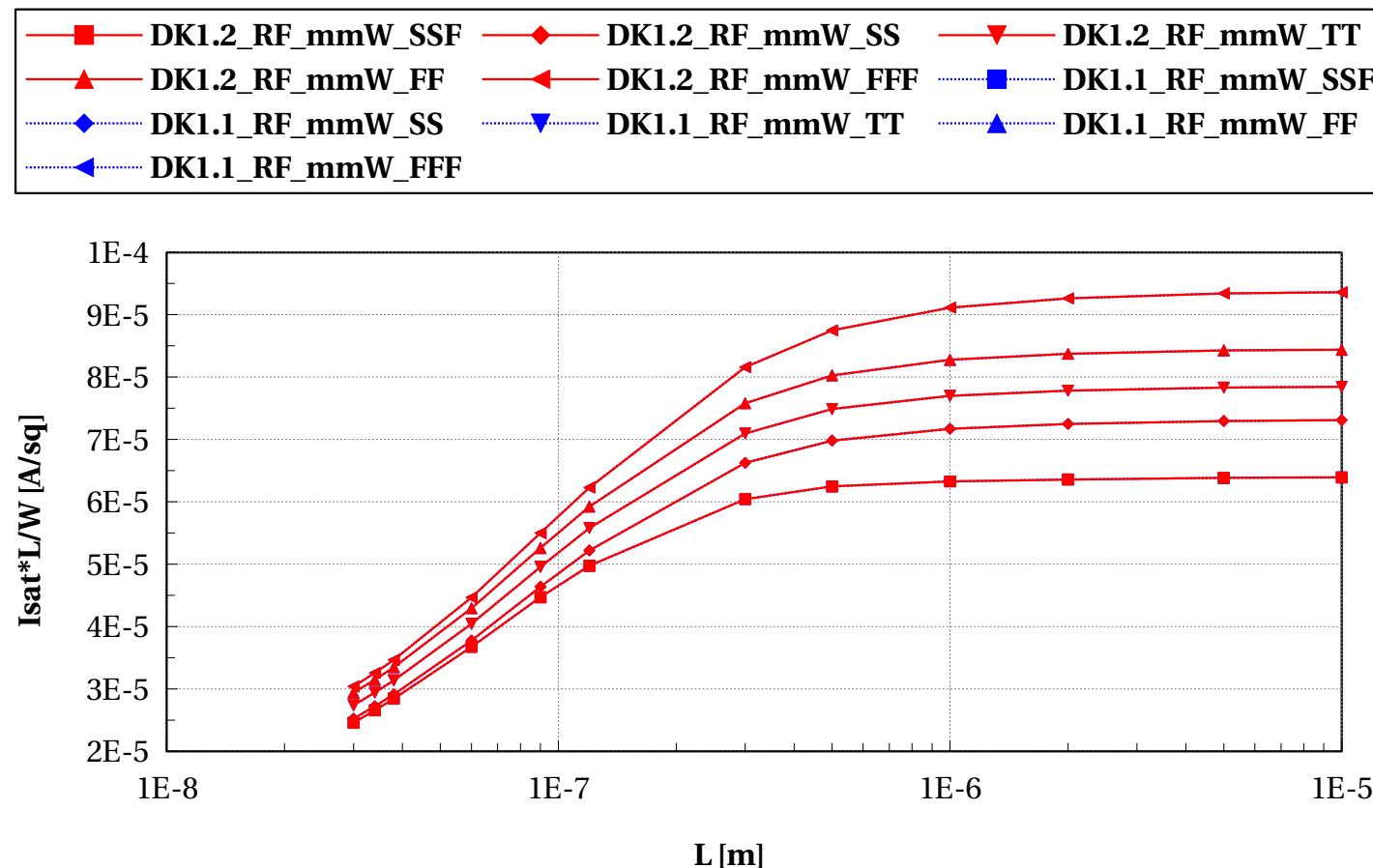
lvt_nfet_acc, Vt_sat [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



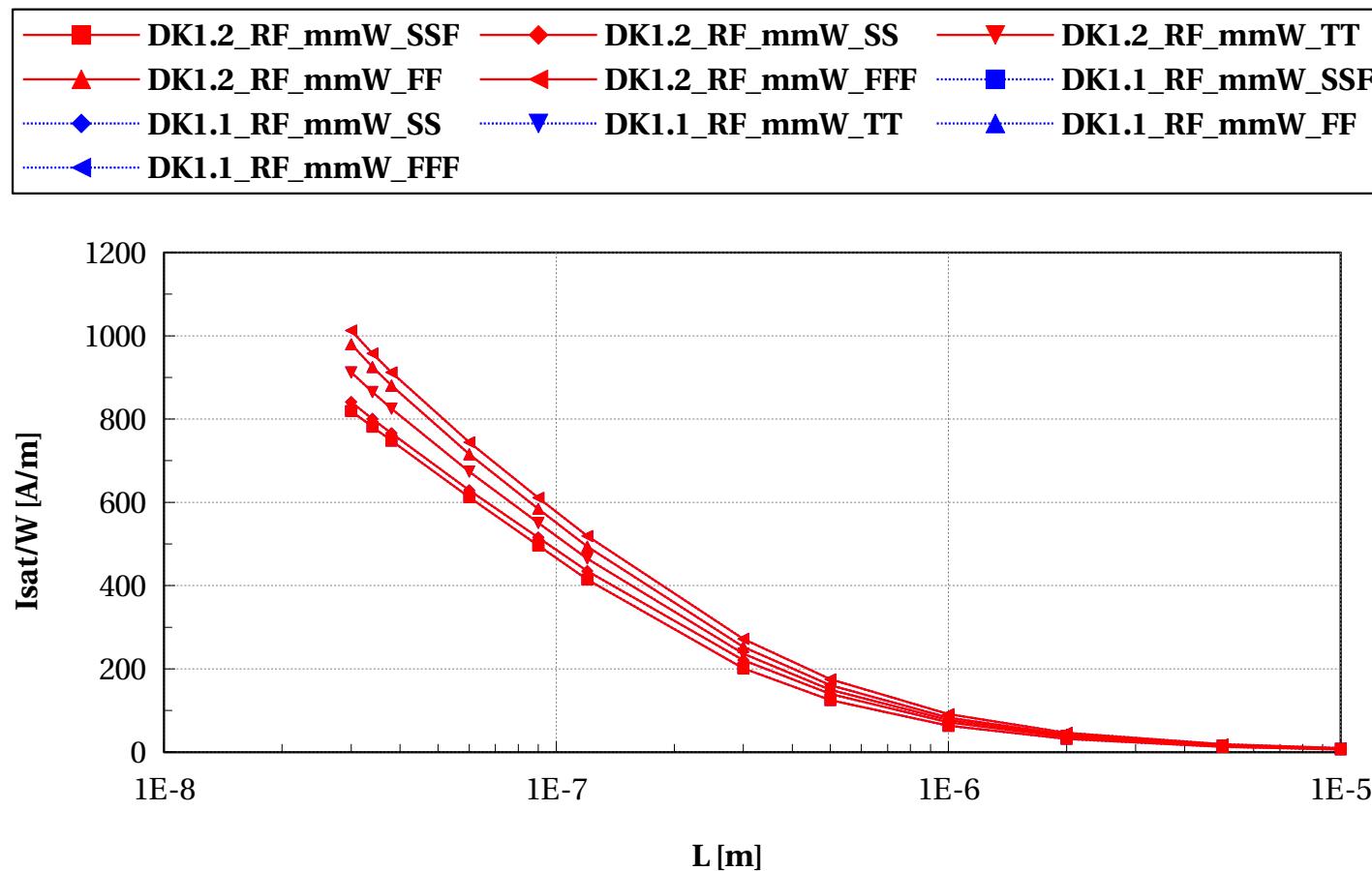
lvtnfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs L [m]

$w=1e-6$ and $Temp=25$ and $V_{bs}=0$ and $p_{la}=0$ and $devType=="PCELLwoWPE"$



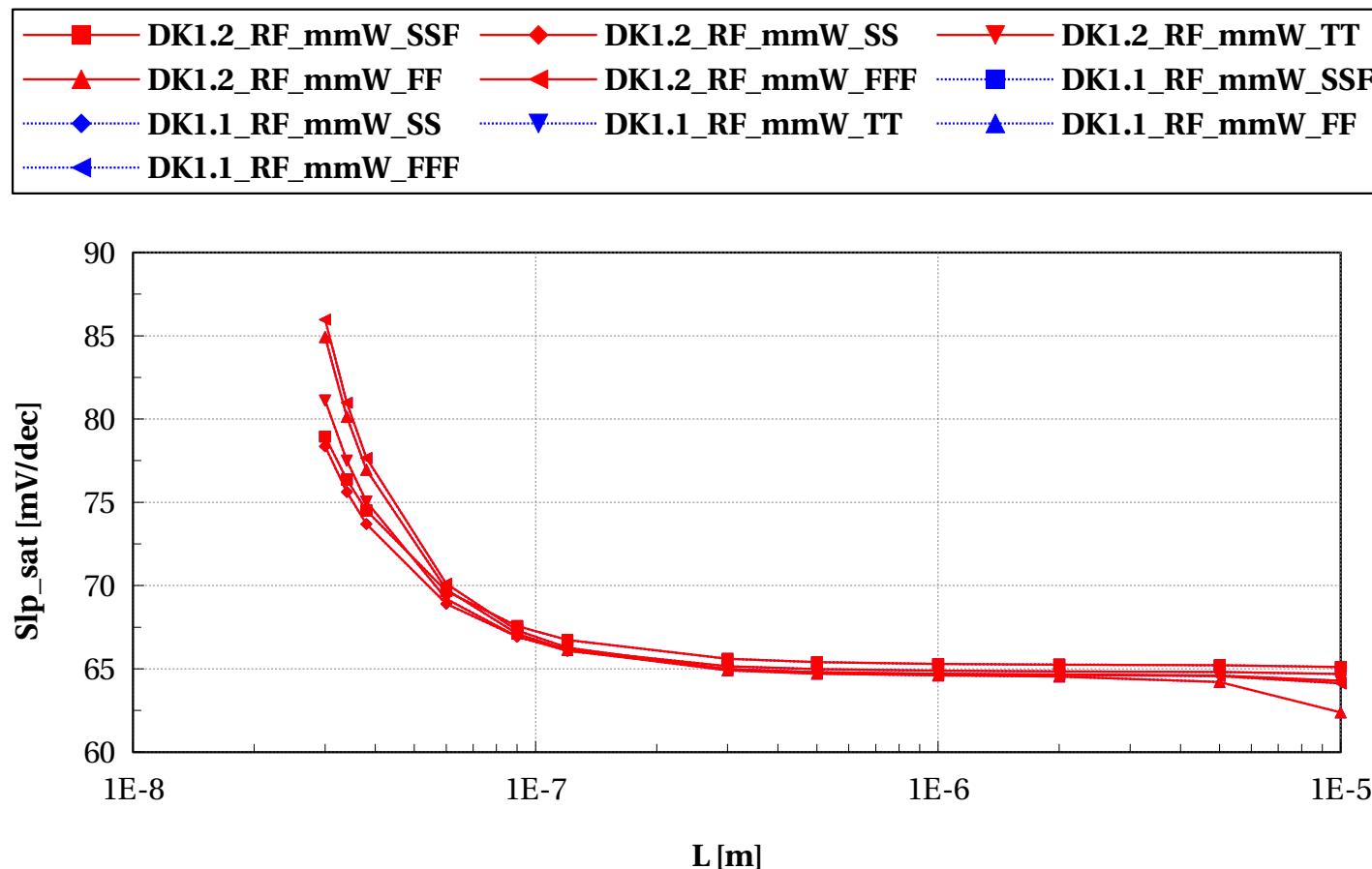
lvtnfet_acc, Isat/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



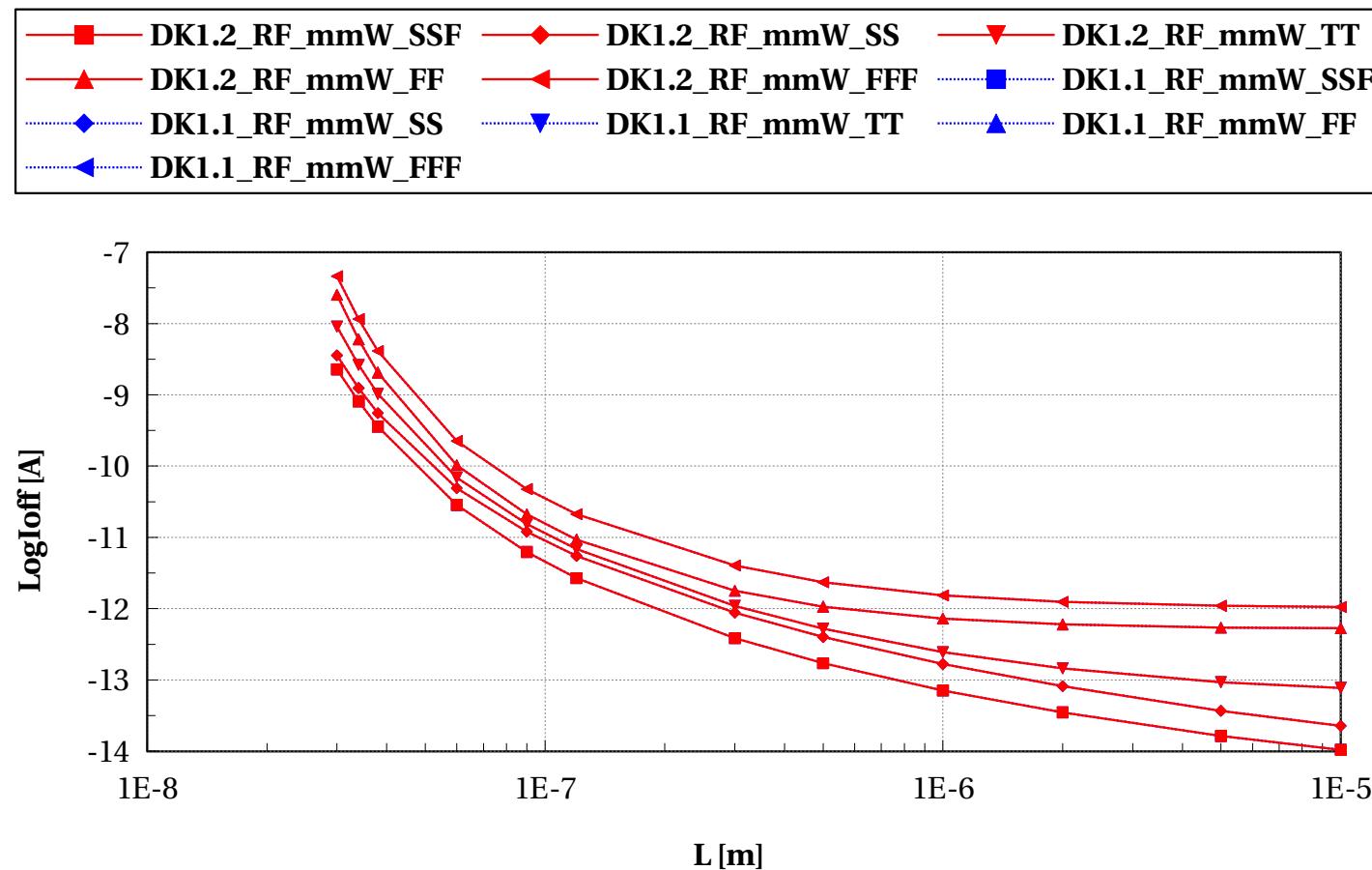
lvtnfet_acc, Slp_sat [mV/dec] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



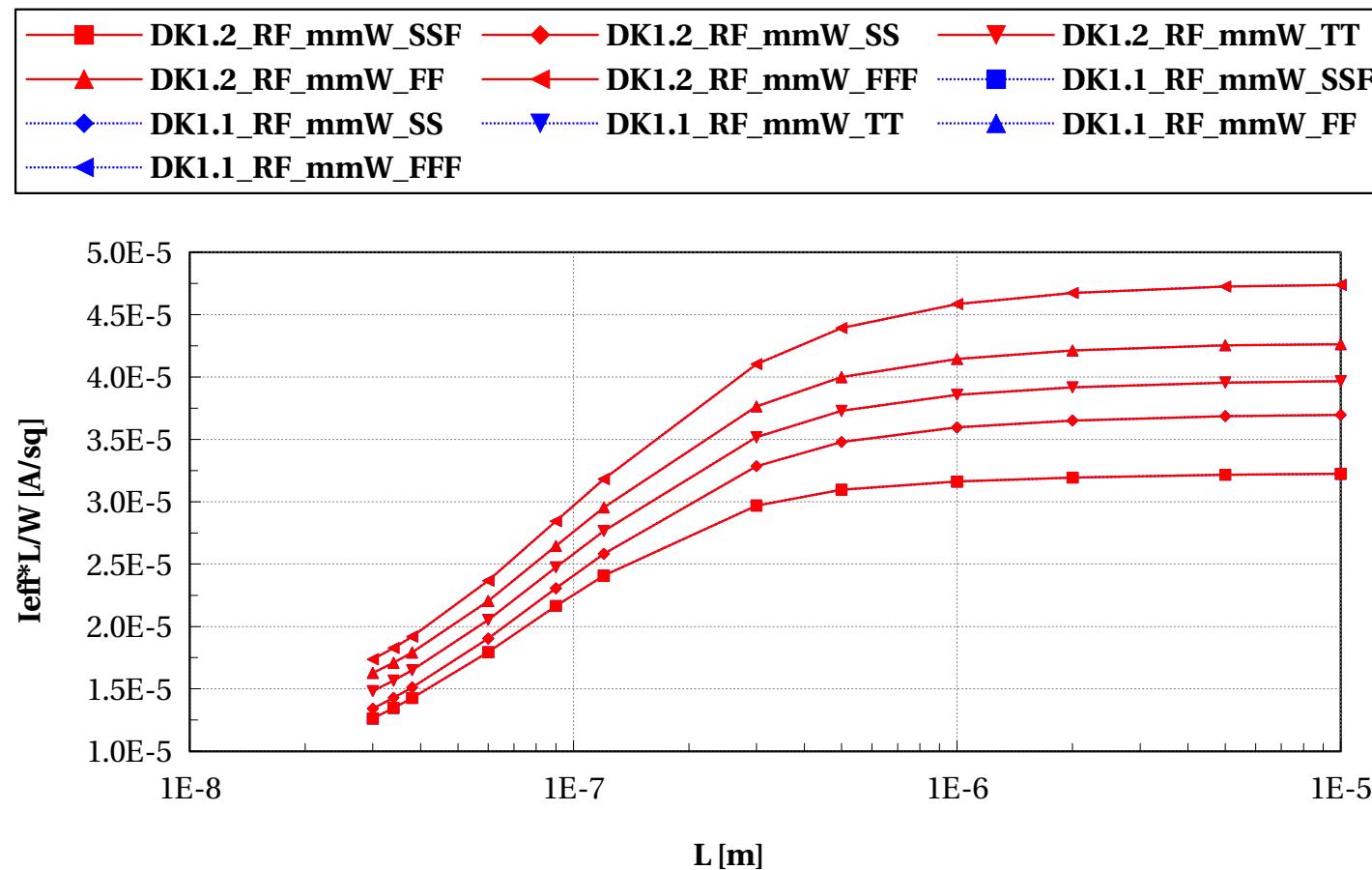
lvtnfet_acc, LogIoff [A] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



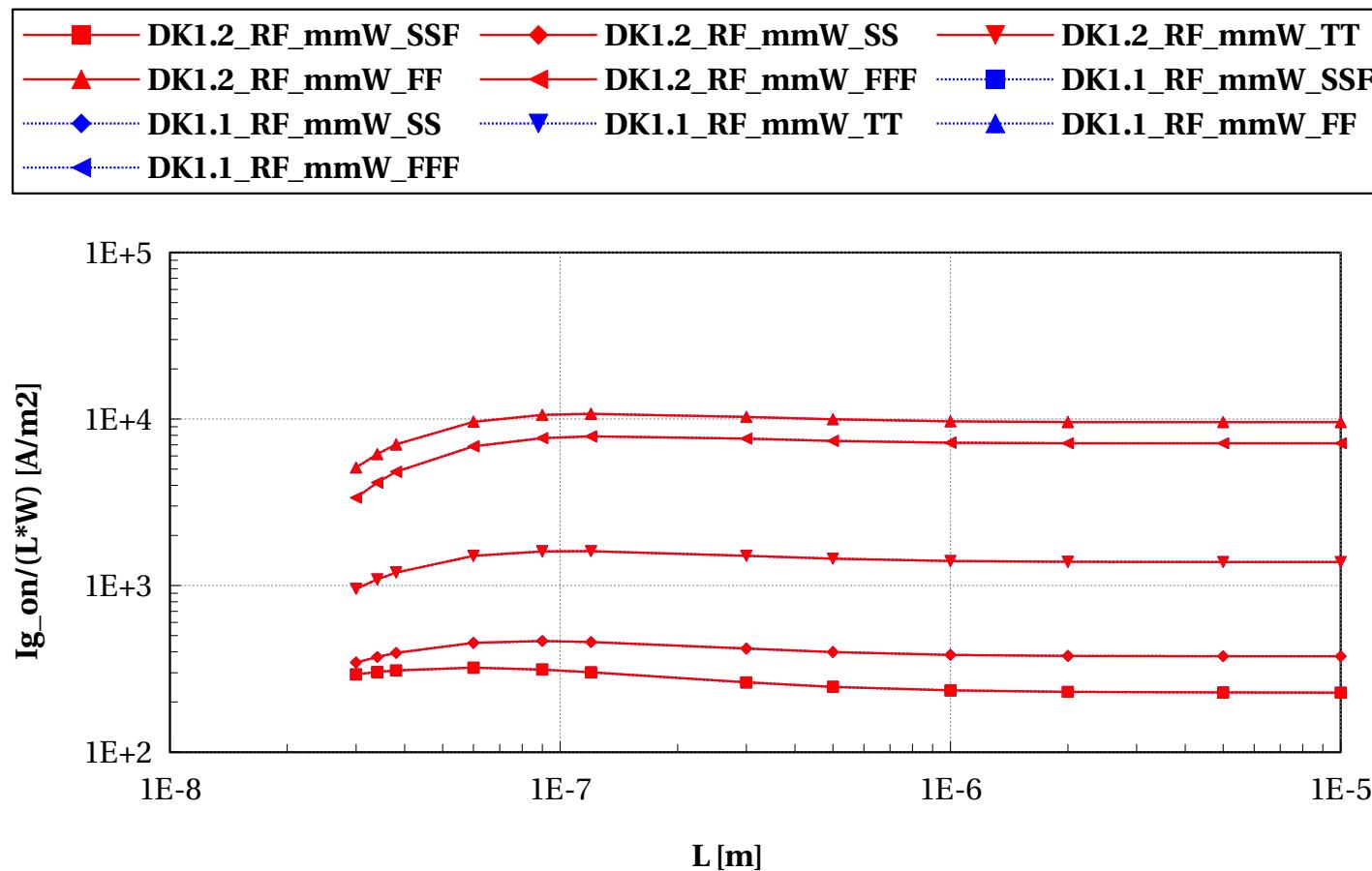
lvtnfet_acc, Ieff*L/W [A/sq] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



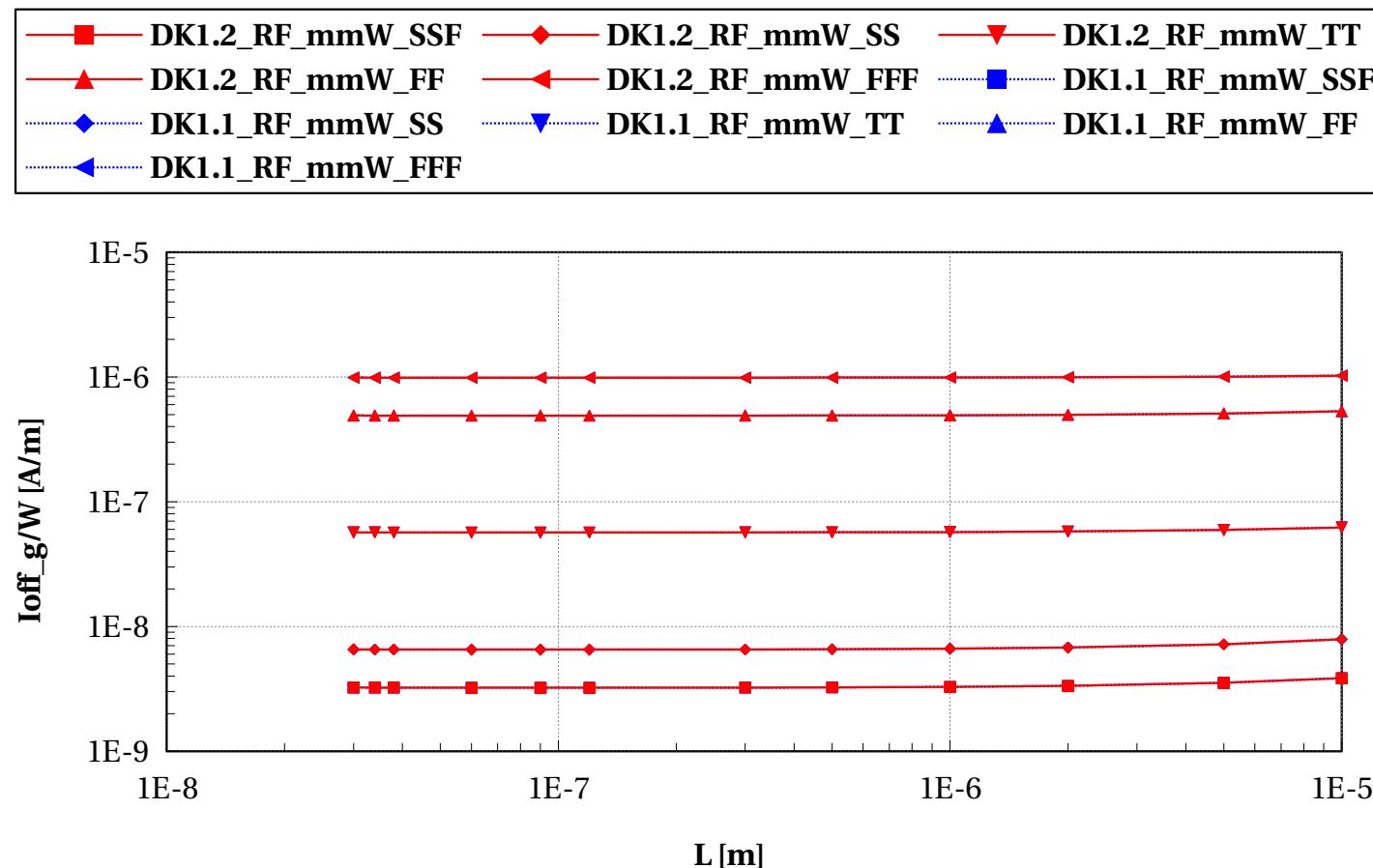
lvtnfet_acc, Ig_on/(L*W) [A/m2] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



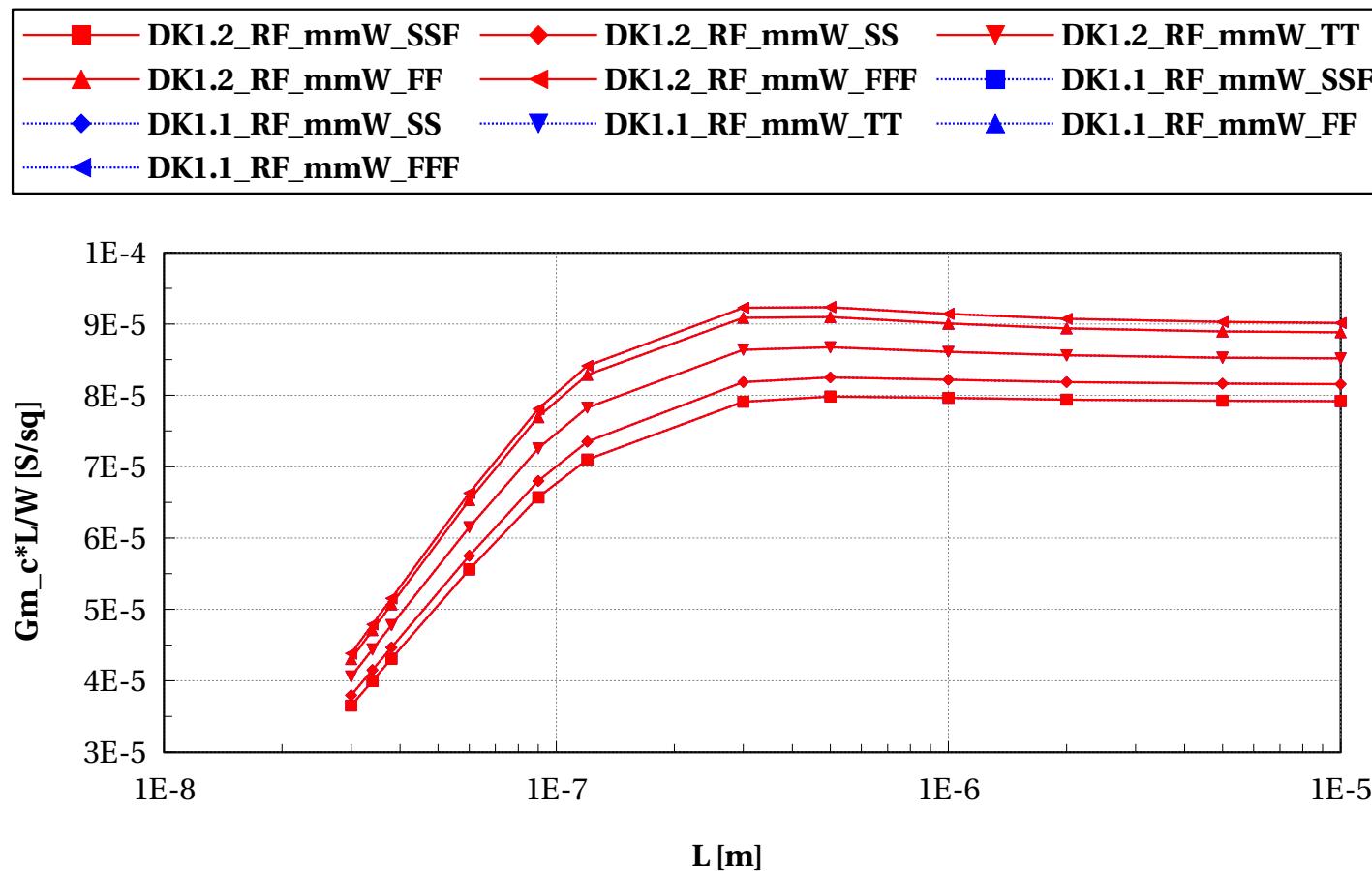
lvtnfet_acc, Ioff_g/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



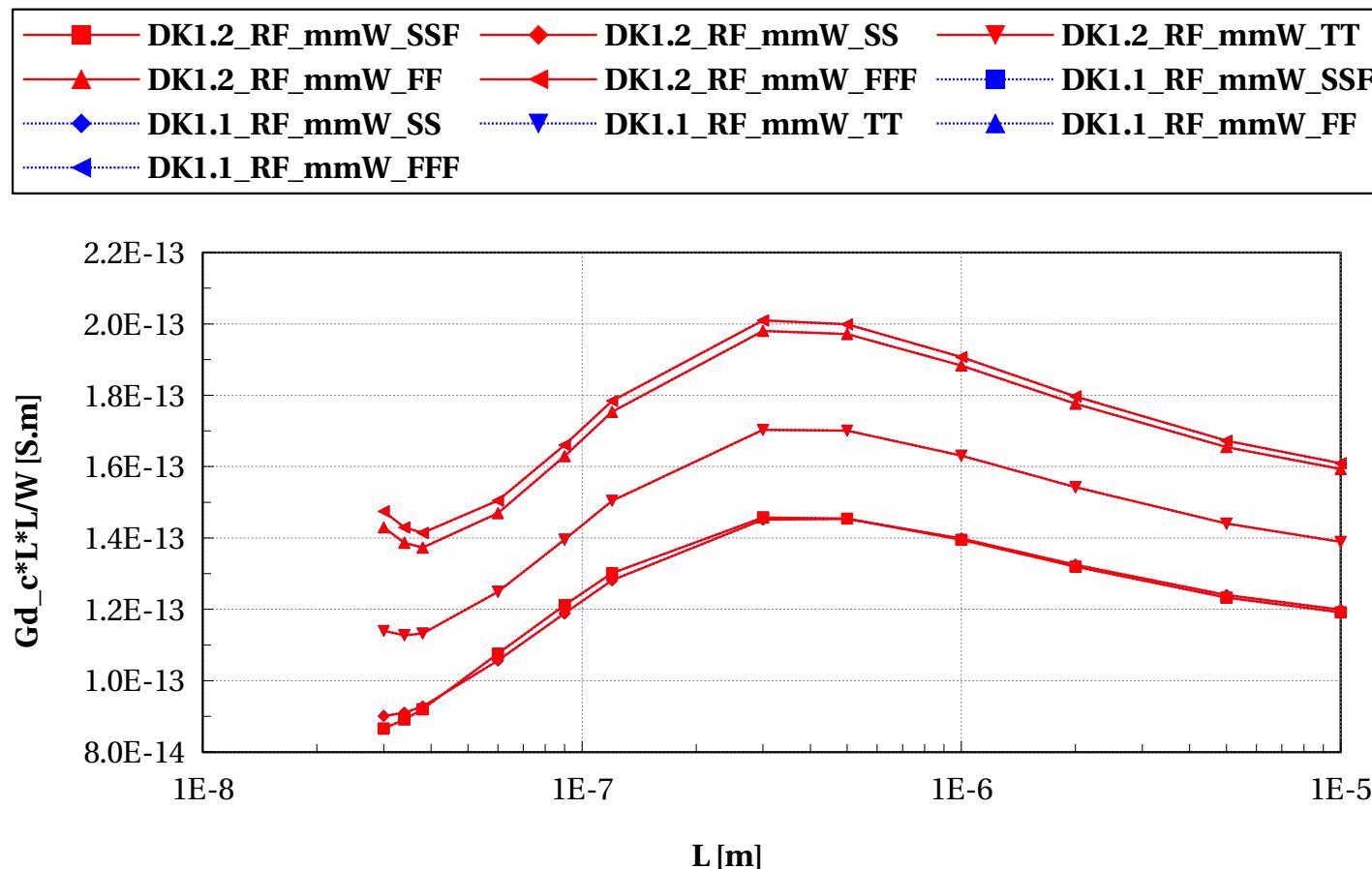
lvtnfet_acc, $Gm_c \cdot L/W$ [S/sq] vs L [m]

$w=1e-6$ and $Temp=25$ and $Vbs=0$ and $p_la=0$ and $devType="PCELLwoWPE"$



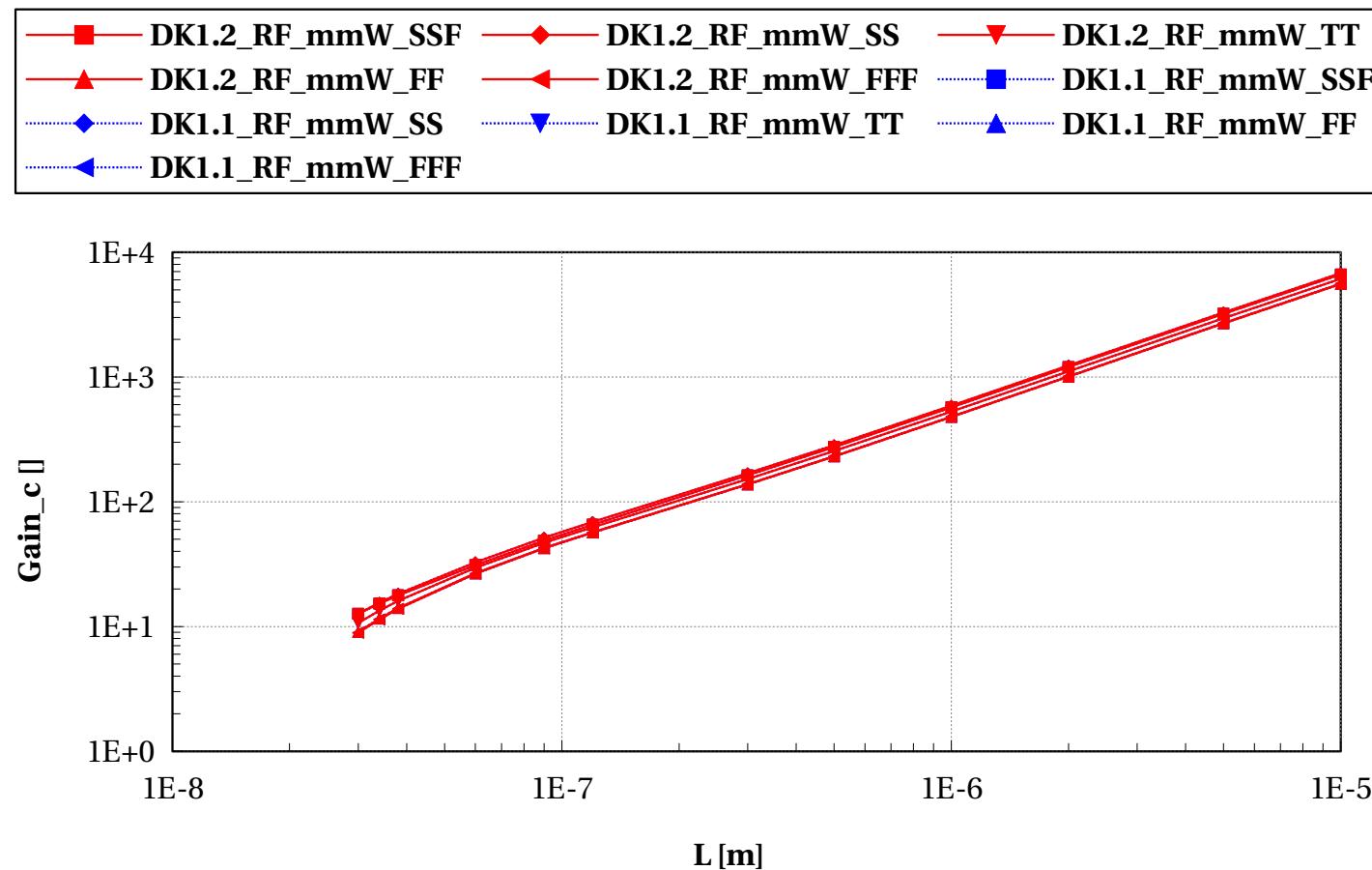
lvtnfet_acc, Gd_c*L*W [S.m] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



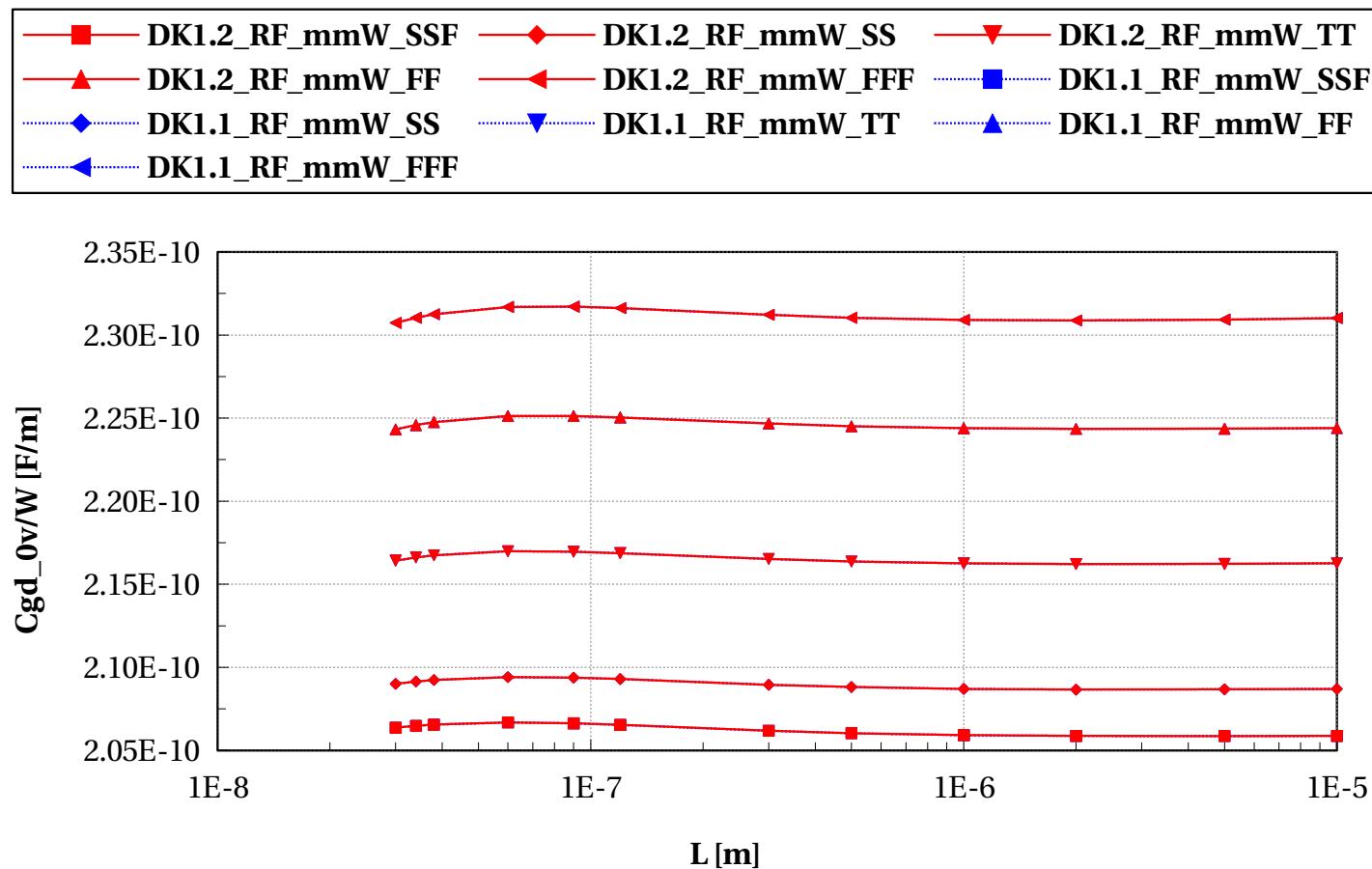
lvtnfet_acc, Gain_c [] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



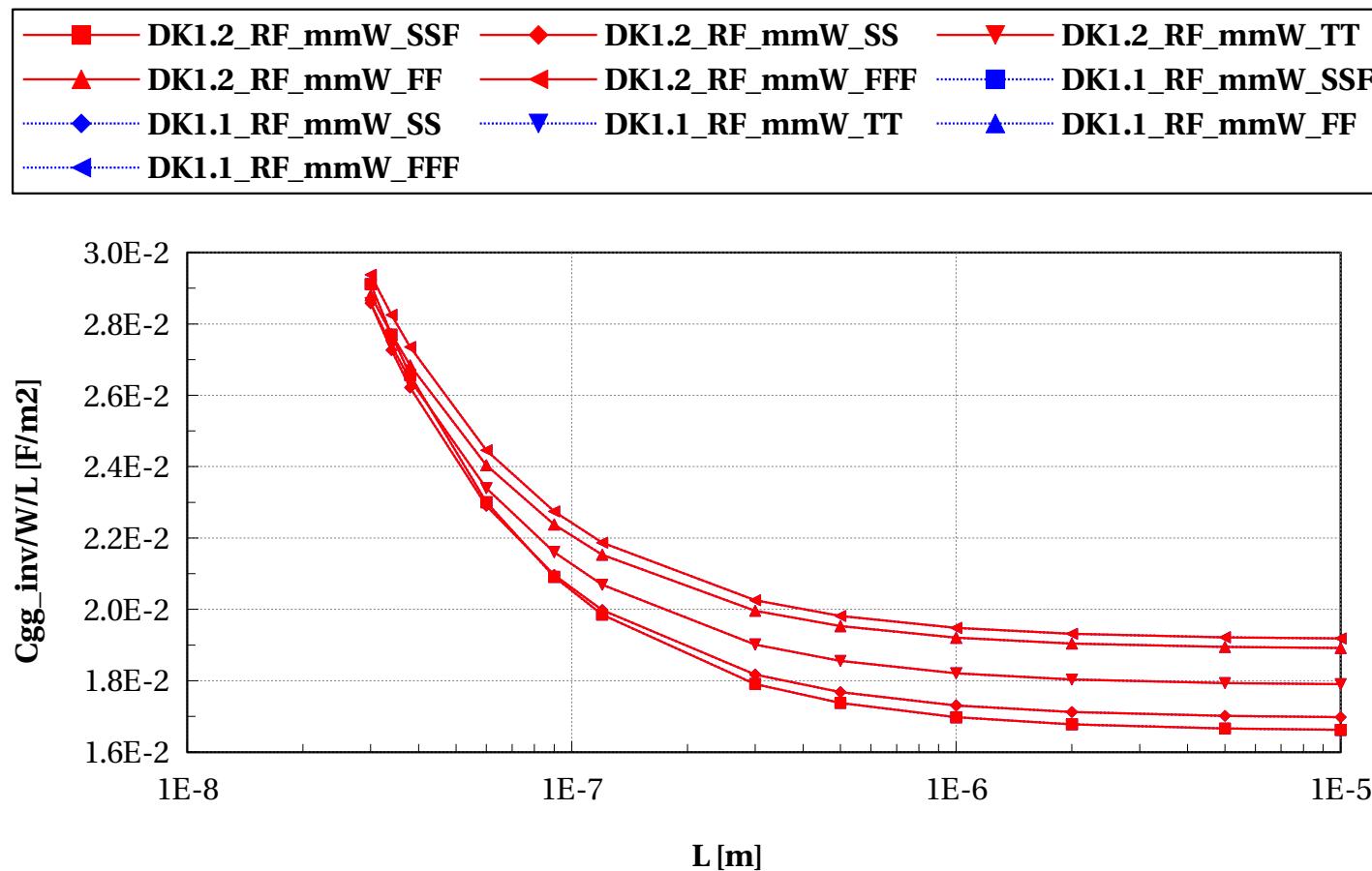
lvtnfet_acc, Cgd_0v/W [F/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



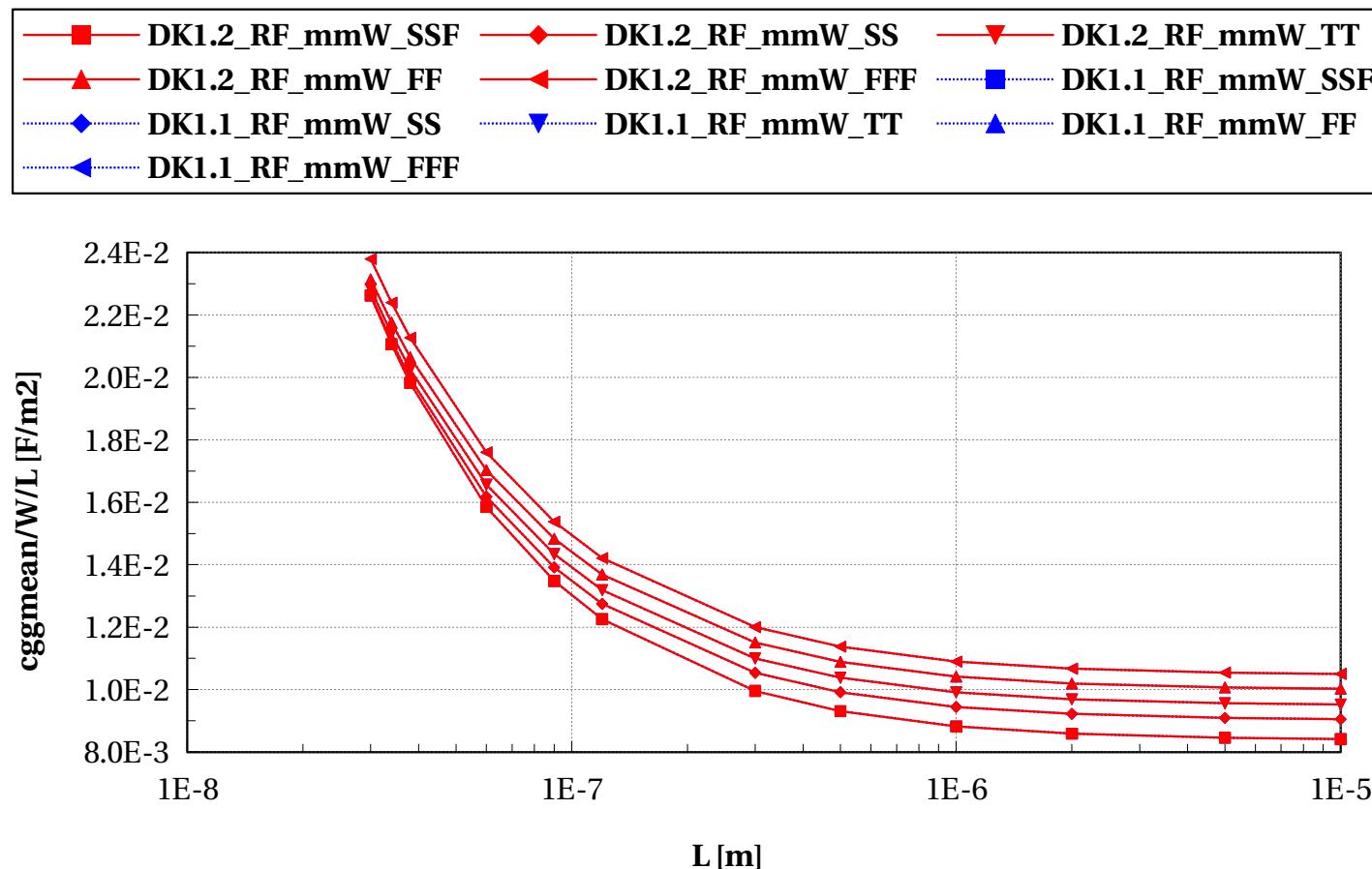
lvtnfet_acc, C_{gg}_inv/W/L [F/m²] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



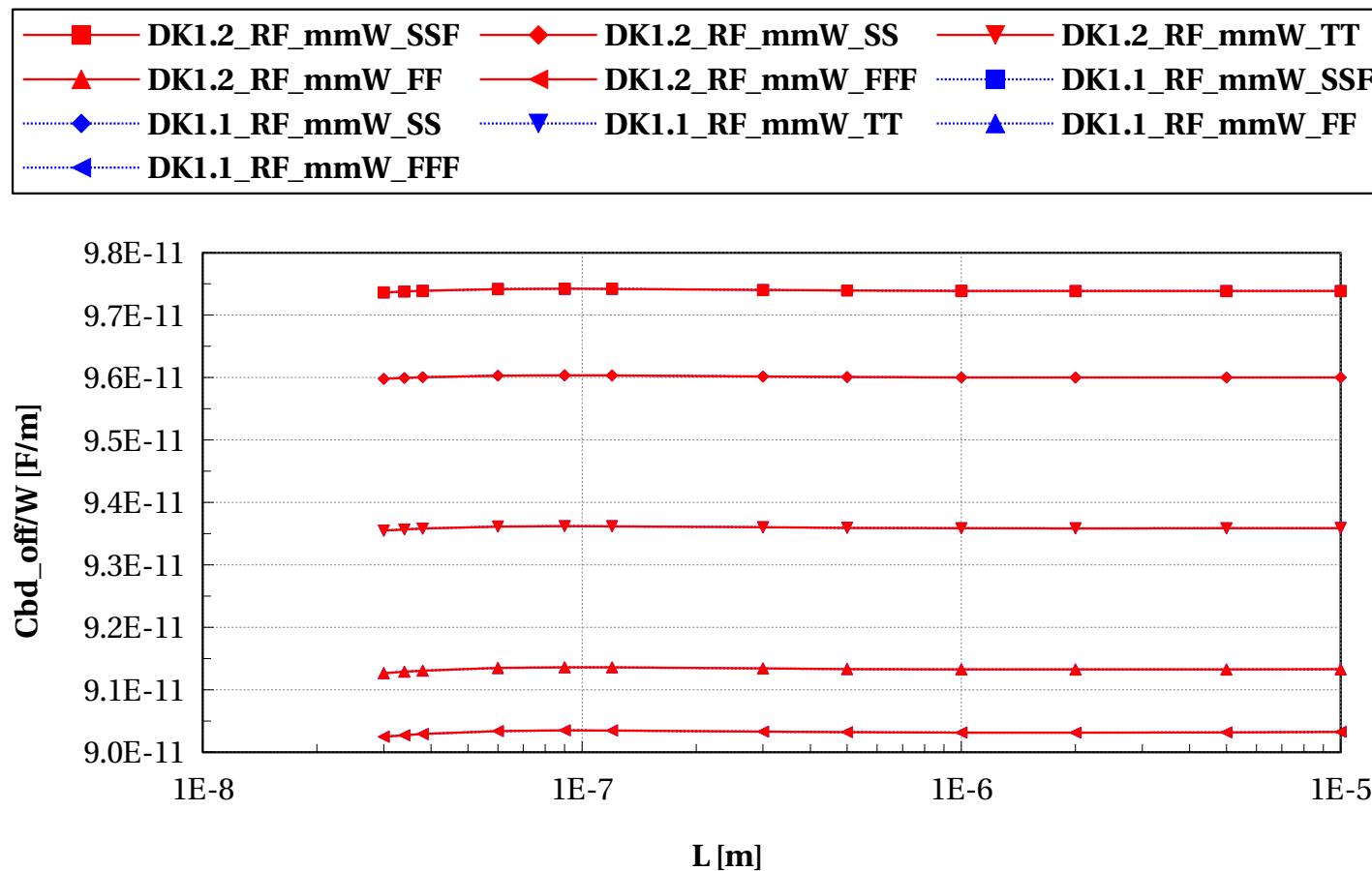
lvtnfet_acc, cgmean/W/L [F/m²] vs L [m]

w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Cbd_off/W [F/m] vs L [m]

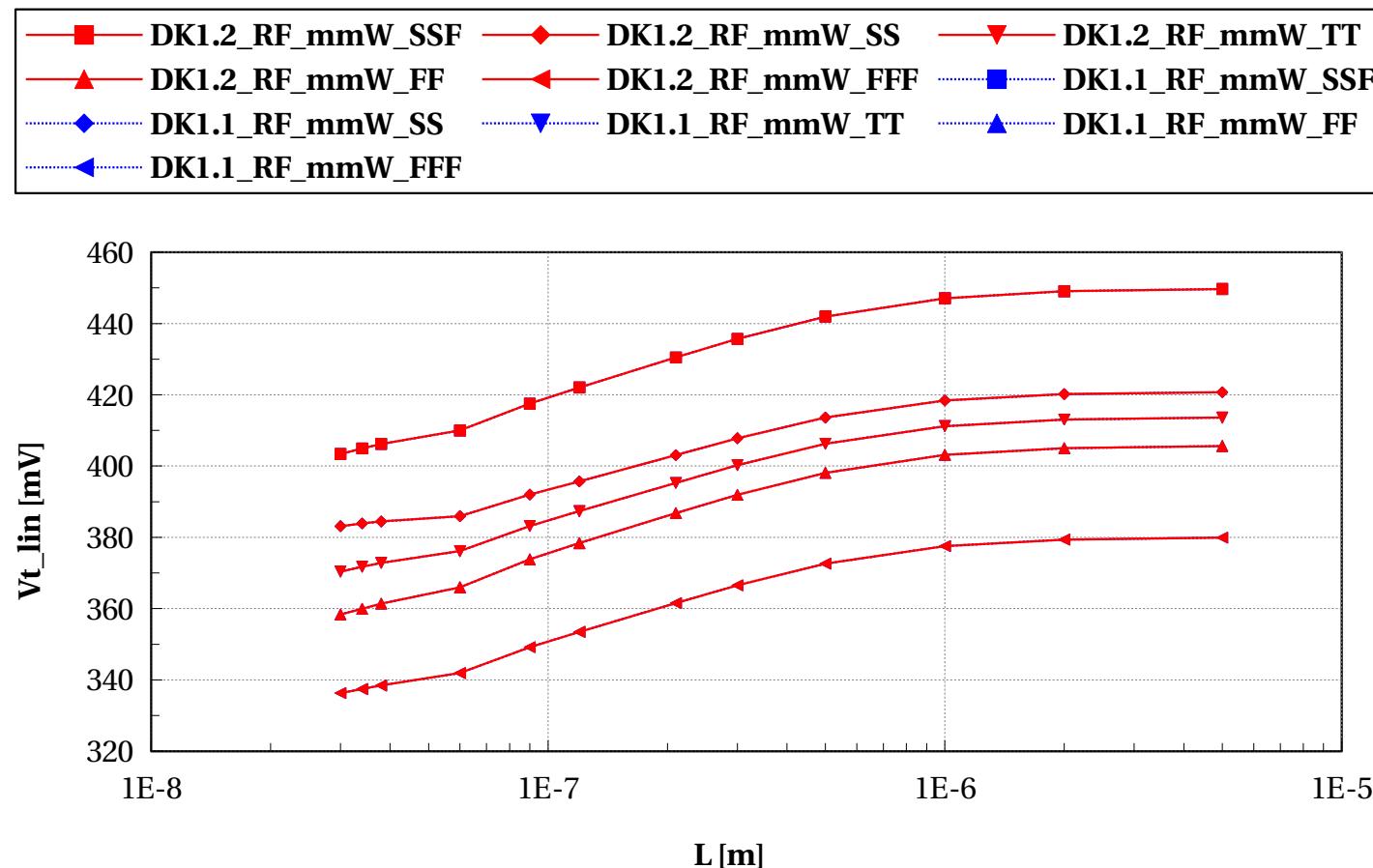
w==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Length (W=210nm)

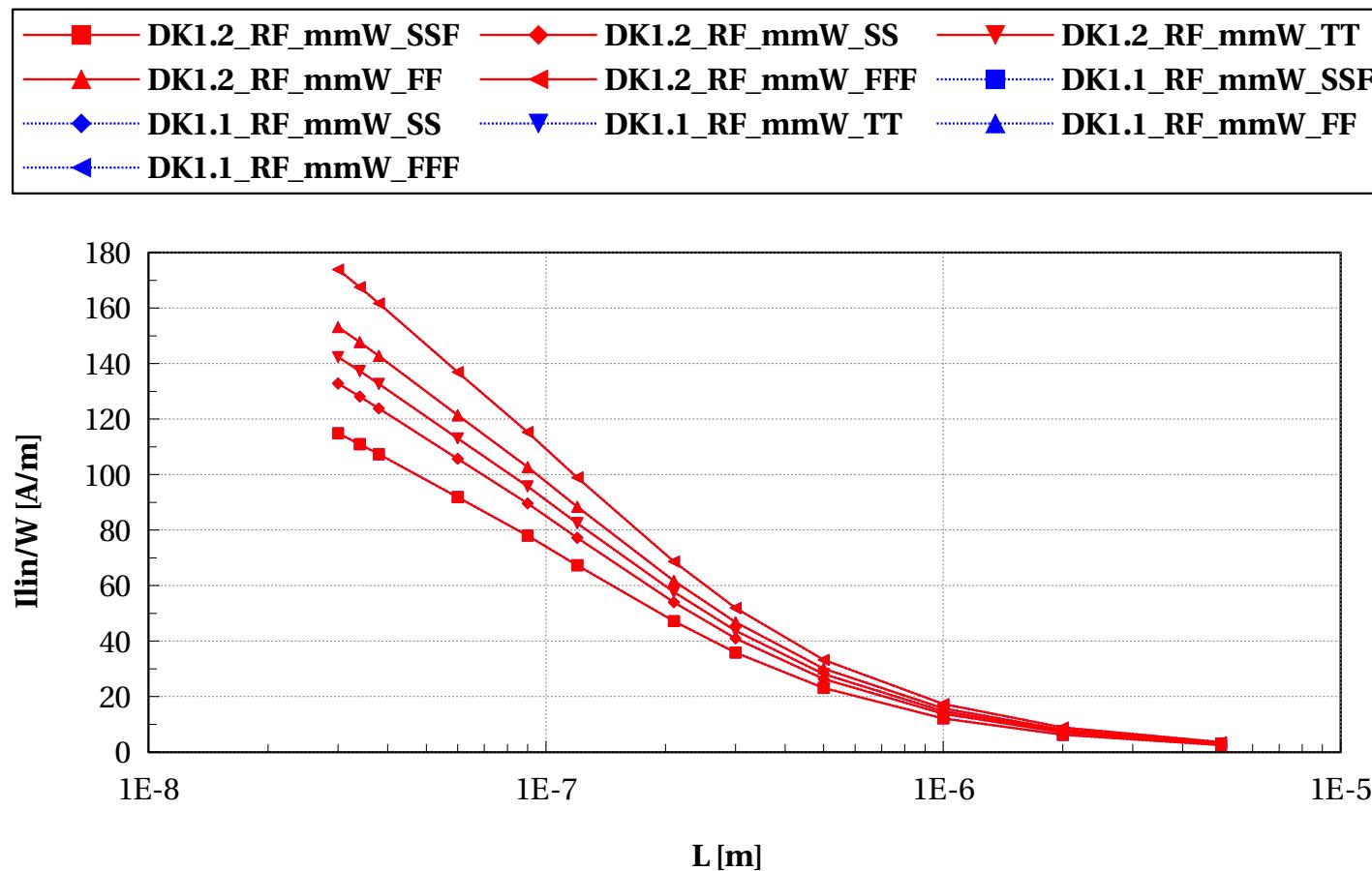
lvtnfet_acc, Vt_lin [mV] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



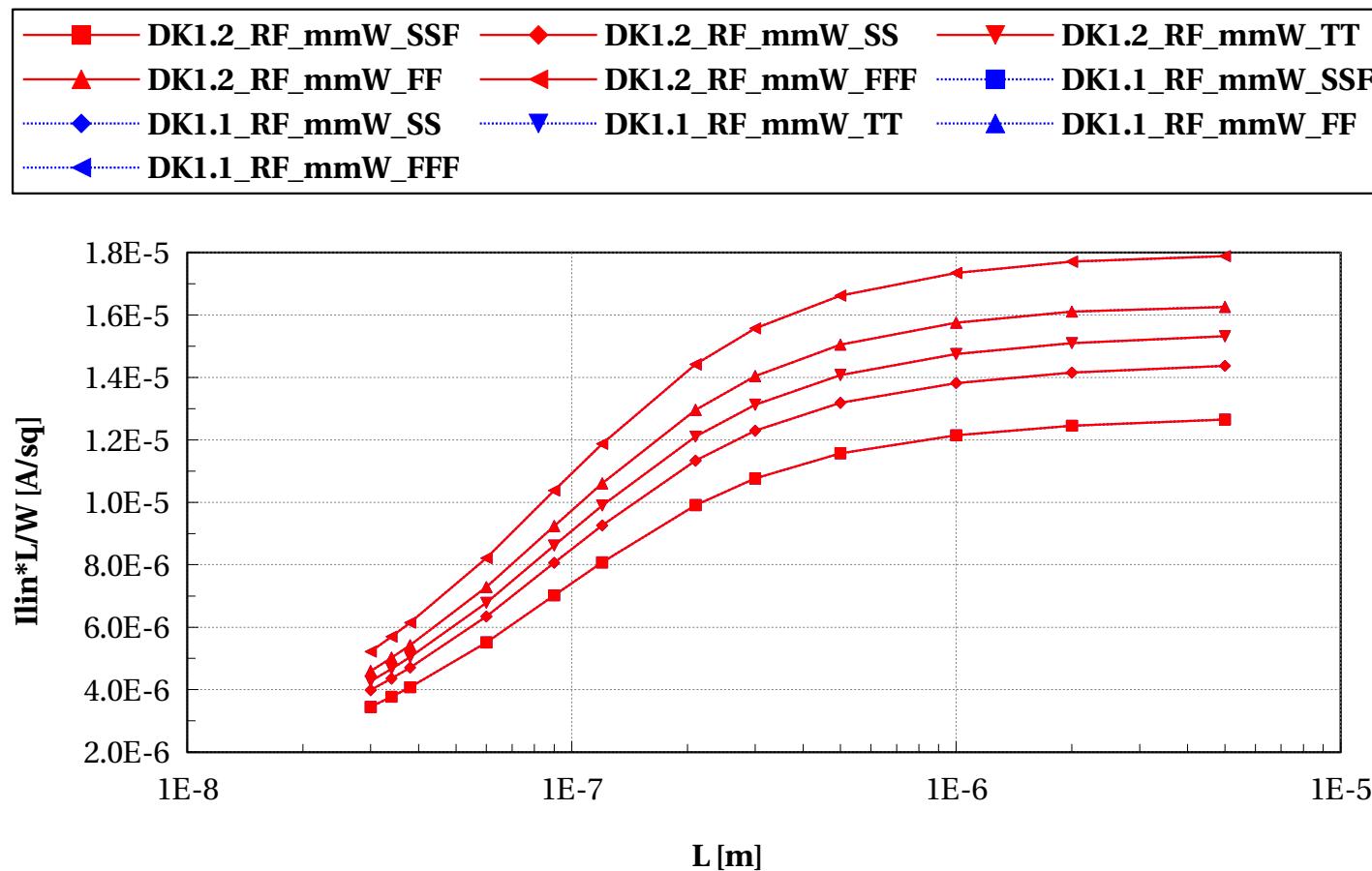
lvtnfet_acc, Ilin/W [A/m] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



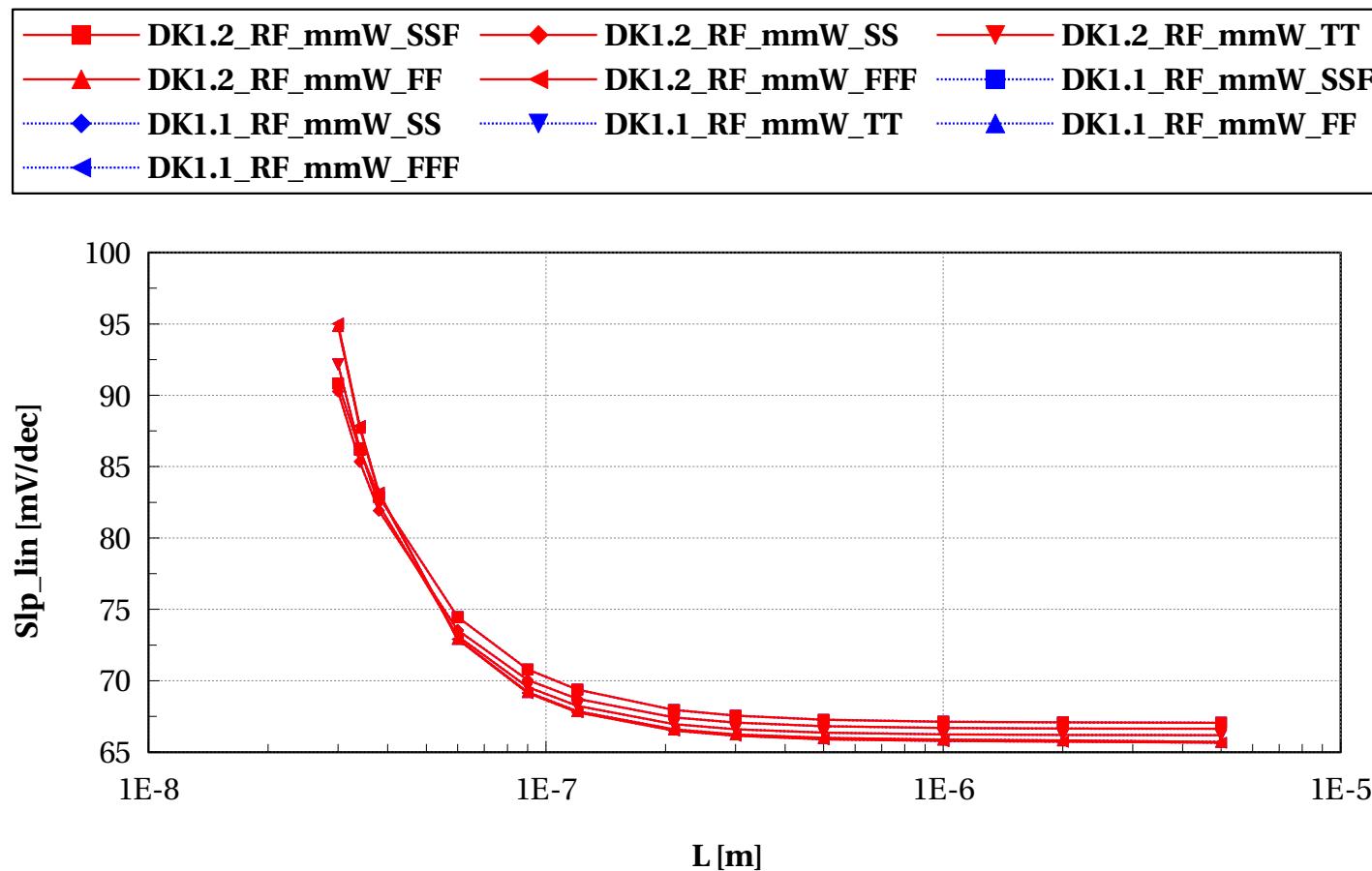
lvtnfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



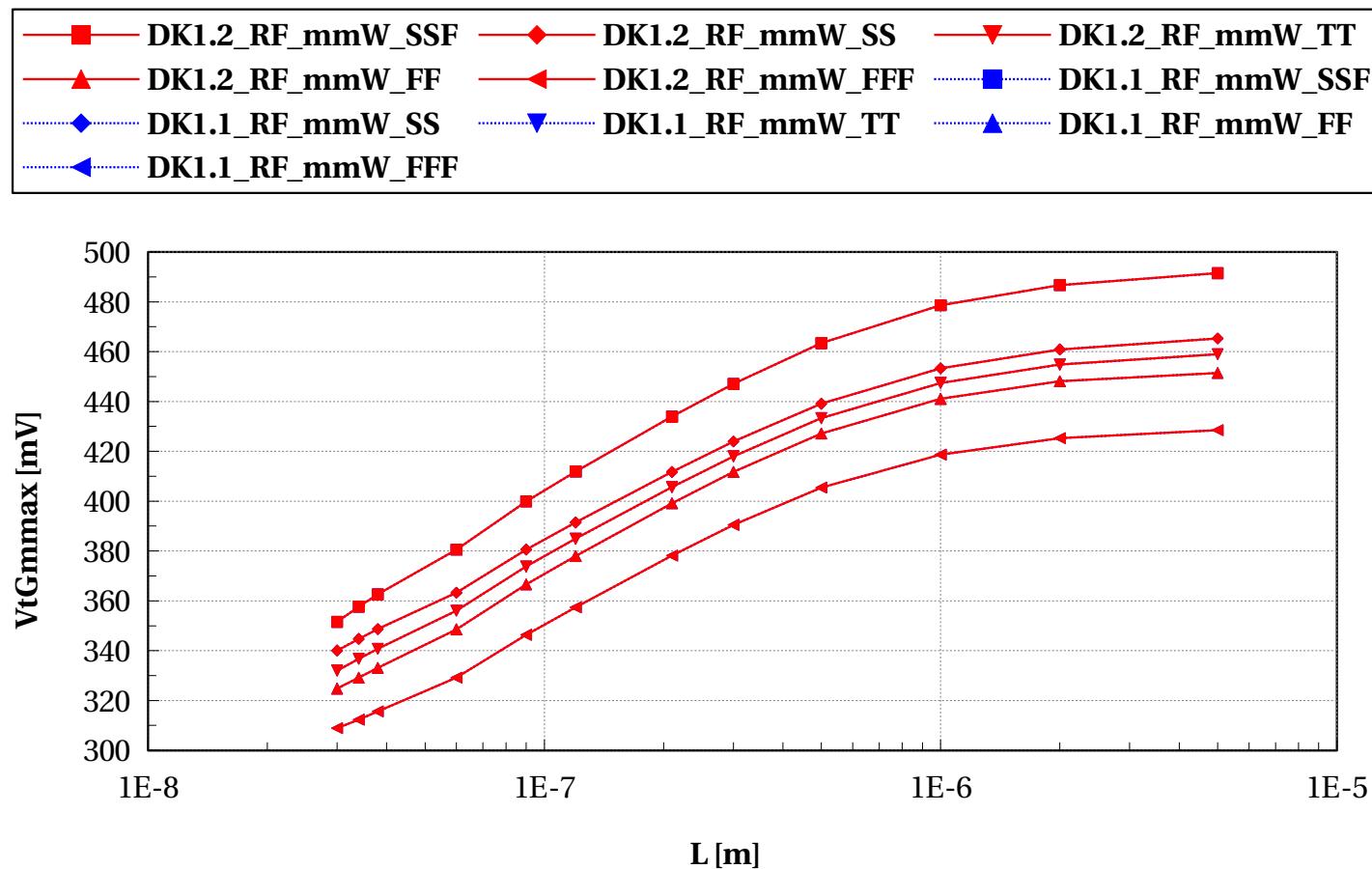
lvtnfet_acc, Slp_lin [mV/dec] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



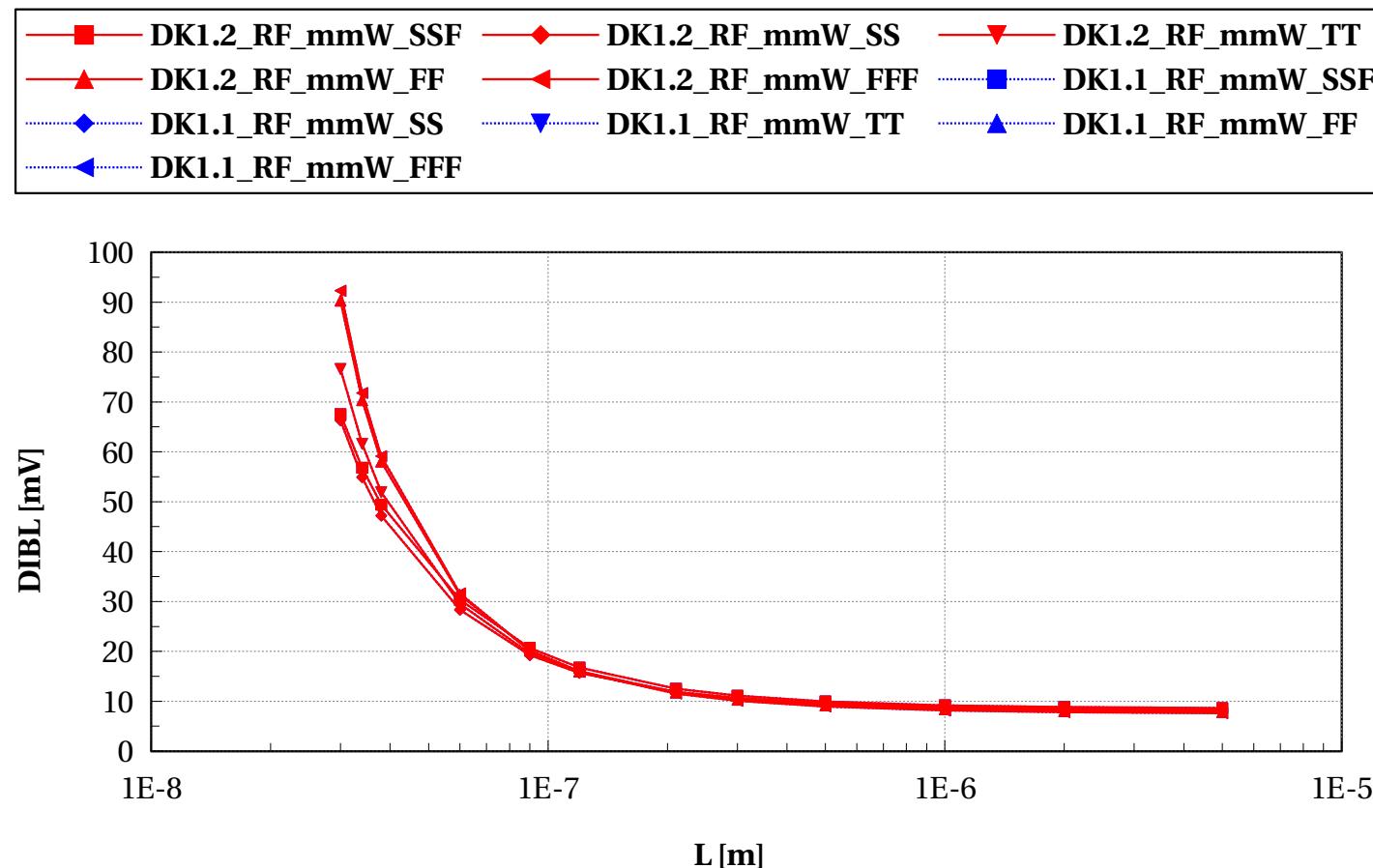
lvtnfet_acc, VtGmmax [mV] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



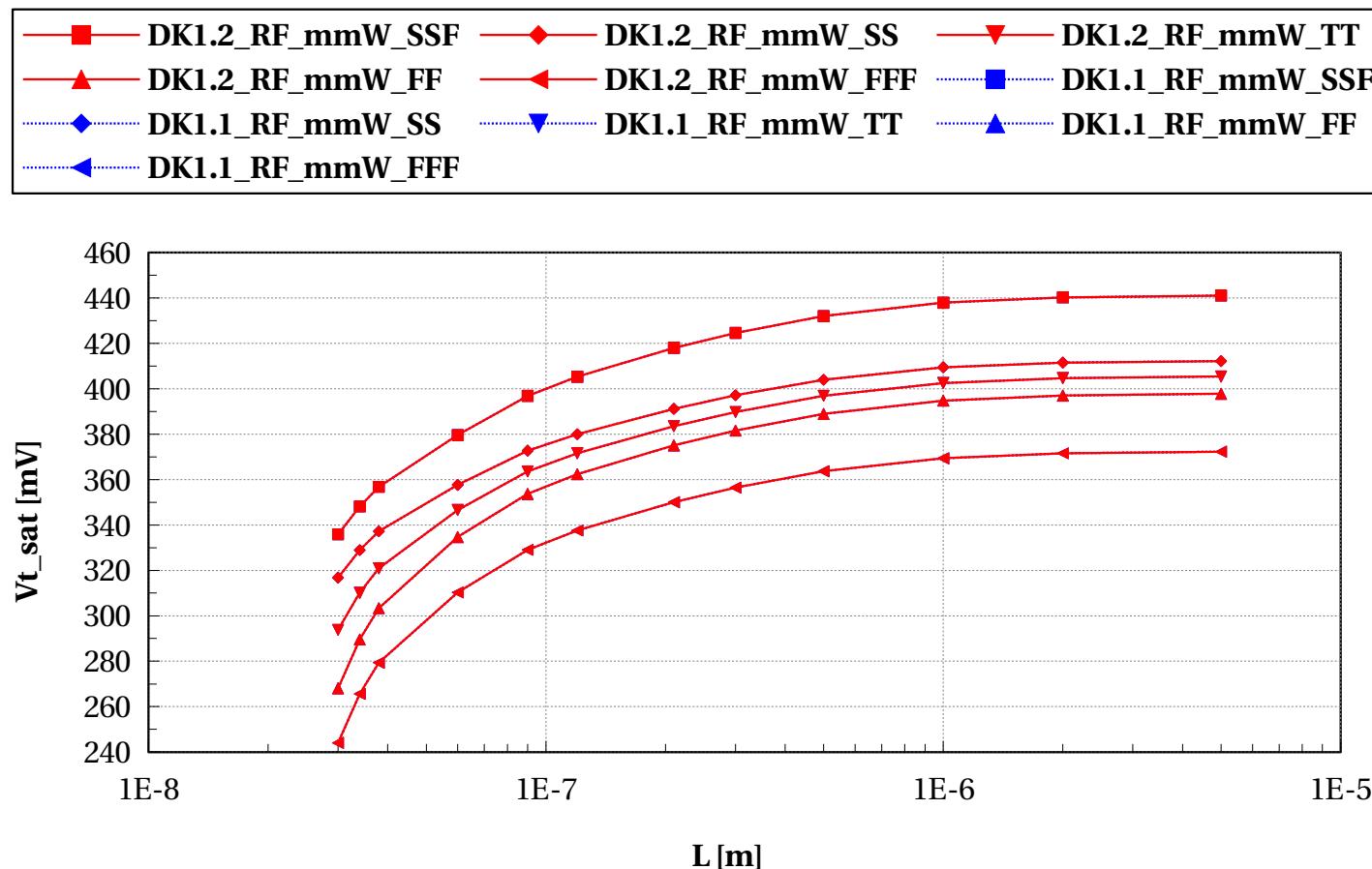
lvtnfet_acc, DIBL [mV] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



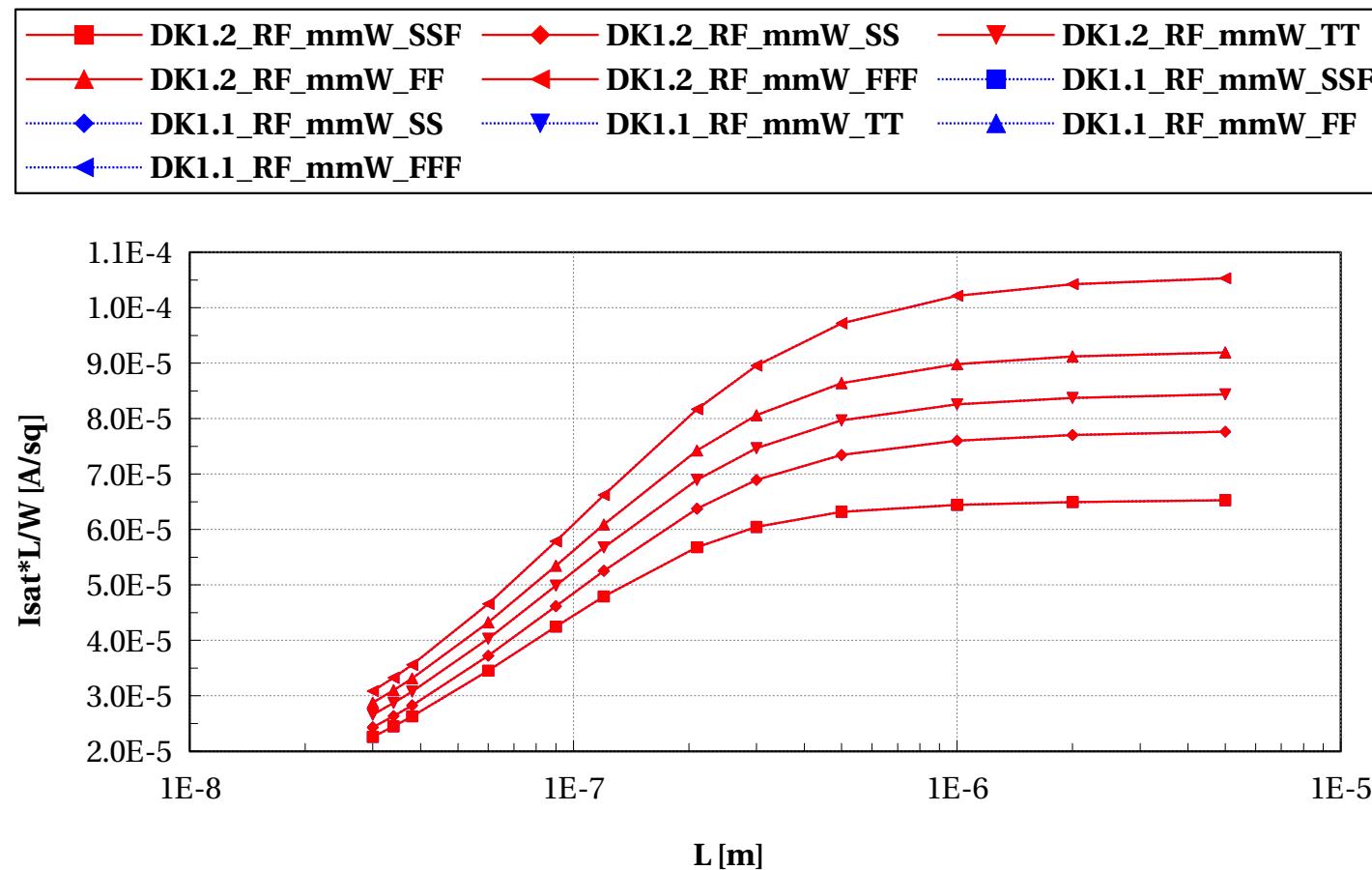
lvtnfet_acc, Vt_sat [mV] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



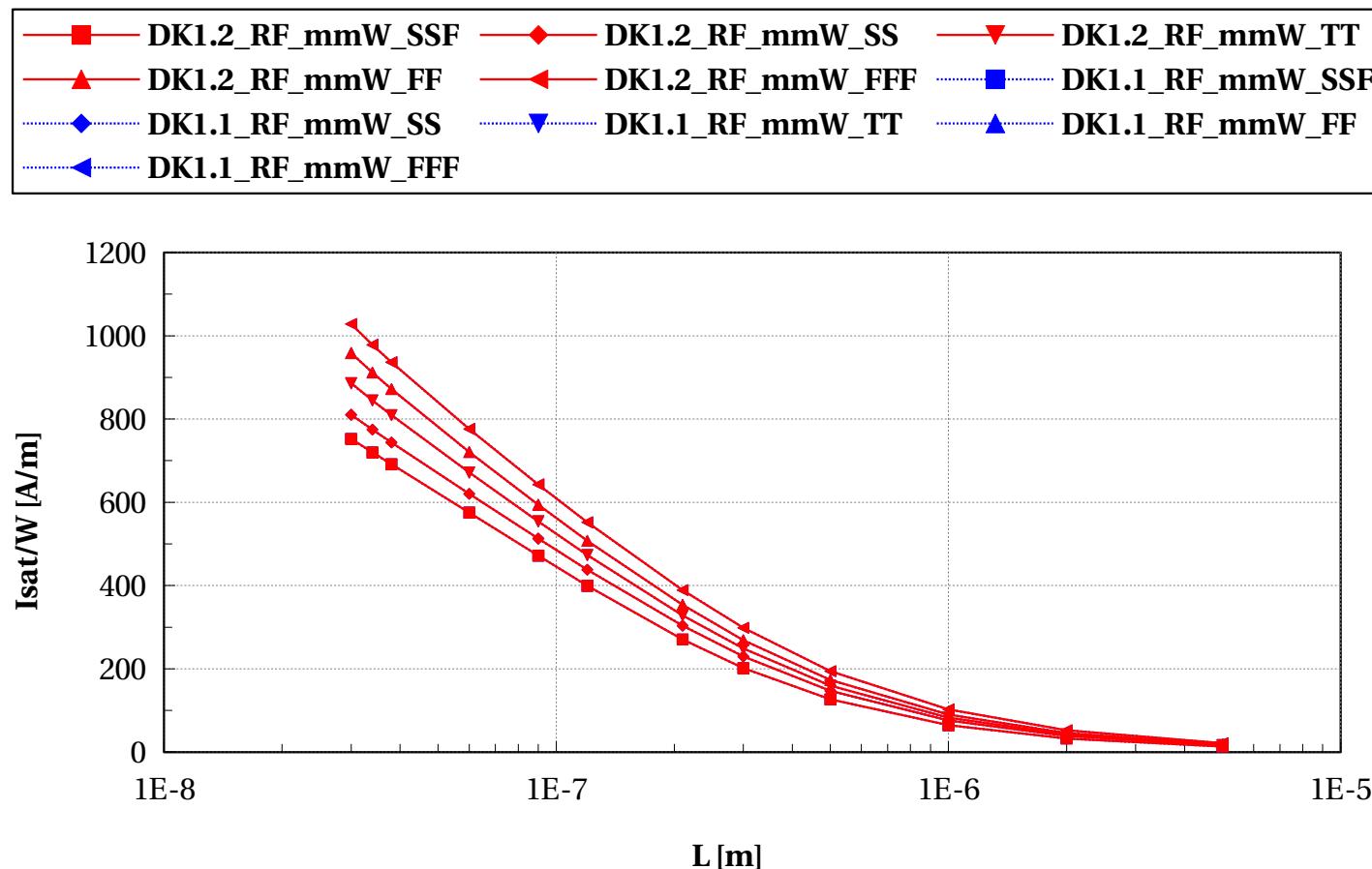
lvtnfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs L [m]

$w=0.21e-6$ and $Temp=25$ and $V_{bs}=0$ and $p_{la}=0$ and $devType="PCELLwoWPE"$



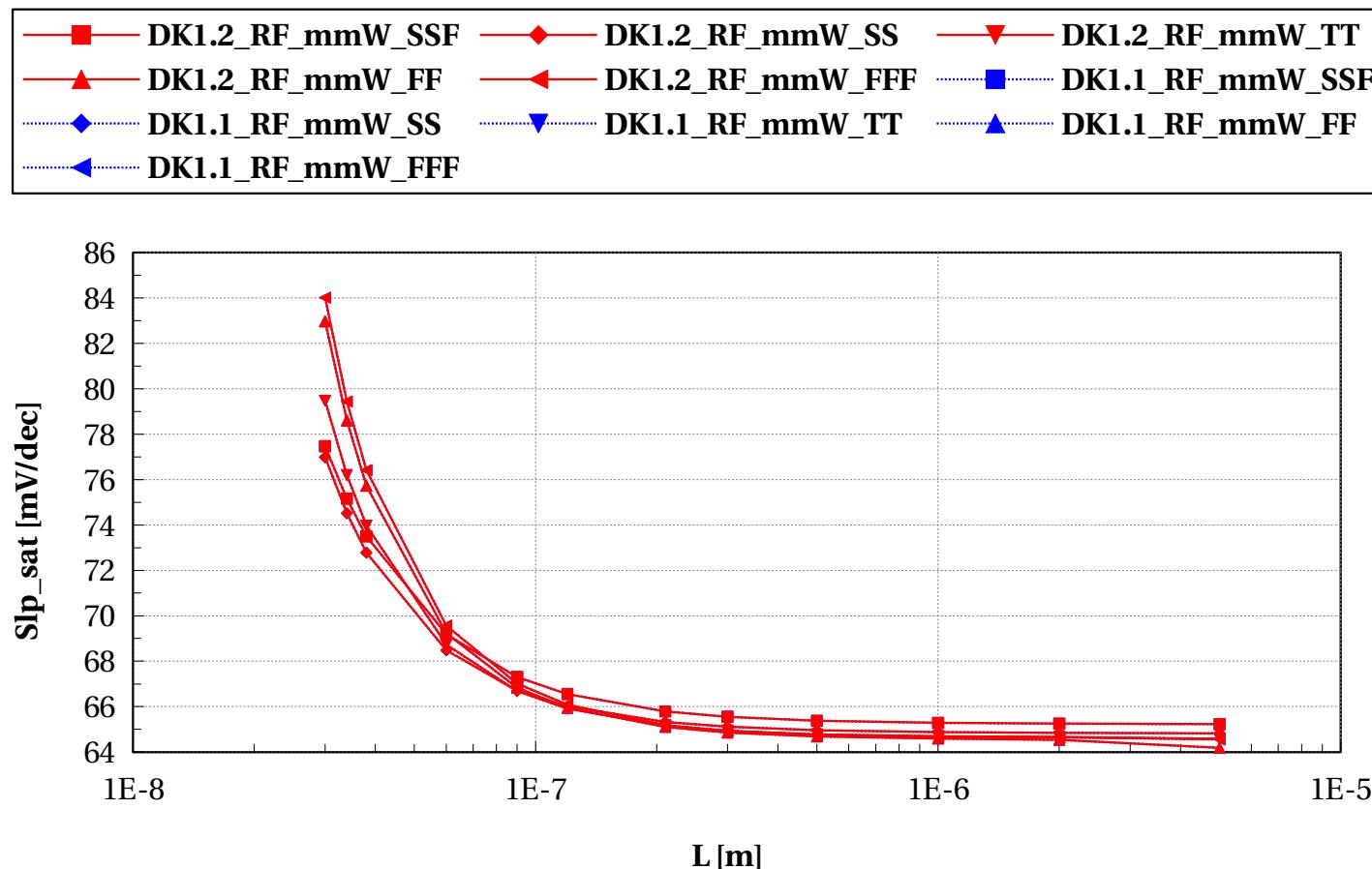
lvtnfet_acc, Isat/W [A/m] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



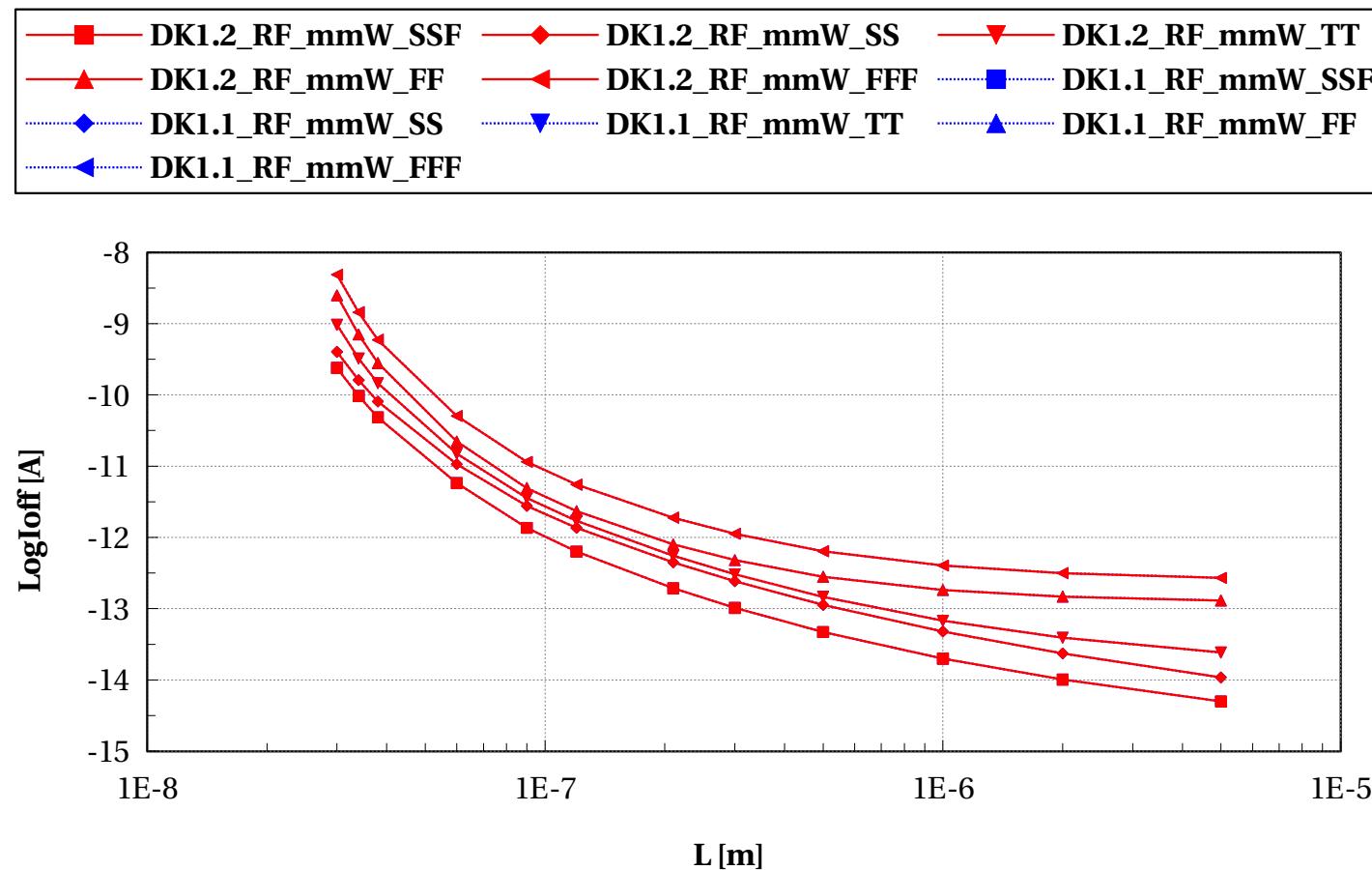
lvtnfet_acc, Slp_sat [mV/dec] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



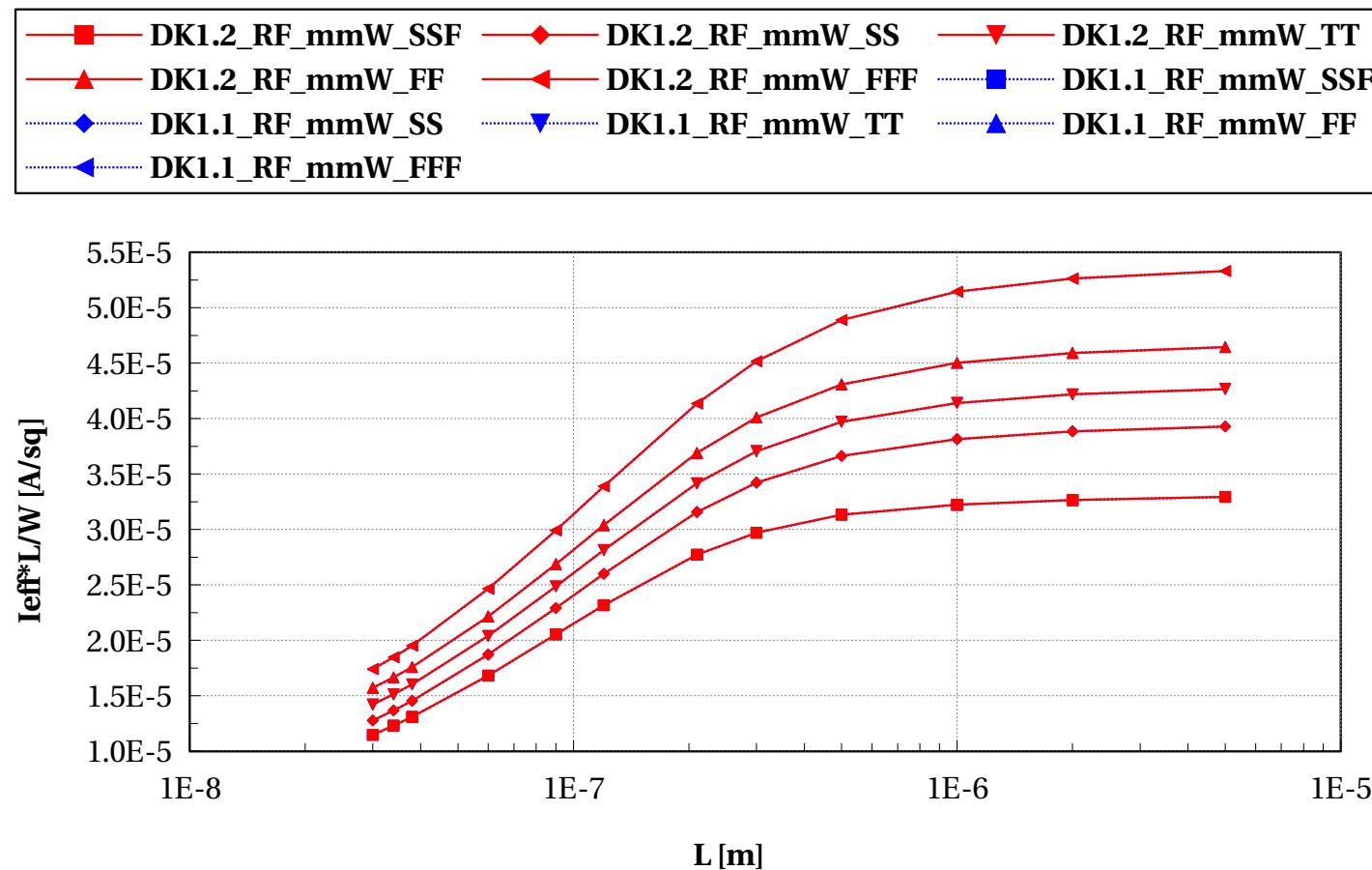
lvtnfet_acc, LogIoff [A] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



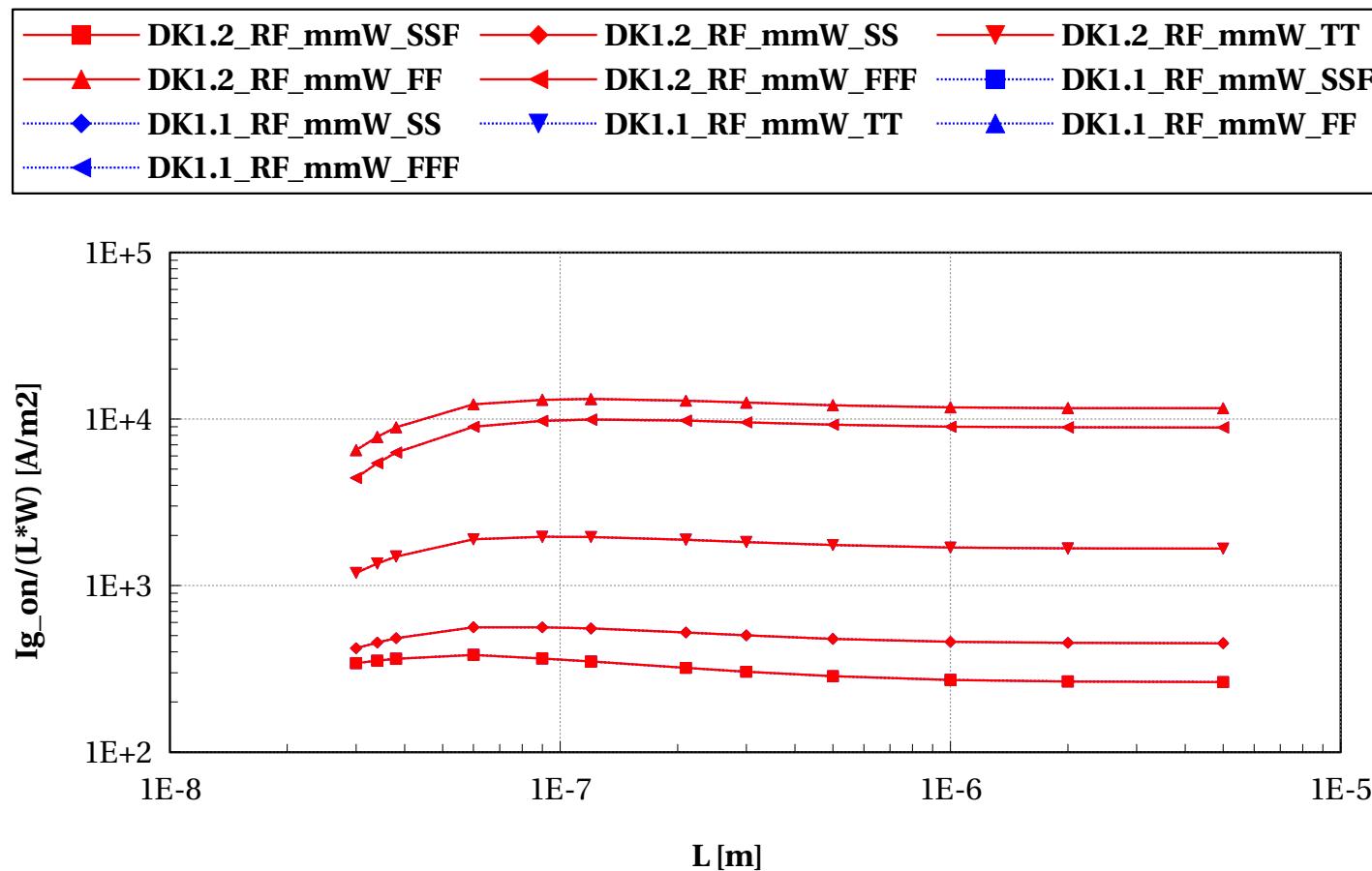
lvtnfet_acc, Ieff*L/W [A/sq] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



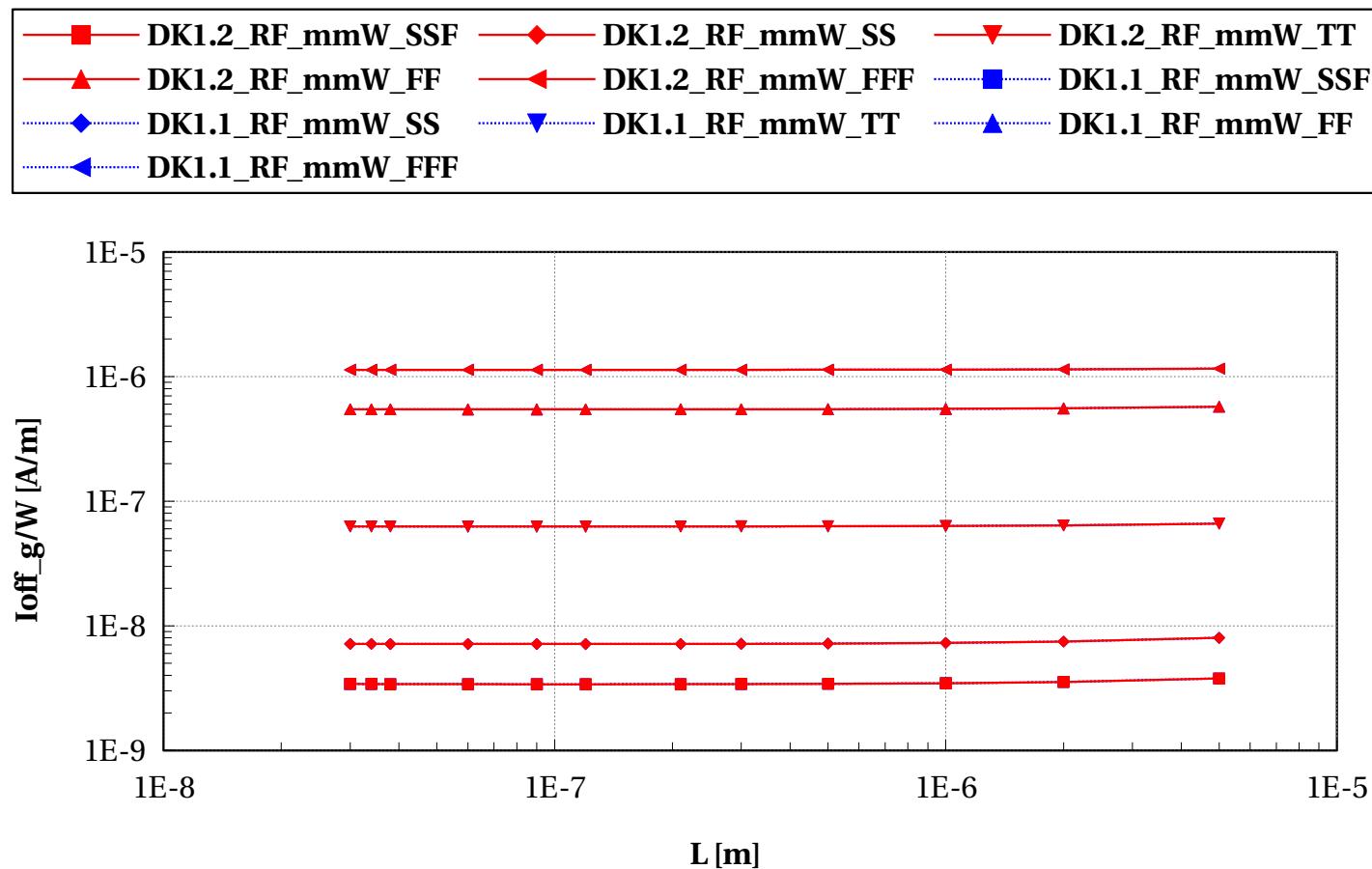
lvtnfet_acc, Ig_on/(L*W) [A/m2] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



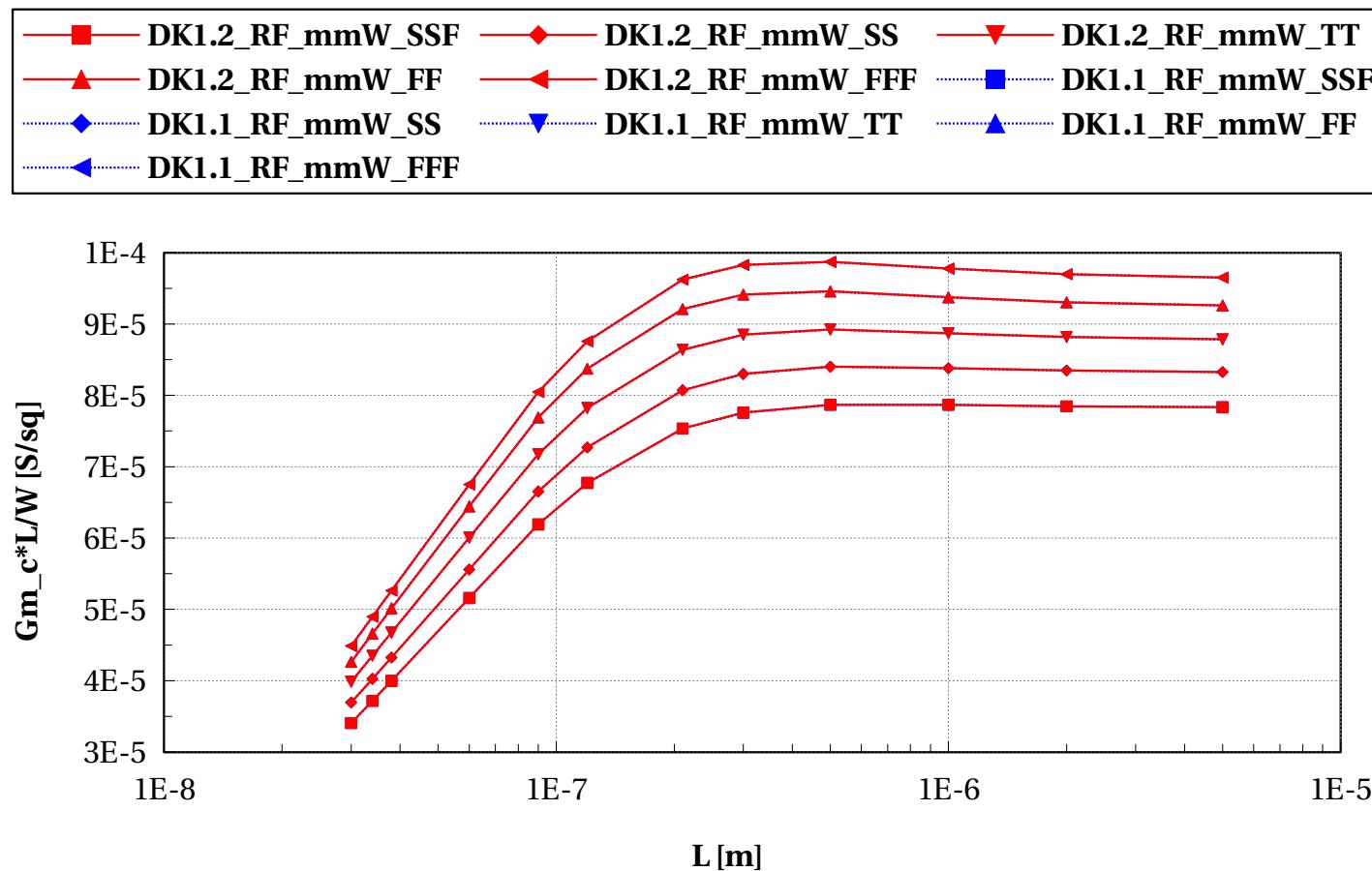
lvtnfet_acc, Ioff_g/W [A/m] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



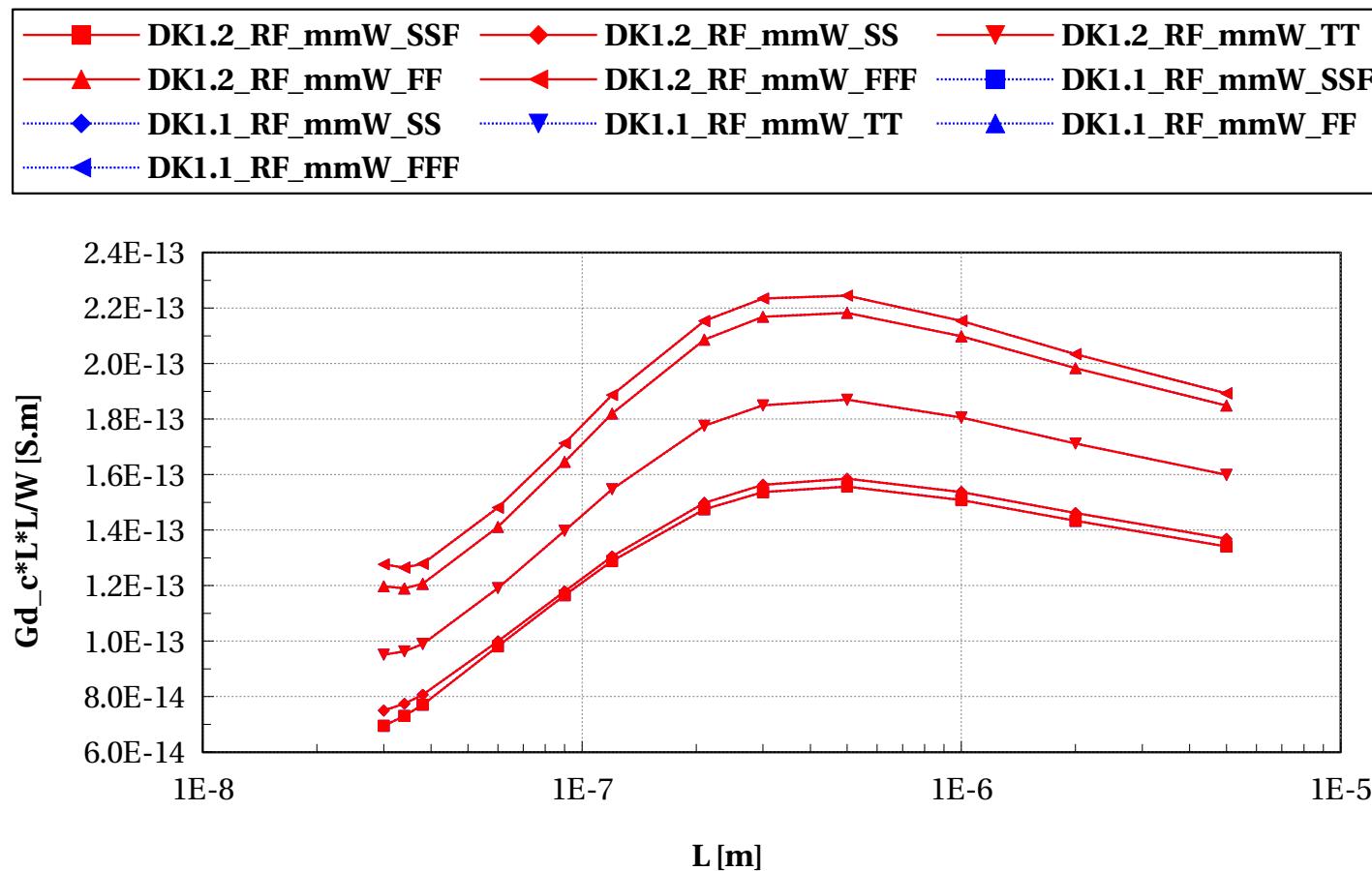
lvtnfet_acc, $Gm_c \cdot L/W$ [S/sq] vs L [m]

$w=0.21e-6$ and $Temp=25$ and $Vbs=0$ and $p_la=0$ and $devType="PCELLwoWPE"$



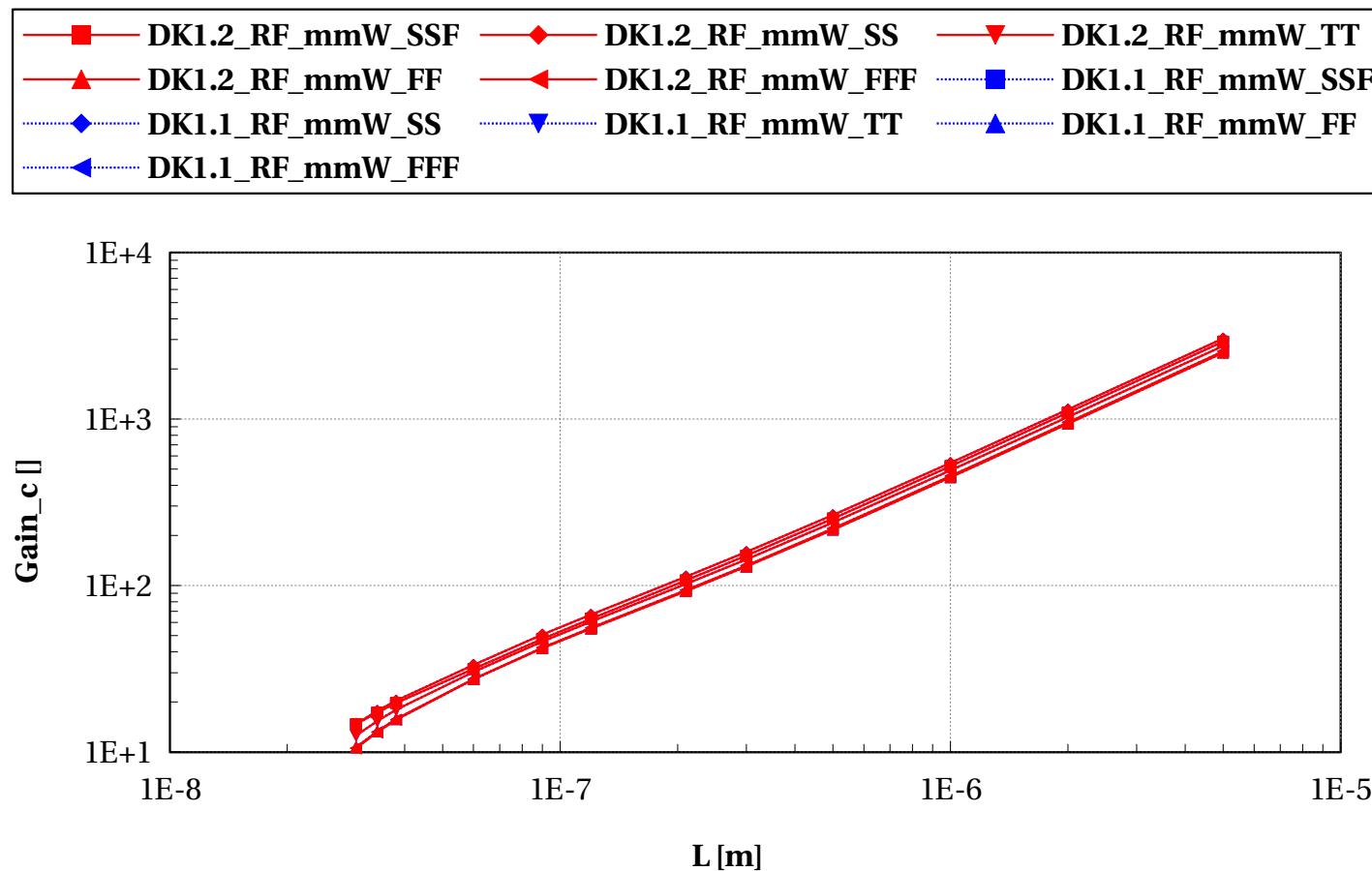
lvtnfet_acc, Gd_c*L/W [S.m] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



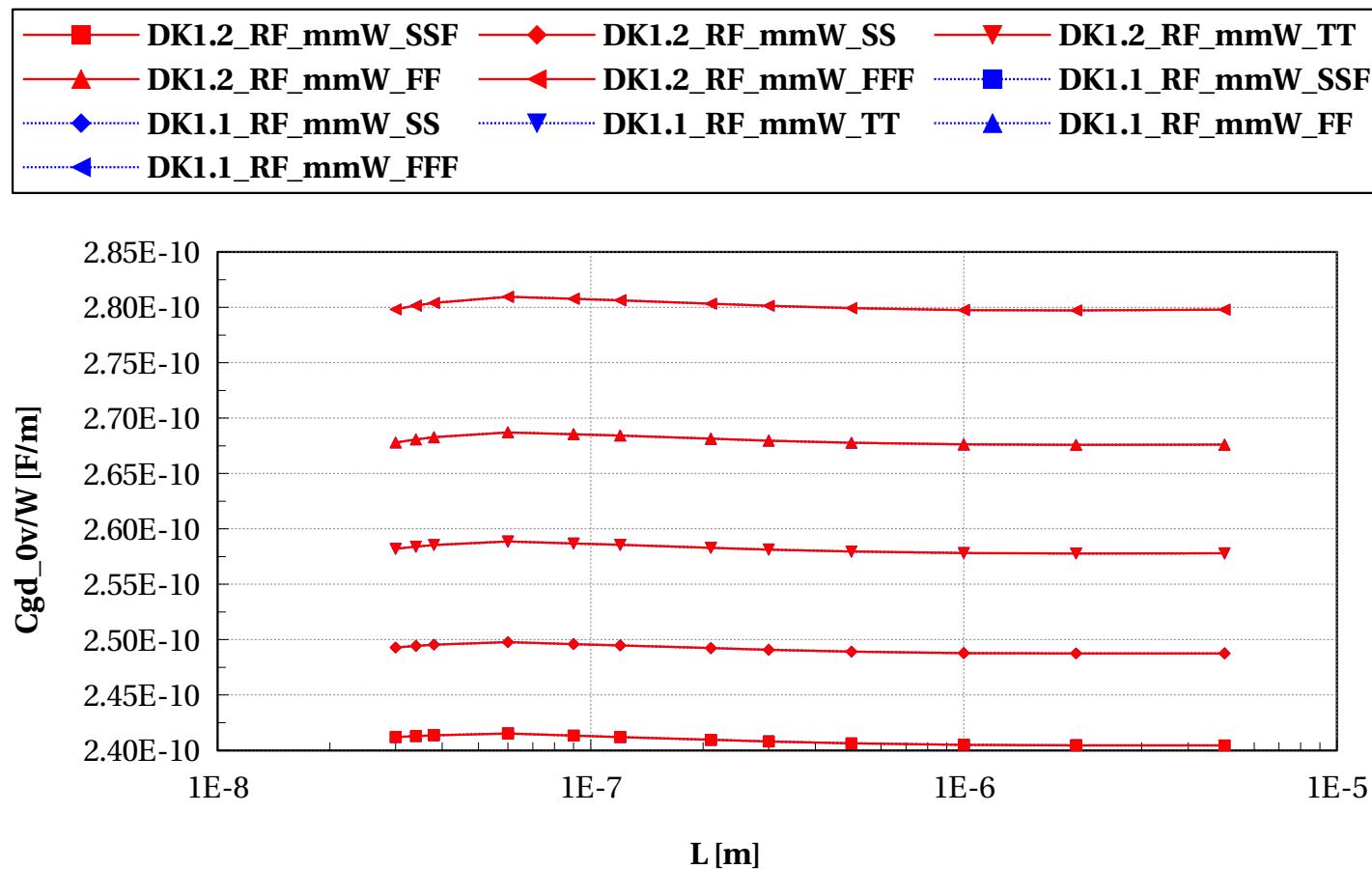
lvtnfet_acc, Gain_c [] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



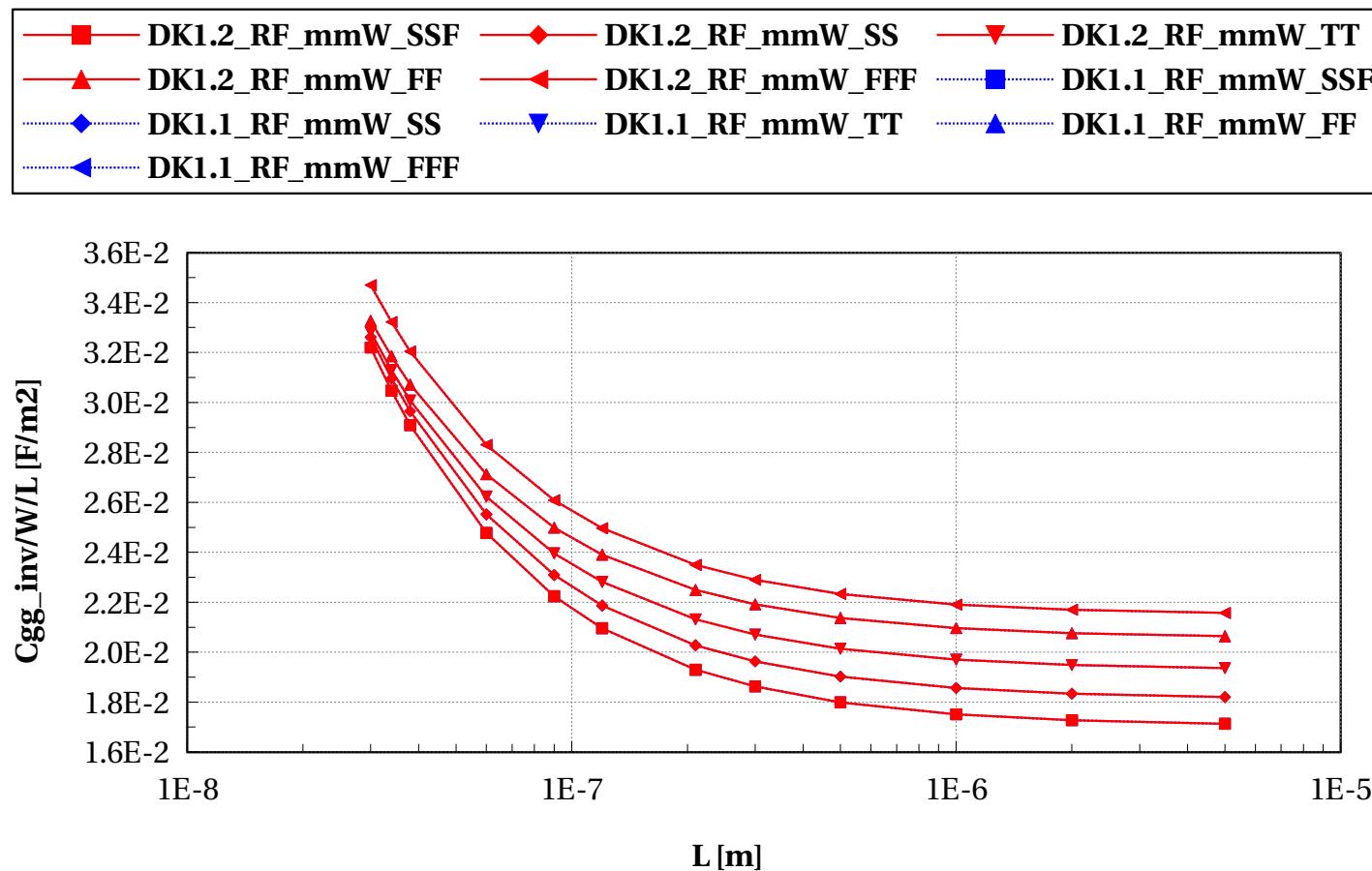
lvtnfet_acc, Cgd_0v/W [F/m] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



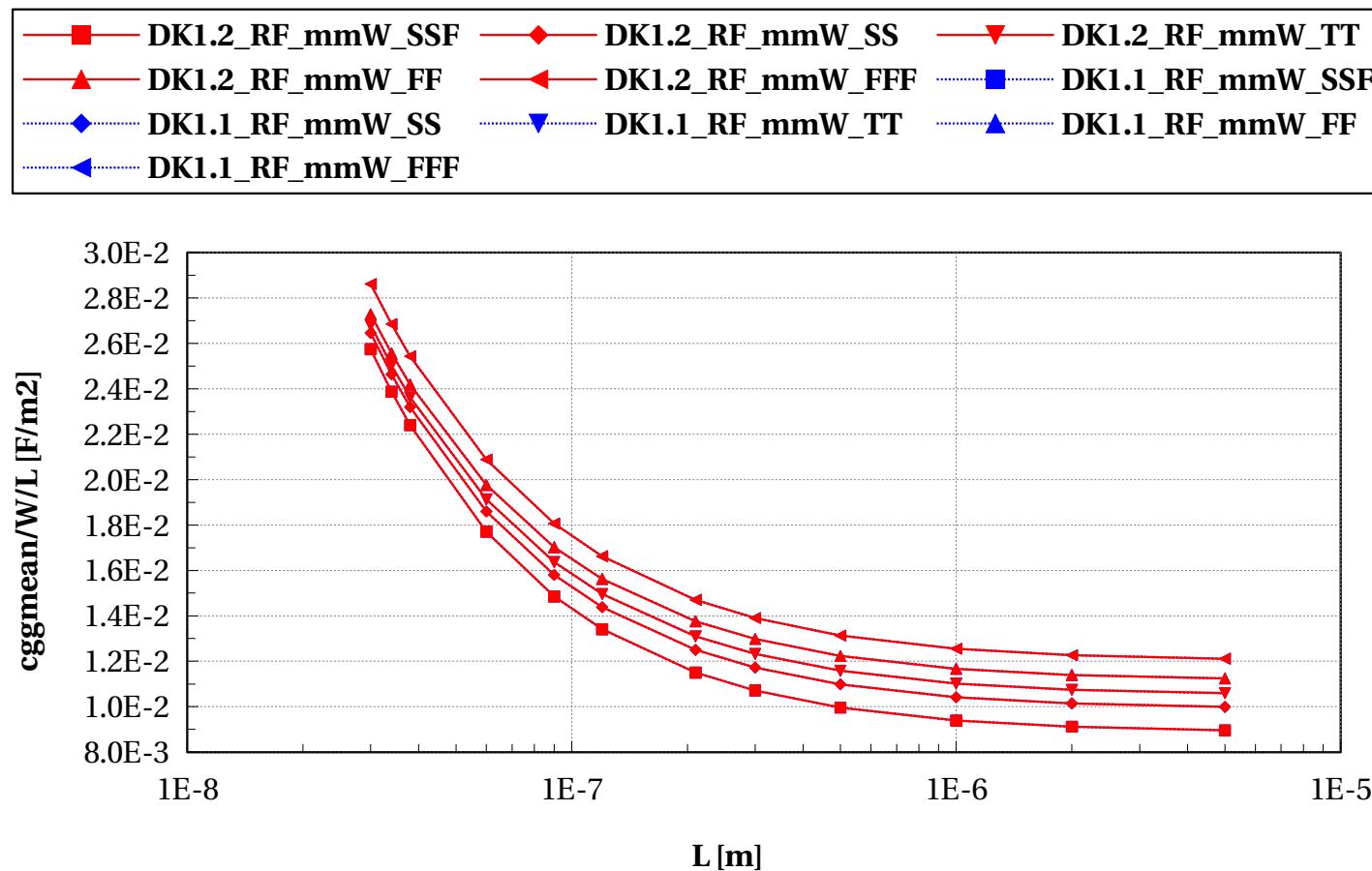
lvtnfet_acc, C_{gg}_inv/W/L [F/m²] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



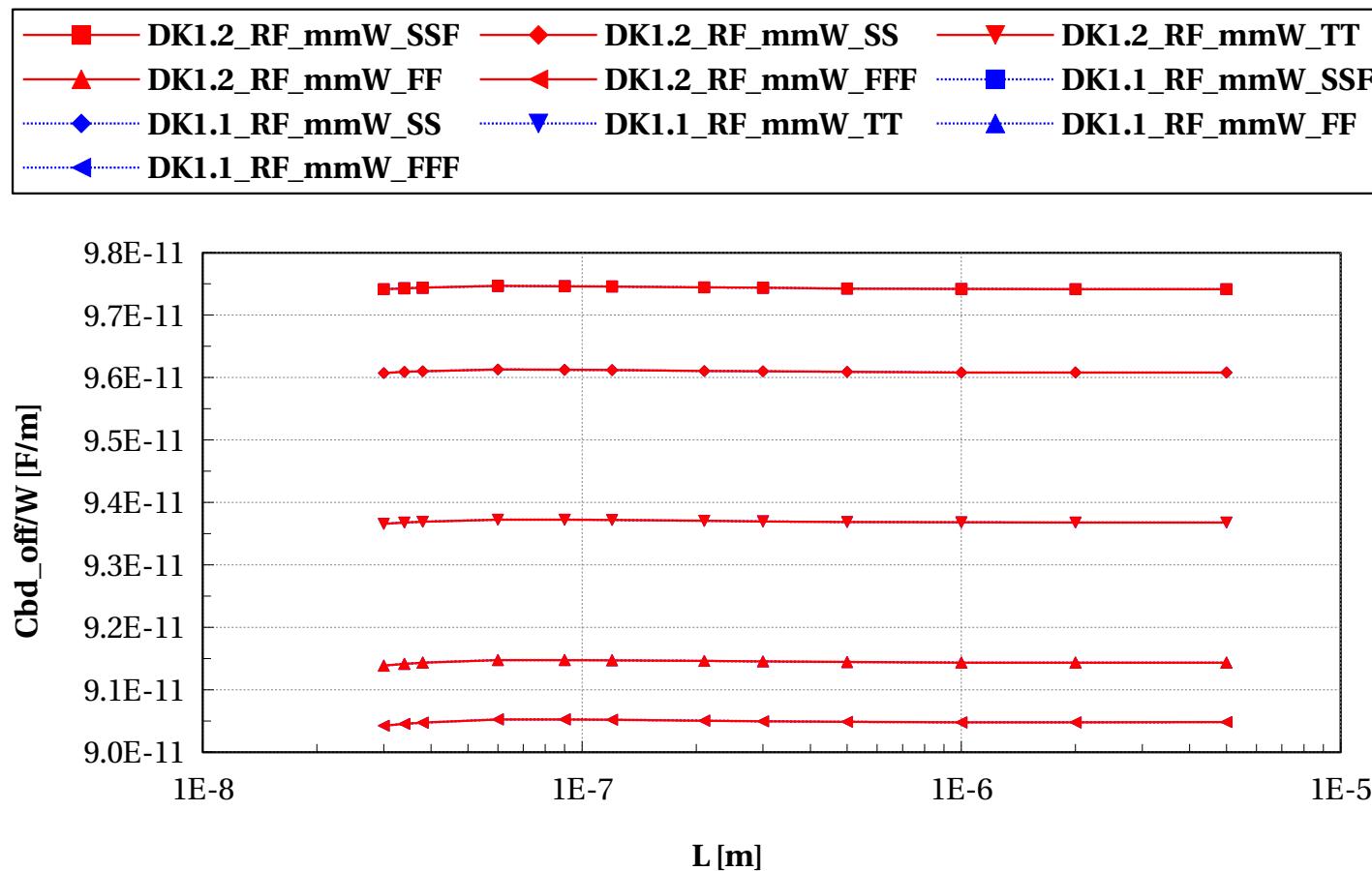
lvtnfet_acc, cgmean/W/L [F/m²] vs L [m]

w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Cbd_off/W [F/m] vs L [m]

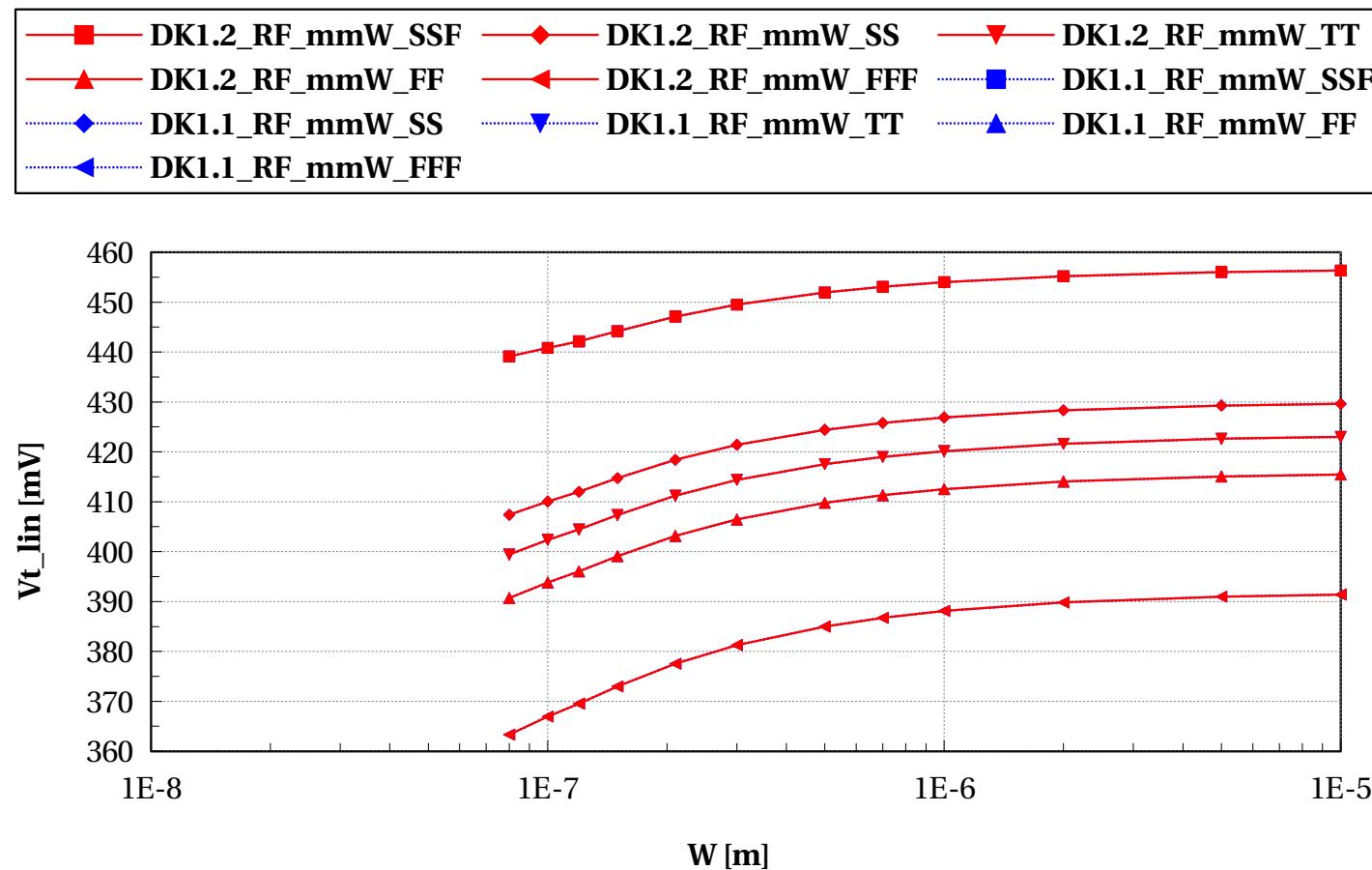
w==0.21e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Width (L=1um)

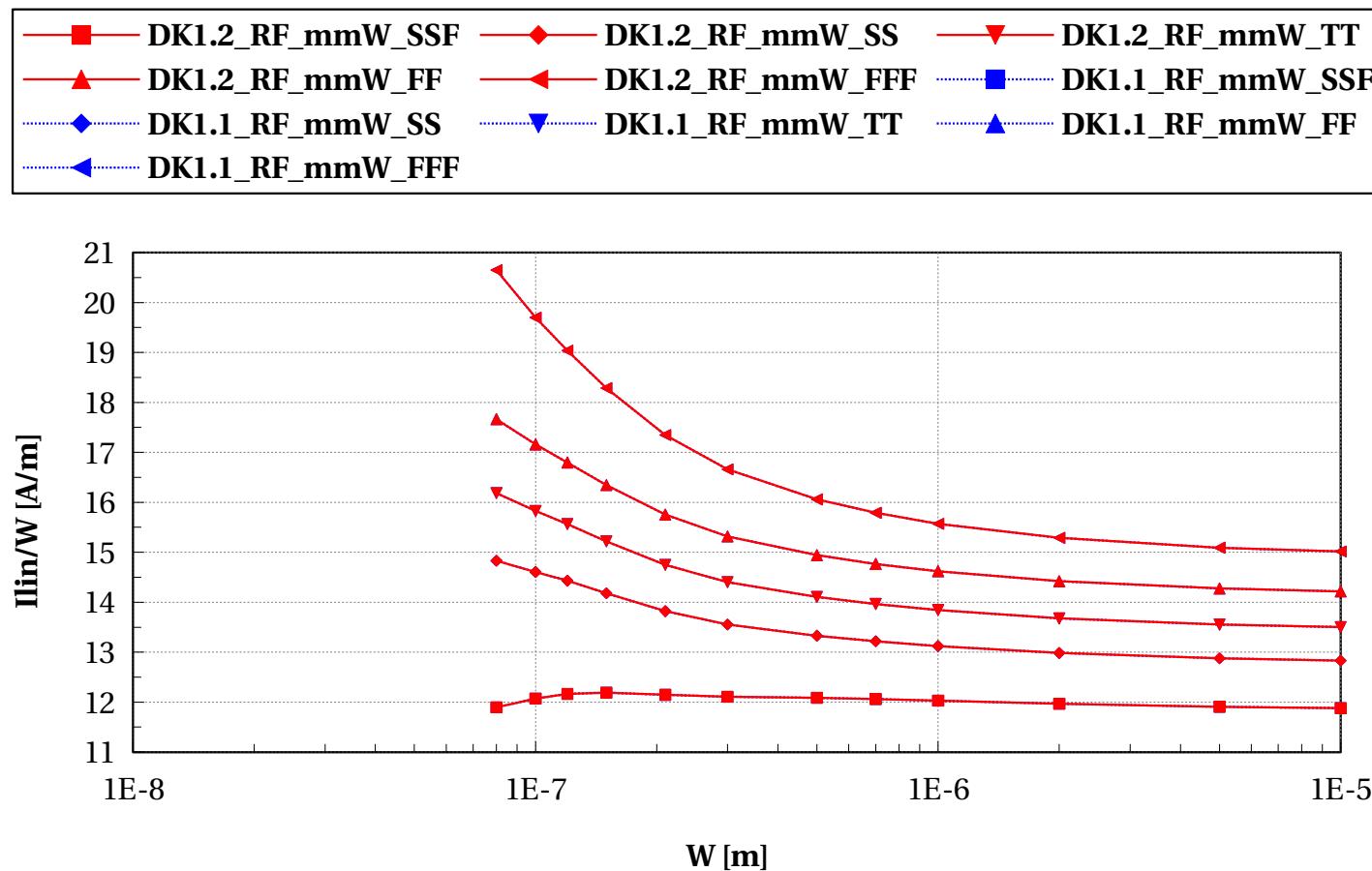
lvtnfet_acc, Vt_lin [mV] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



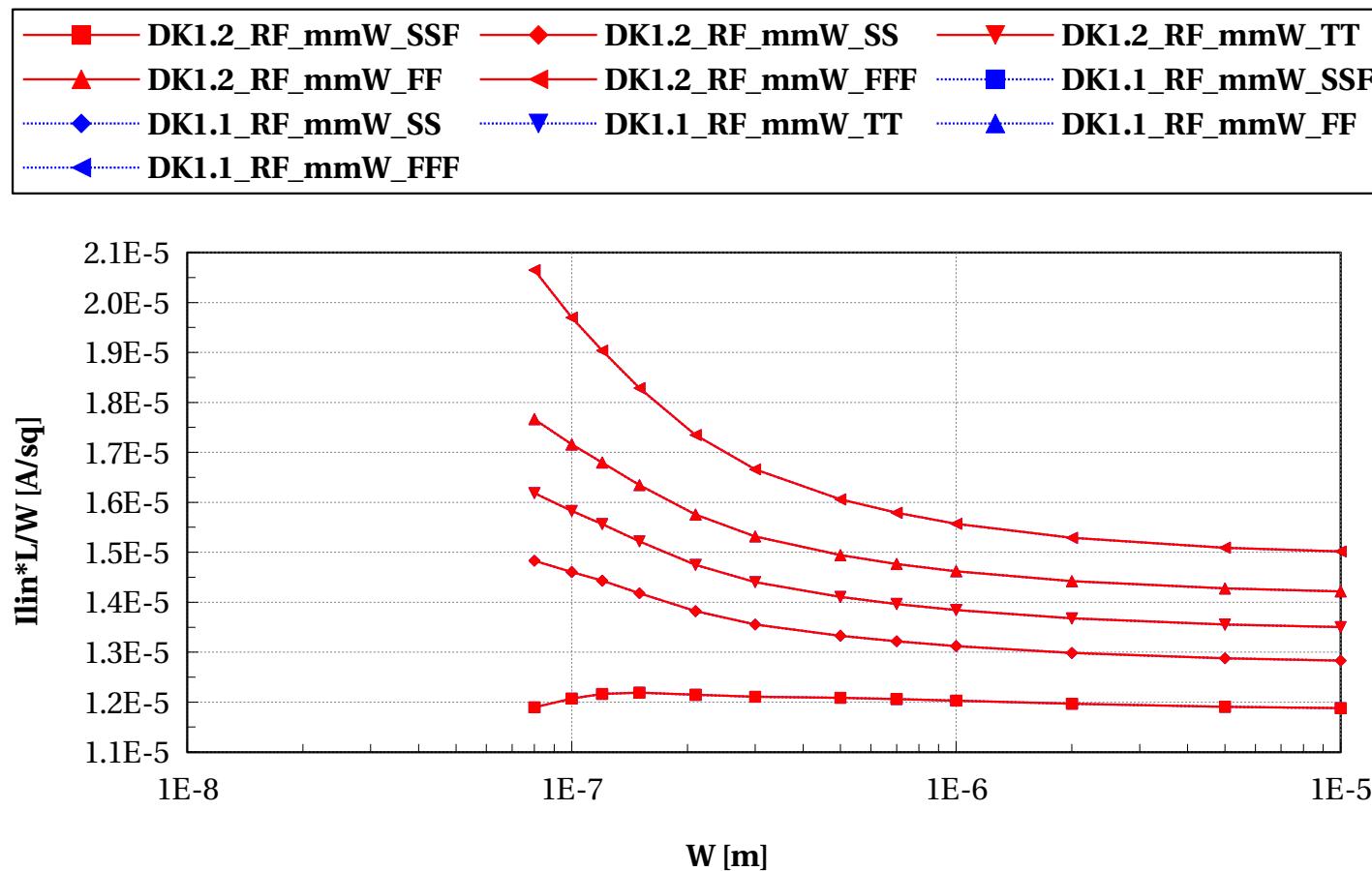
Ivtnfet_acc, Ilin/W [A/m] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



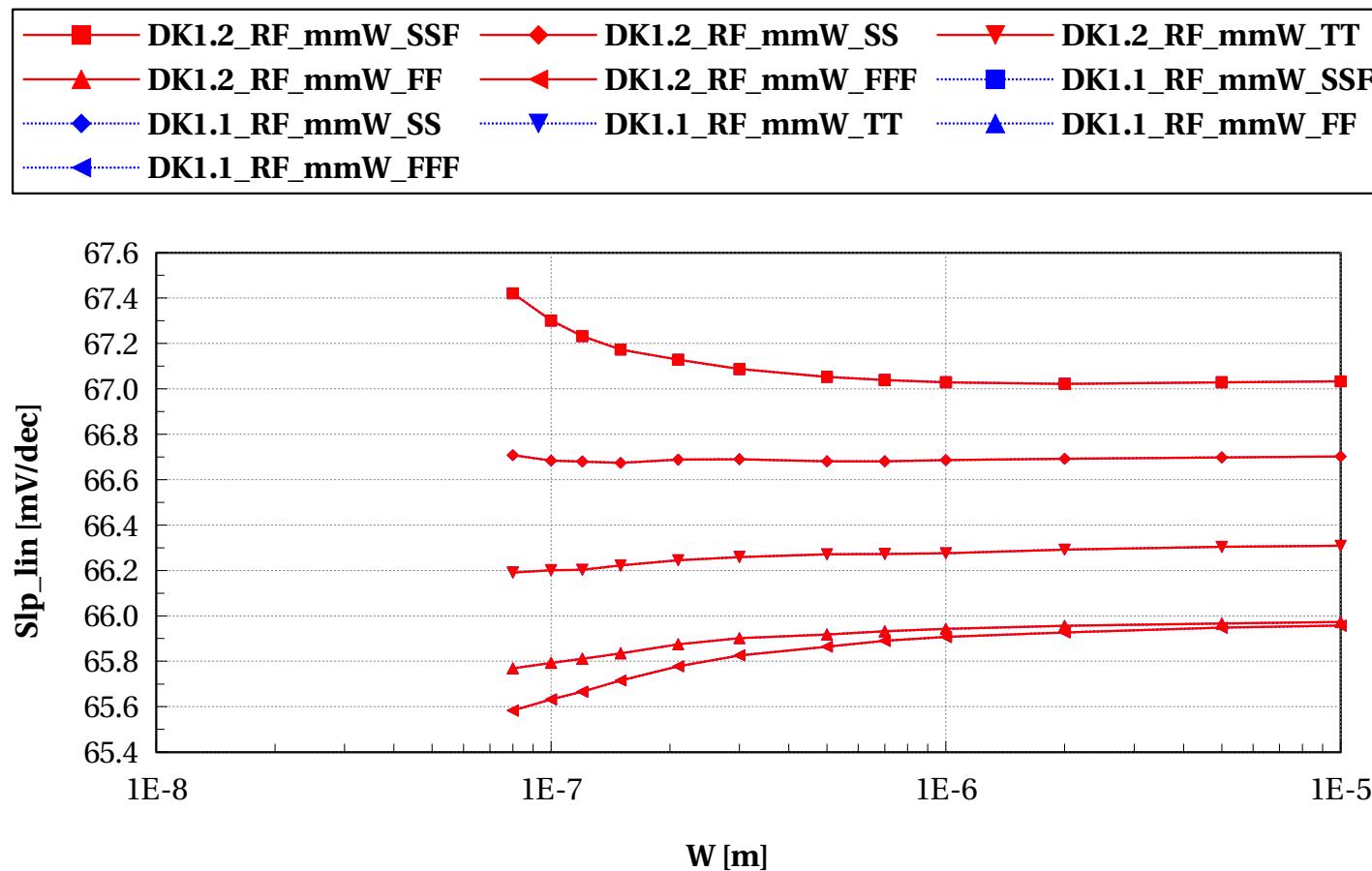
lvtnfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs W [m]

$I == 1e-6$ and $Temp == 25$ and $V_{bs} == 0$ and $p_la == 0$ and $devType == "PCELLwoWPE"$



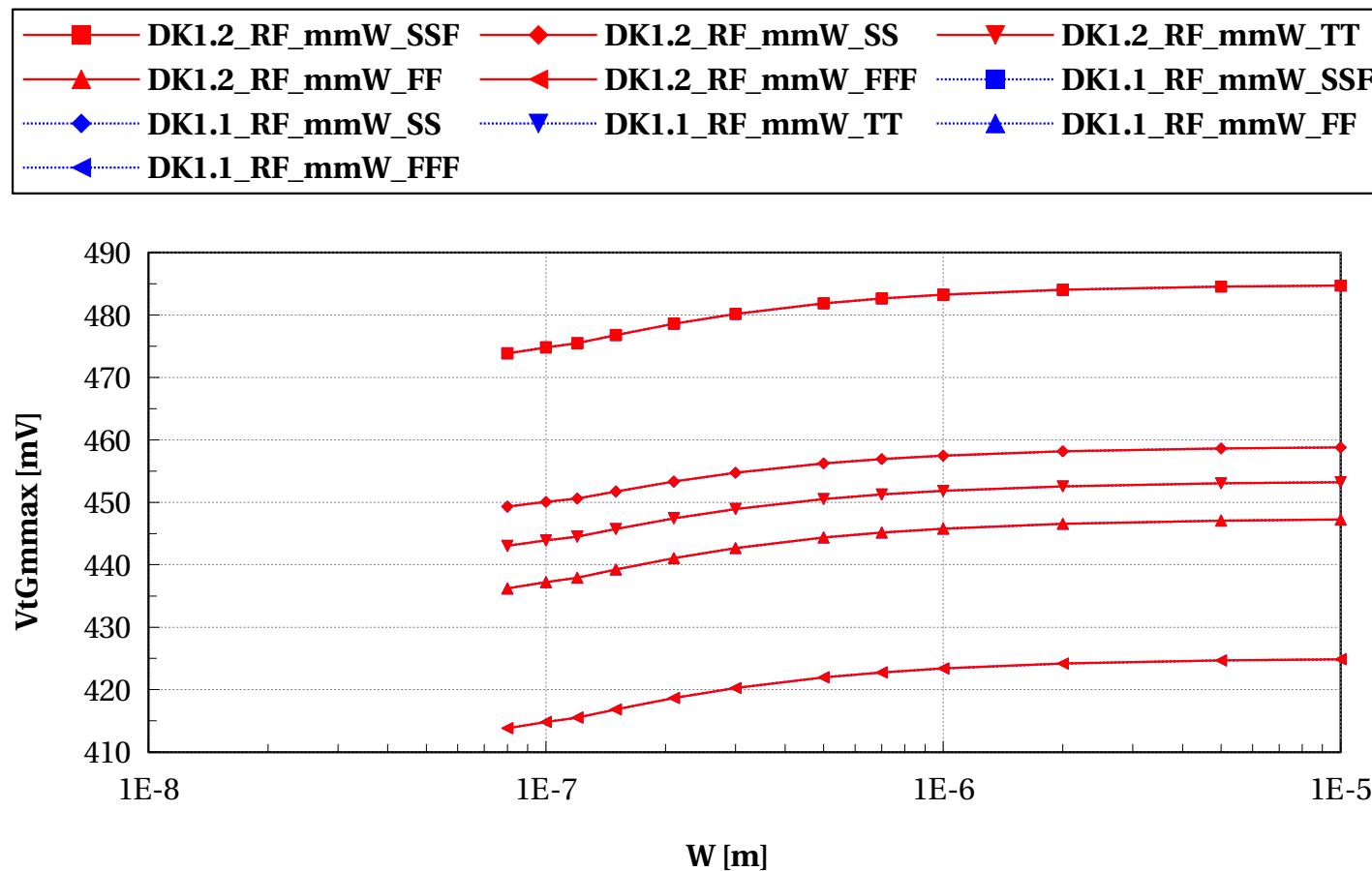
lvtnfet_acc, Slp_lin [mV/dec] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



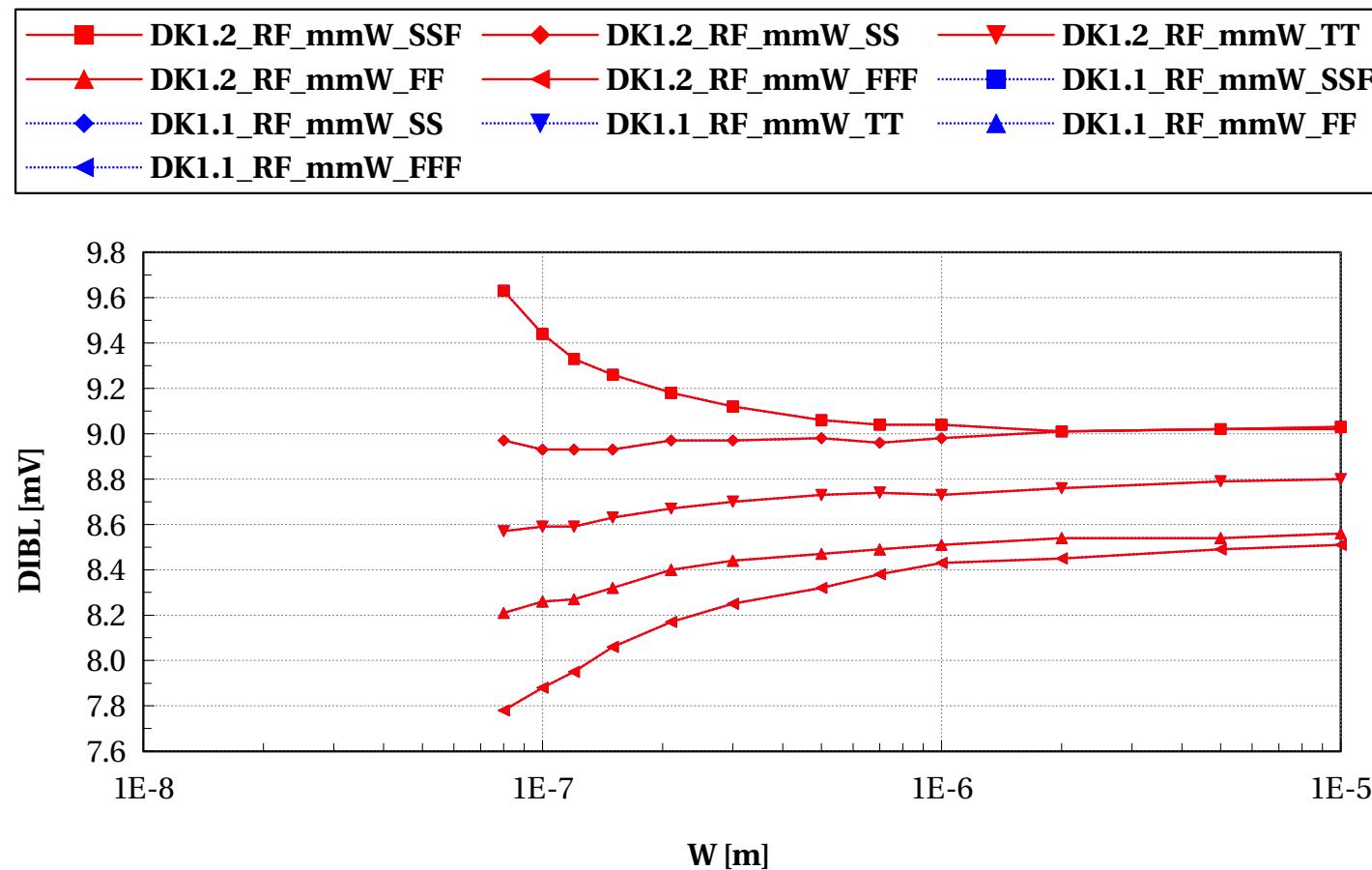
lvtnfet_acc, VtGmmax [mV] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



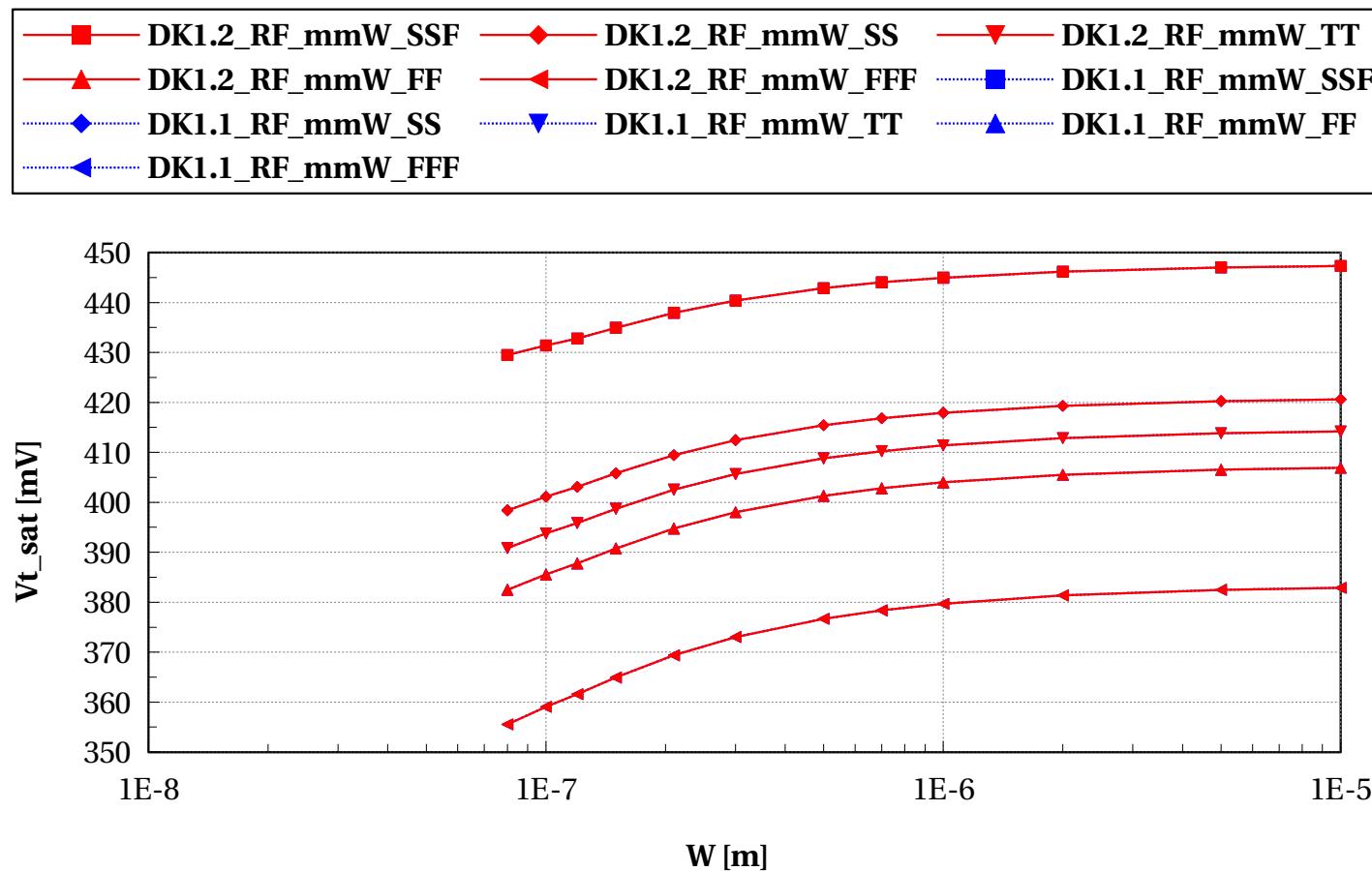
lvtnfet_acc, DIBL [mV] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



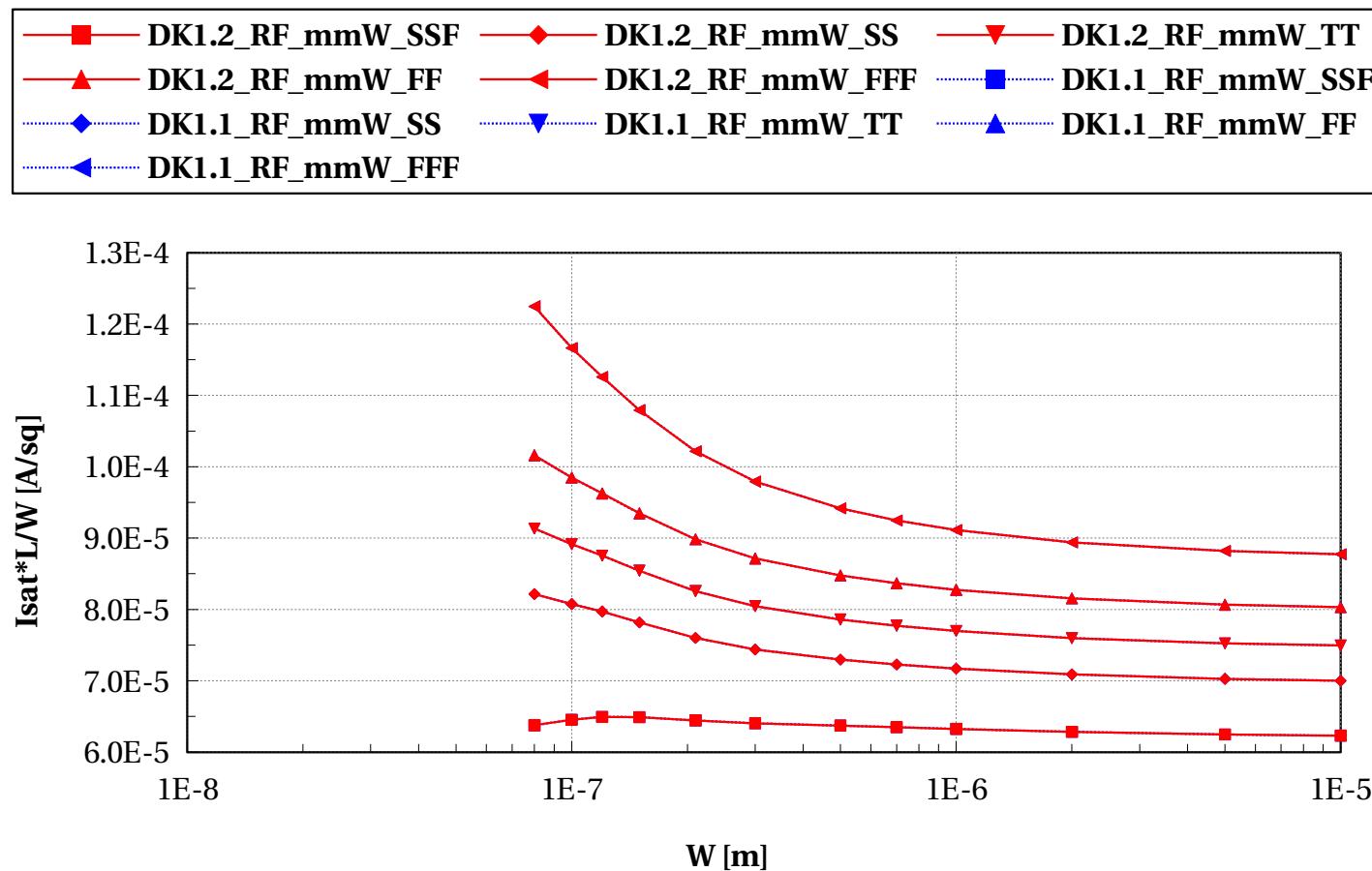
lvtnfet_acc, Vt_sat [mV] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



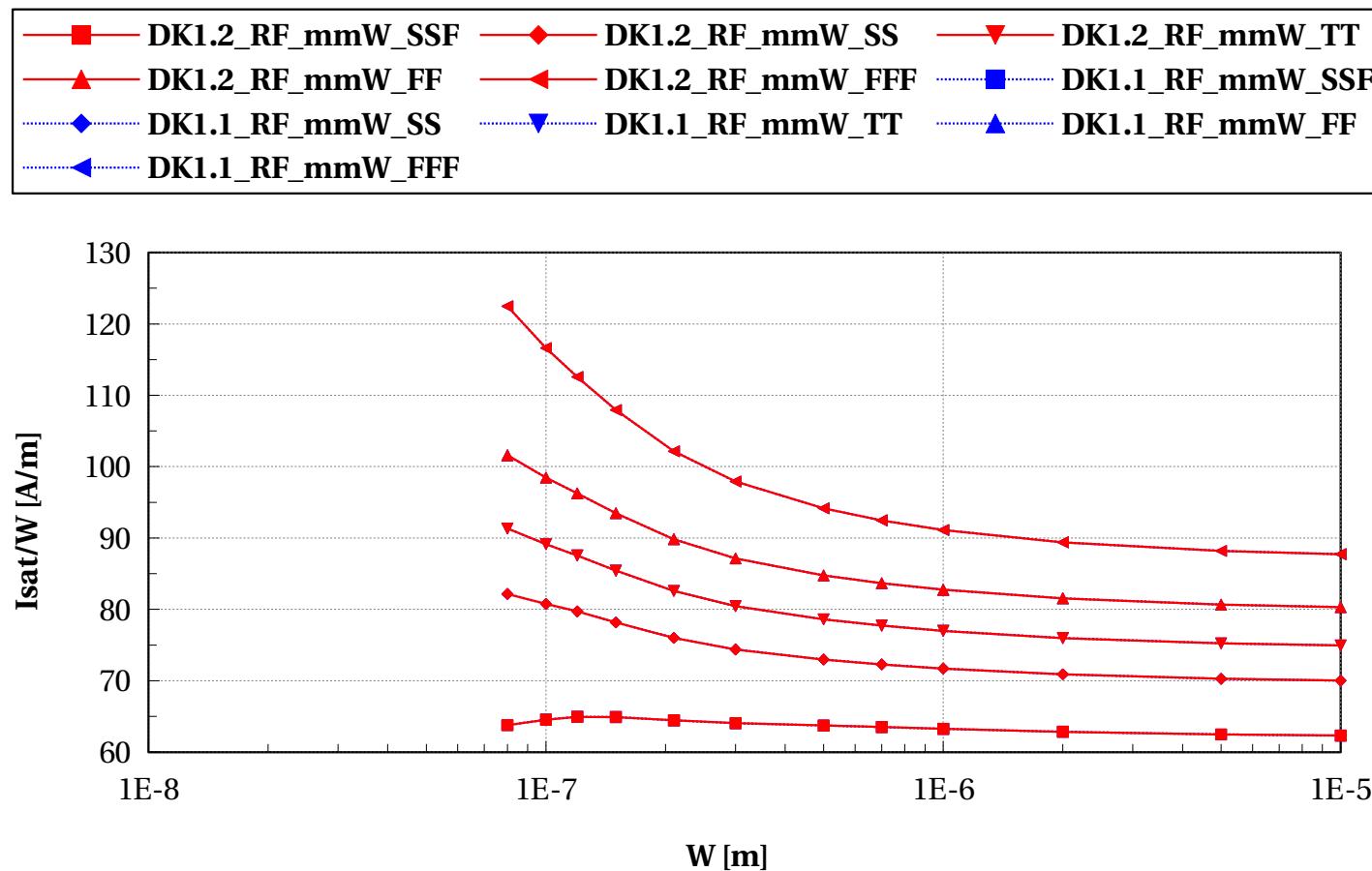
lvtnfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs W [m]

$I=1e-6$ and $Temp=25$ and $V_{bs}=0$ and $p_la=0$ and $devType="PCELLwoWPE"$



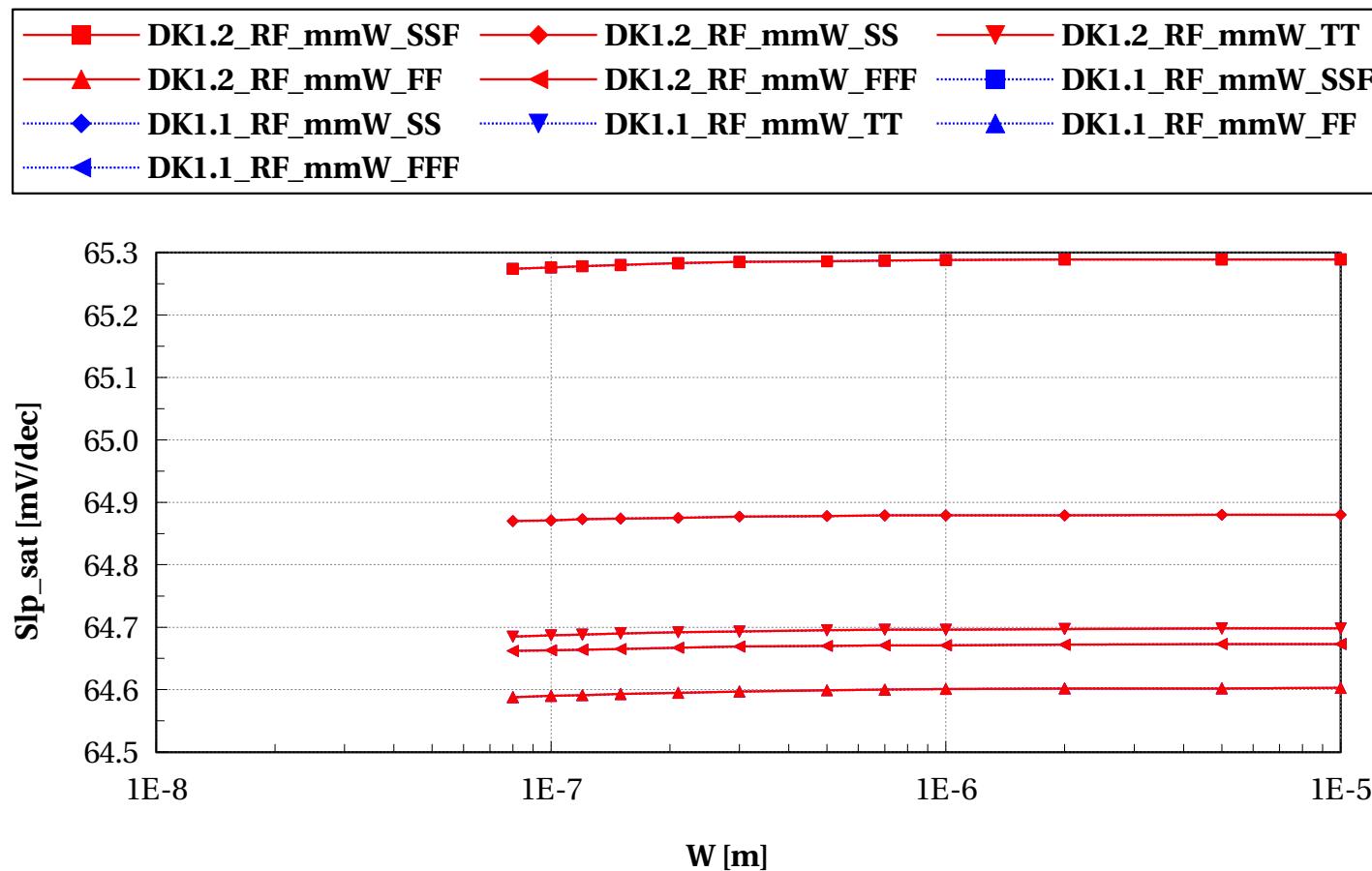
lvtnfet_acc, Isat/W [A/m] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



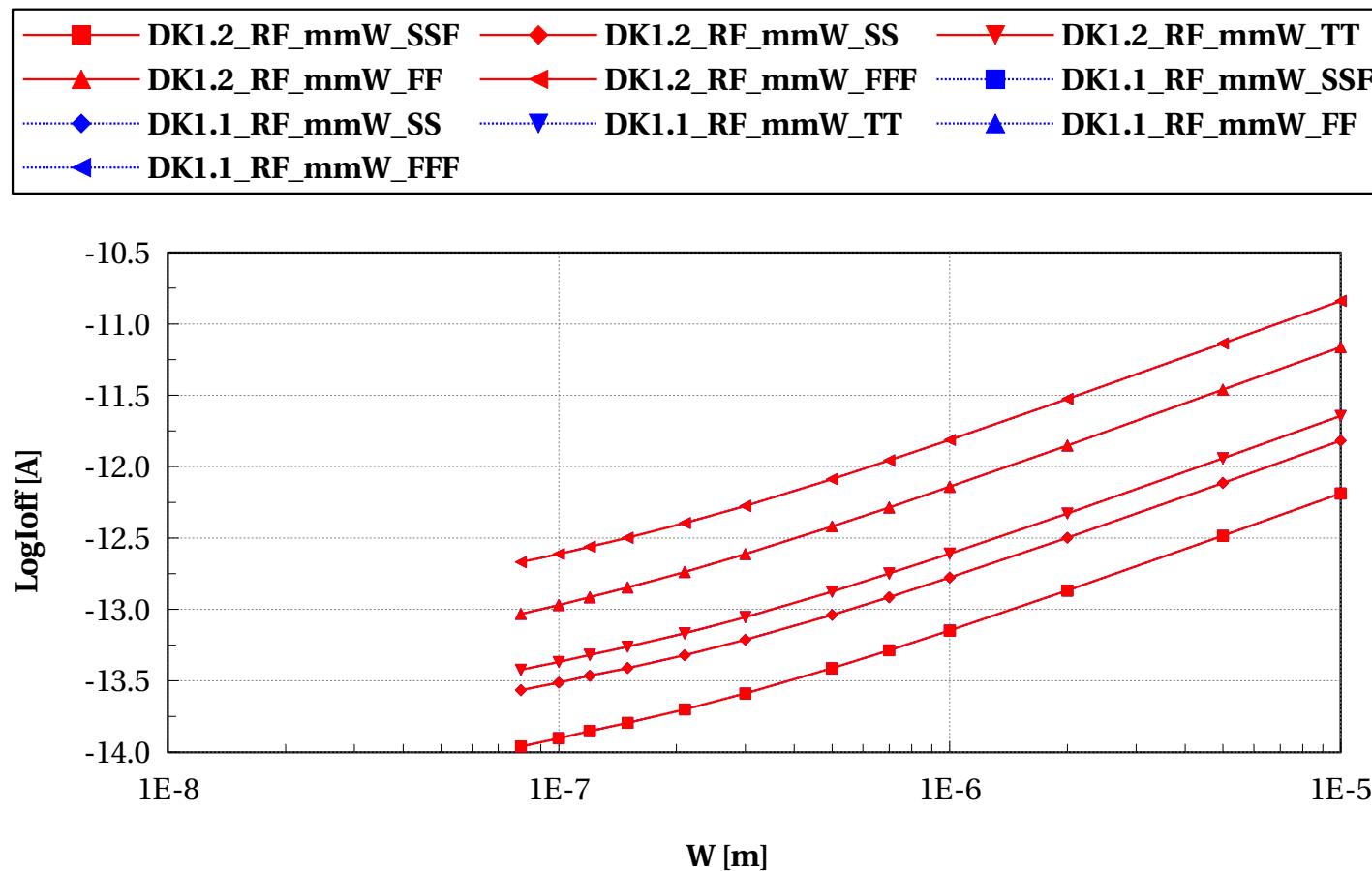
lvtnfet_acc, Slp_sat [mV/dec] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



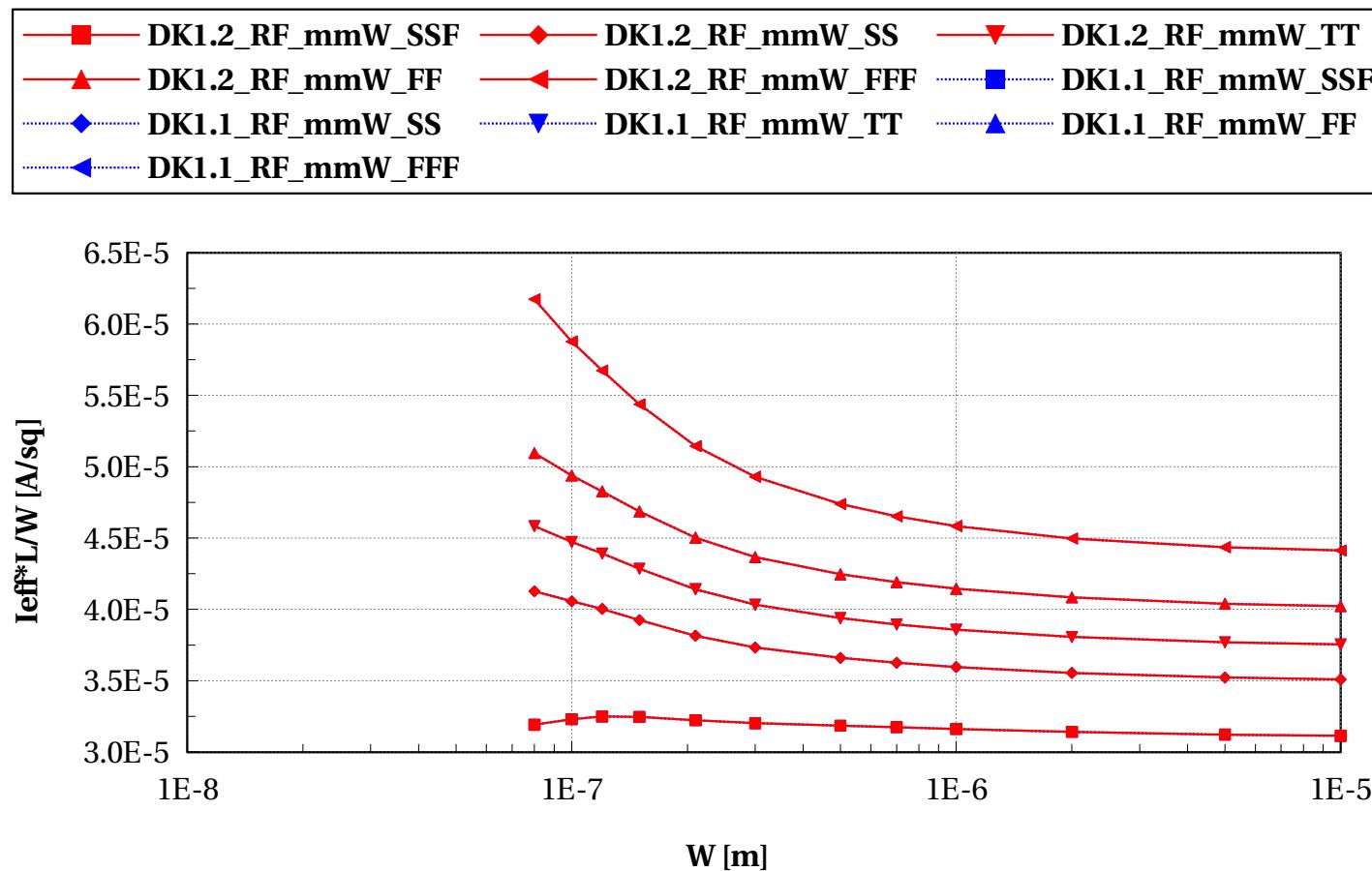
lvtnfet_acc, LogIoff [A] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



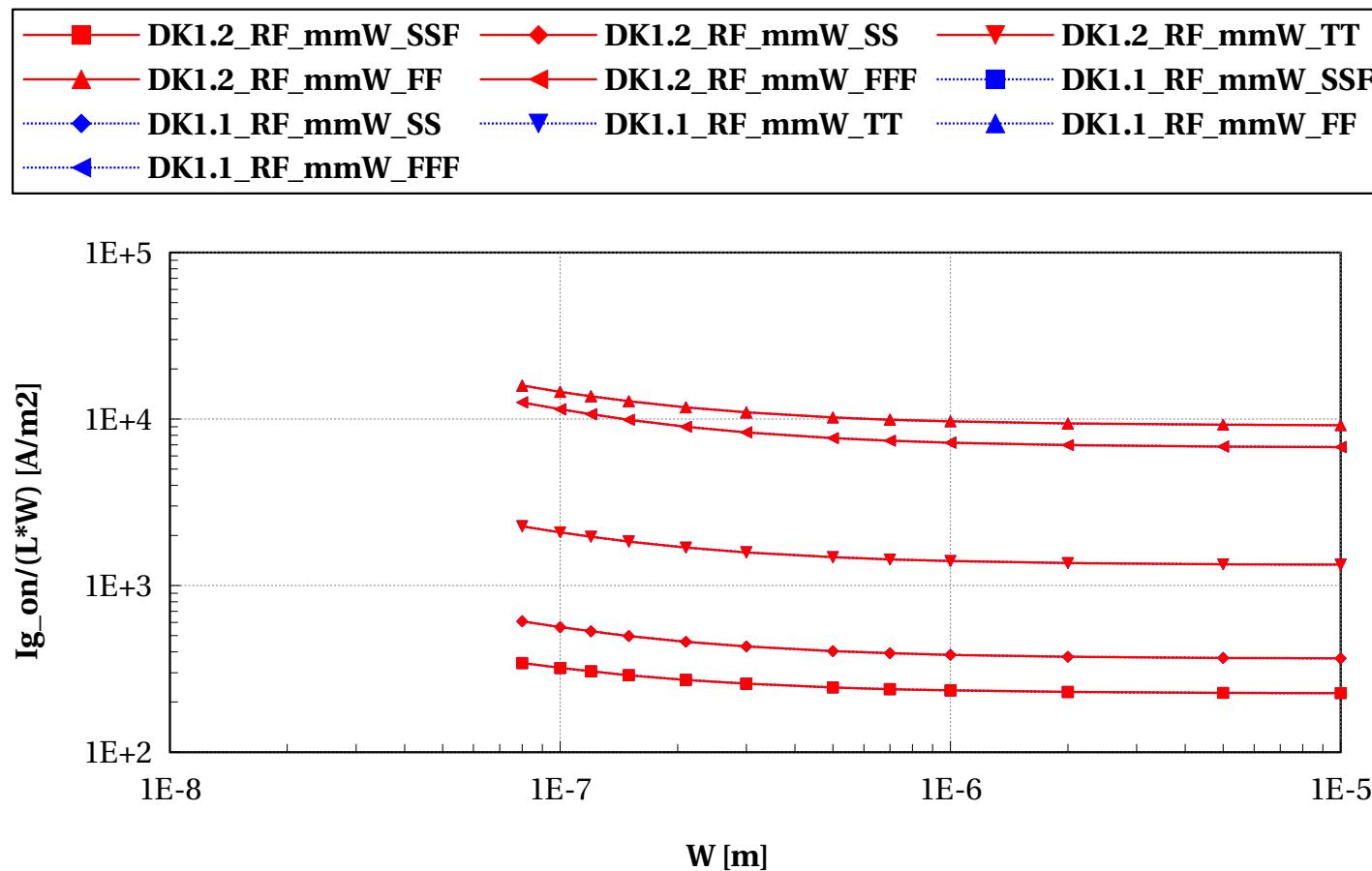
Ivtnfet_acc, Ieff*L/W [A/sq] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



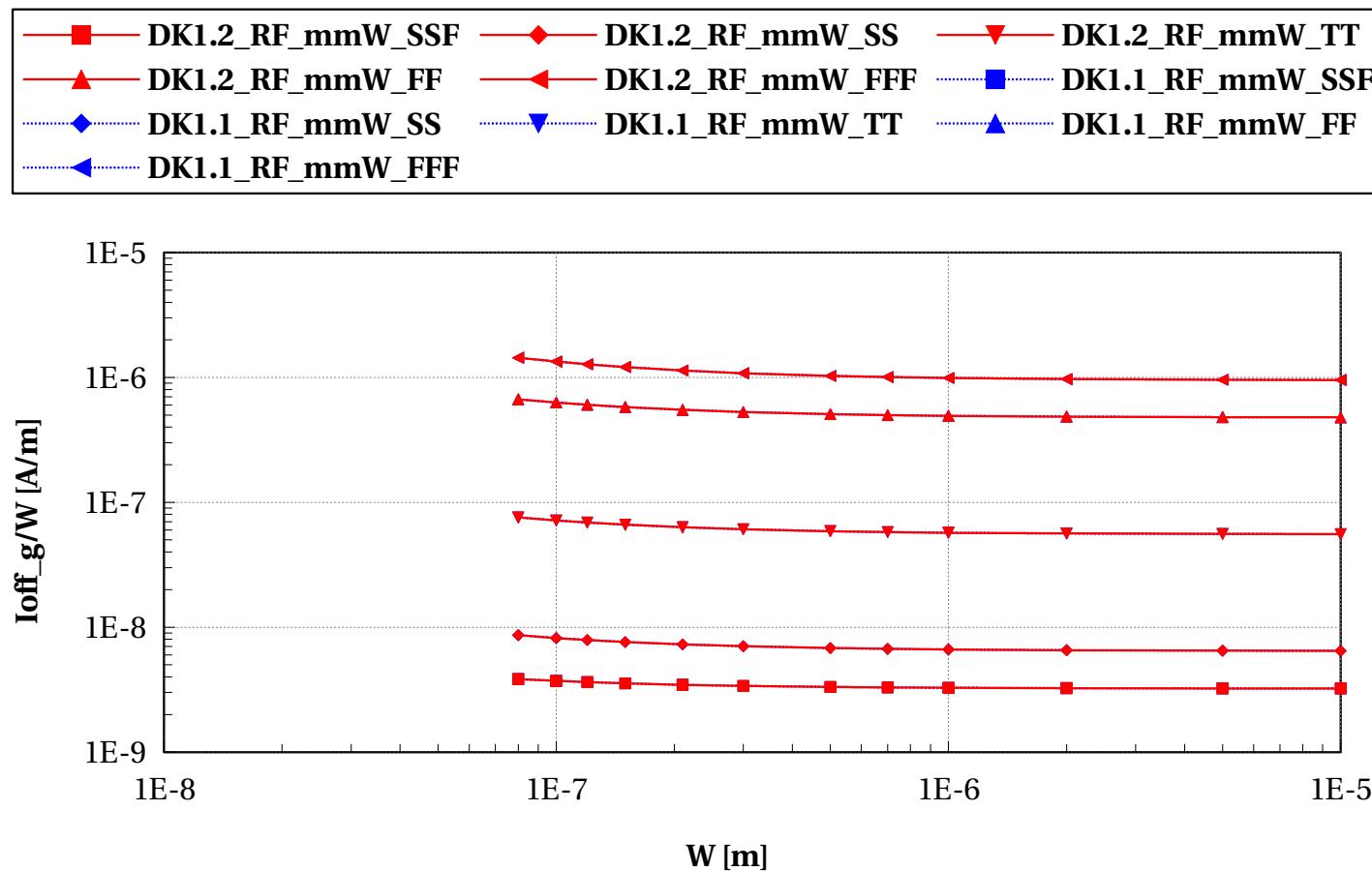
lvtnfet_acc, Ig_on/(L*W) [A/m²] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



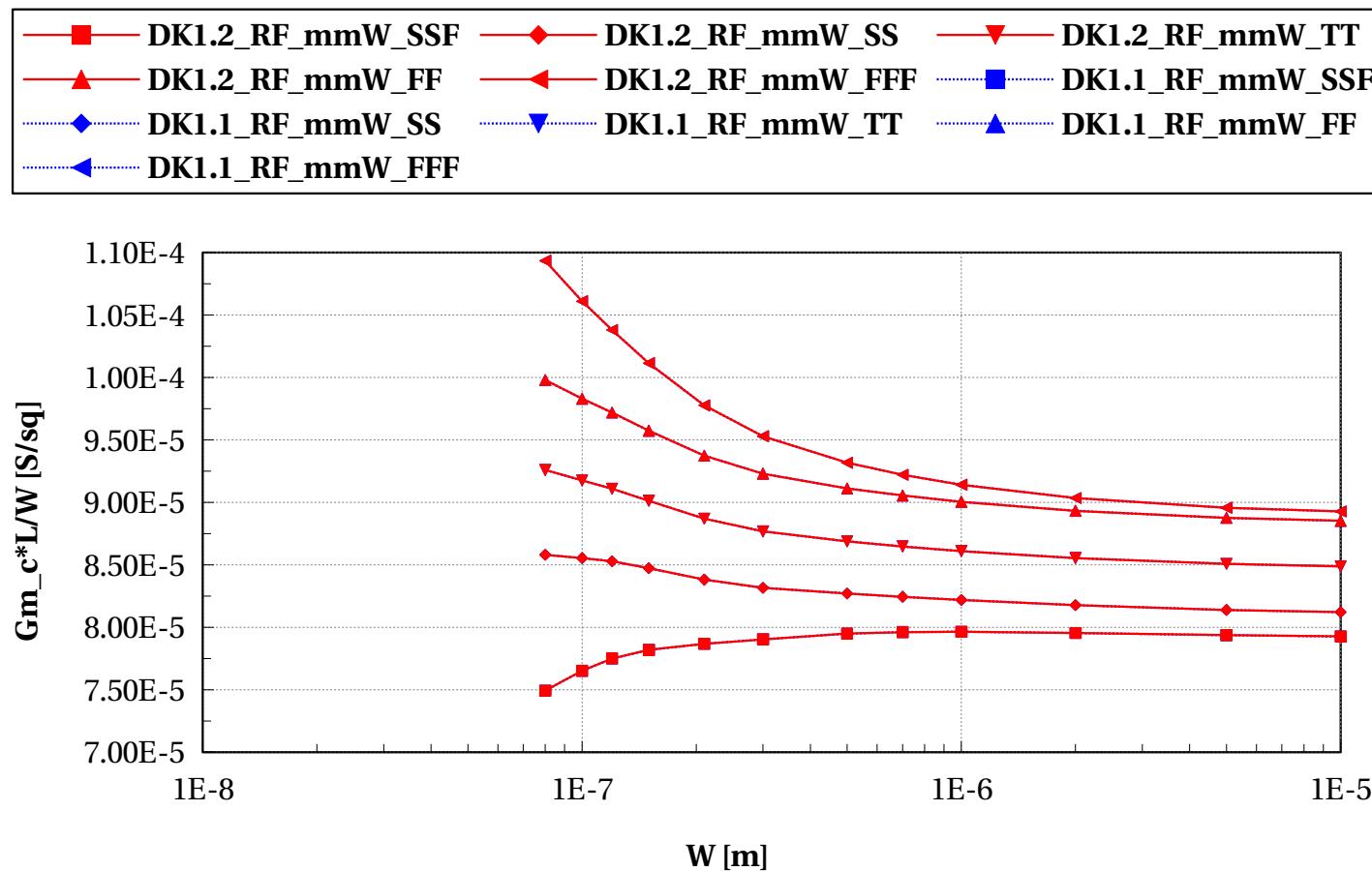
Ivtnfet_acc, Ioff_g/W [A/m] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



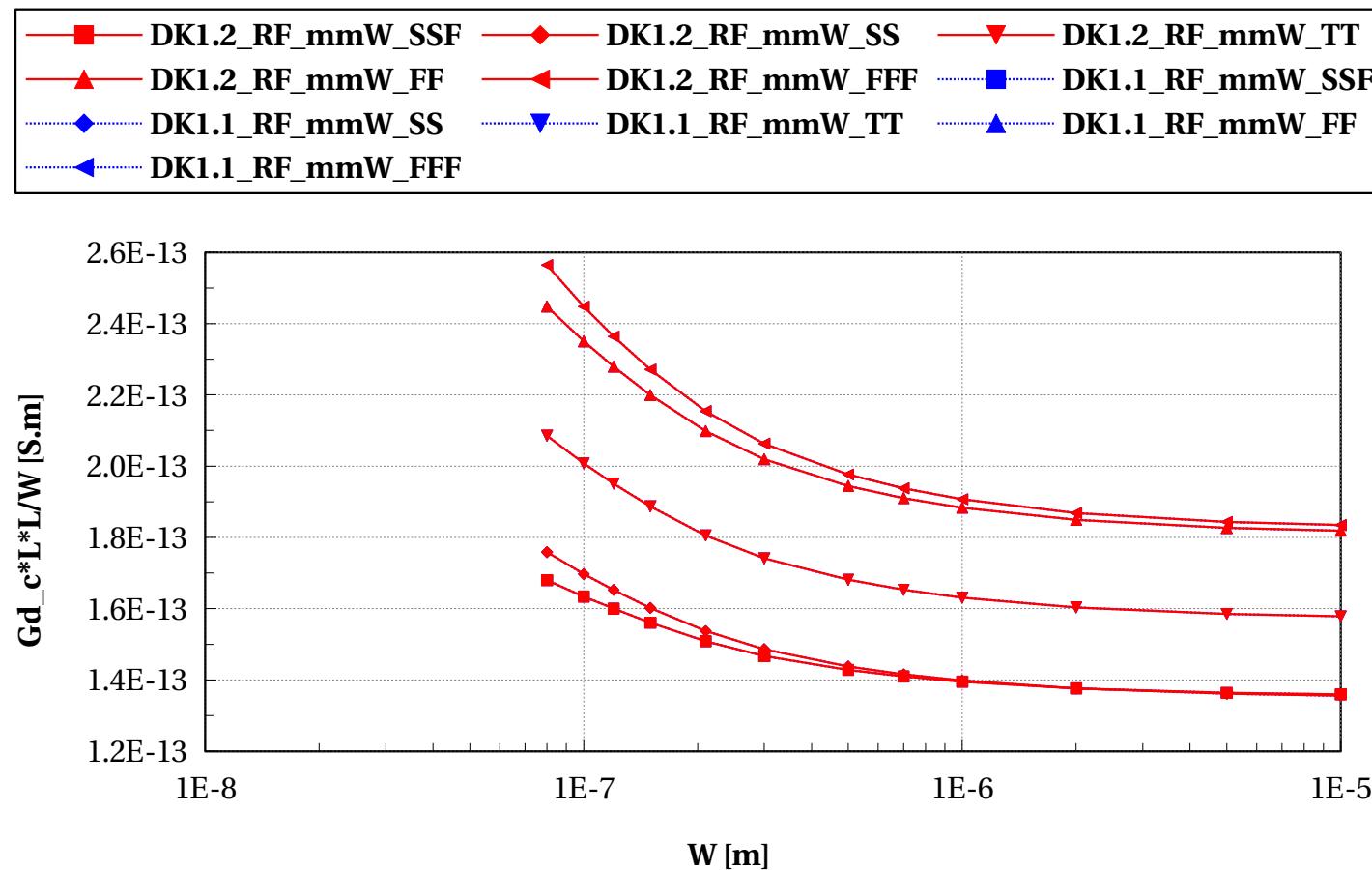
lvtnfet_acc, Gm_c*L/W [S/sq] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



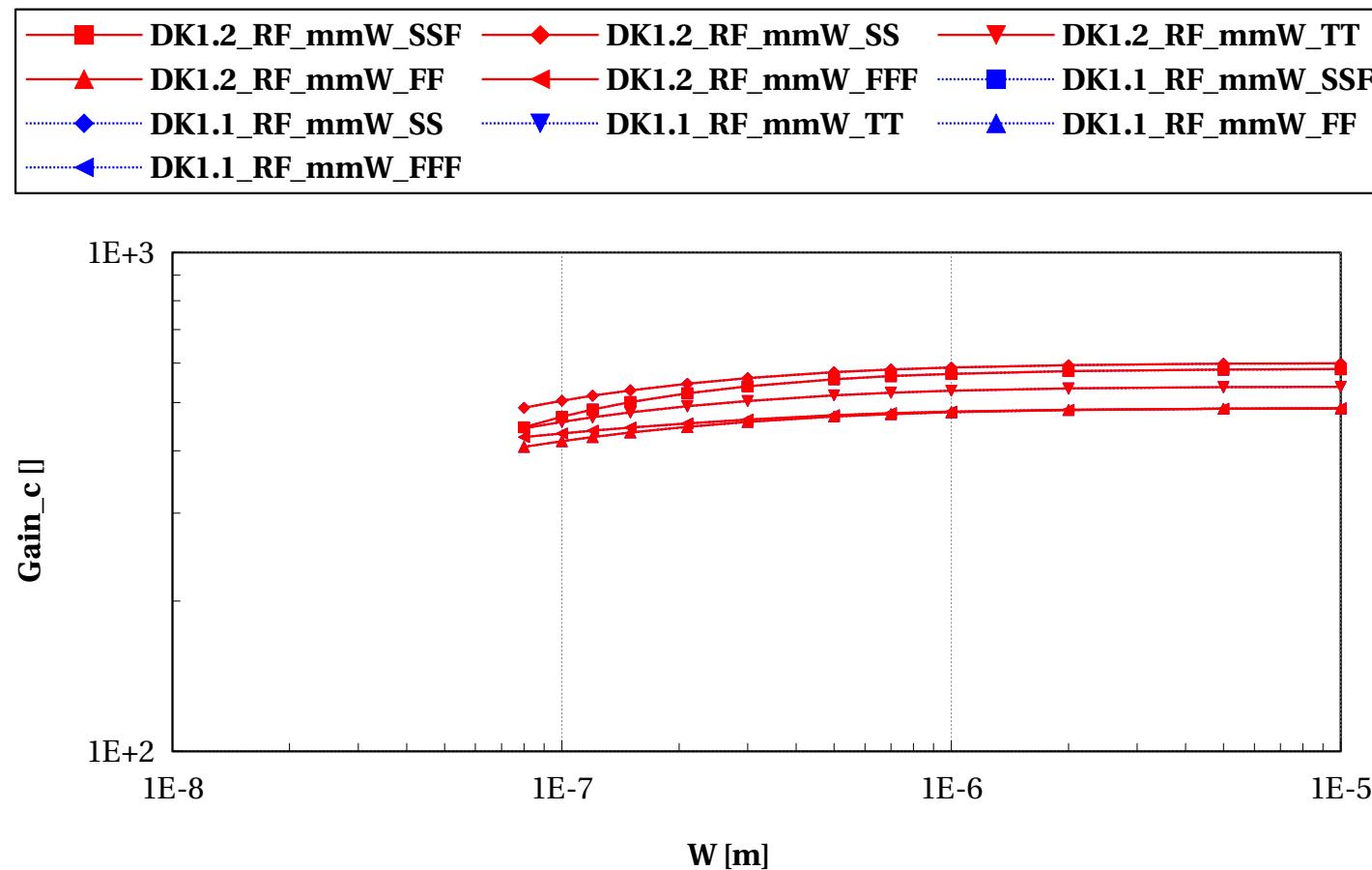
lvtnfet_acc, Gd_c*L/W [S.m] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



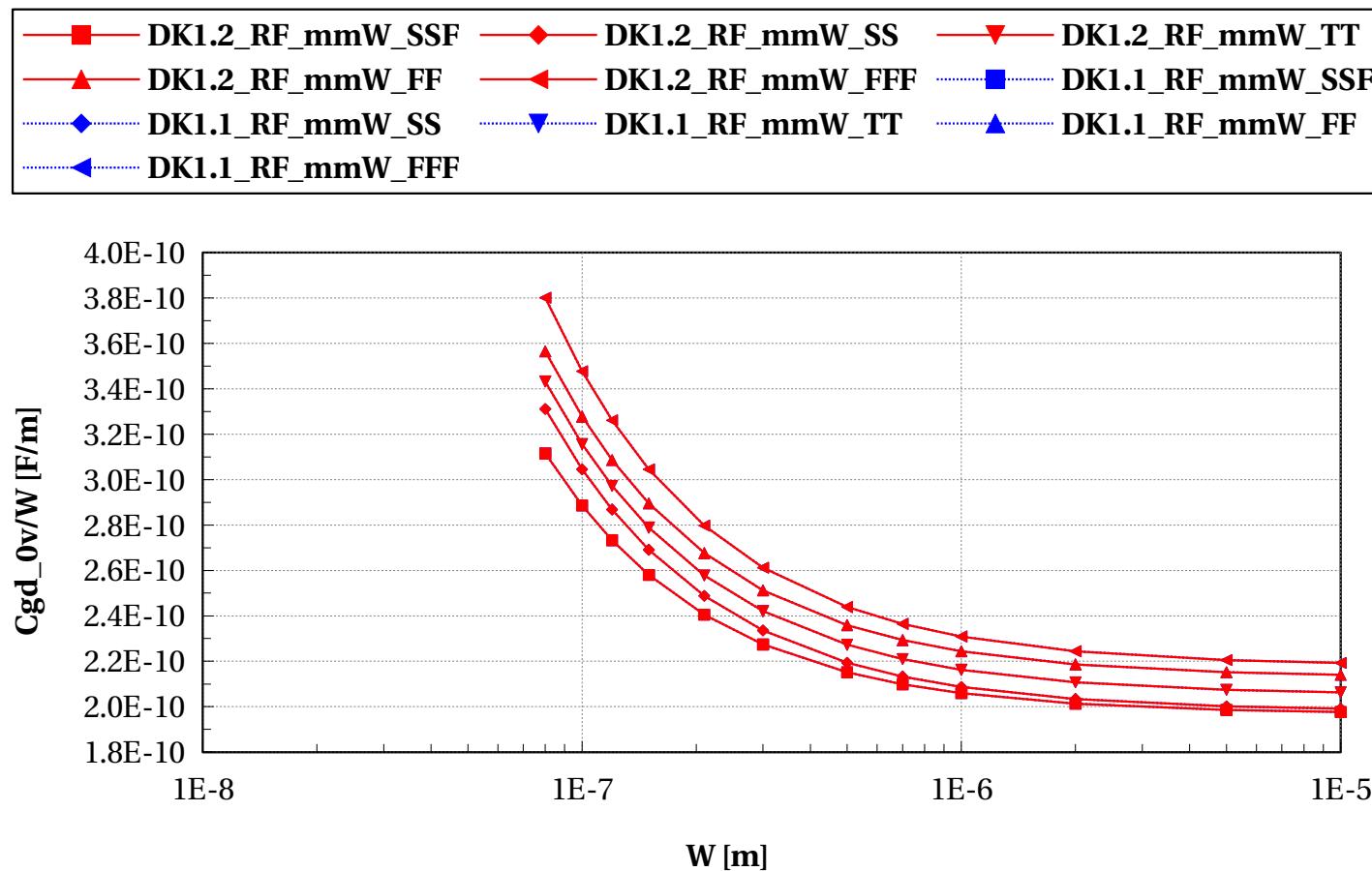
lvtnfet_acc, Gain_c [] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



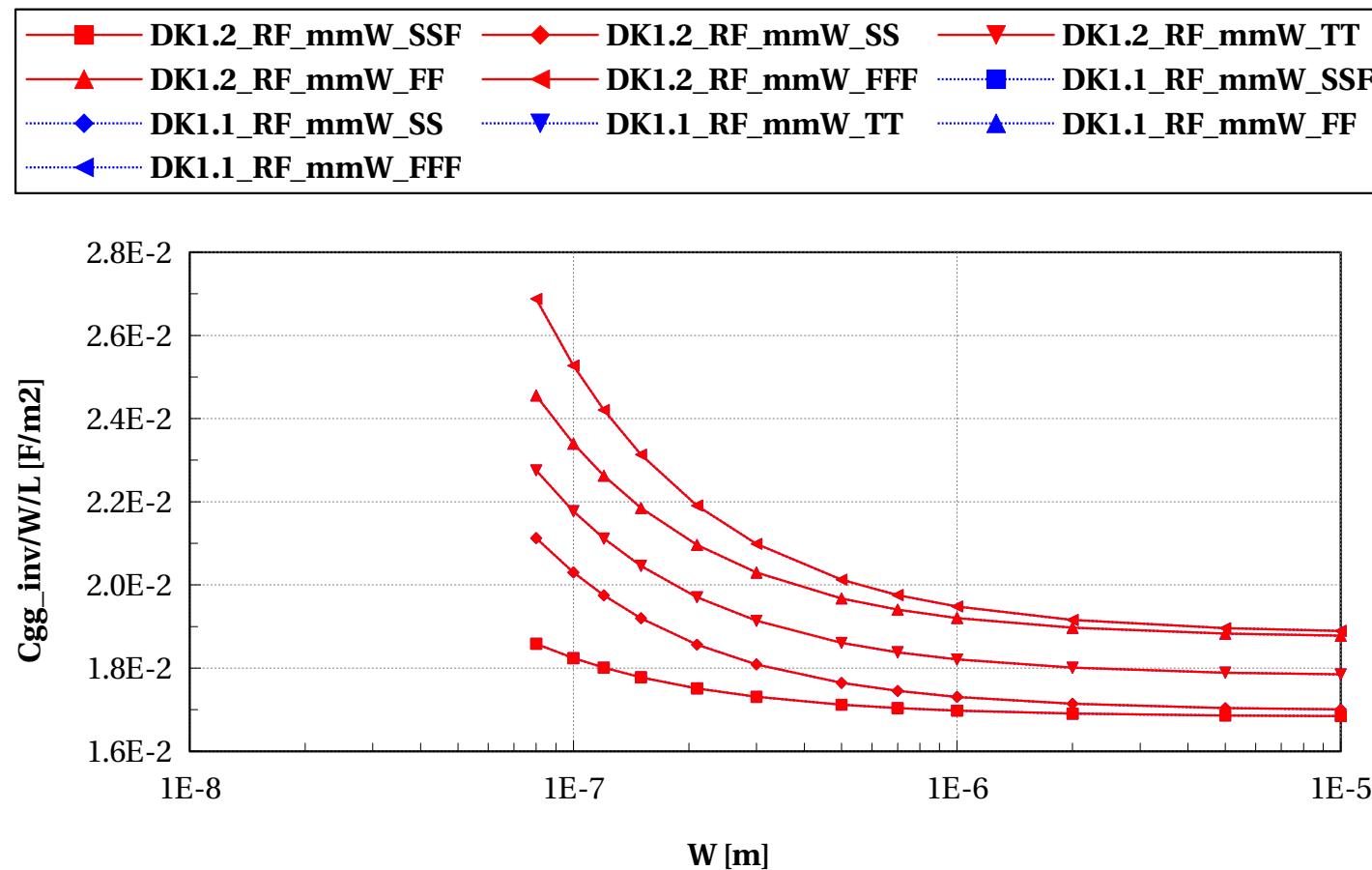
lvtnfet_acc, Cgd_0v/W [F/m] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



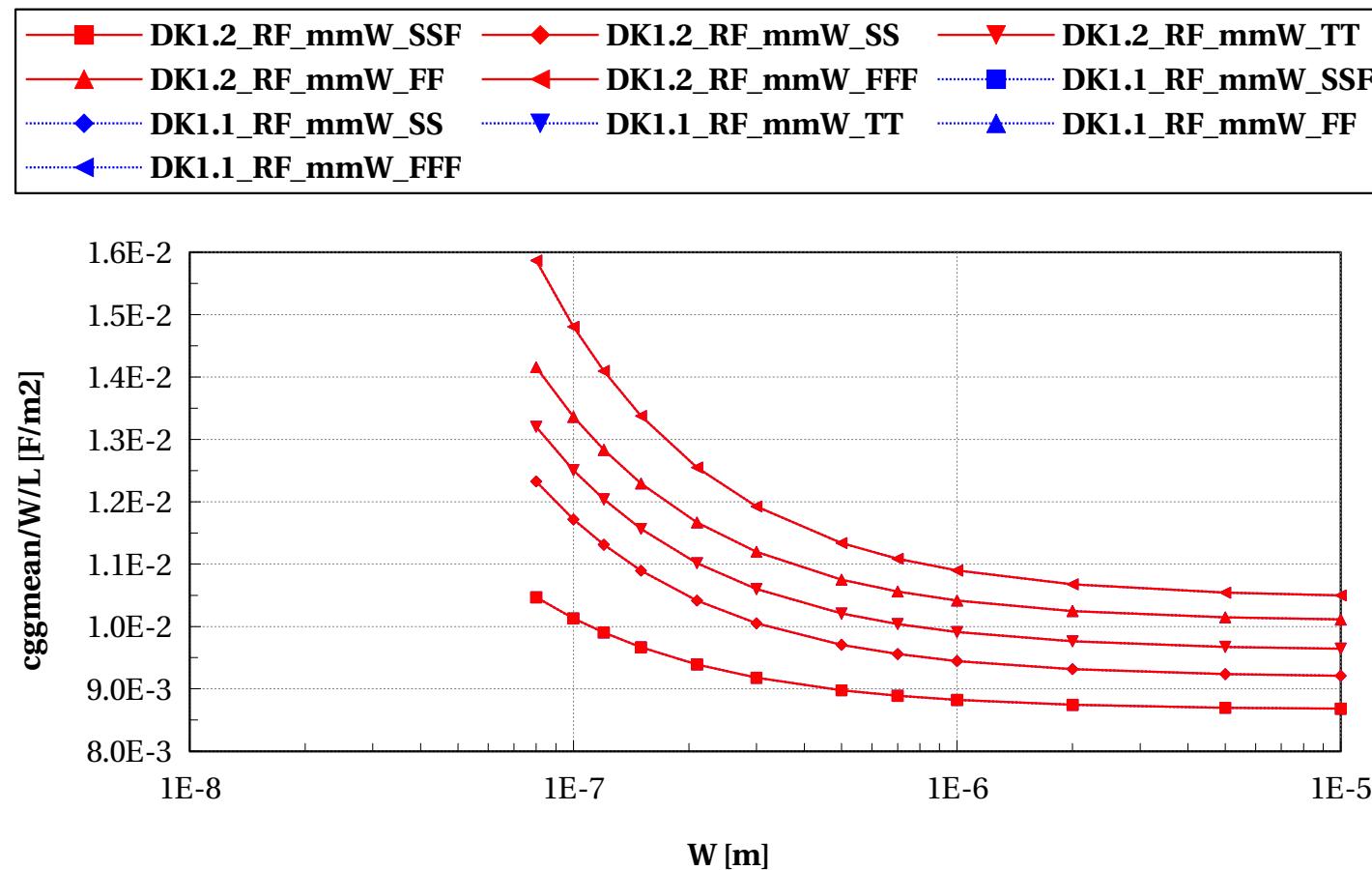
lvtnfet_acc, C_{gg}_inv/W/L [F/m²] vs W [m]

I==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



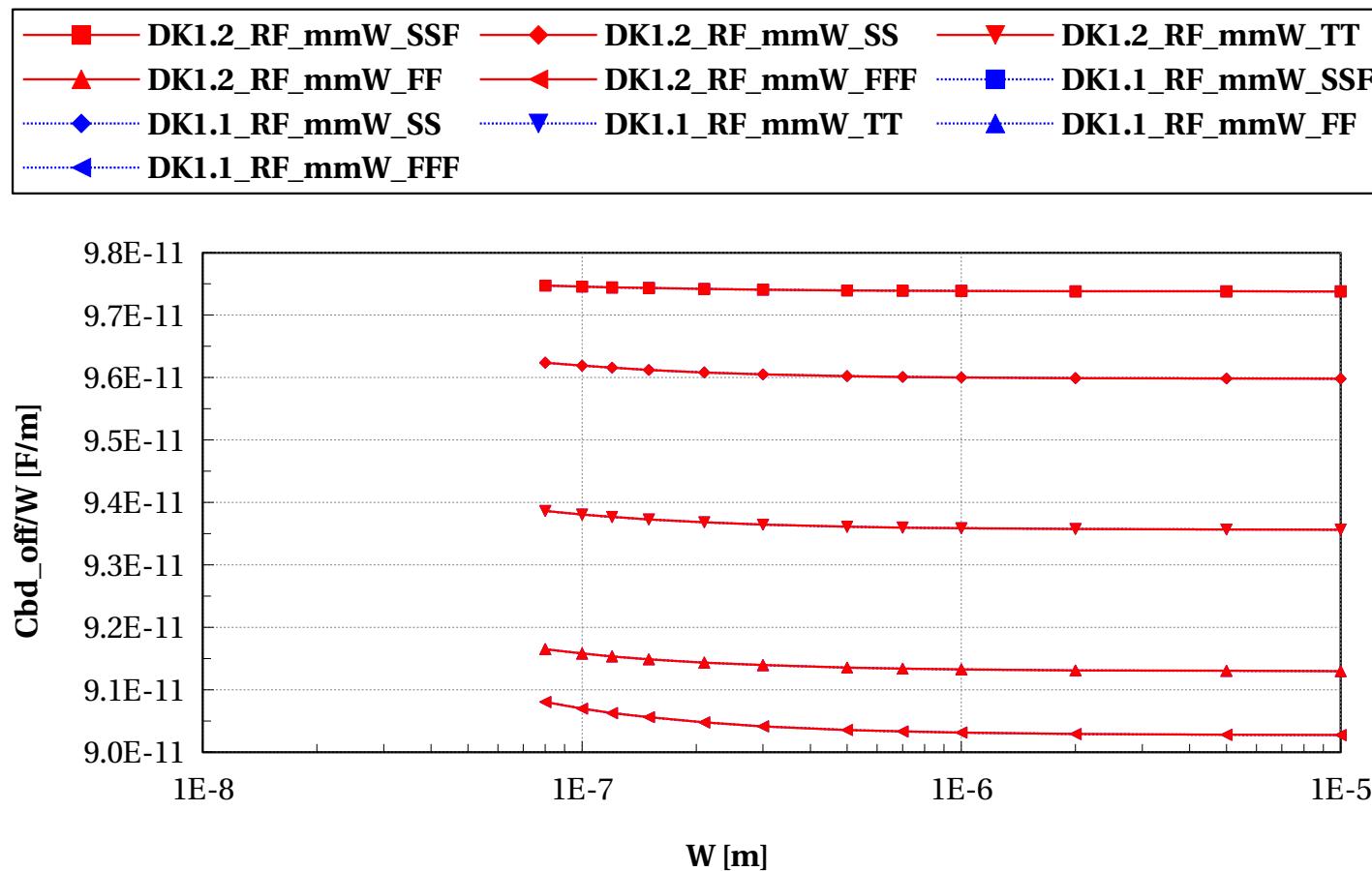
lvtnfet_acc, cgmean/W/L [F/m²] vs W [m]

l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Cbd_off/W [F/m] vs W [m]

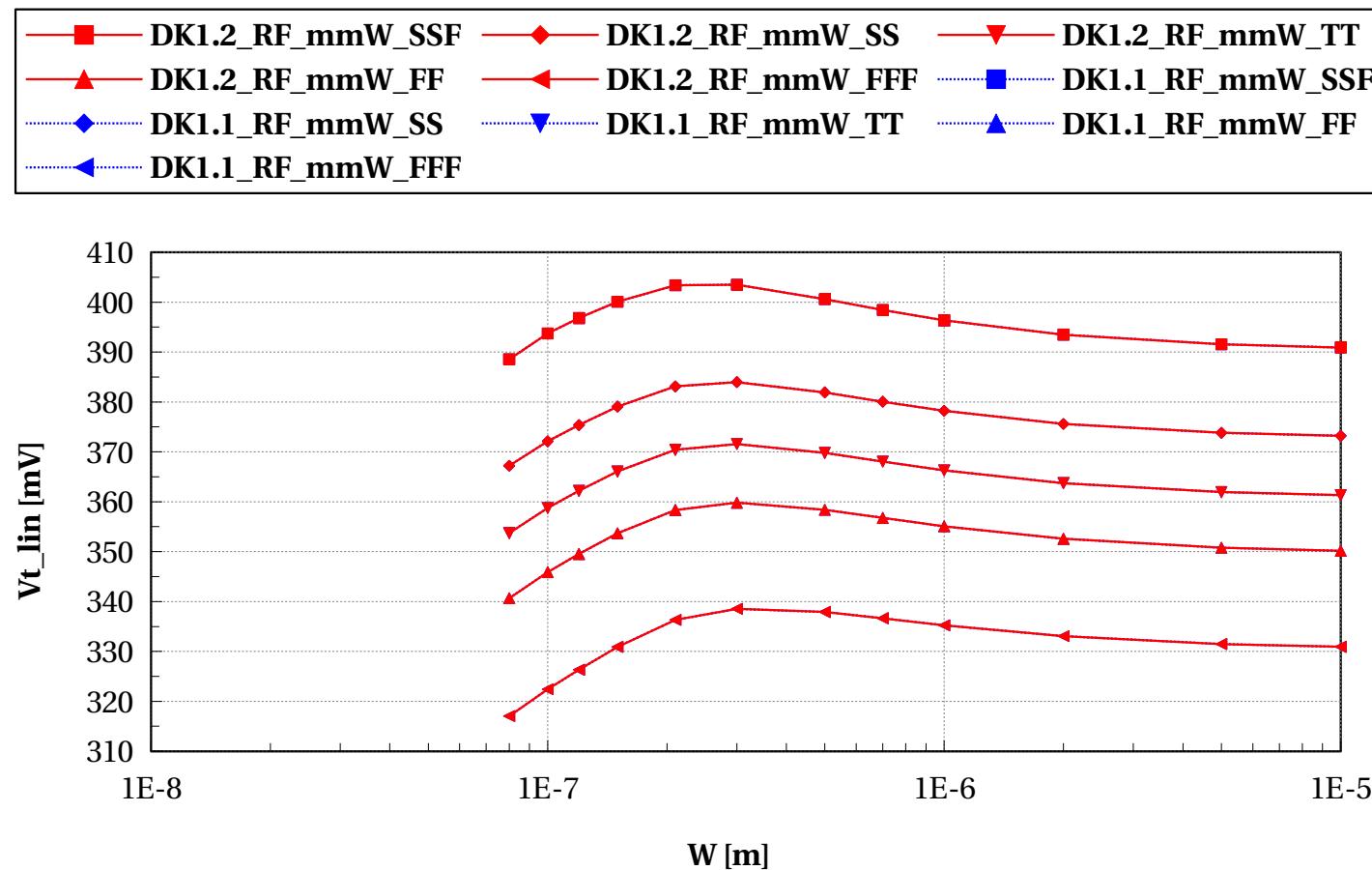
l==1e-6 and Temp==25 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Width (L=30nm)

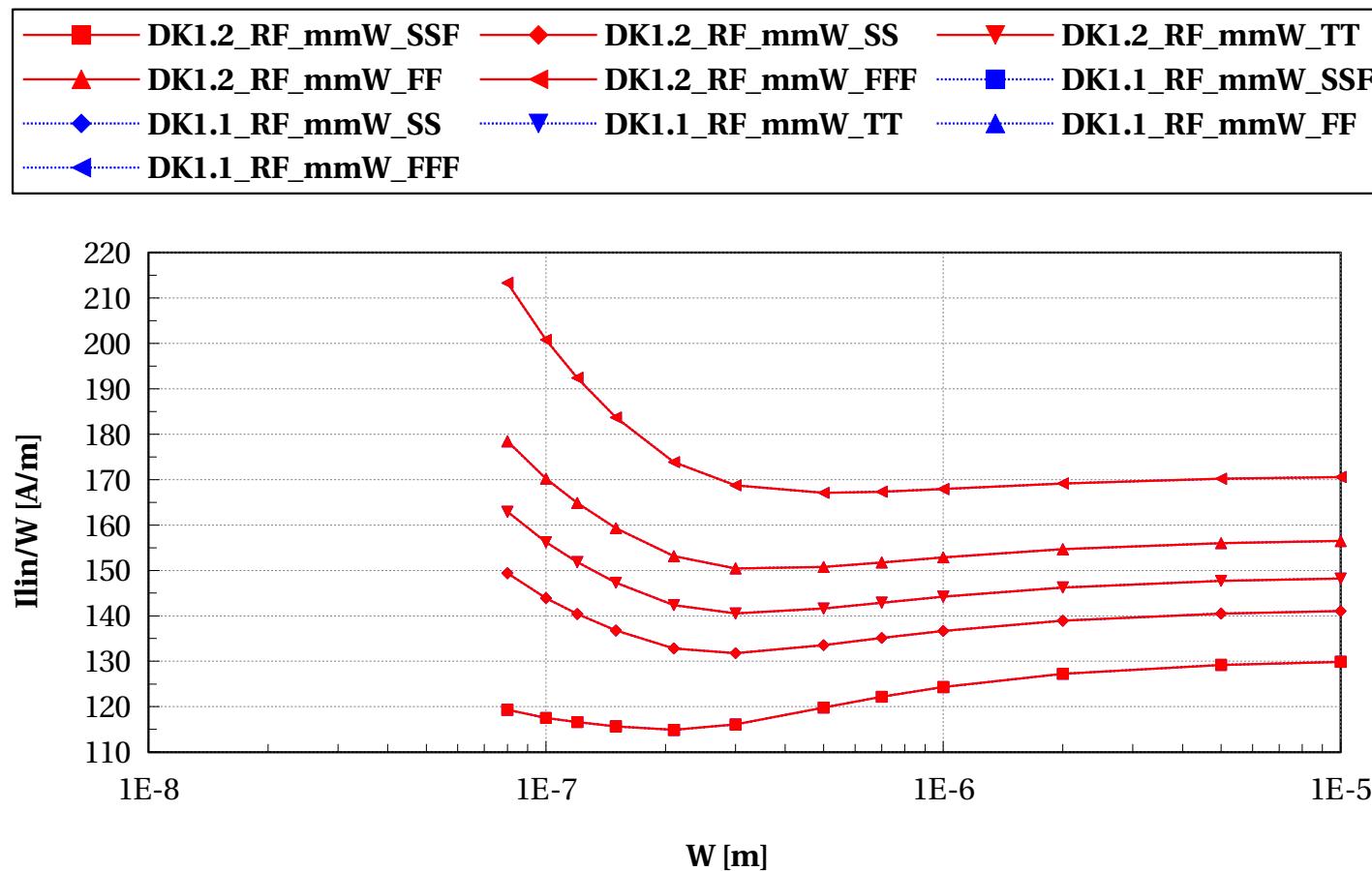
lvtnfet_acc, Vt_lin [mV] vs W [m]

$I_{DS} = 0.030e-6$ and Temp = 25 and $V_{BS} = 0$ and $p_{LA} = 0$ and devType = "PCELLwoWPE"



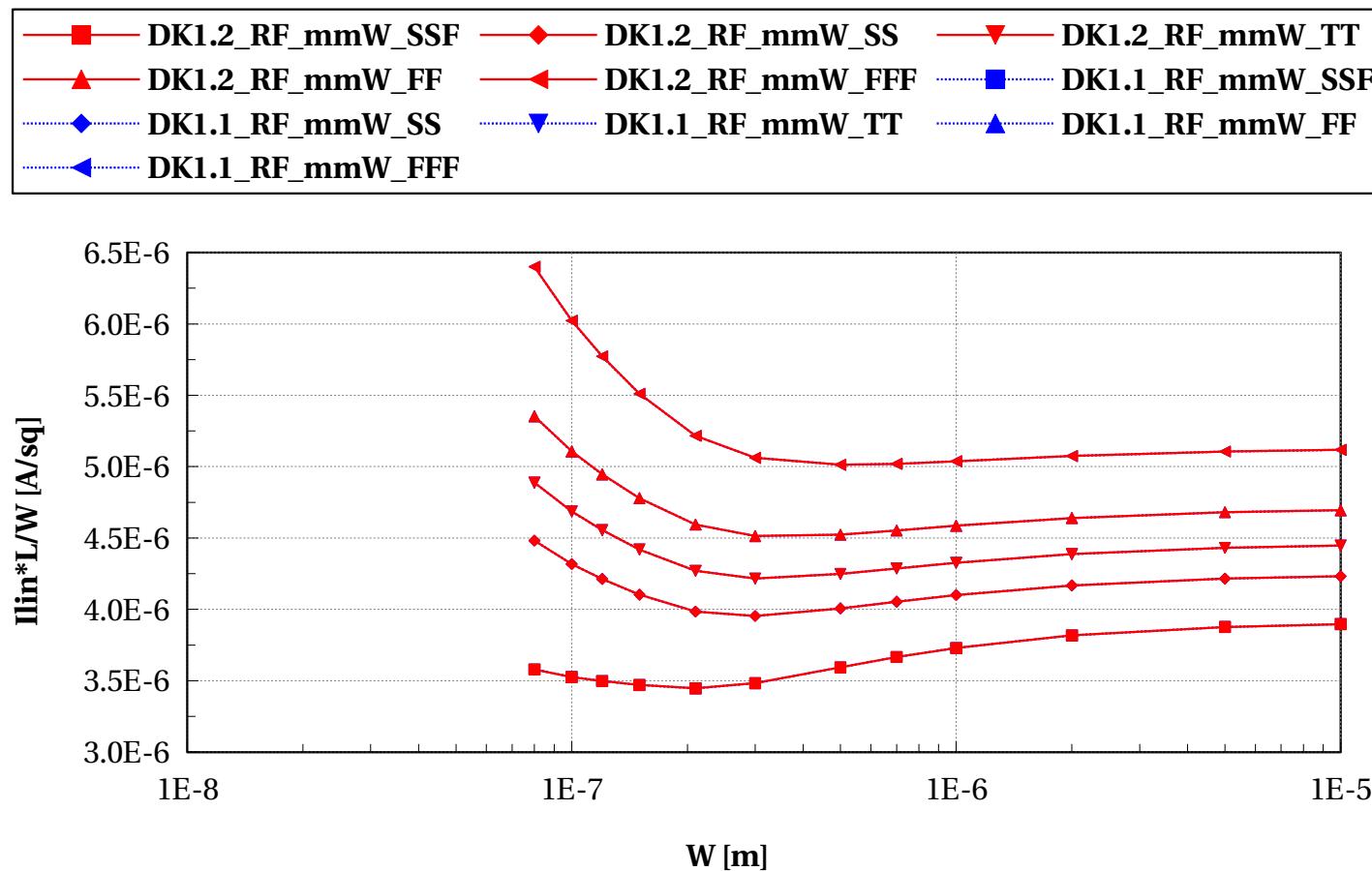
Ivtnfet_acc, Ilin/W [A/m] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



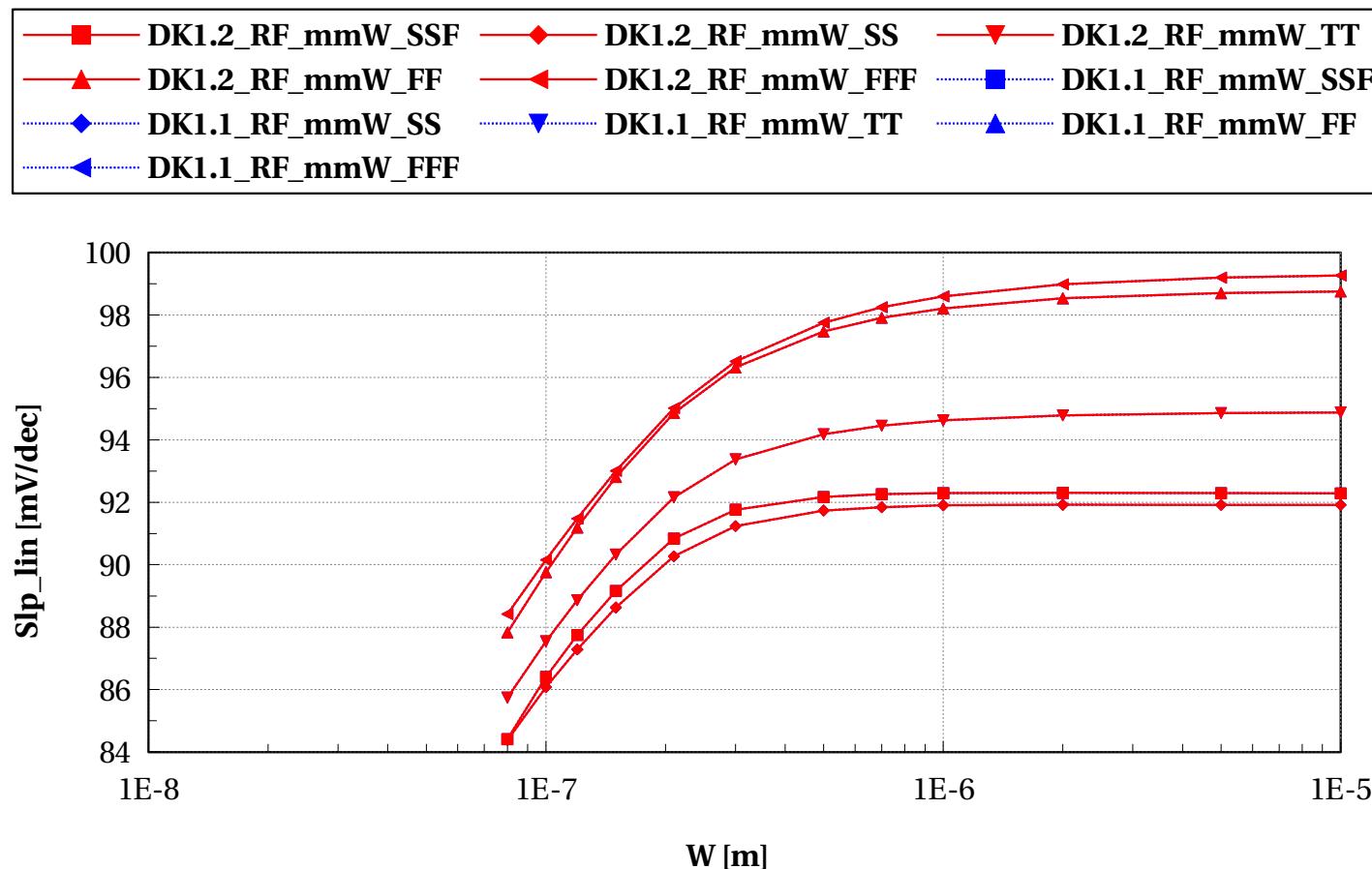
lvtnfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs W [m]

$I=0.030e-6$ and $Temp=25$ and $V_{bs}=0$ and $p_{la}=0$ and $devType="PCELLwoWPE"$



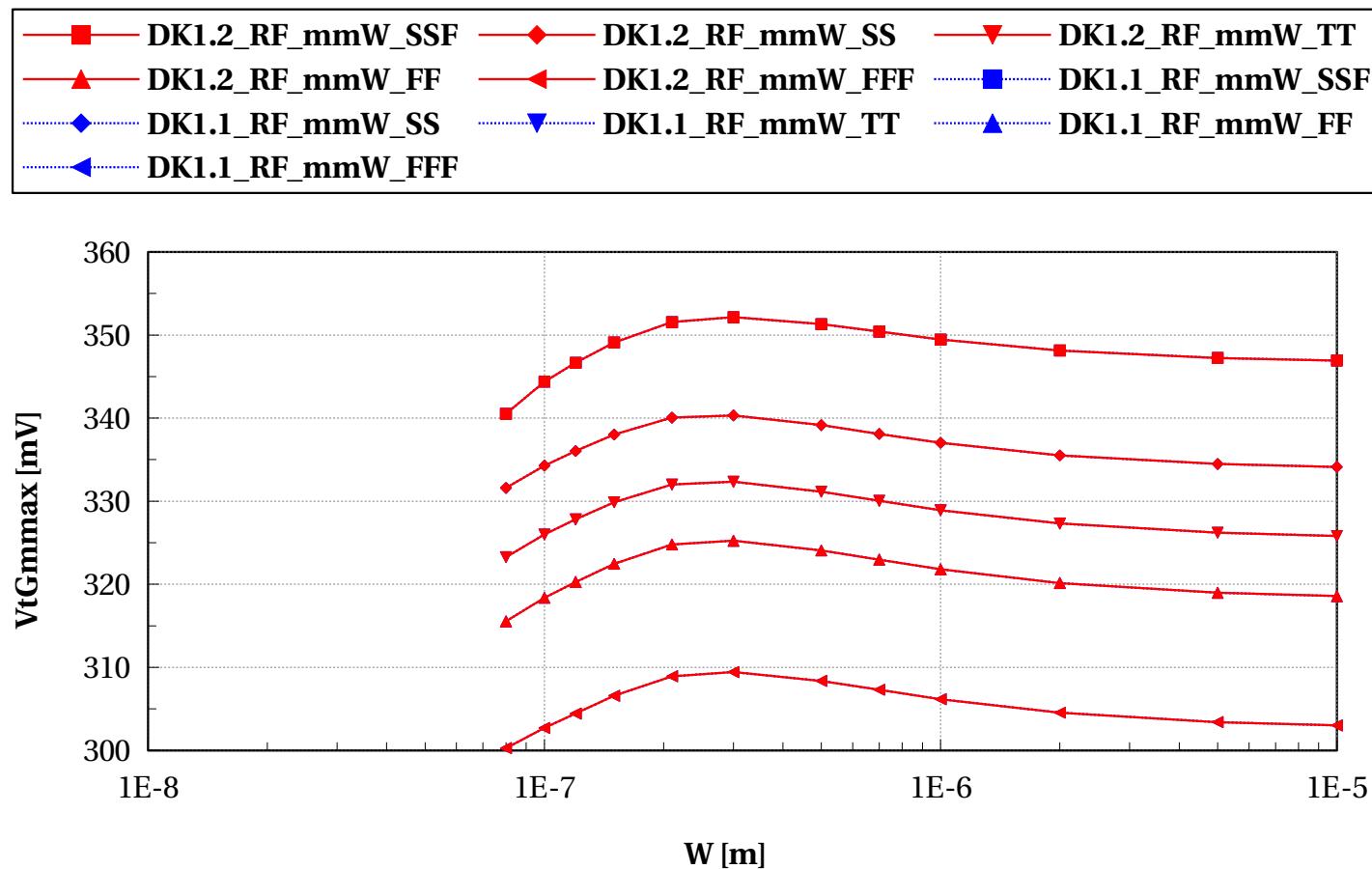
lvtnfet_acc, Slp_lin [mV/dec] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=0$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



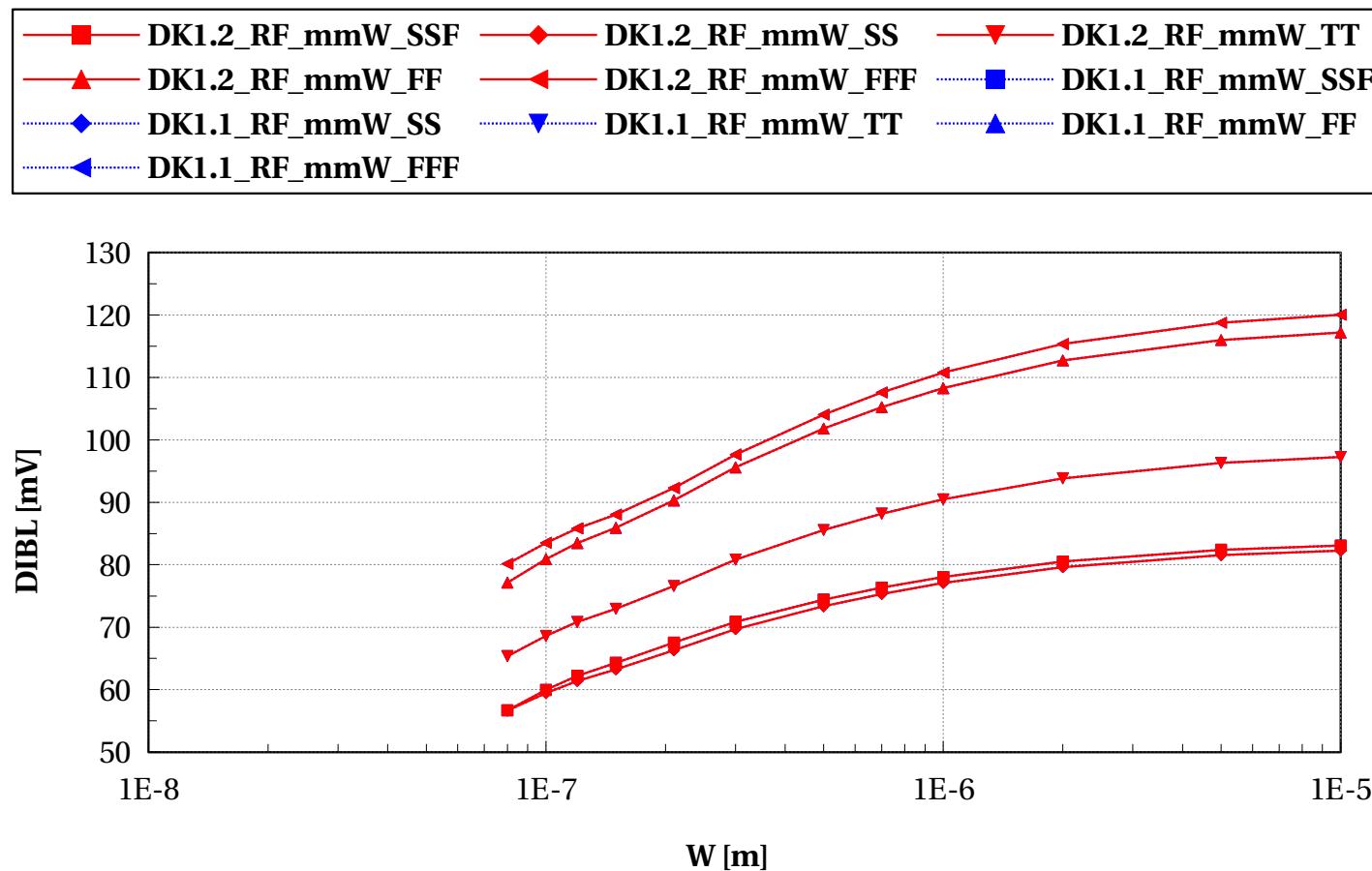
lvtnfet_acc, VtGmmax [mV] vs W [m]

$I_{DS} = 0.030e-6$ and Temp = 25 and Vbs = 0 and p_la = 0 and devType = "PCELLwoWPE"



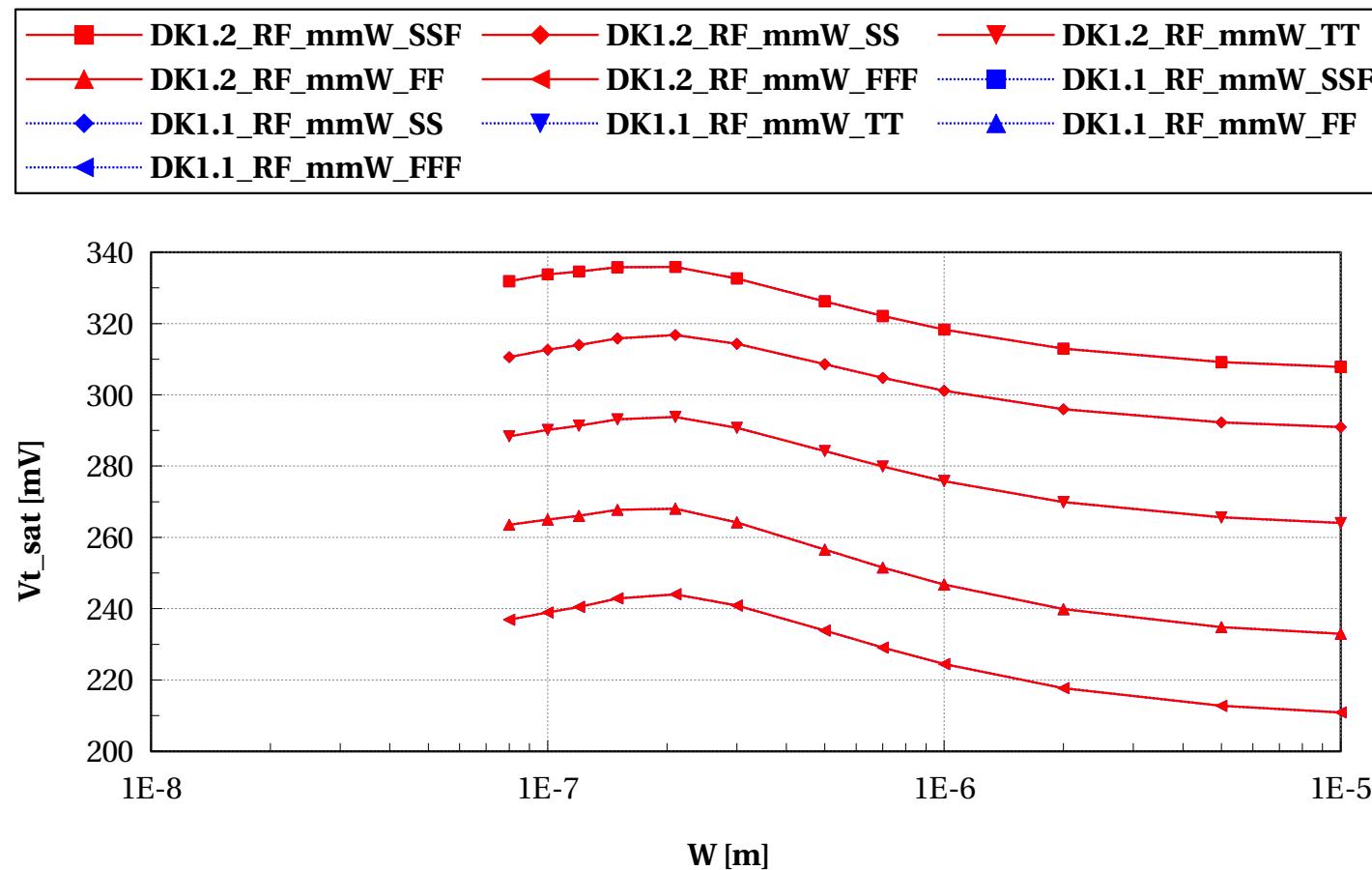
lvtnfet_acc, DIBL [mV] vs W [m]

$I_{DS} = 0.030e-6$ and $Temp = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $devType = "PCELLwoWPE"$



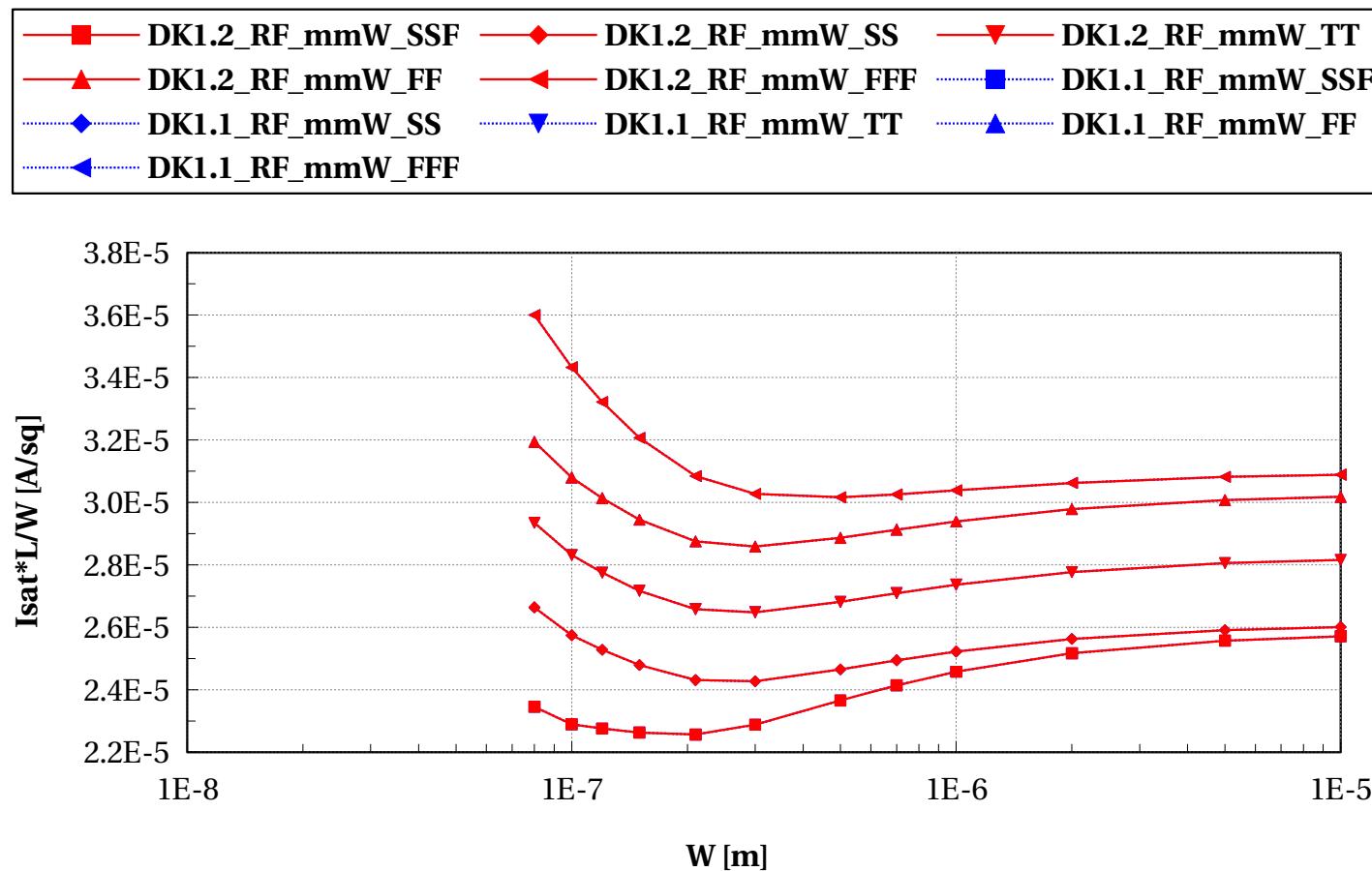
lvtnfet_acc, Vt_sat [mV] vs W [m]

$I_{DS} = 0.030e-6$ and Temp = 25 and Vbs = 0 and p_la = 0 and devType = "PCELLwoWPE"



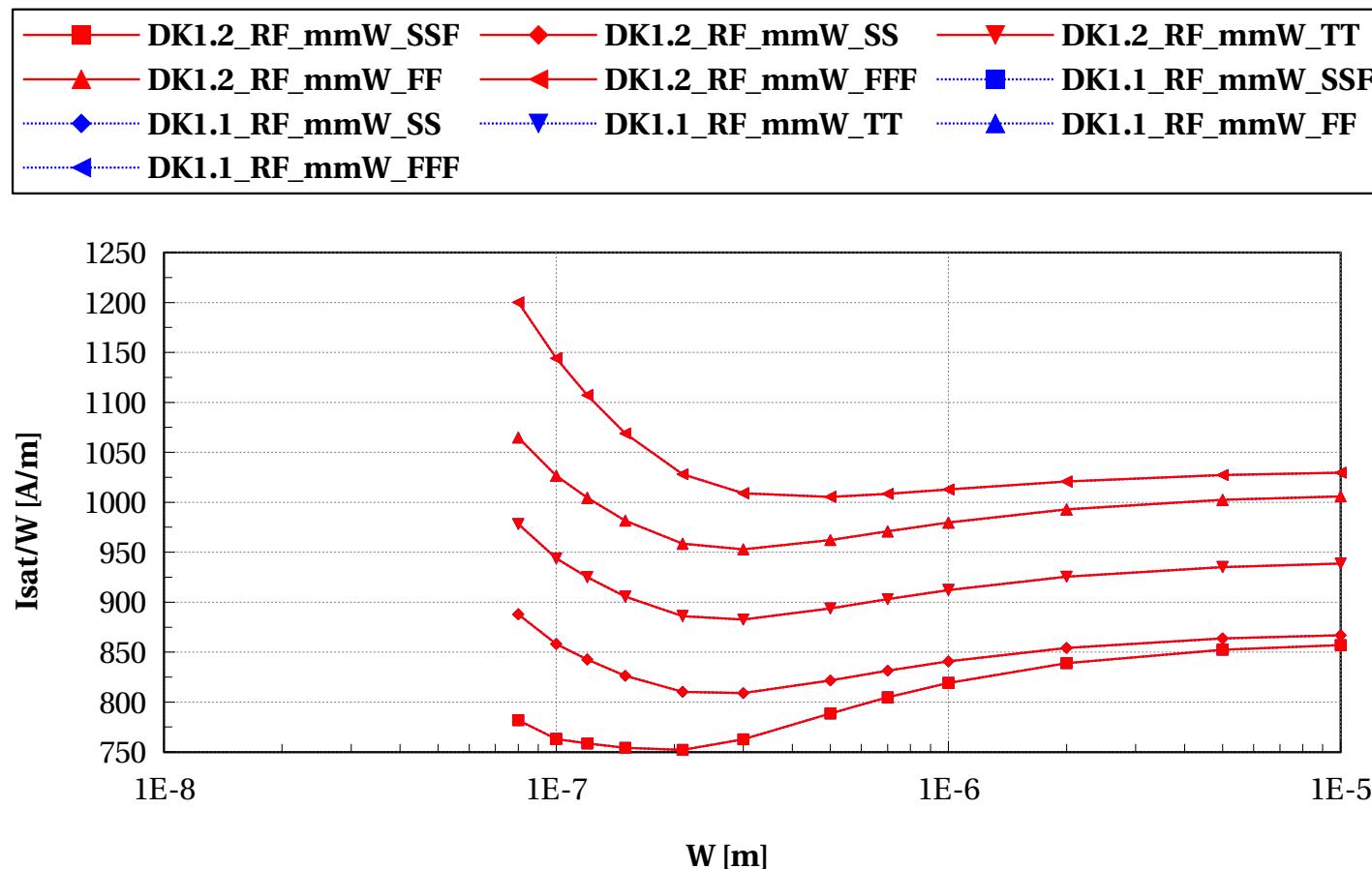
lvtnfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs W [m]

$I = 0.030e-6$ and $Temp = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $devType = "PCELLwoWPE"$



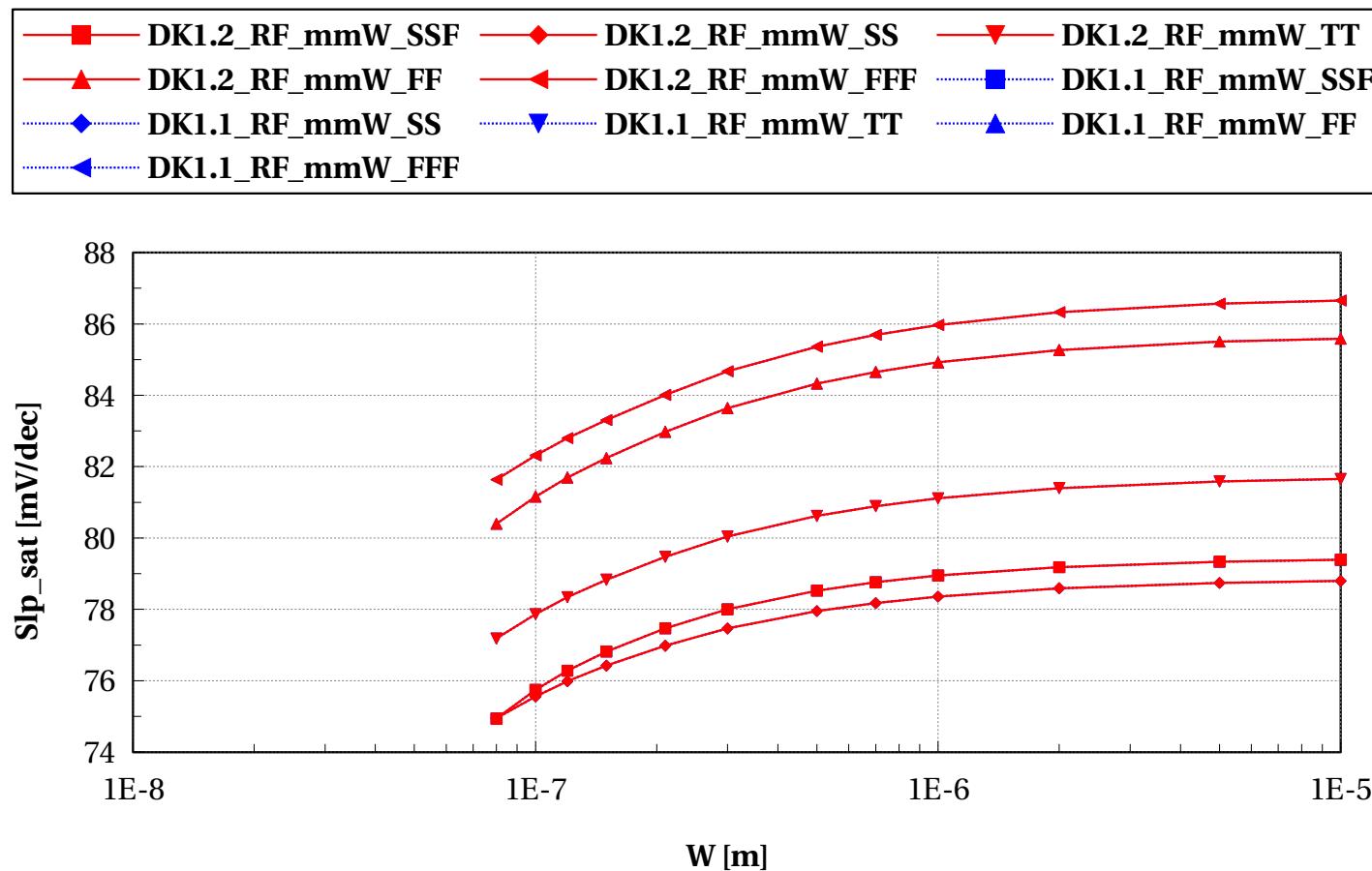
lvtnfet_acc, Isat/W [A/m] vs W [m]

$I_a=0.030e-6$ and $\text{Temp}=25$ and $V_{bs}=0$ and $p_{la}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



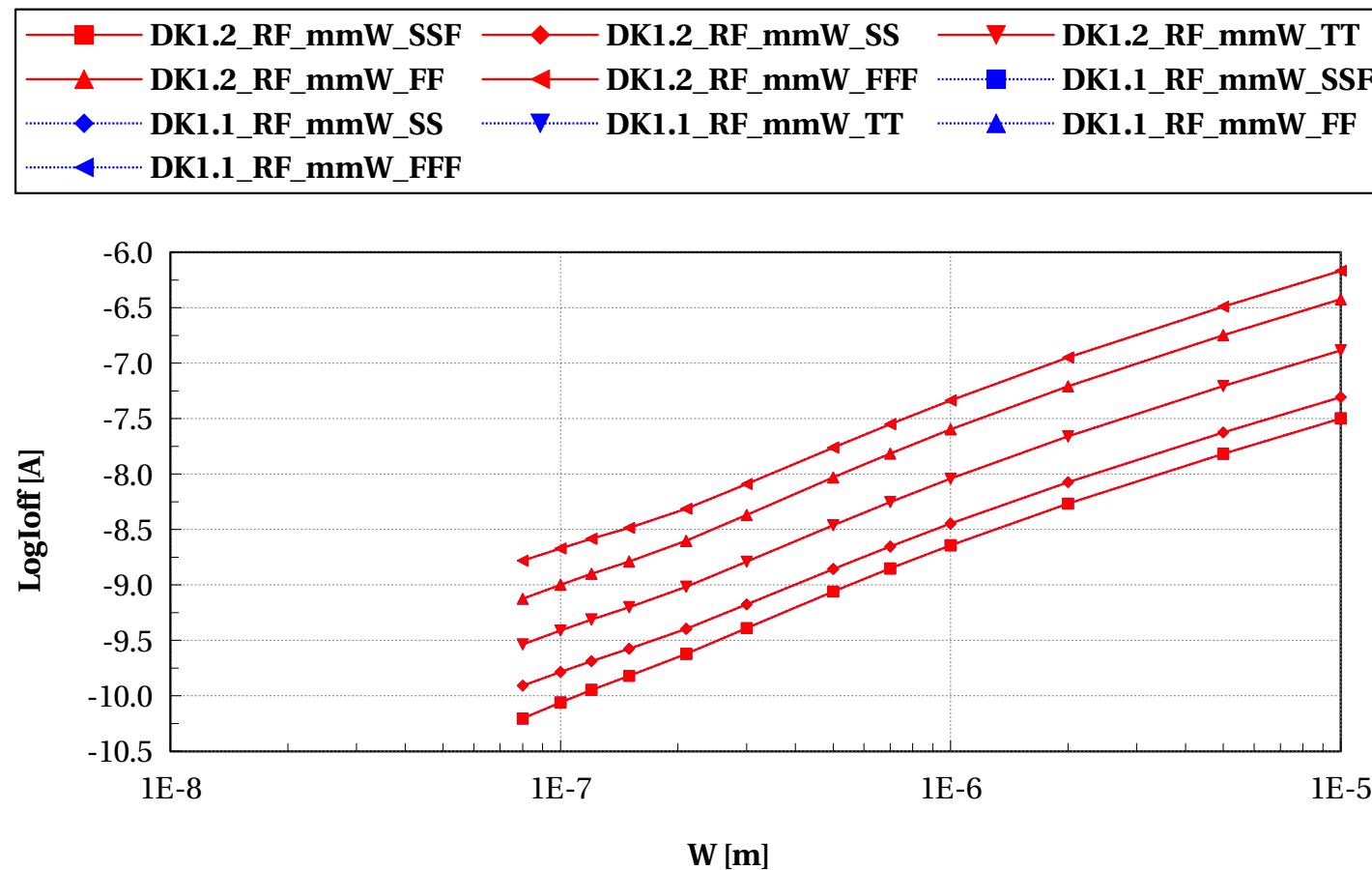
lvtnfet_acc, Slp_sat [mV/dec] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=0$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



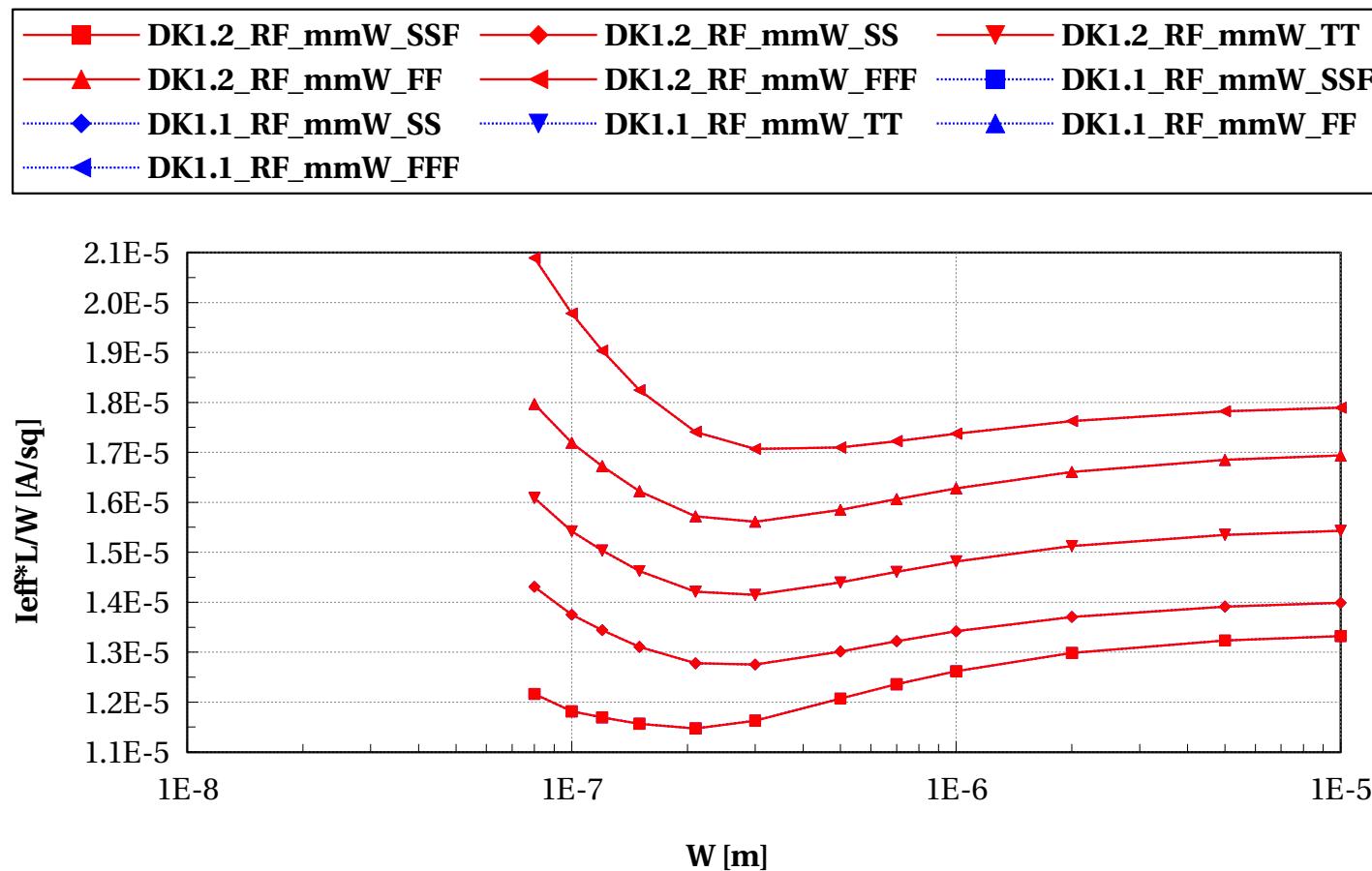
lvtnfet_acc, LogIoff [A] vs W [m]

$I_{DS} = 0.030e-6$ and $\text{Temp} = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



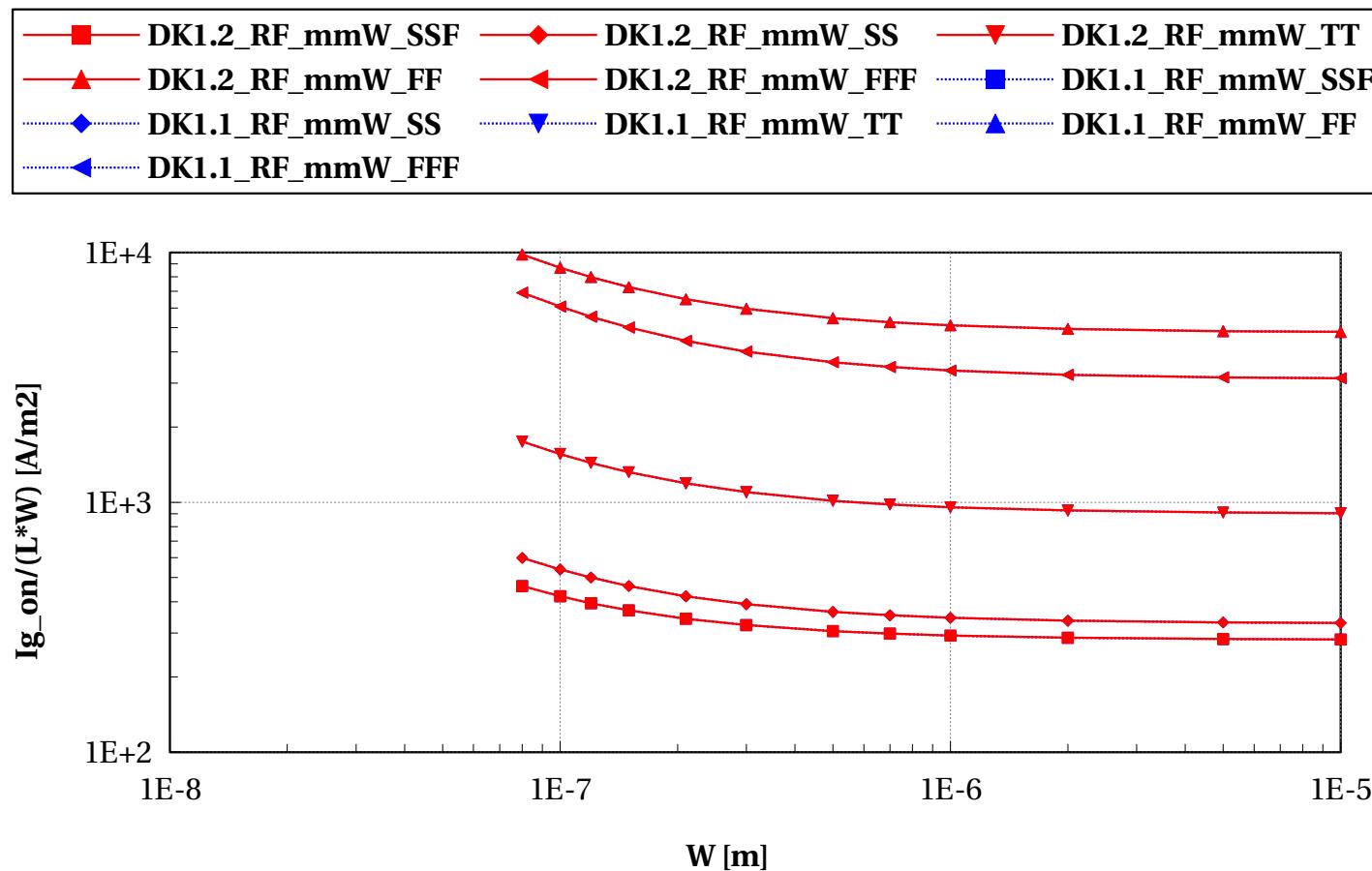
Ivtnfet_acc, Ieff*L/W [A/sq] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



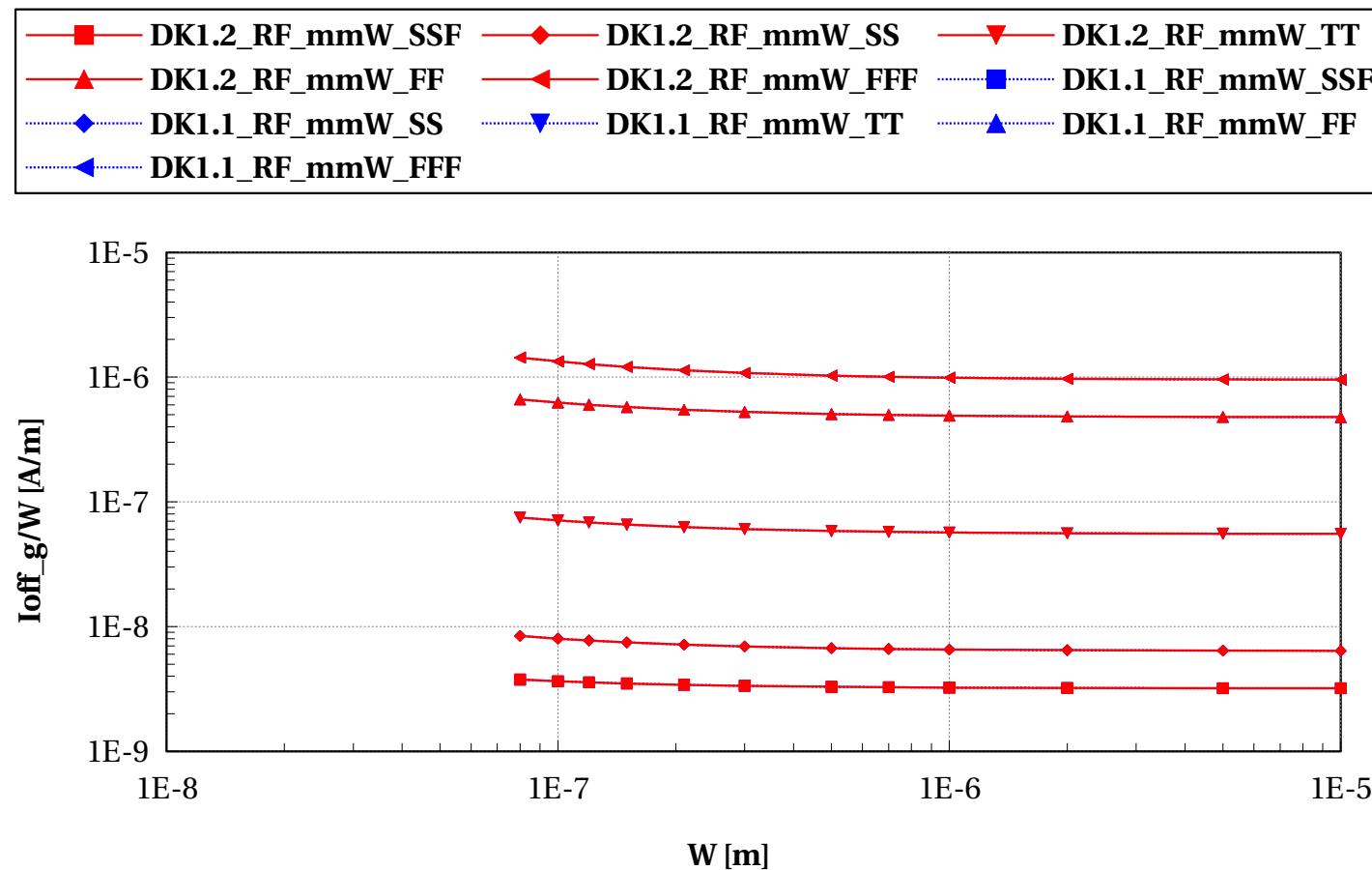
lvtnfet_acc, Ig_on/(L*W) [A/m²] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



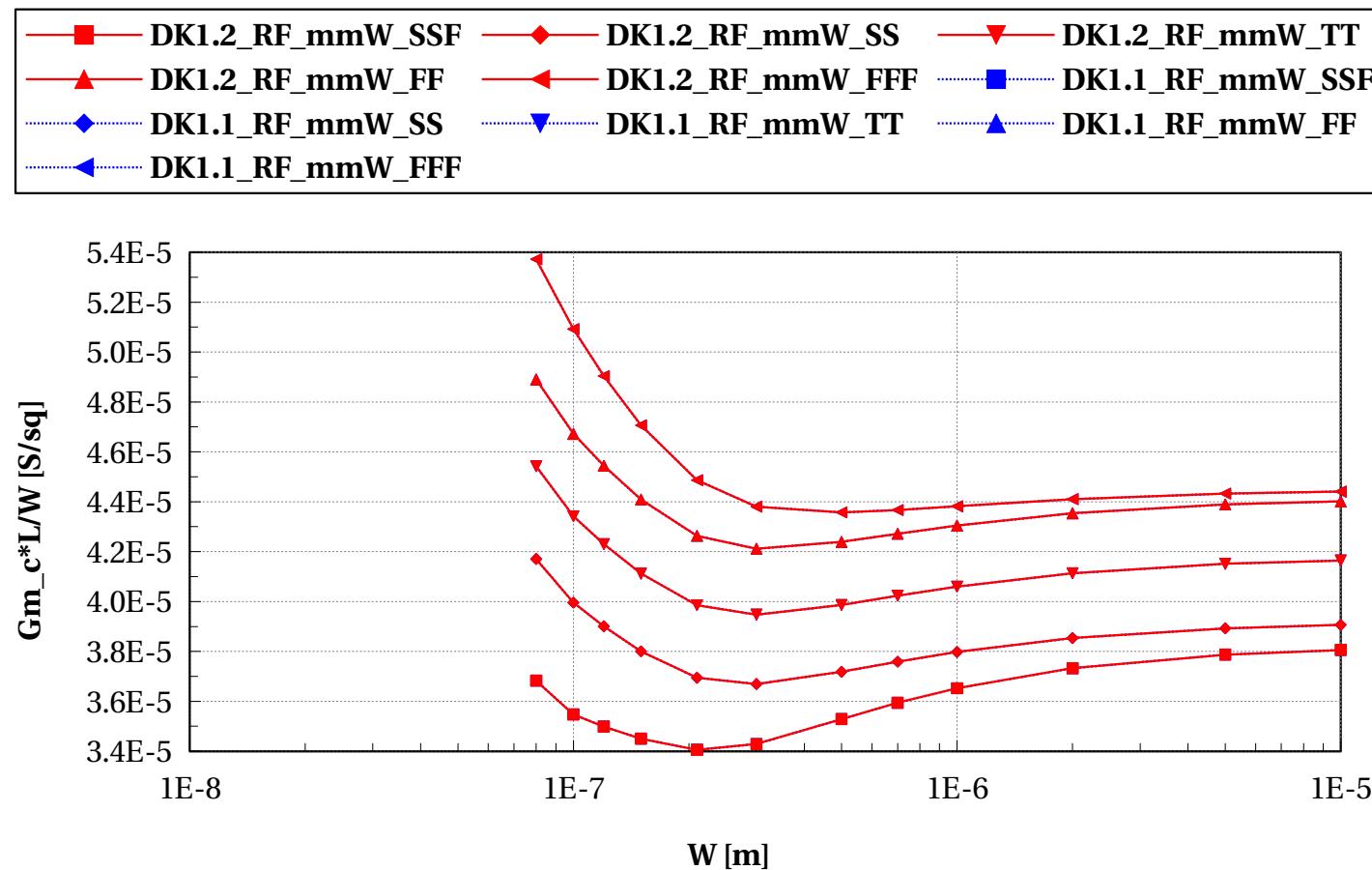
Ivtnfet_acc, Ioff_g/W [A/m] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 0$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



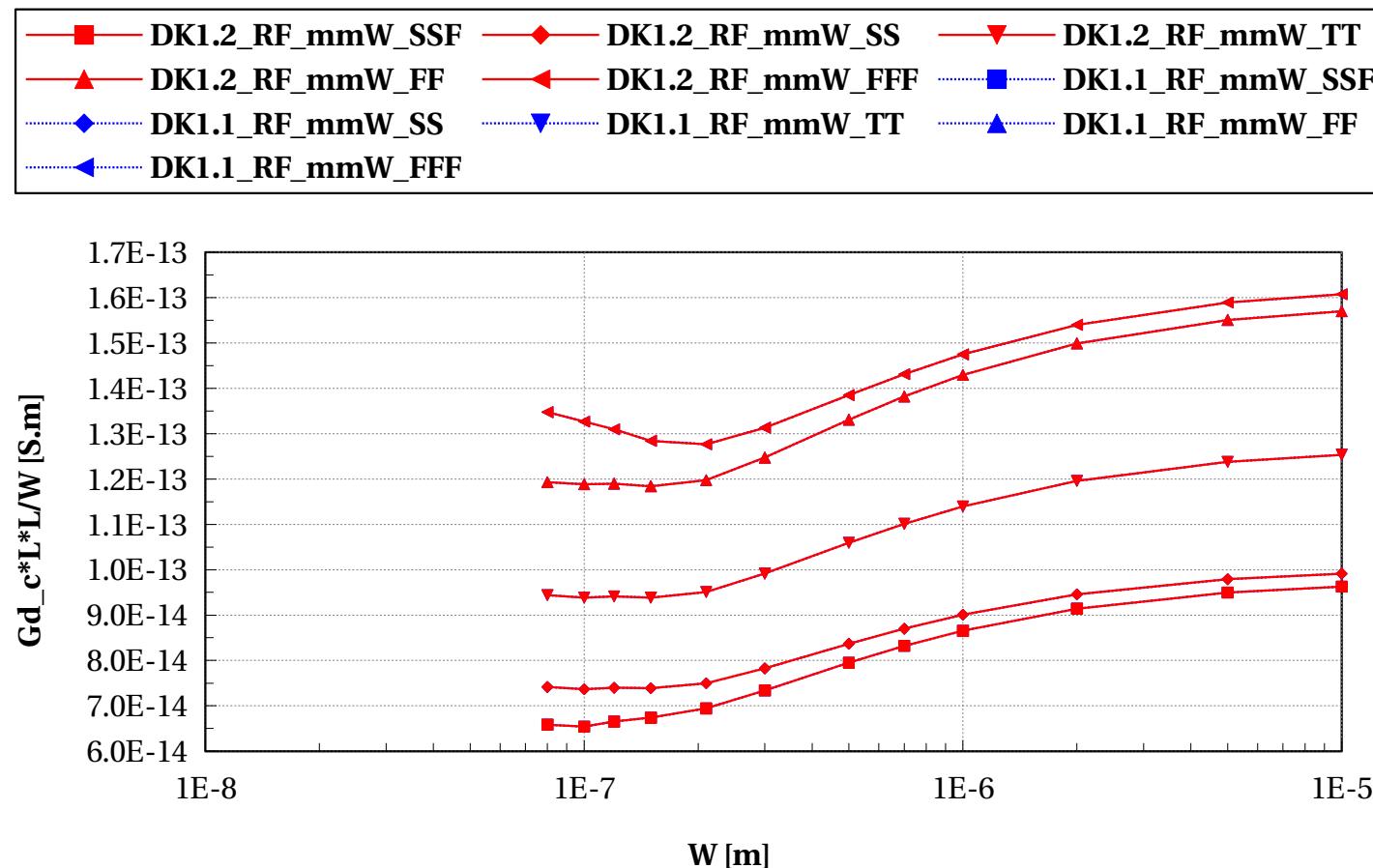
lvtnfet_acc, Gm_c*L/W [S/sq] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{bs}=0$ and $p_{la}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



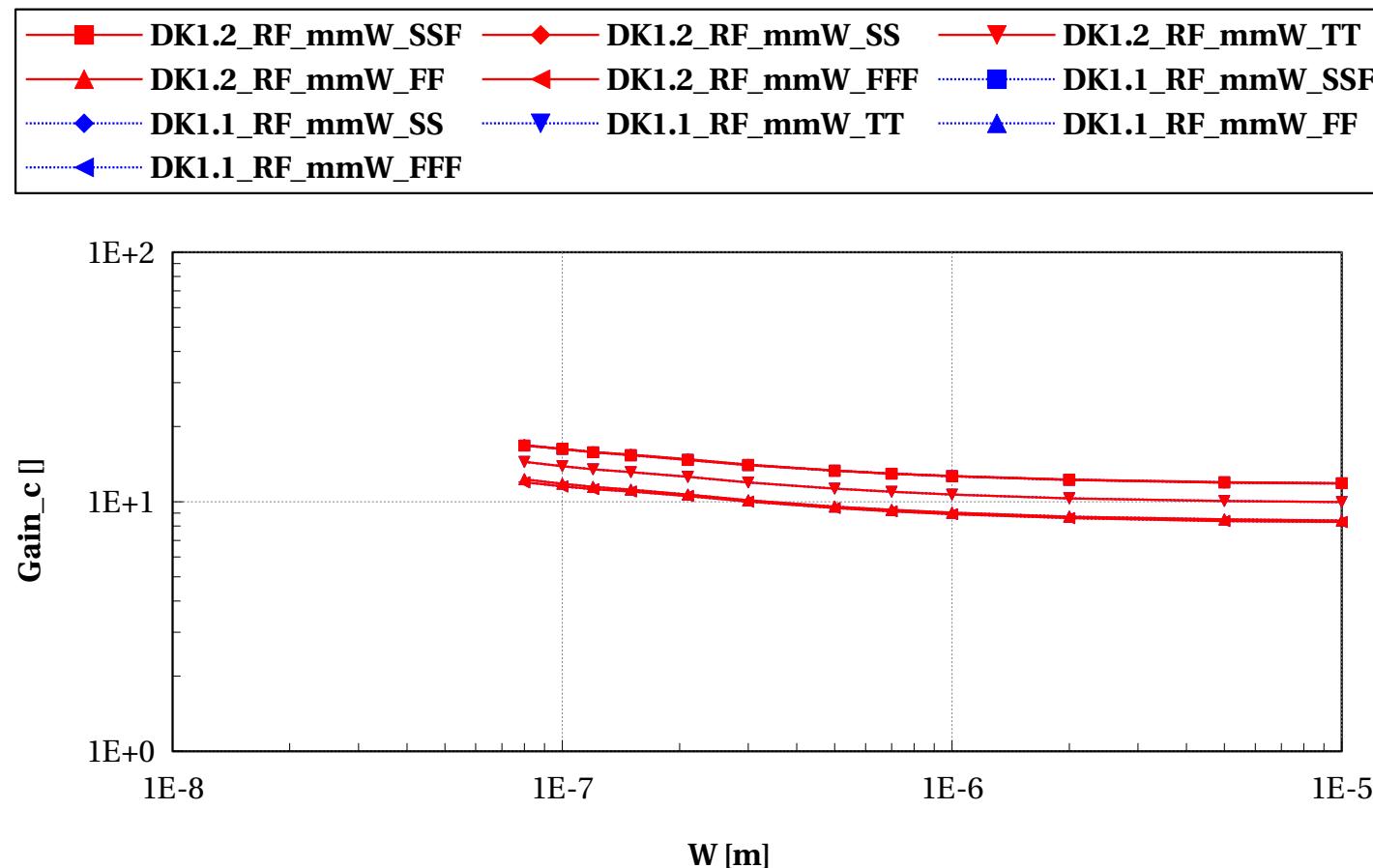
lvtnfet_acc, Gd_c*L/W [S.m] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=0$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



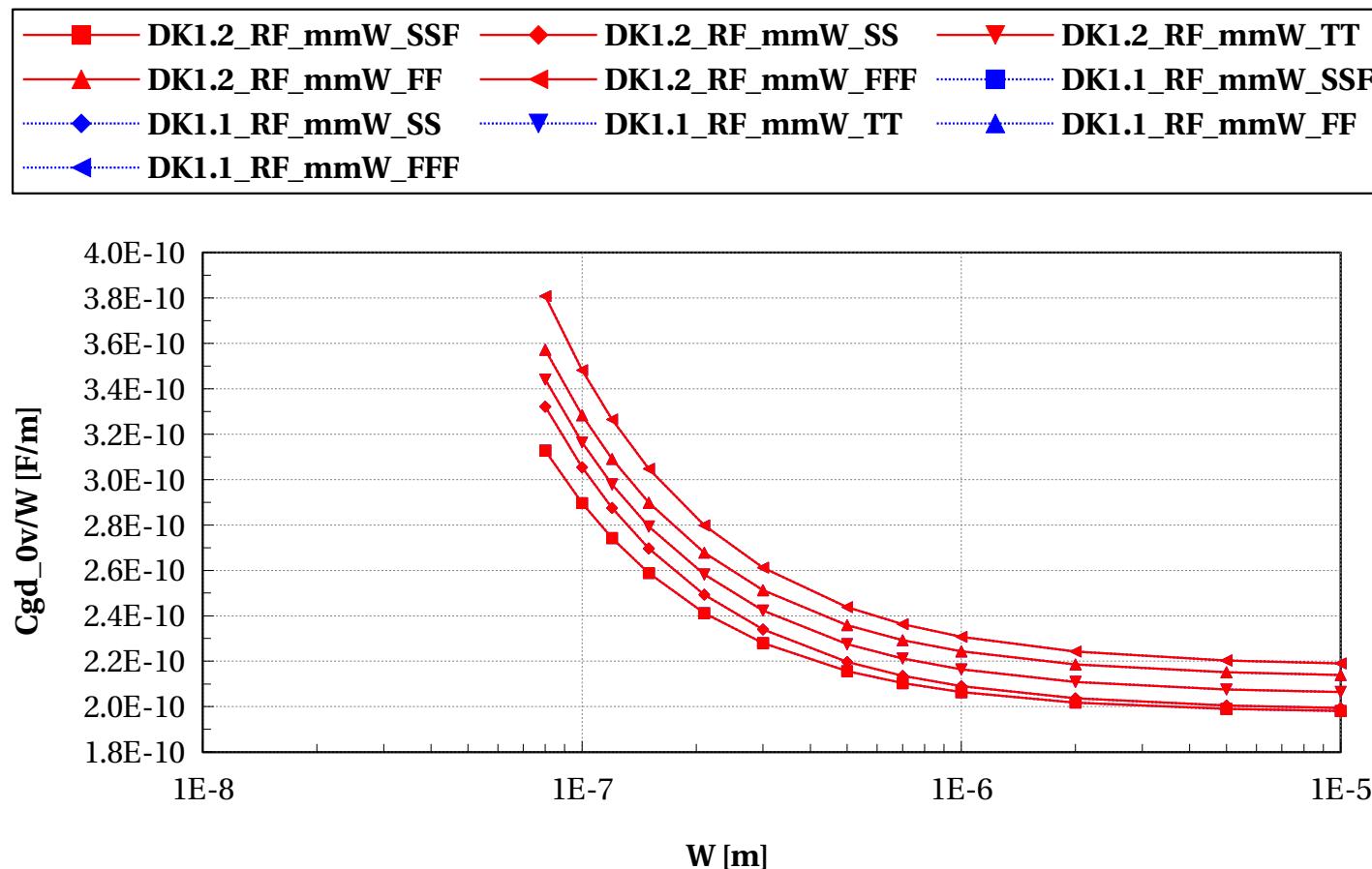
lvtnfet_acc, Gain_c [] vs W [m]

$I_{DS} = 0.030e-6$ and $\text{Temp} = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



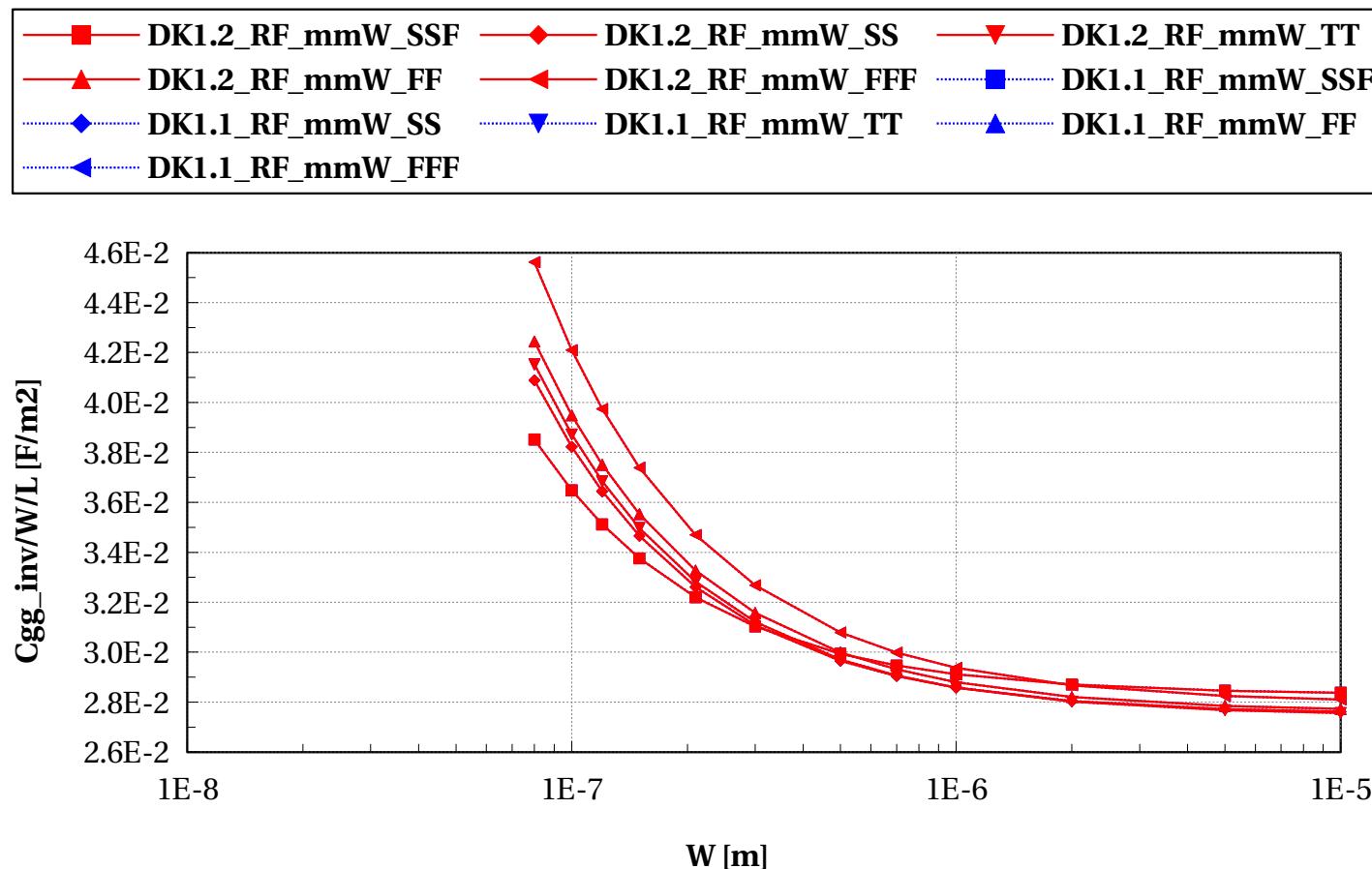
lvtnfet_acc, Cgd_0v/W [F/m] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



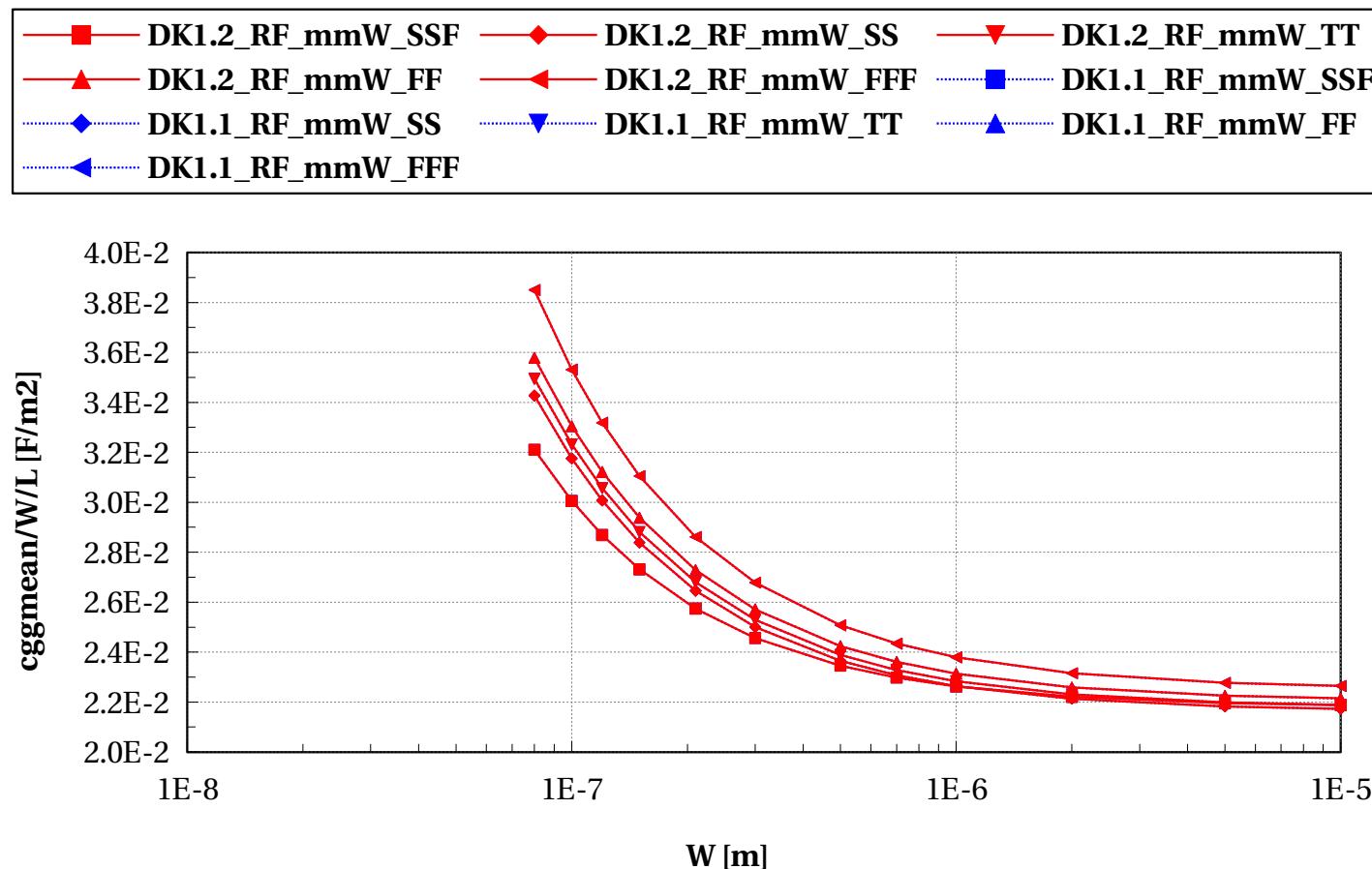
lvtnfet_acc, Cgg_inv/W/L [F/m²] vs W [m]

$I_{DS} = 0.030e-6$ and $Temp = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $devType = "PCELLwoWPE"$



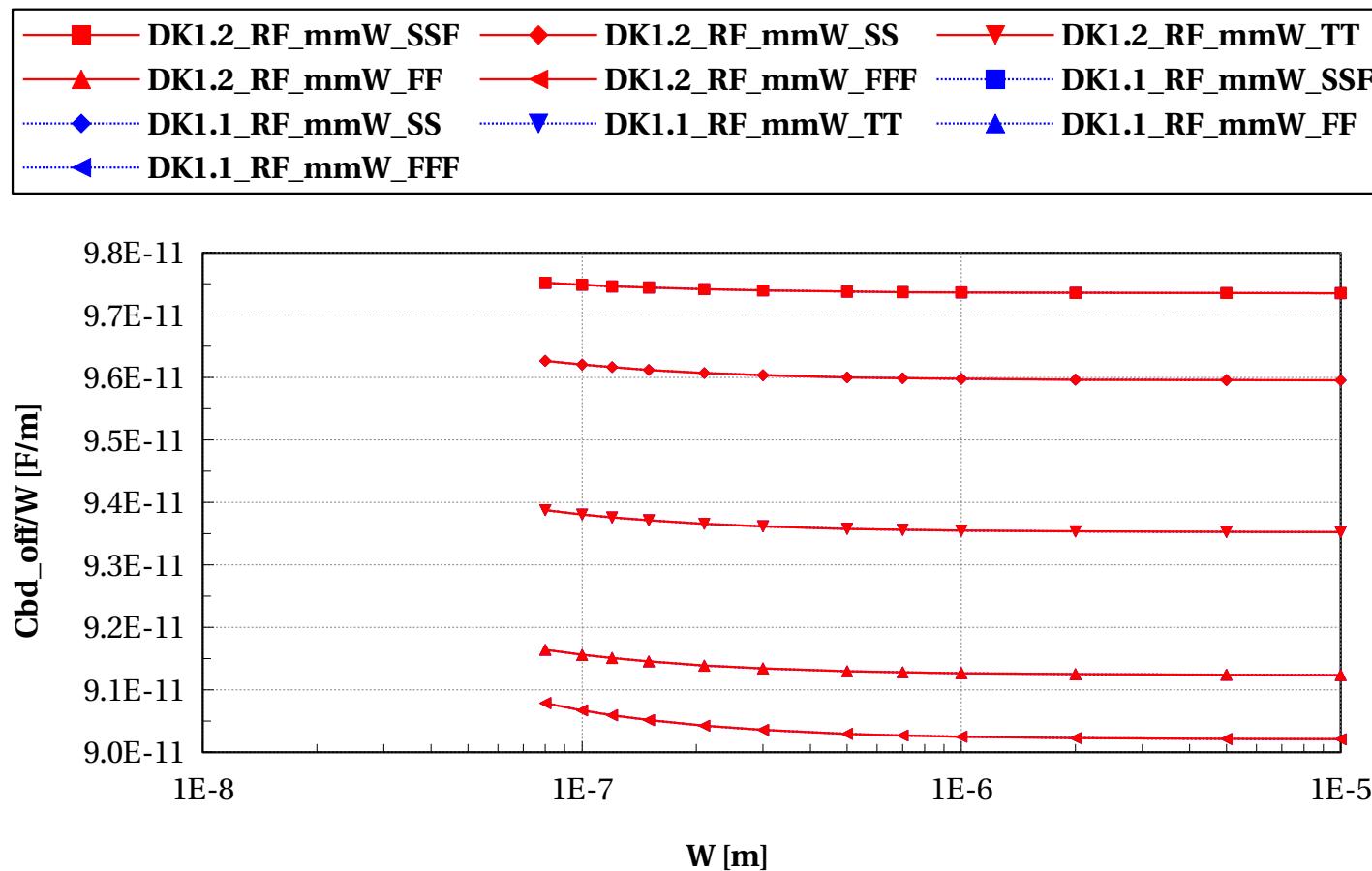
lvtnfet_acc, cgmean/W/L [F/m²] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



lvtnfet_acc, Cbd_off/W [F/m] vs W [m]

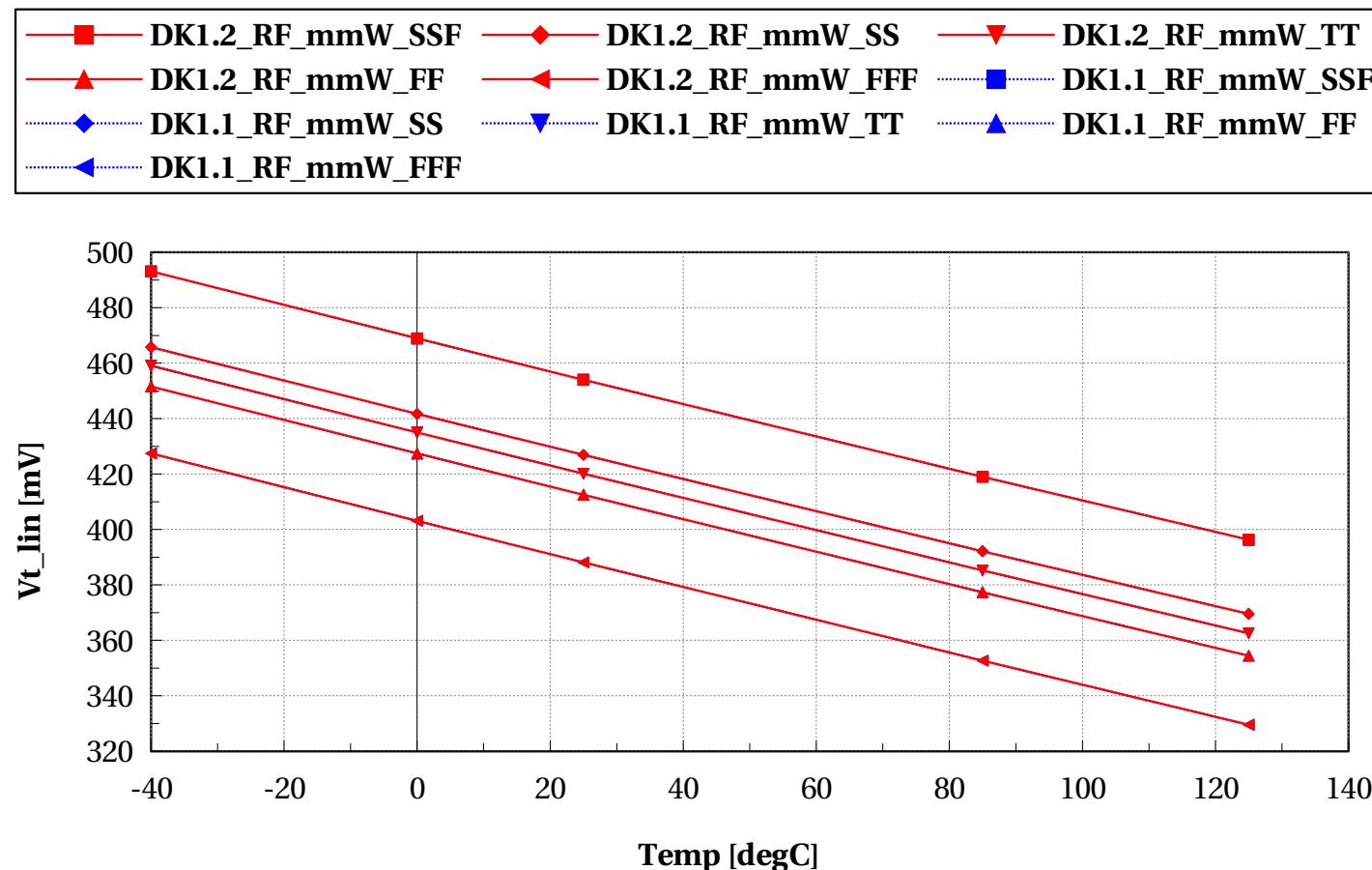
$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{BS} = 0$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



Scaling versus Temp (L=1um,W=1um)

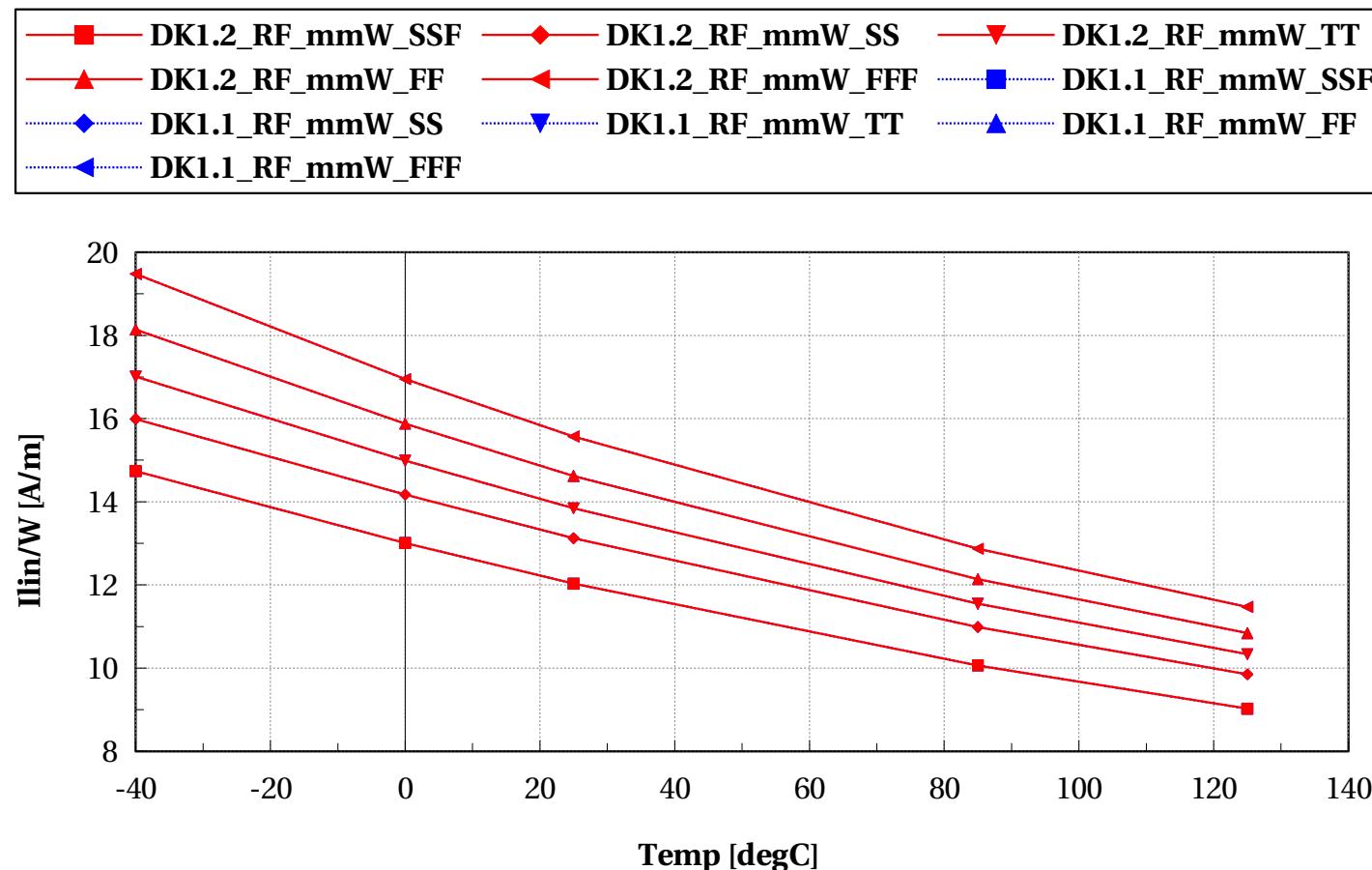
lvtnfet_acc, Vt_lin [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



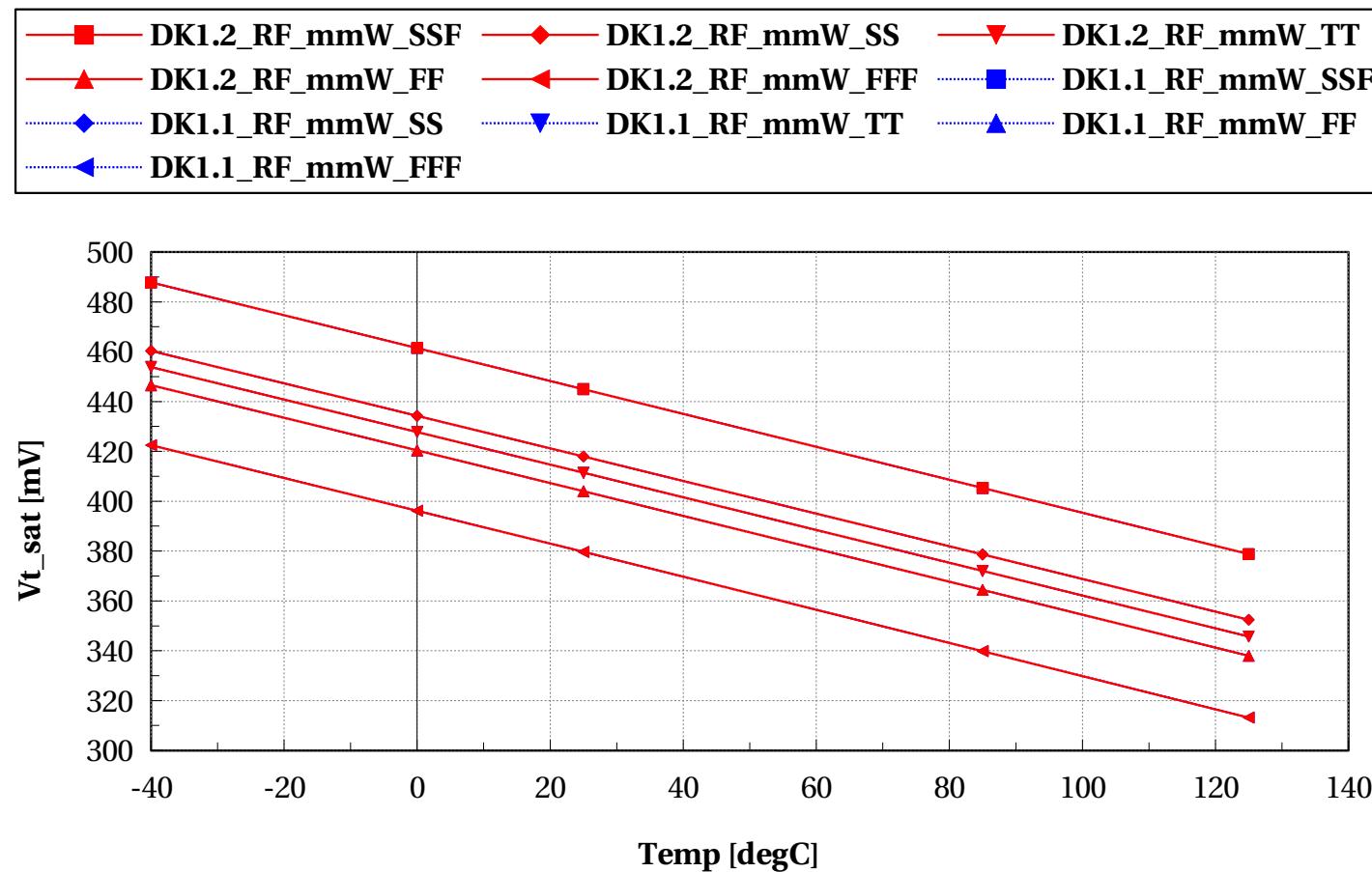
lvtnfet_acc, Ilin/W [A/m] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



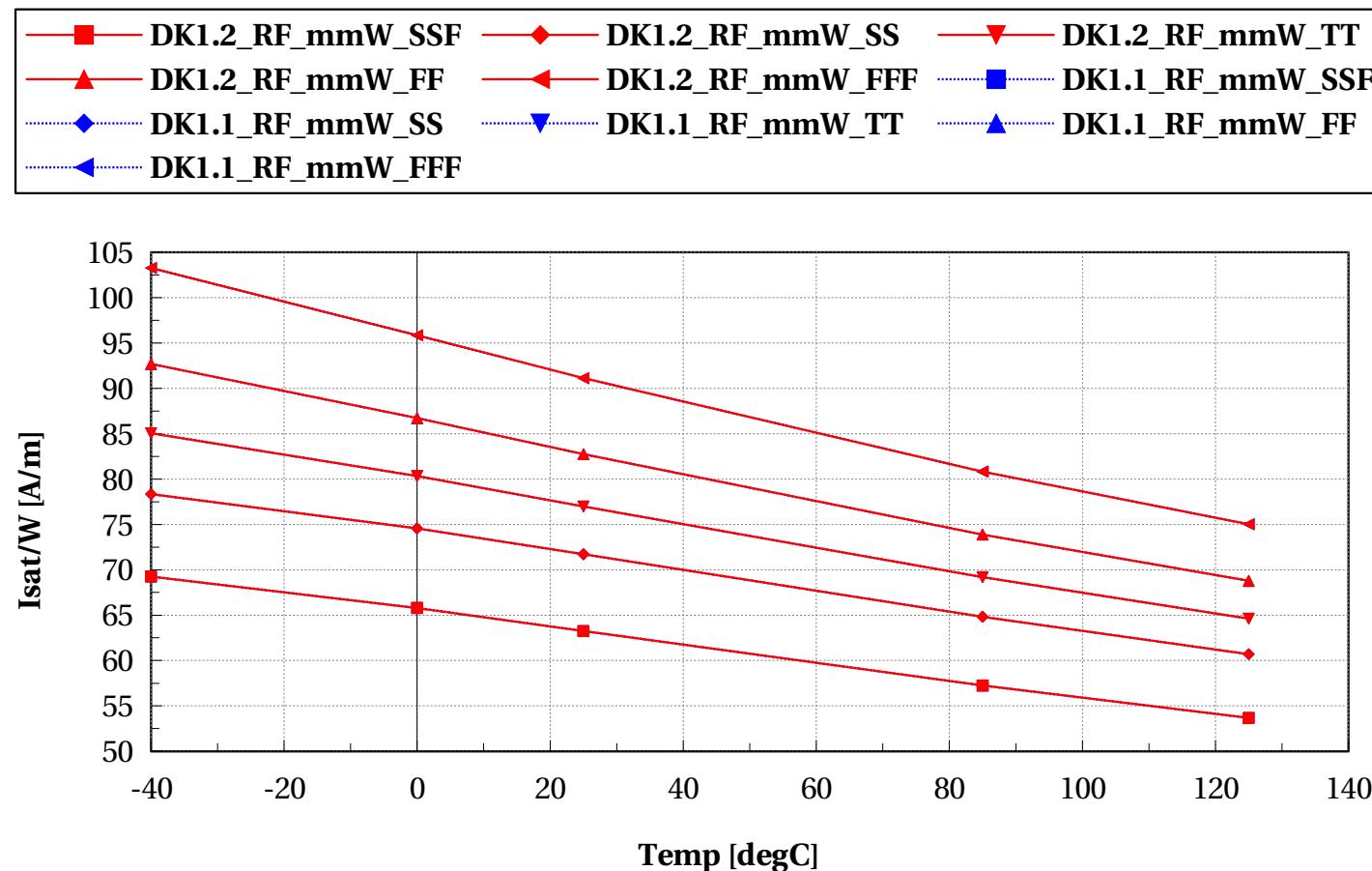
lvtnfet_acc, Vt_sat [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



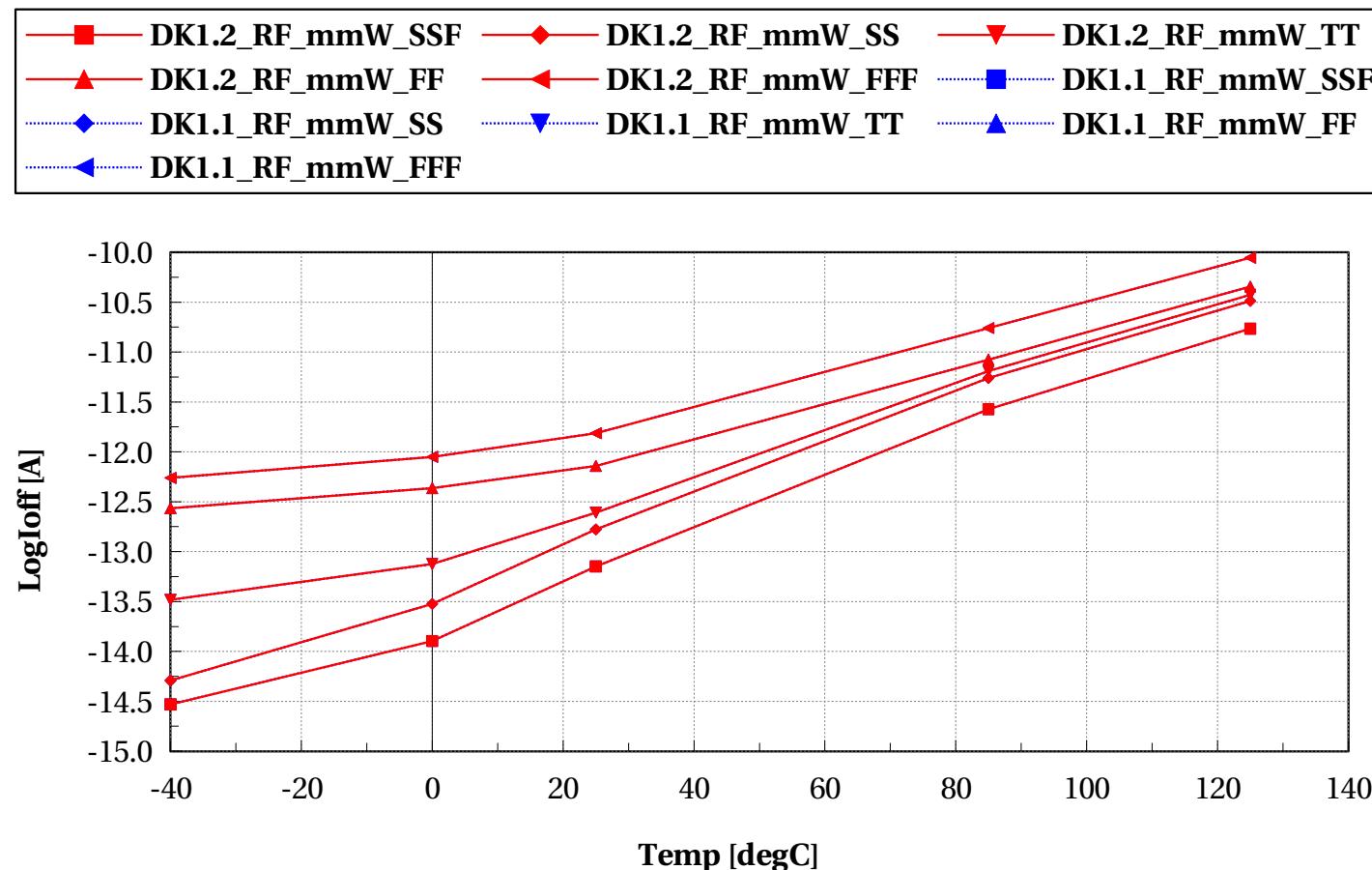
lvtnfet_acc, Isat/W [A/m] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



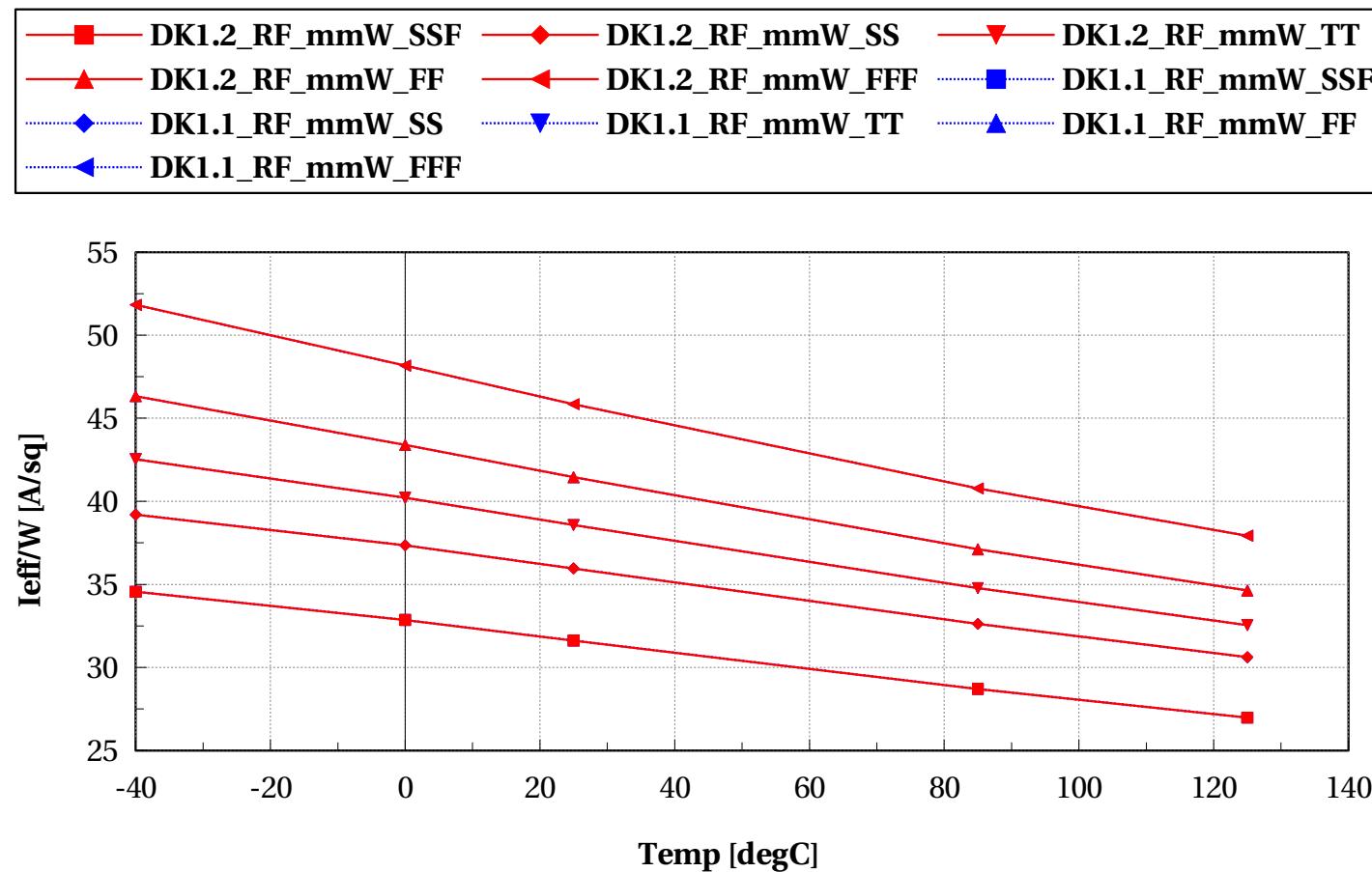
lvtnfet_acc, LogIoff [A] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Ieff/W [A/sq] vs Temp [degC]

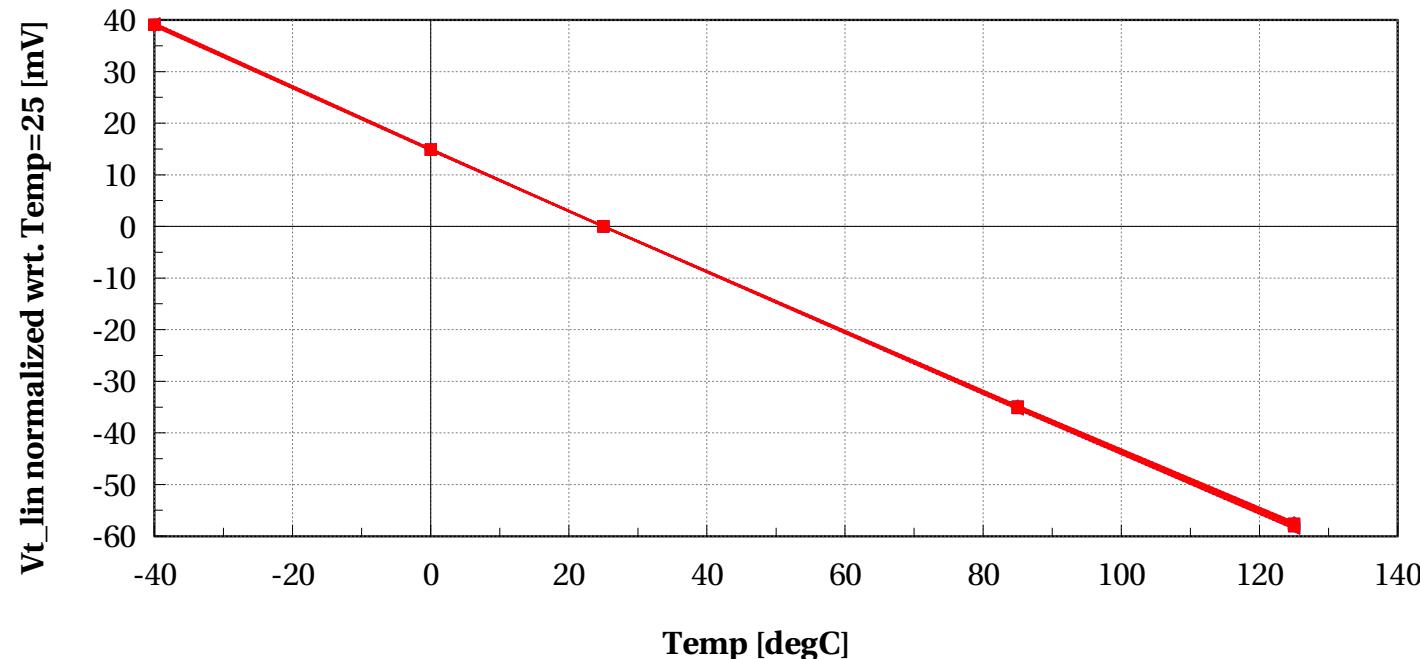
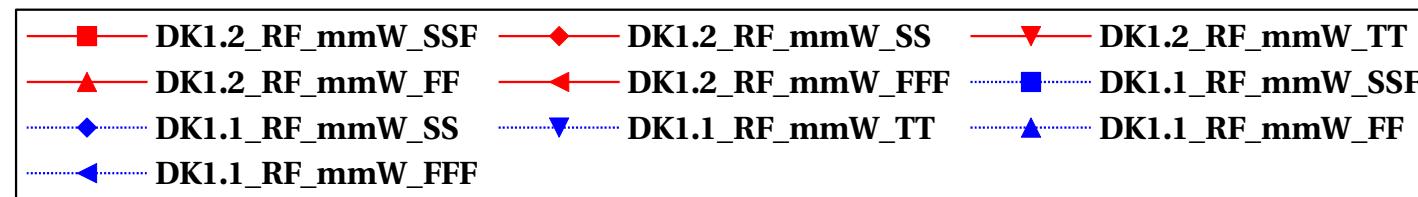
w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp normalized (L=1um,W=1um)

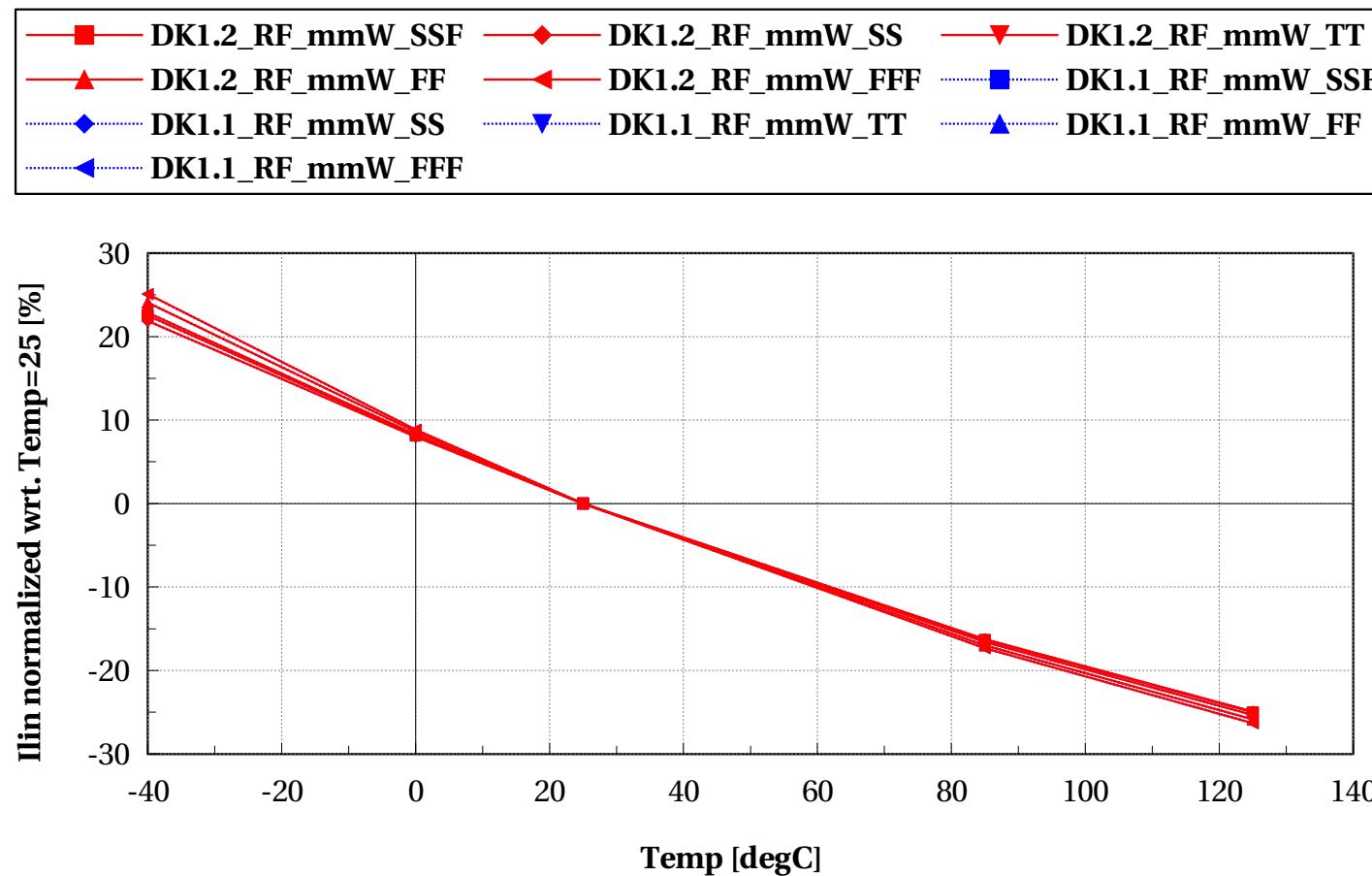
lvtnfet_acc, Vt_lin normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



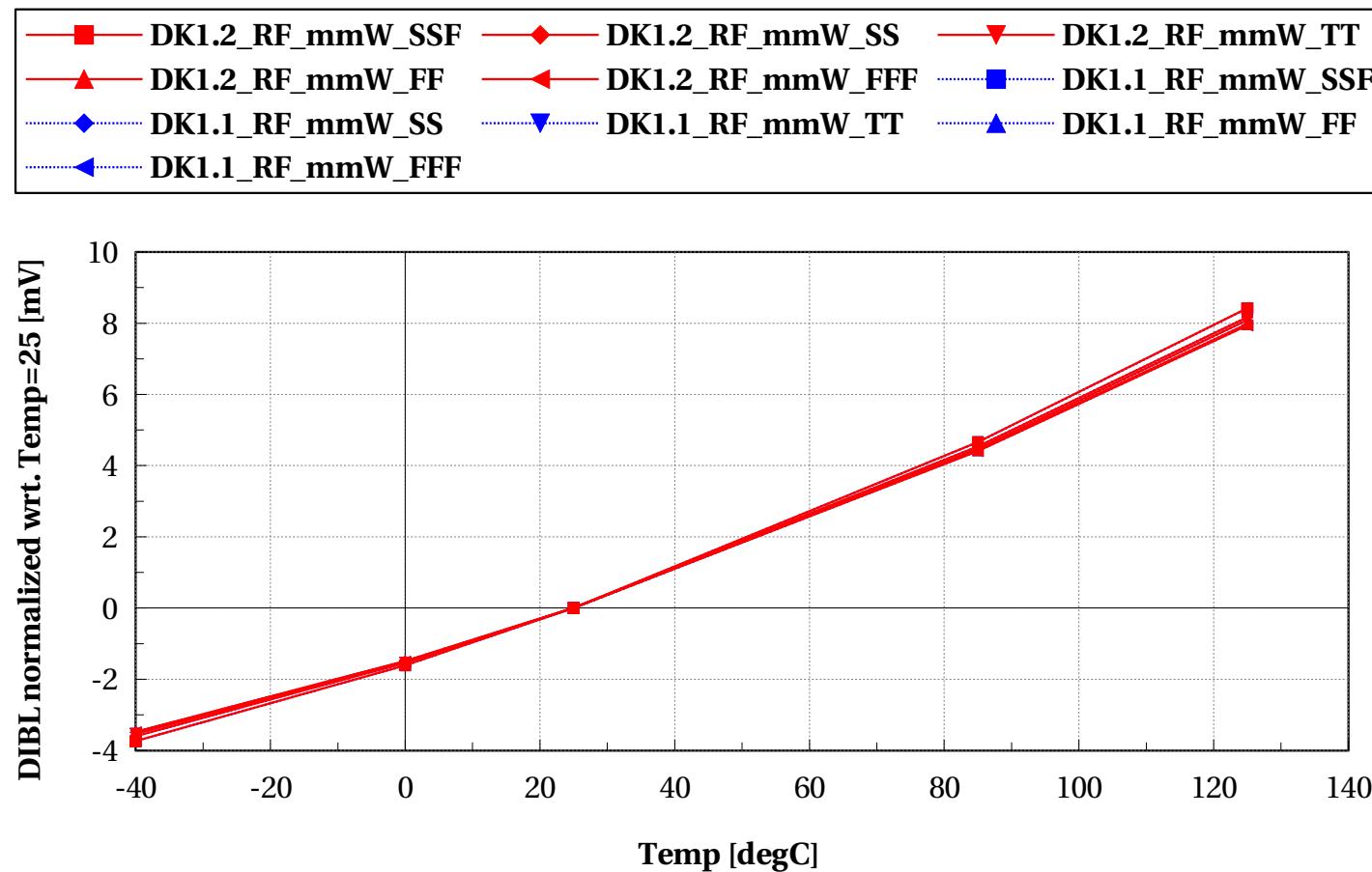
lvtnfet_acc, Ilin normalized wrt. Temp=25 [%] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



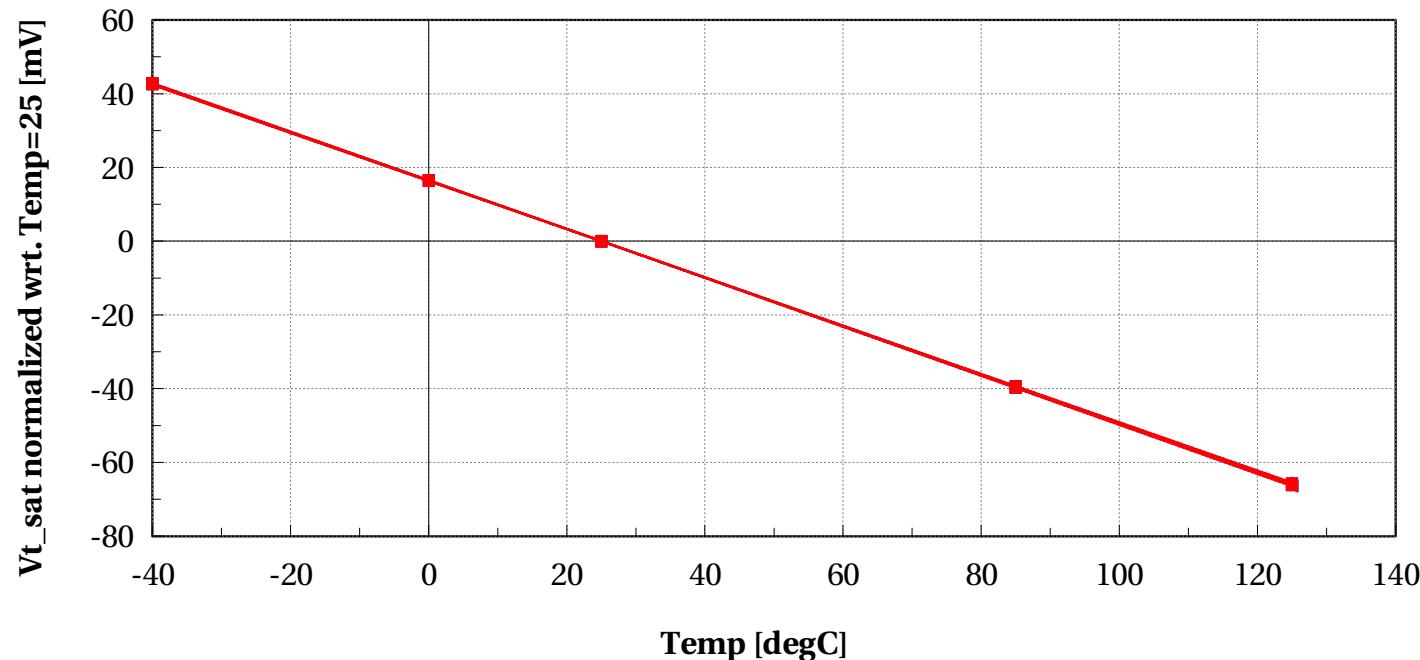
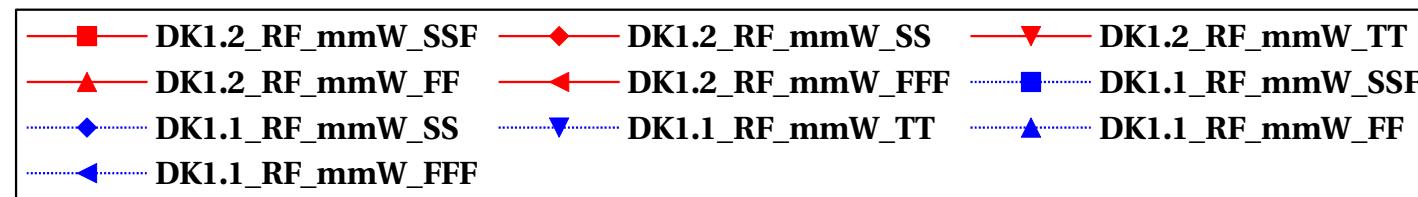
lvtnfet_acc, DIBL normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



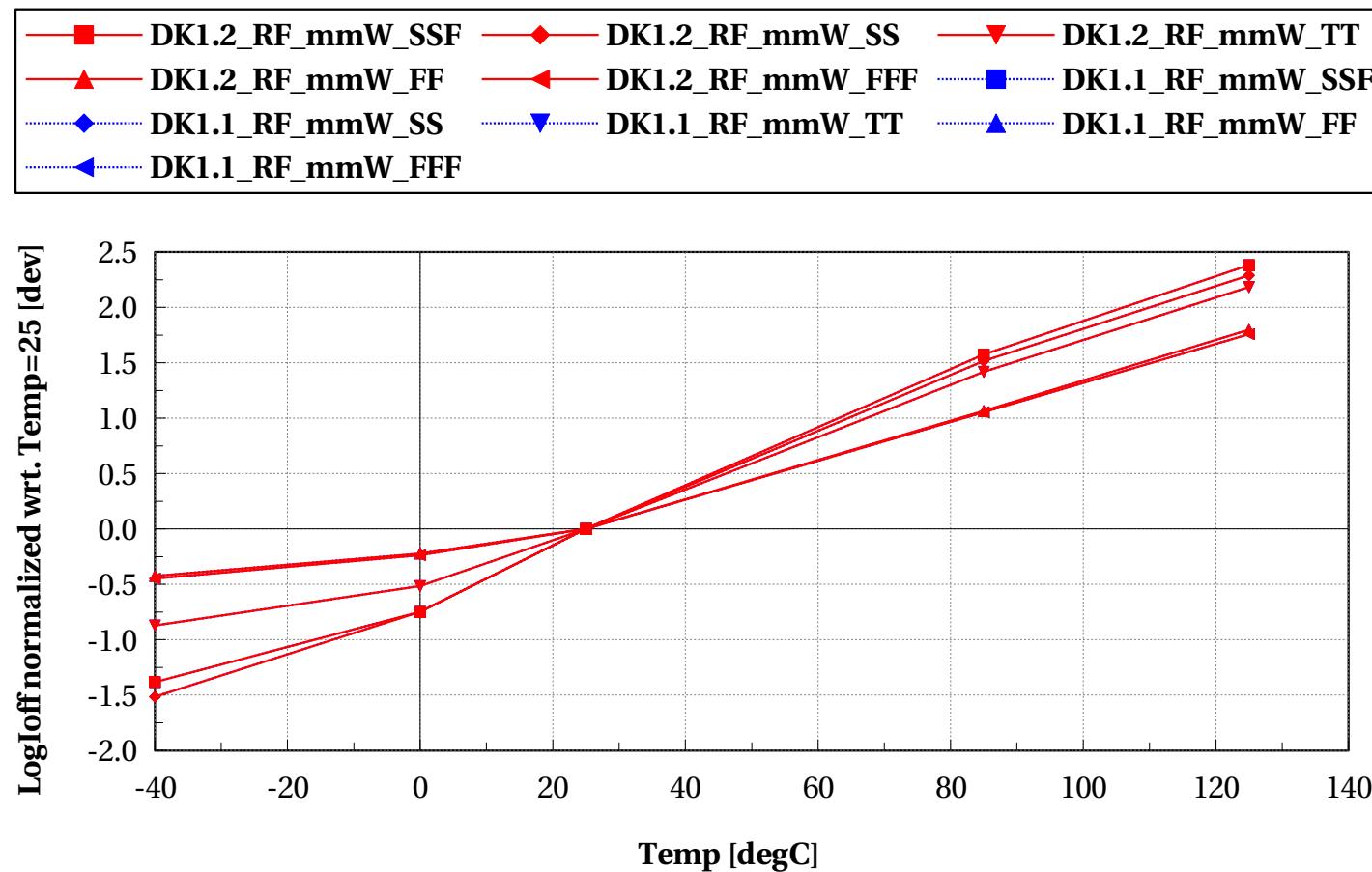
lvtnfet_acc, Vt_sat normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



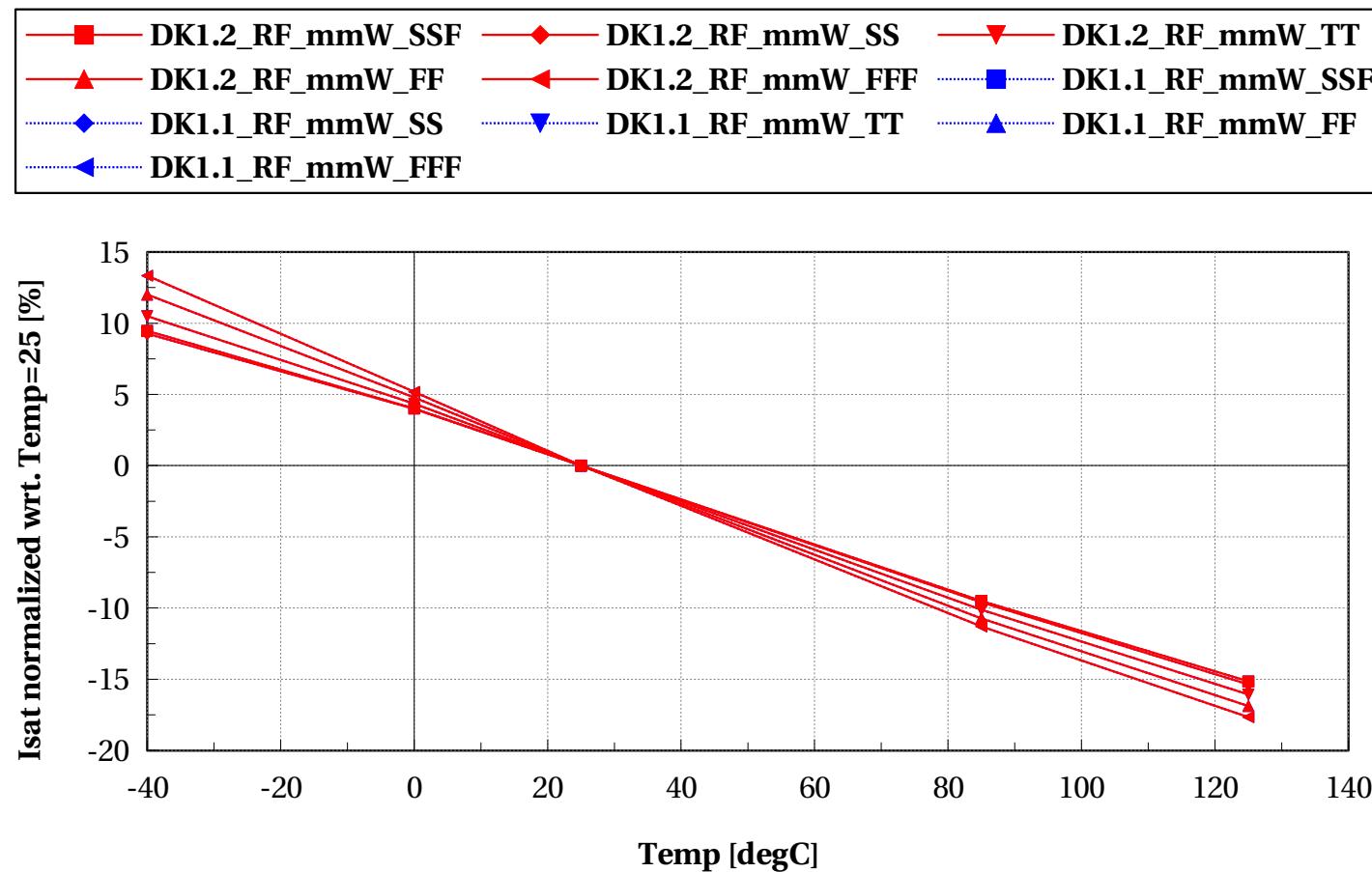
lvtnfet_acc, LogIoff normalized wrt. Temp=25 [dev] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



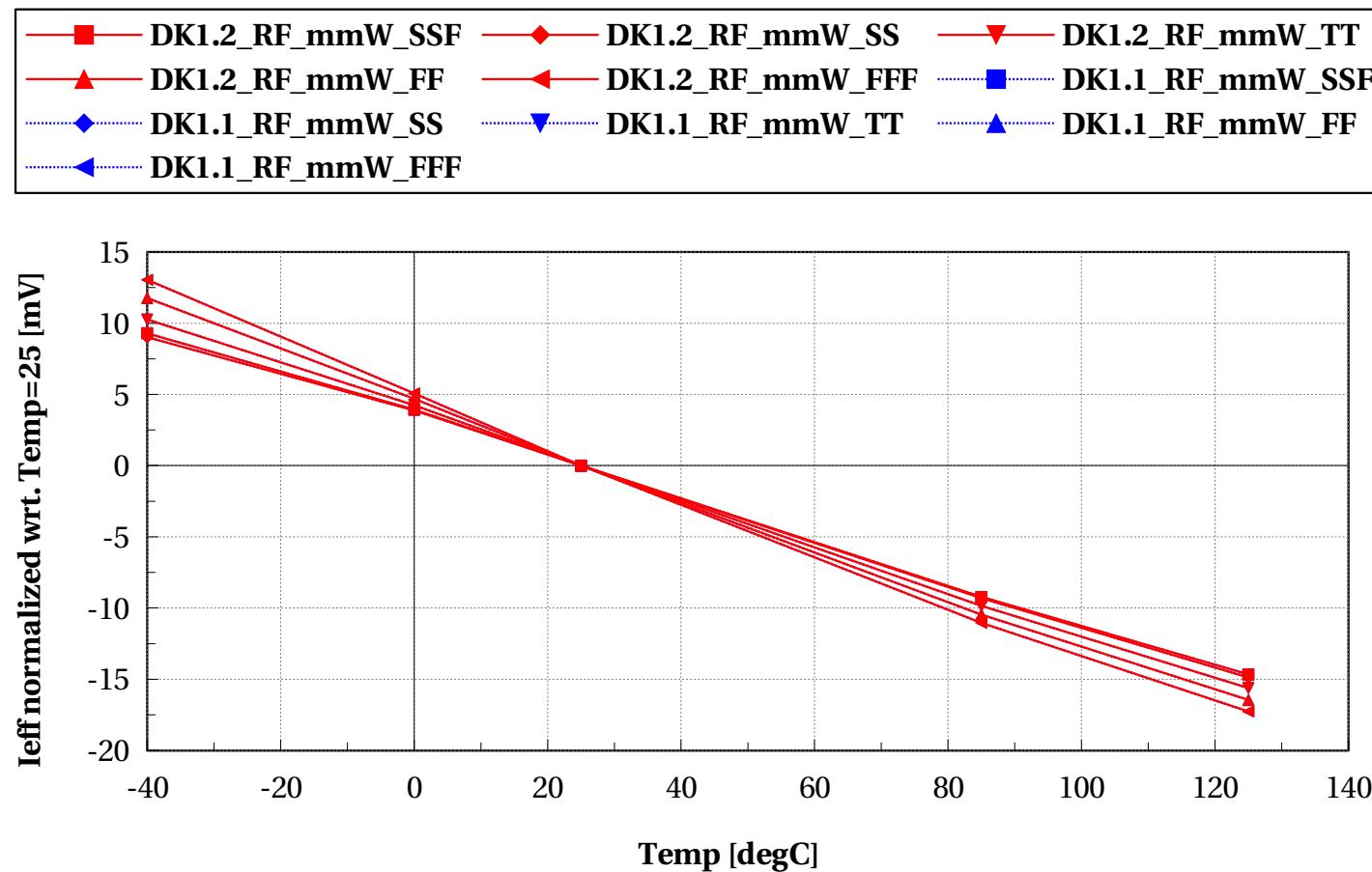
lvtnfet_acc, Isat normalized wrt. Temp=25 [%] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Ieff normalized wrt. Temp=25 [mV] vs Temp [degC]

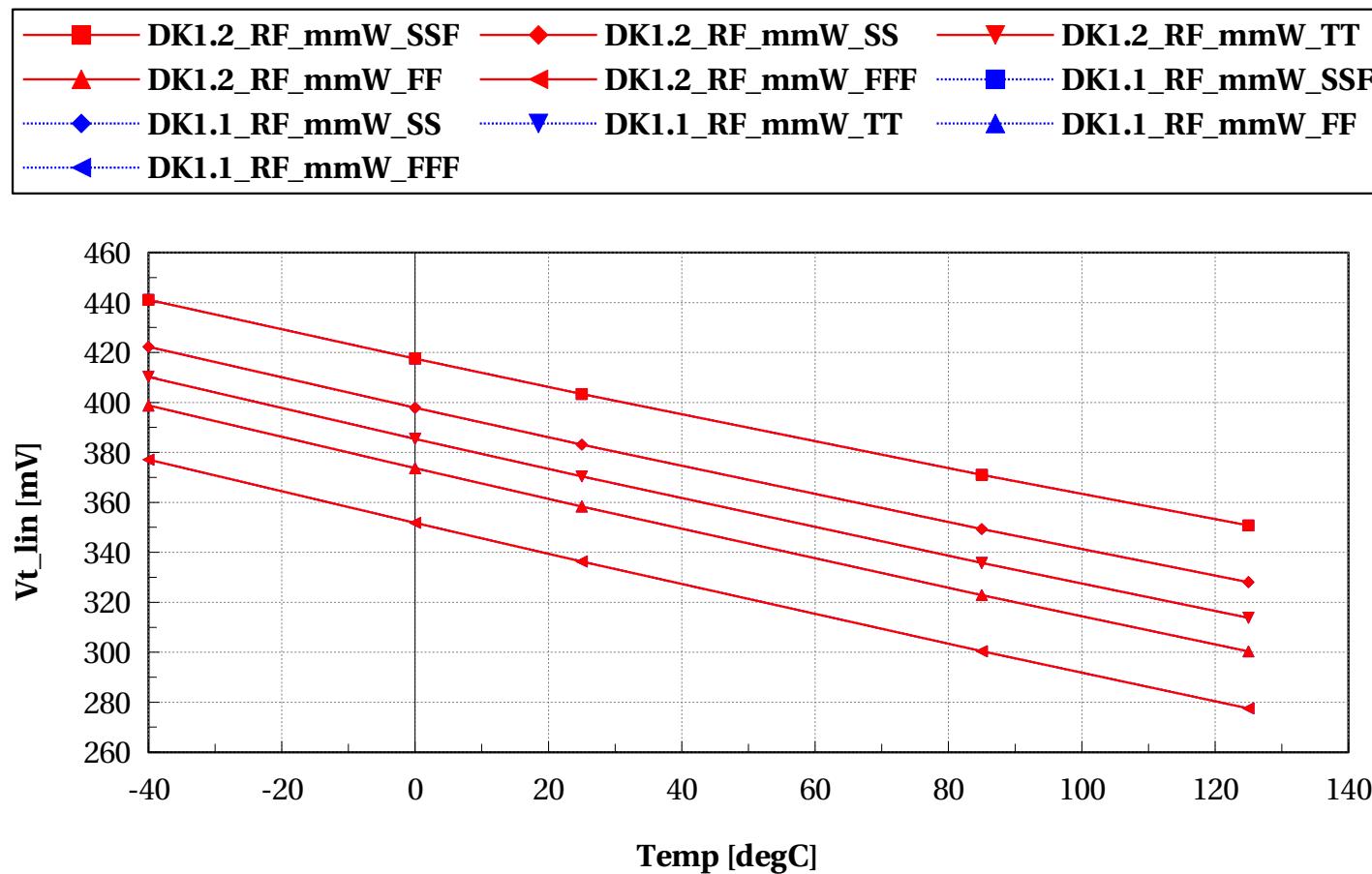
w==1e-6 and L==1e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp (L=30nm,W=210nm)

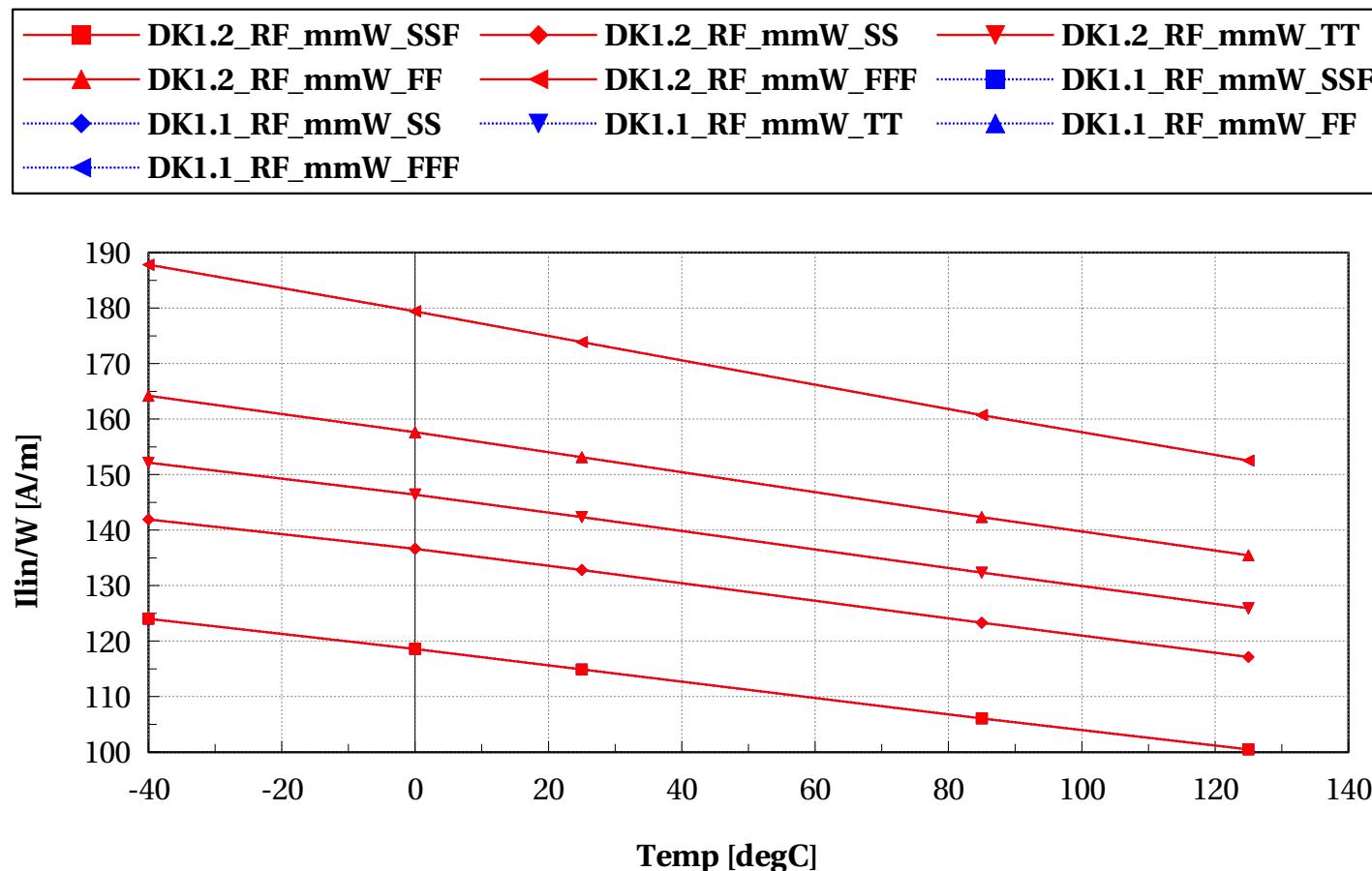
lvtnfet_acc, Vt_lin [mV] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



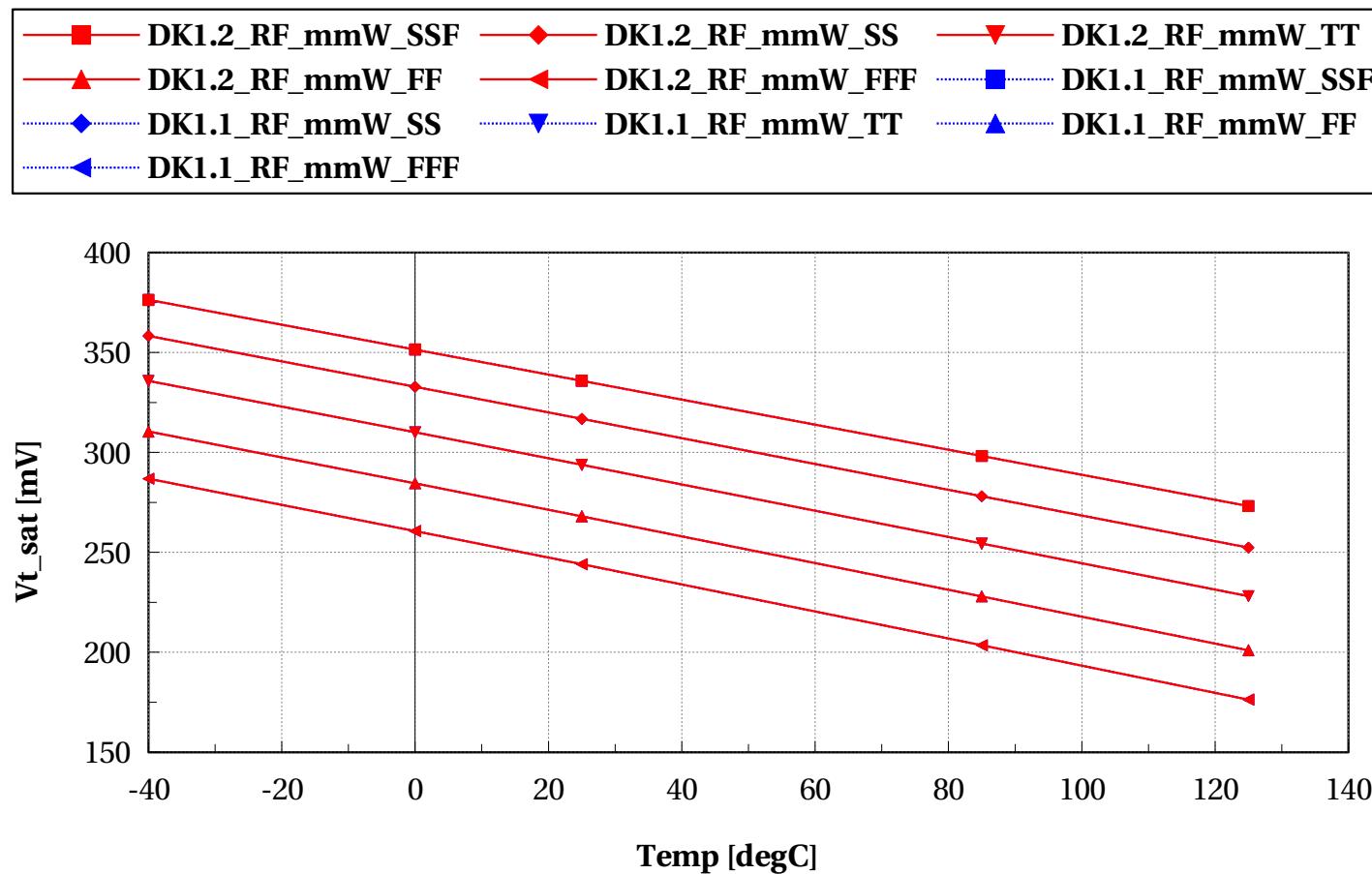
Ivtnfet_acc, Ilin/W [A/m] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



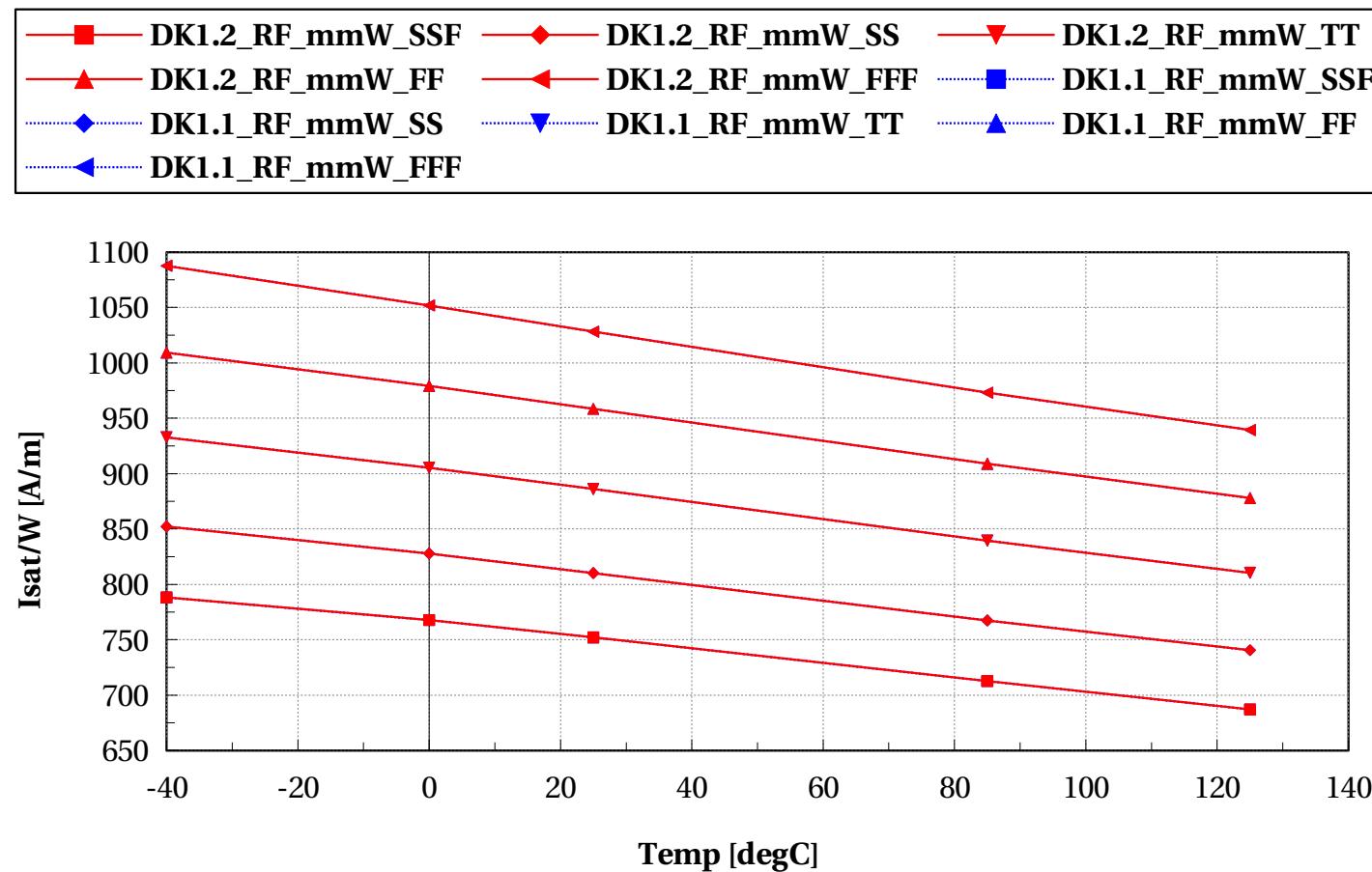
lvtnfet_acc, Vt_sat [mV] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



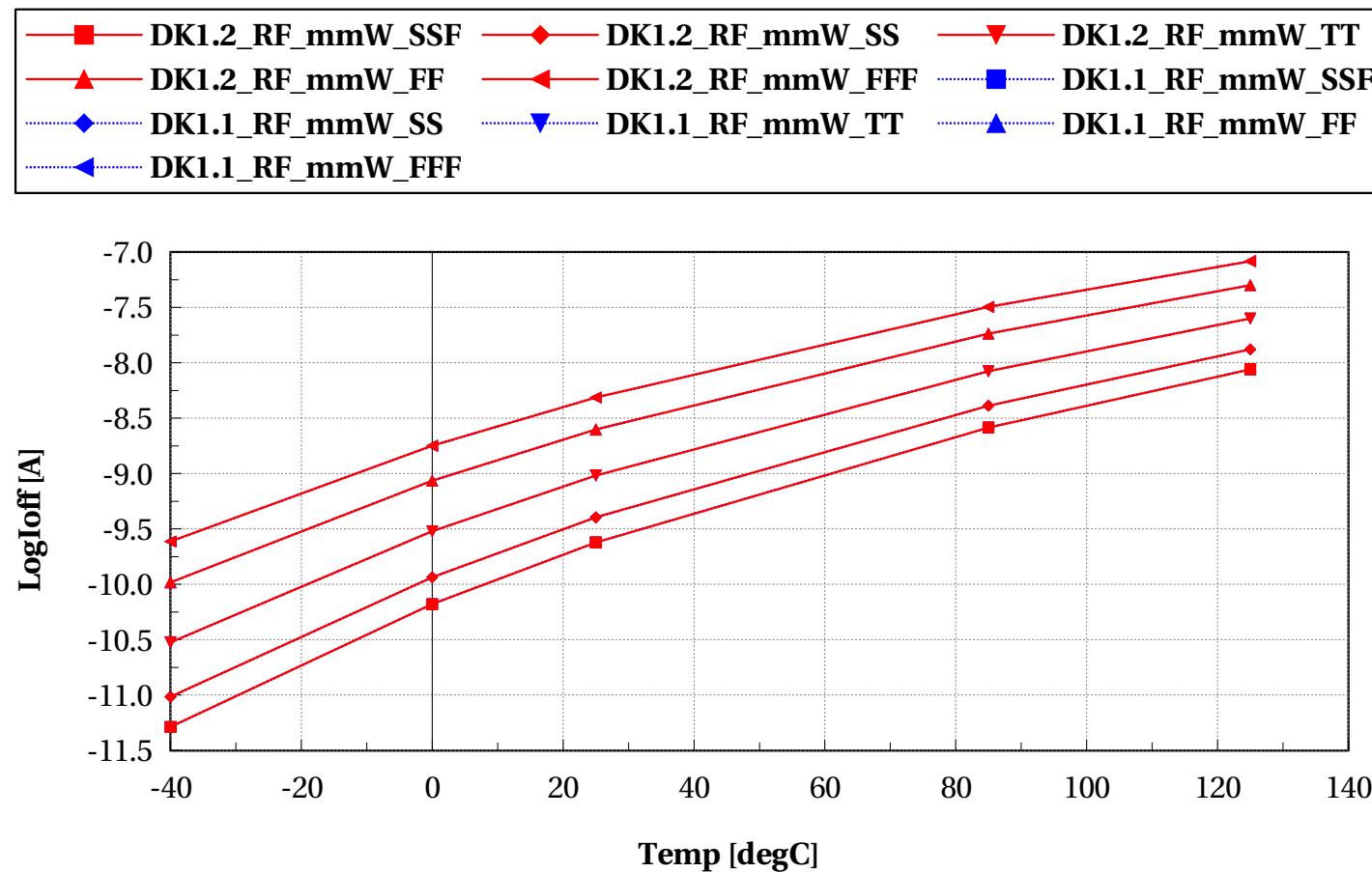
lvtnfet_acc, Isat/W [A/m] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



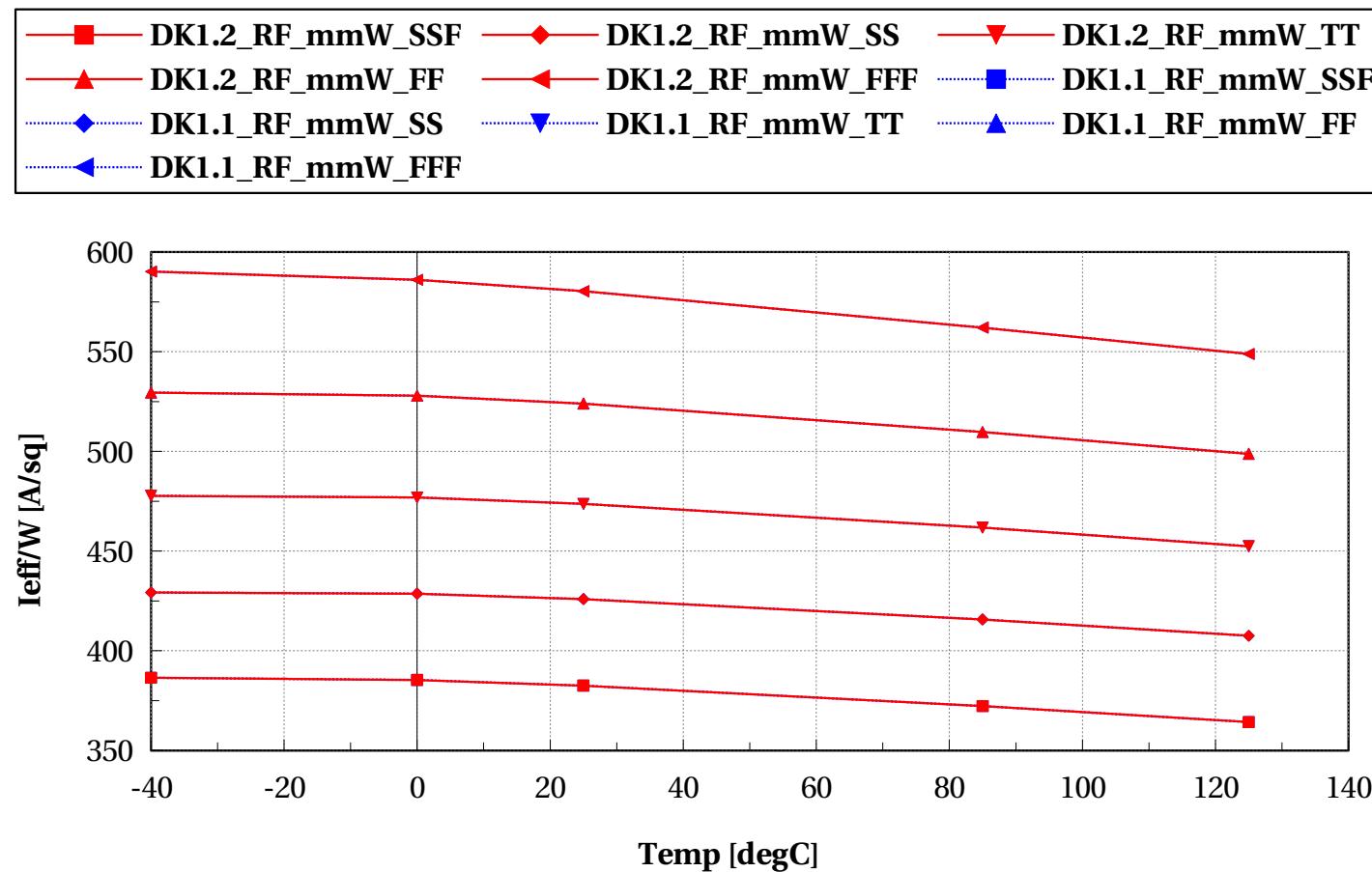
lvtnfet_acc, LogIoff [A] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Ieff/W [A/sq] vs Temp [degC]

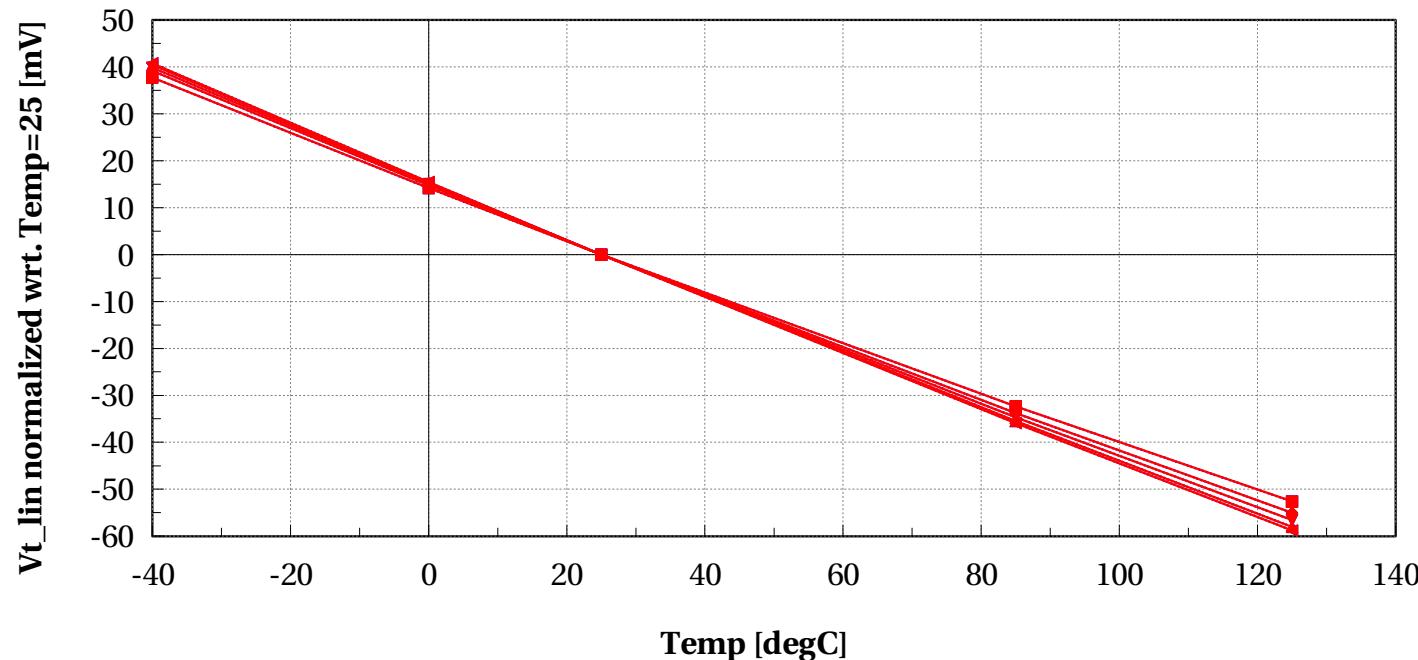
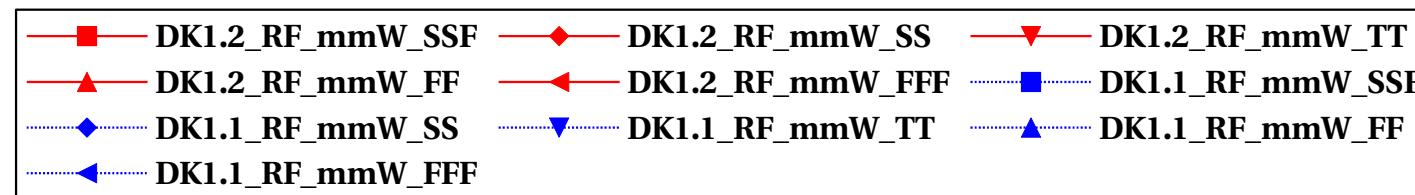
w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp normalized (L=30nm,W=210nm)

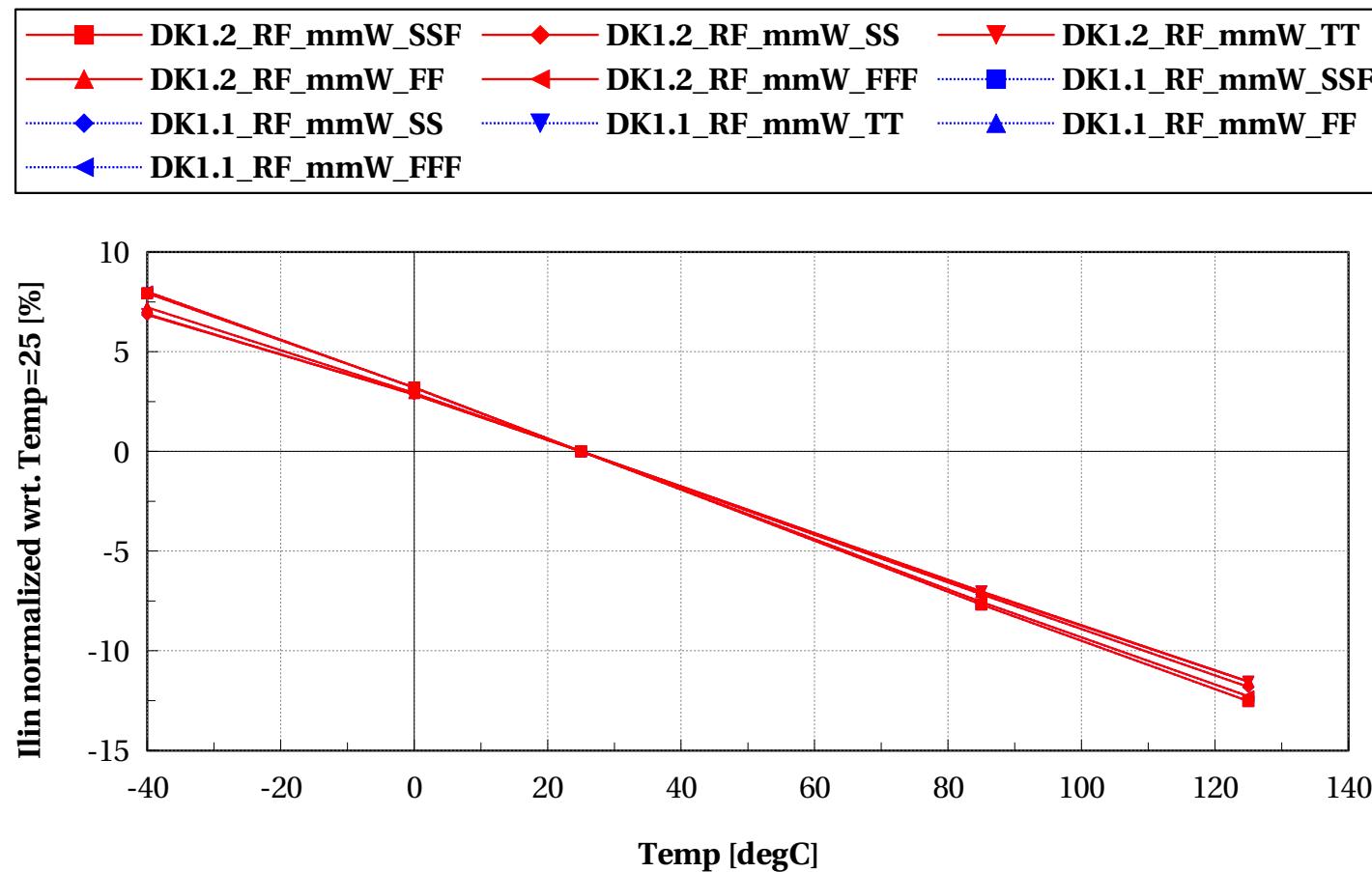
lvtnfet_acc, Vt_lin normalized wrt. Temp=25 [mV] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



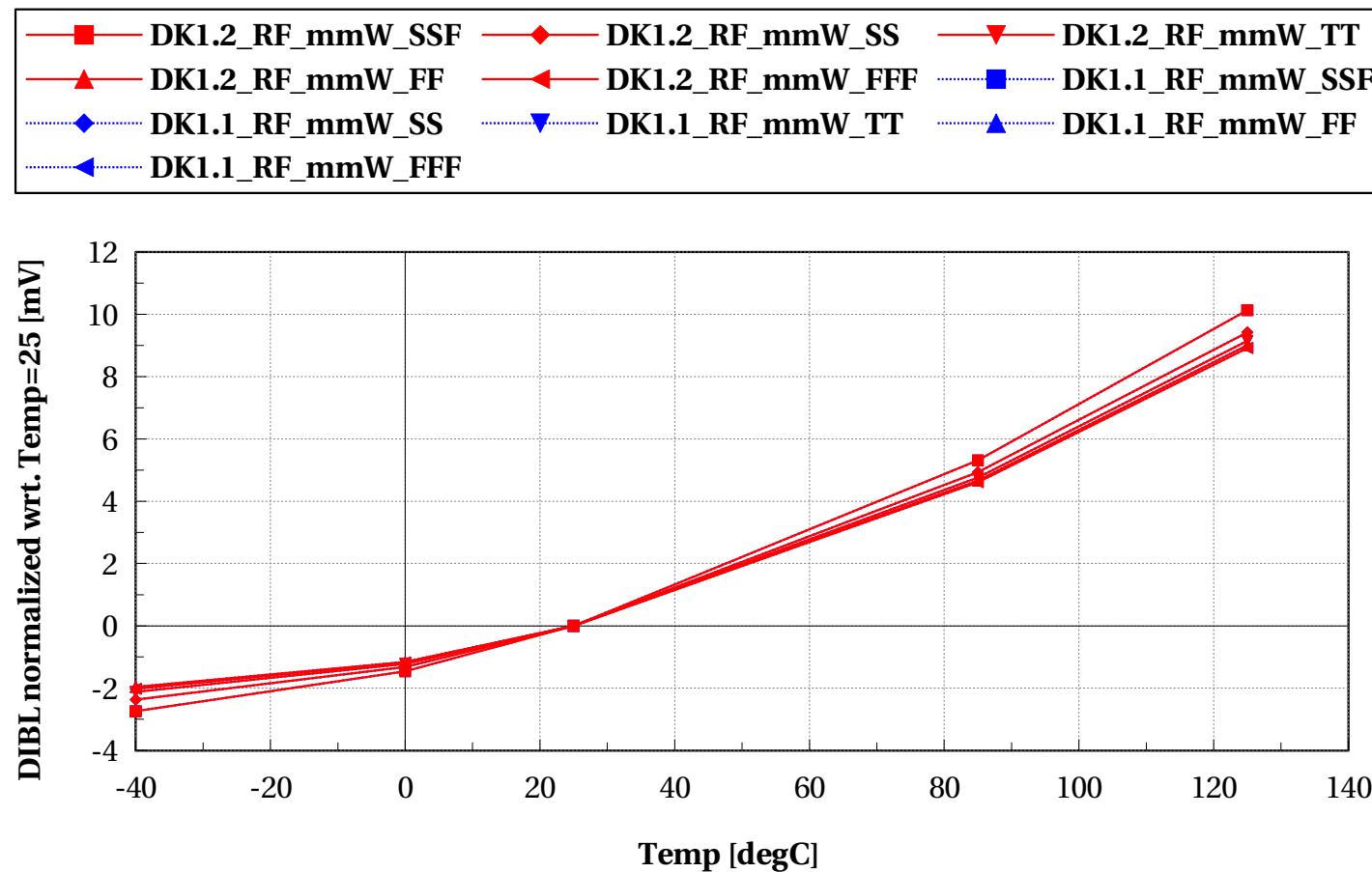
Ivtnfet_acc, Ilin normalized wrt. Temp=25 [%] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



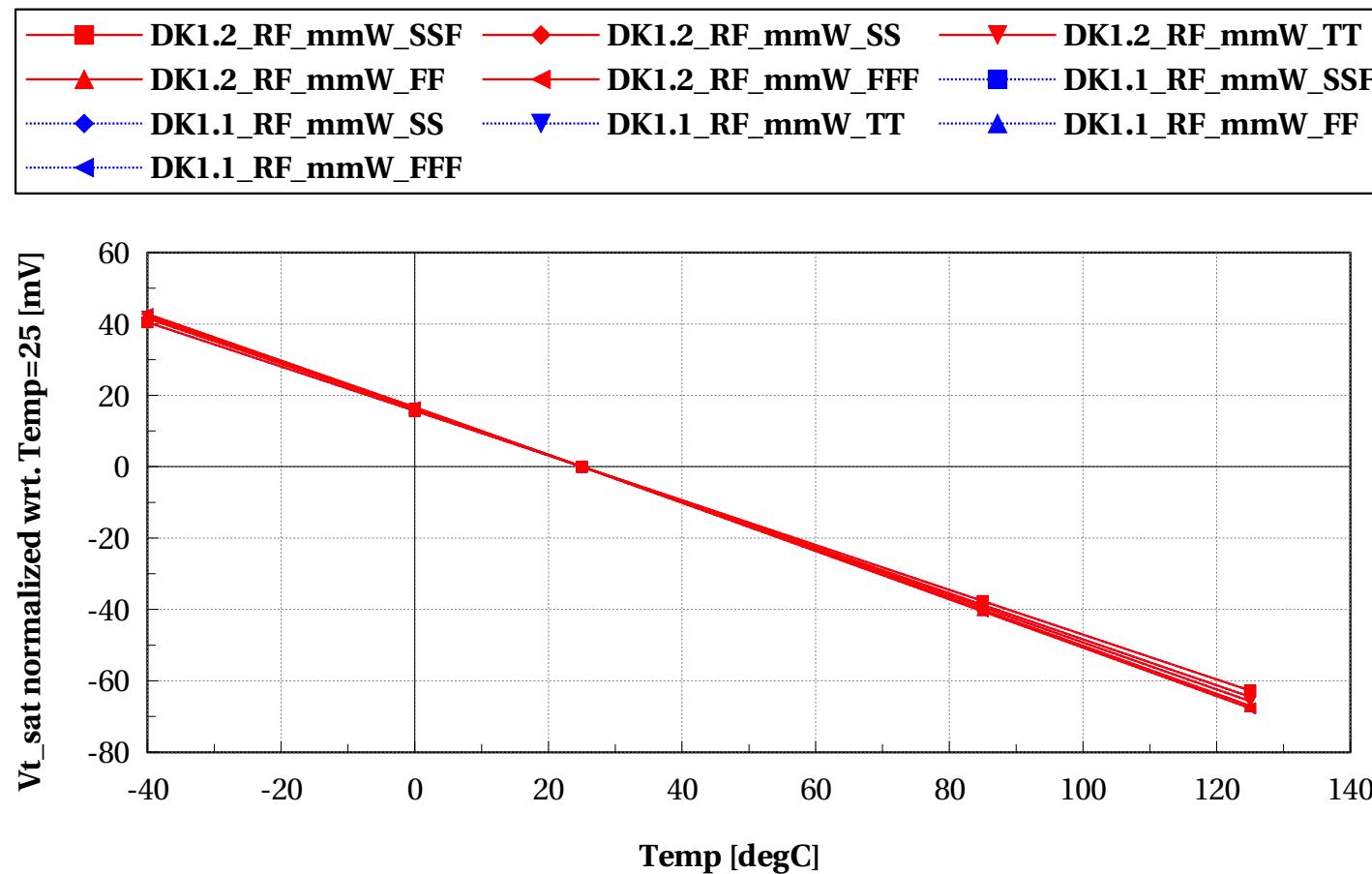
lvtnfet_acc, DIBL normalized wrt. Temp=25 [mV] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



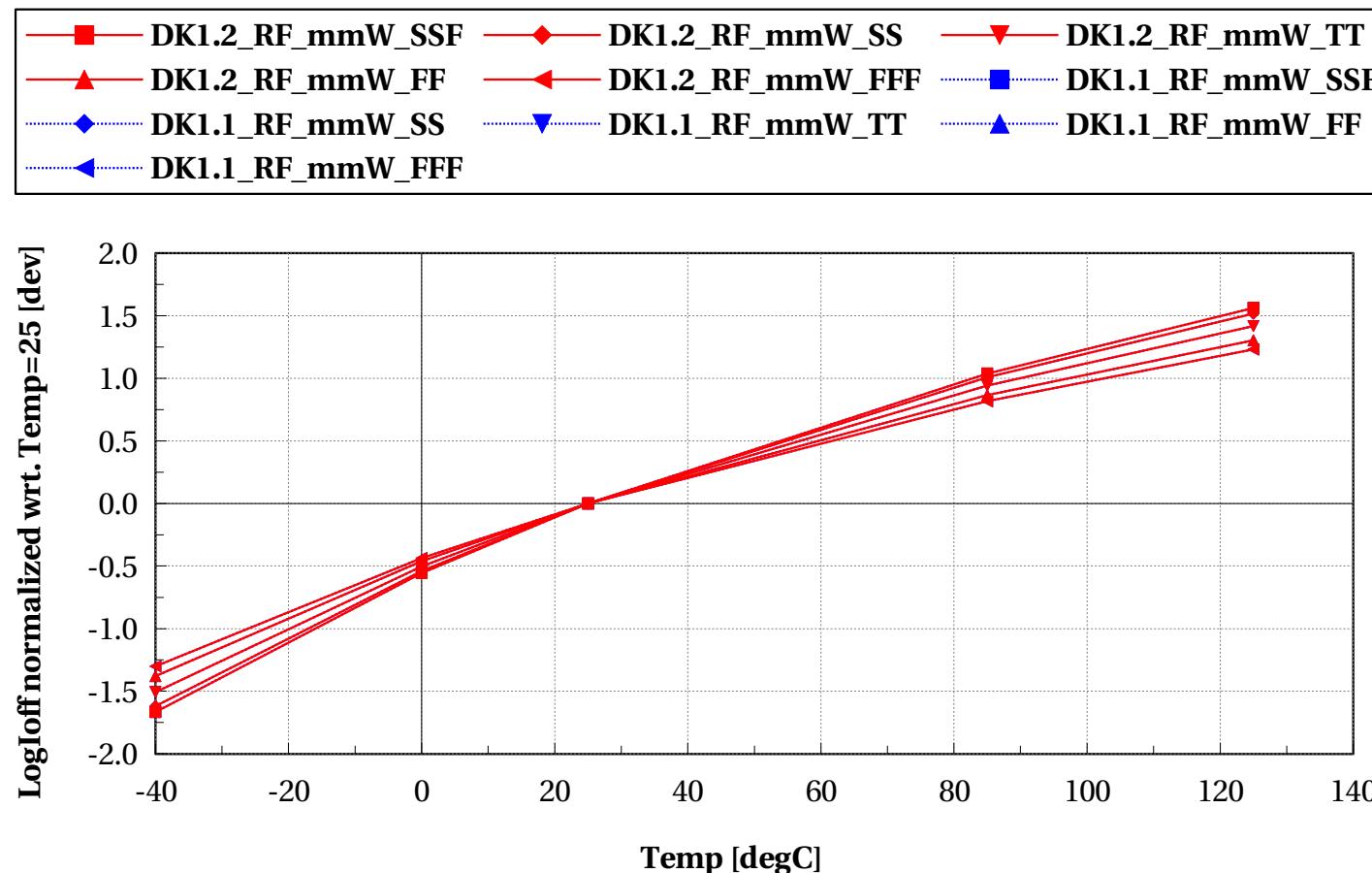
lvtnfet_acc, Vt_sat normalized wrt. Temp=25 [mV] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



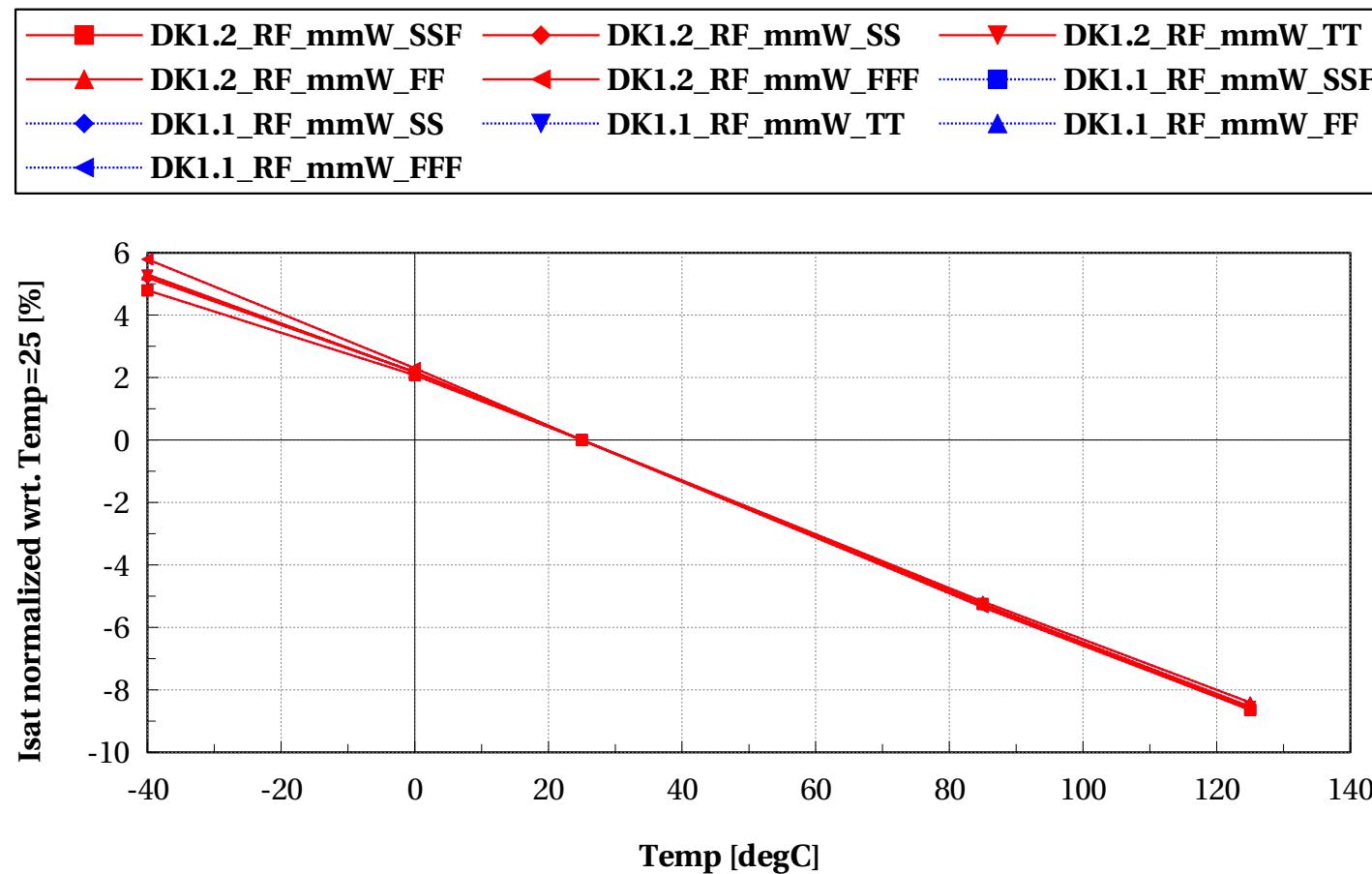
lvtnfet_acc, LogIoff normalized wrt. Temp=25 [dev] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



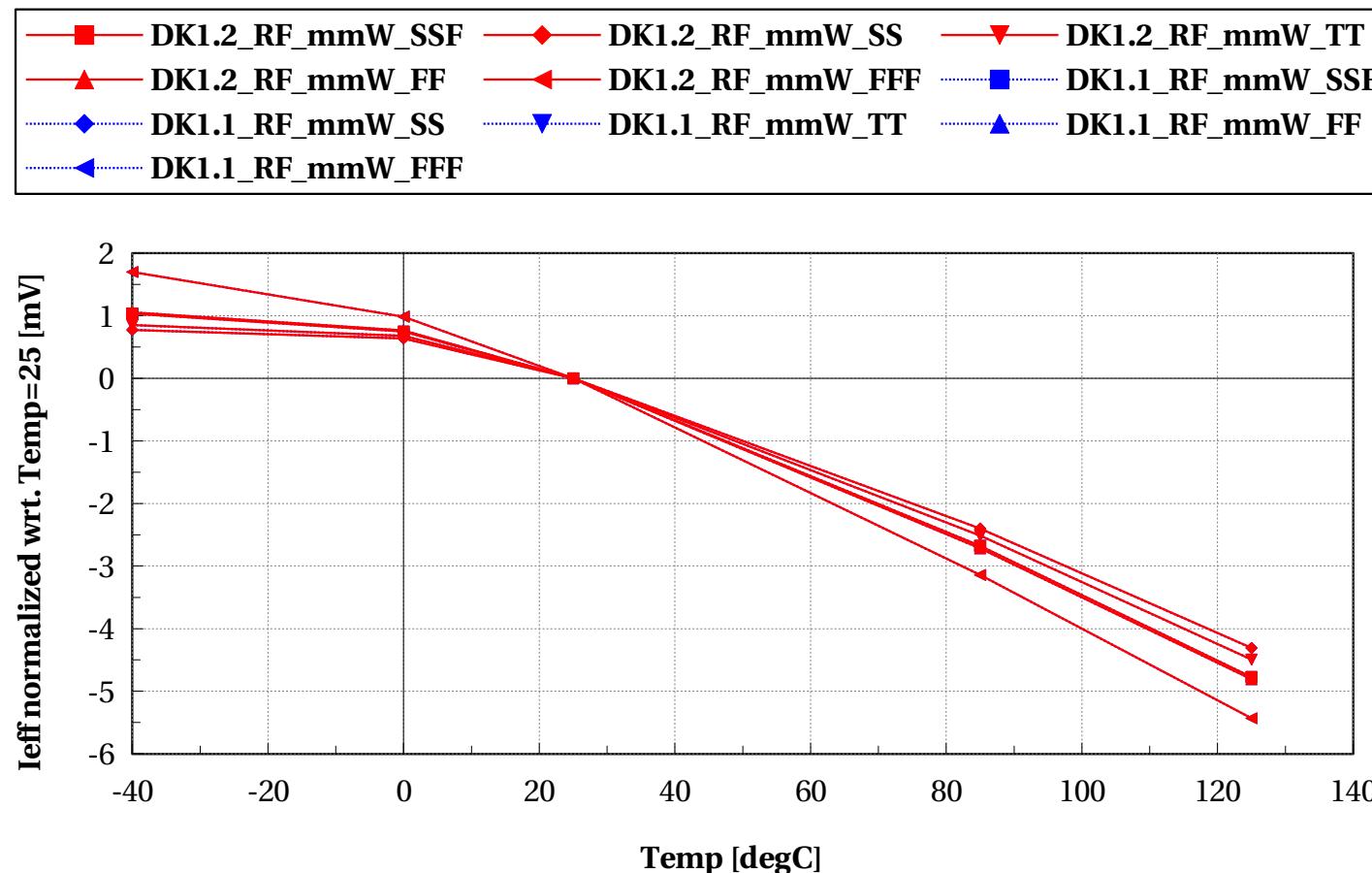
lvtnfet_acc, Isat normalized wrt. Temp=25 [%] vs Temp [degC]

w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



lvtnfet_acc, Ieff normalized wrt. Temp=25 [mV] vs Temp [degC]

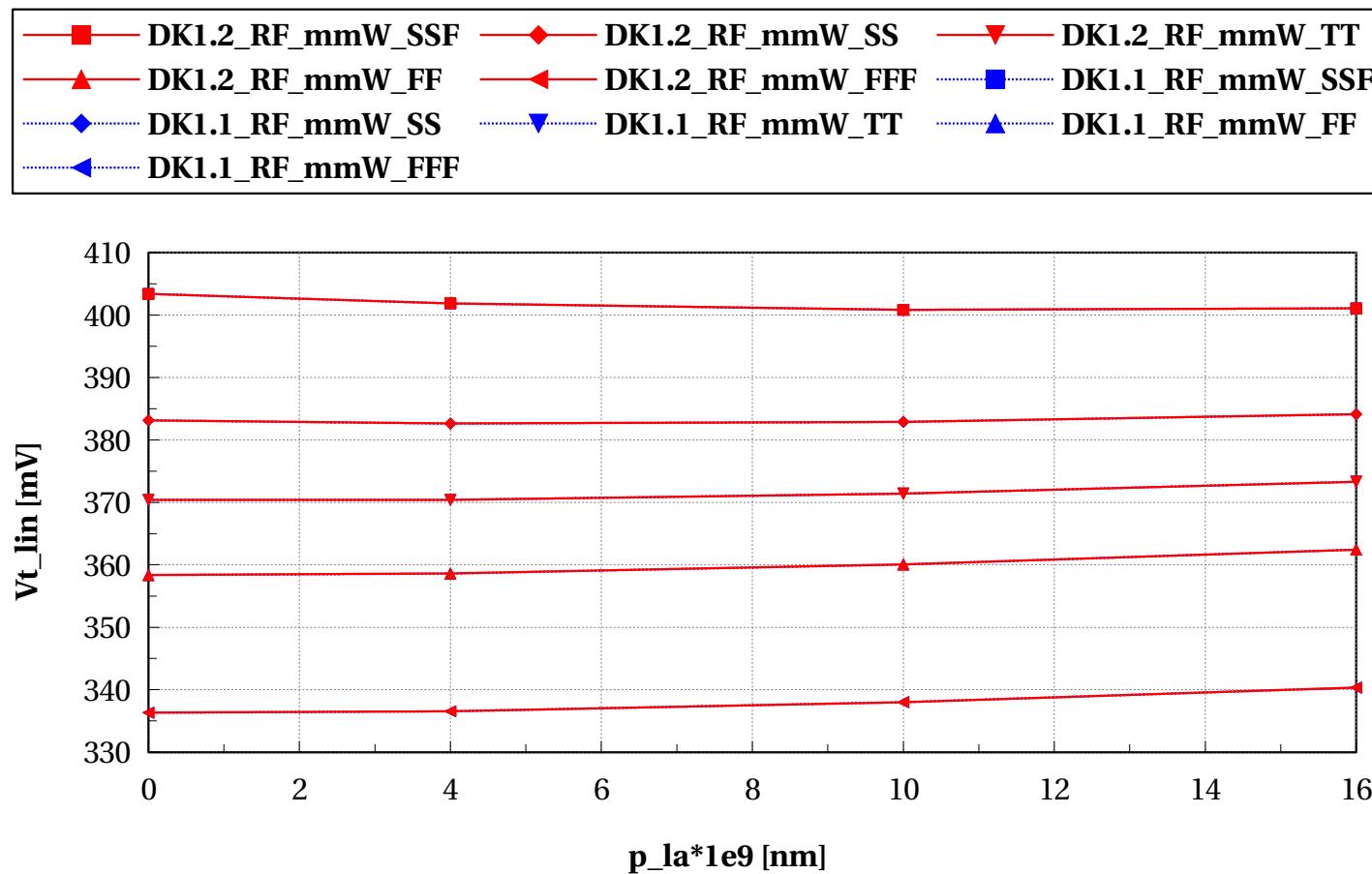
w==210e-9 and L==0.03e-6 and Vbs==0 and p_la==0 and devType=="PCELLwoWPE"



Poly bias effect (L=30nm, W=210nm)

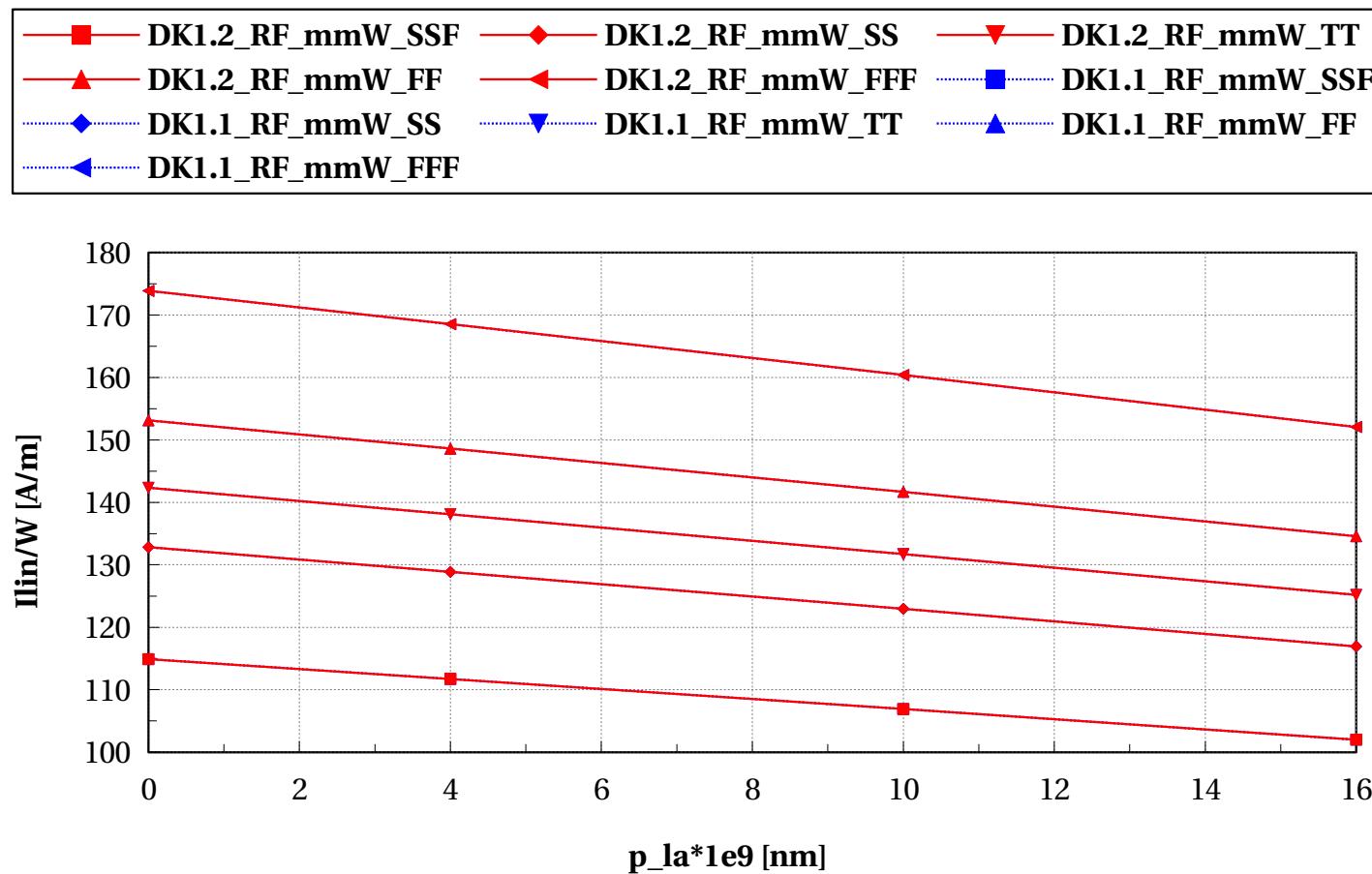
lvtnfet_acc, Vt_lin [mV] vs p_la*1e9 [nm]

$I_{DS} = 30 \text{ e-9}$ and $W = 0.21 \text{ e-6}$ and $V_{BS} = 0$ and $\text{Temp} = 25$ and $\text{devType} = \text{"PCELLwoWPE"}$



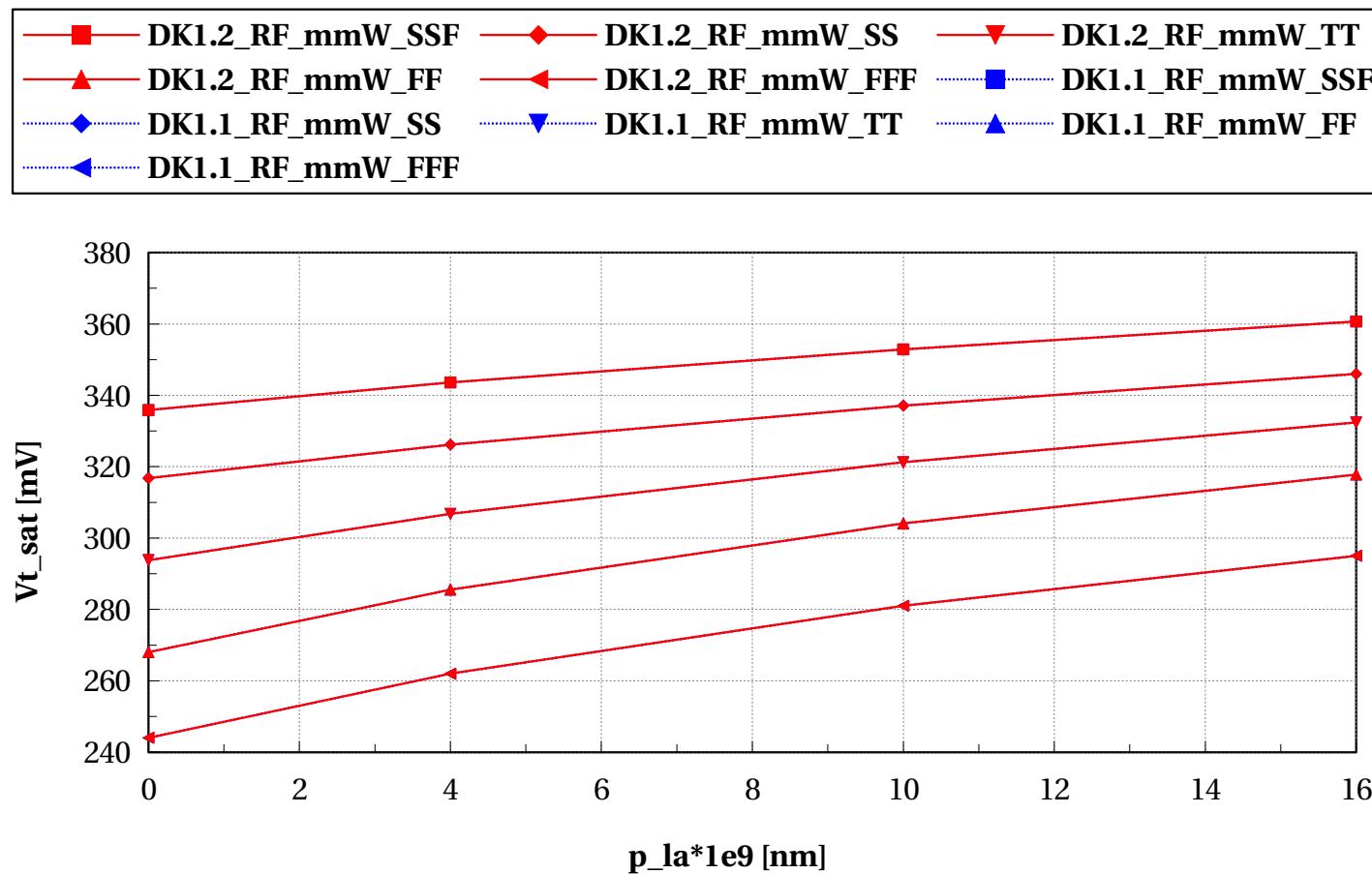
lvtnfet_acc, Ilin/W [A/m] vs p_la*1e9 [nm]

$I_l=30e-9$ and $w=0.21e-6$ and $V_{bs}=0$ and $\text{Temp}=25$ and $\text{devType}=\text{"PCELLwoWPE"}$



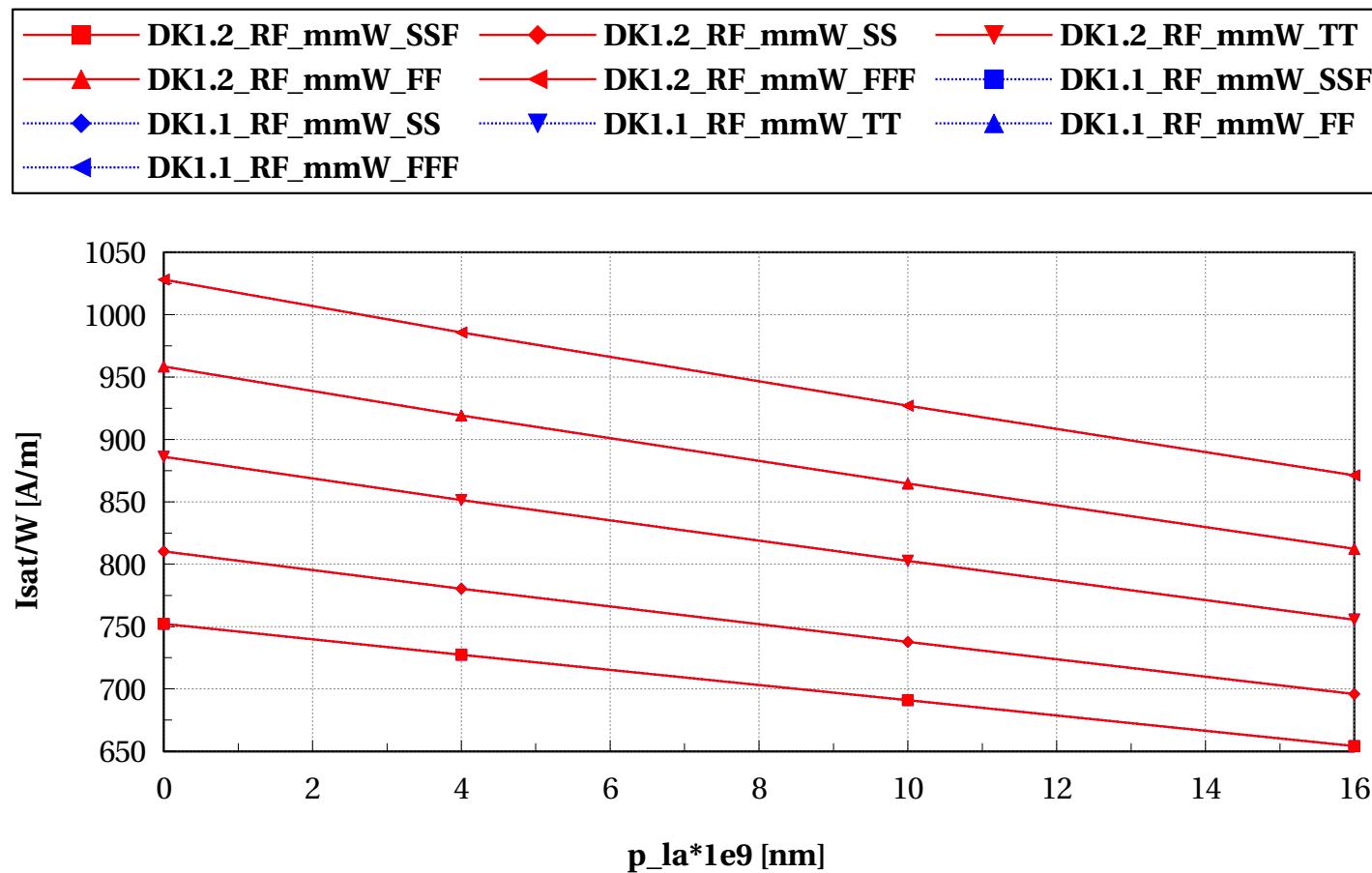
lvtnfet_acc, Vt_sat [mV] vs p_la*1e9 [nm]

$I_{DS} = 30\text{e-9}$ and $W = 0.21\text{e-6}$ and $V_{BS} = 0$ and $\text{Temp} = 25$ and $\text{devType} = \text{"PCELLwoWPE"}$



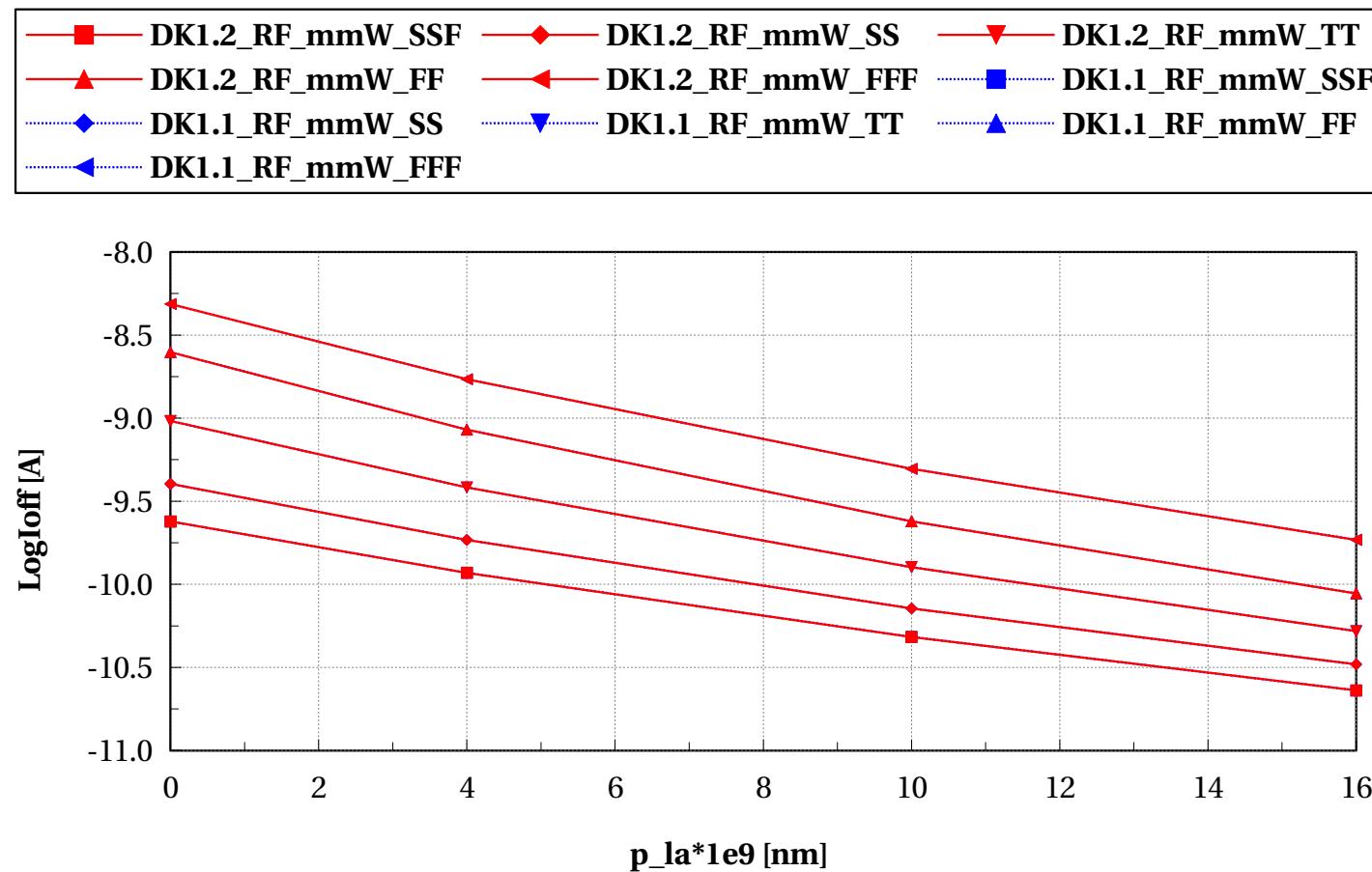
lvtnfet_acc, Isat/W [A/m] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



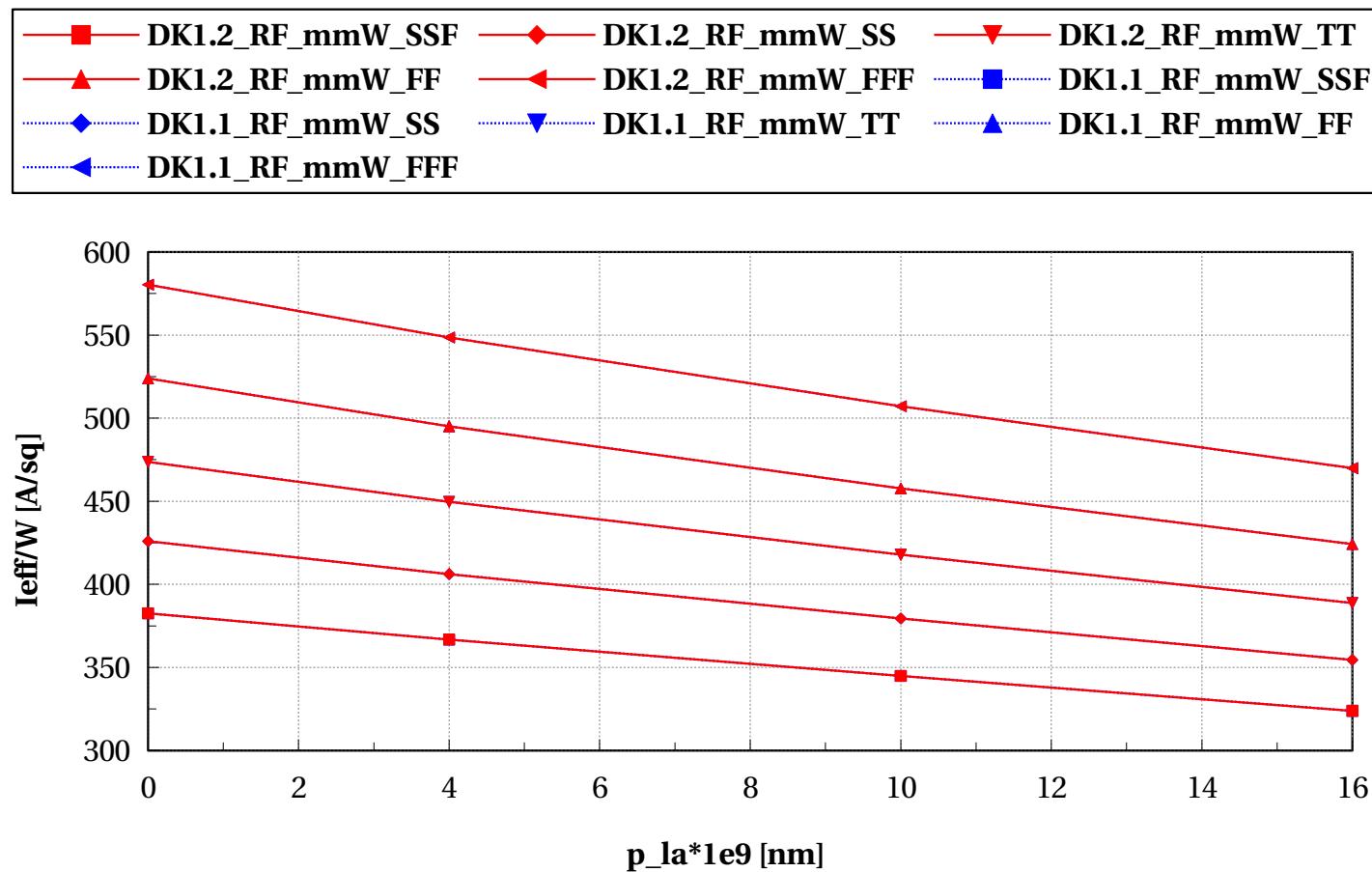
lvtnfet_acc, LogIoff [A] vs p_la*1e9 [nm]

$I_l=30e-9$ and $w=0.21e-6$ and $V_{bs}=0$ and $Temp=25$ and $devType="PCELLwoWPE"$



lvtnfet_acc, Ieff/W [A/sq] vs p_la*1e9 [nm]

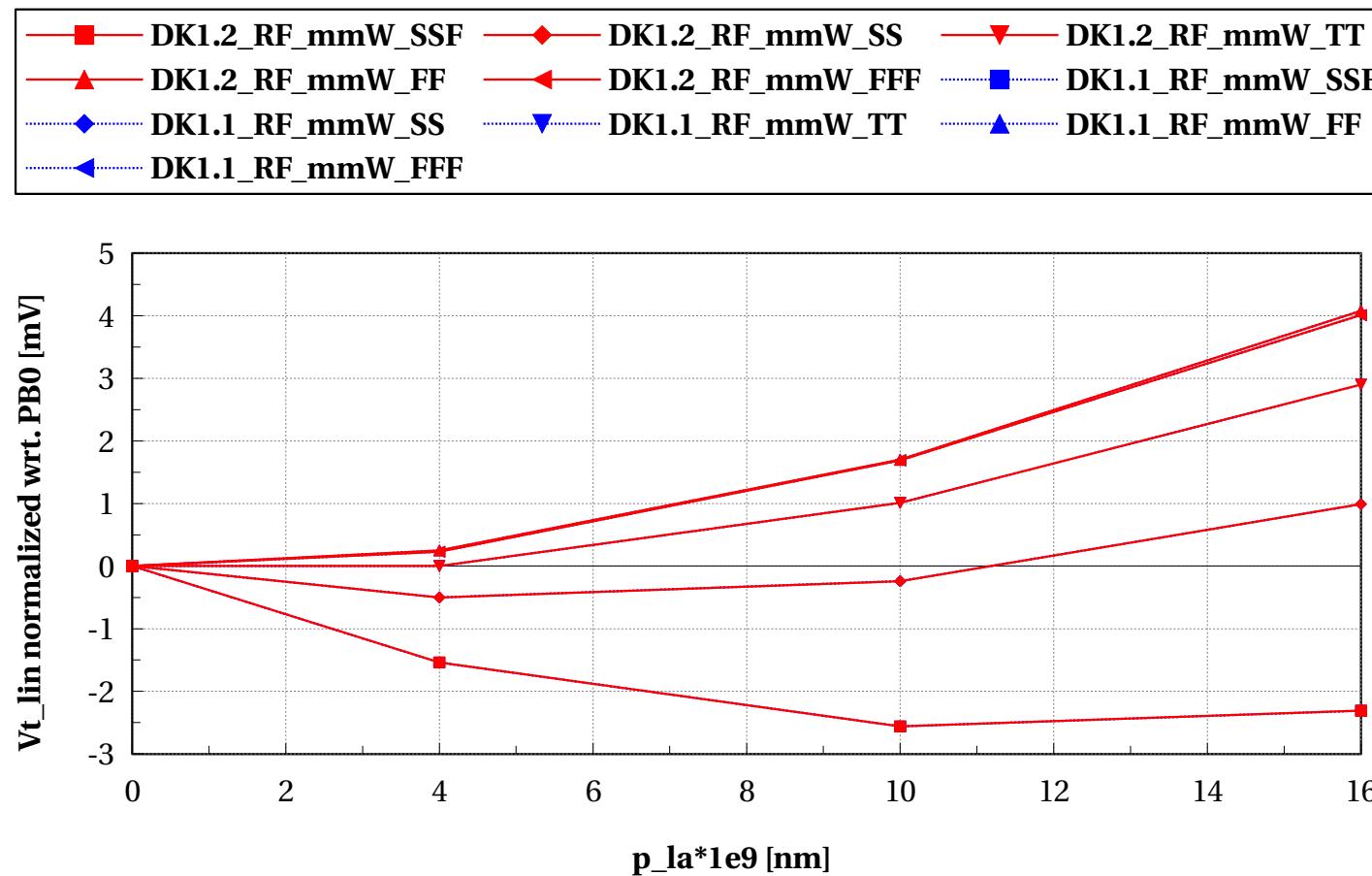
$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



Poly bias effect normalized (L=30nm,W=210nm)

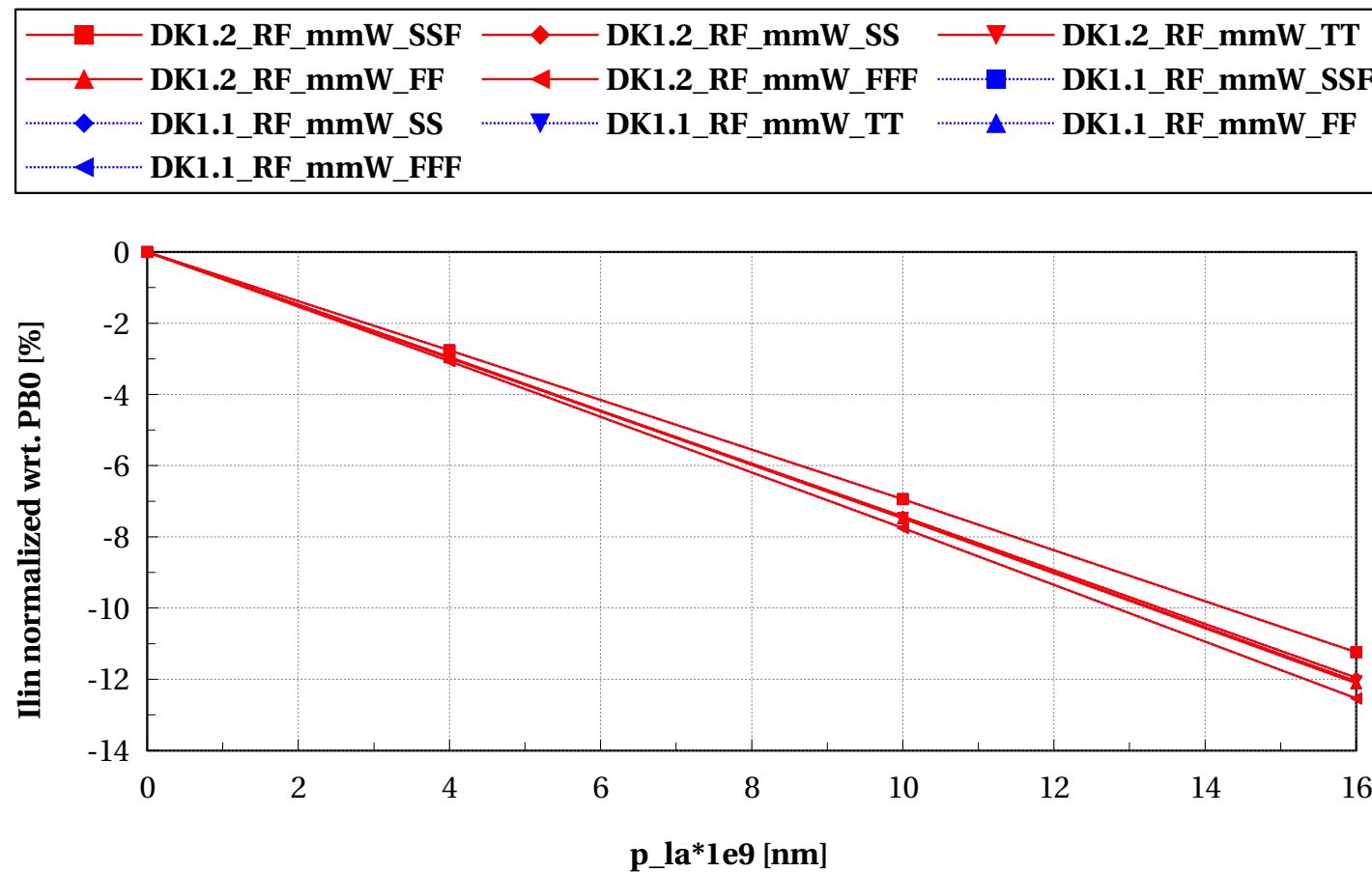
lvtnfet_acc, Vt_lin normalized wrt. PB0 [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



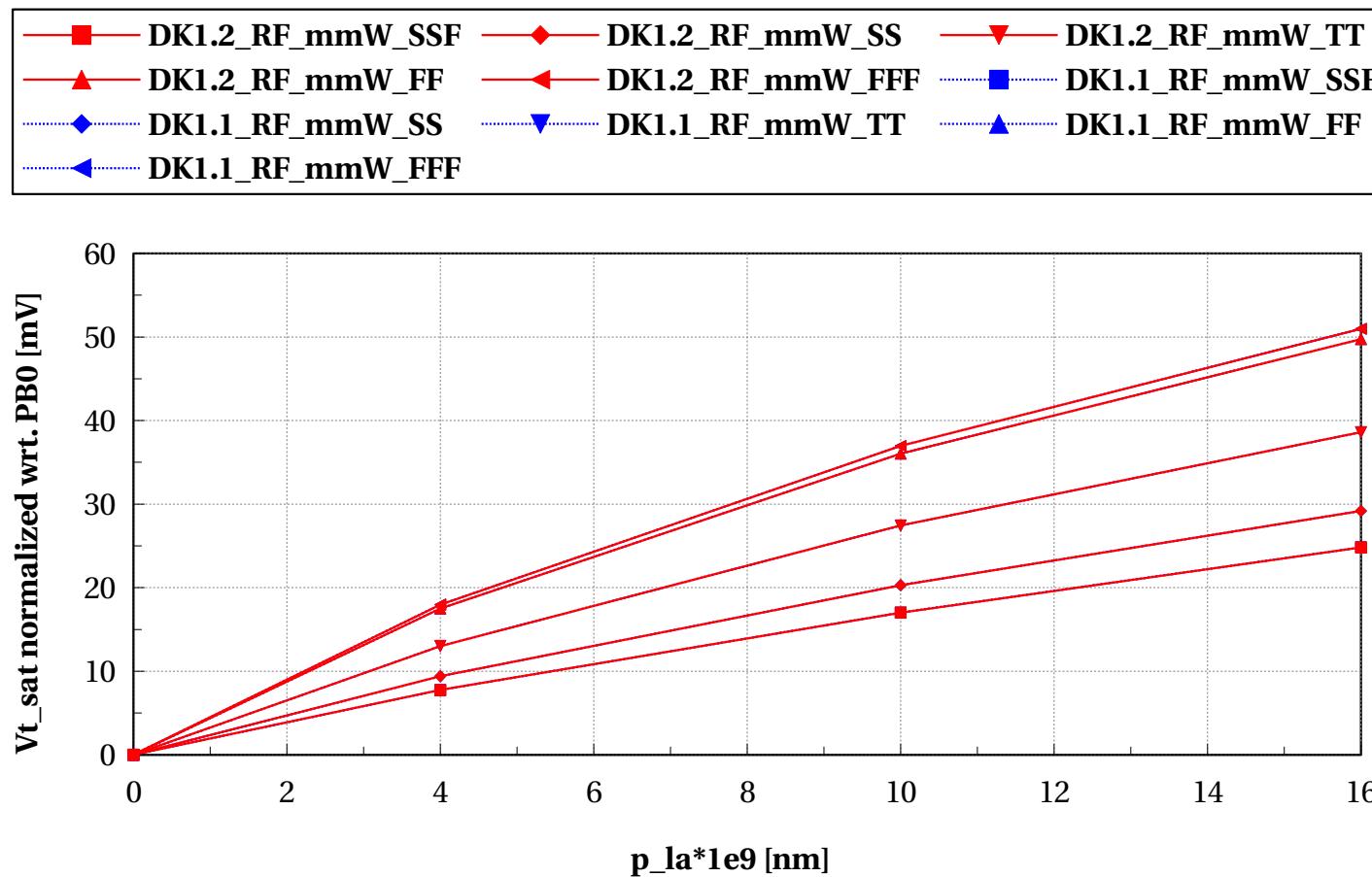
lvtnfet_acc, Ilin normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I_l = 30e-9$ and $w = 0.21e-6$ and $V_{bs} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



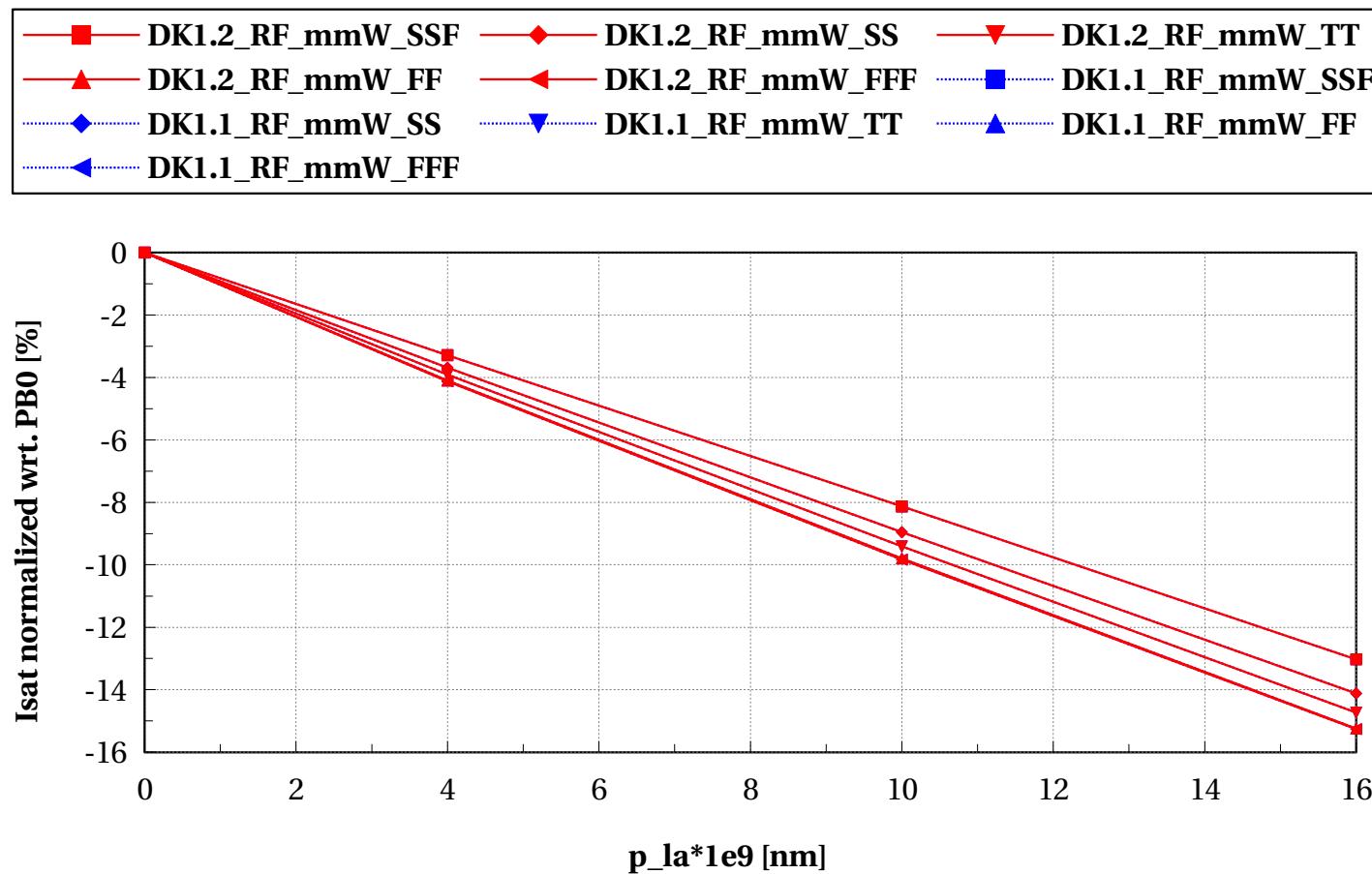
lvtnfet_acc, Vt_sat normalized wrt. PB0 [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



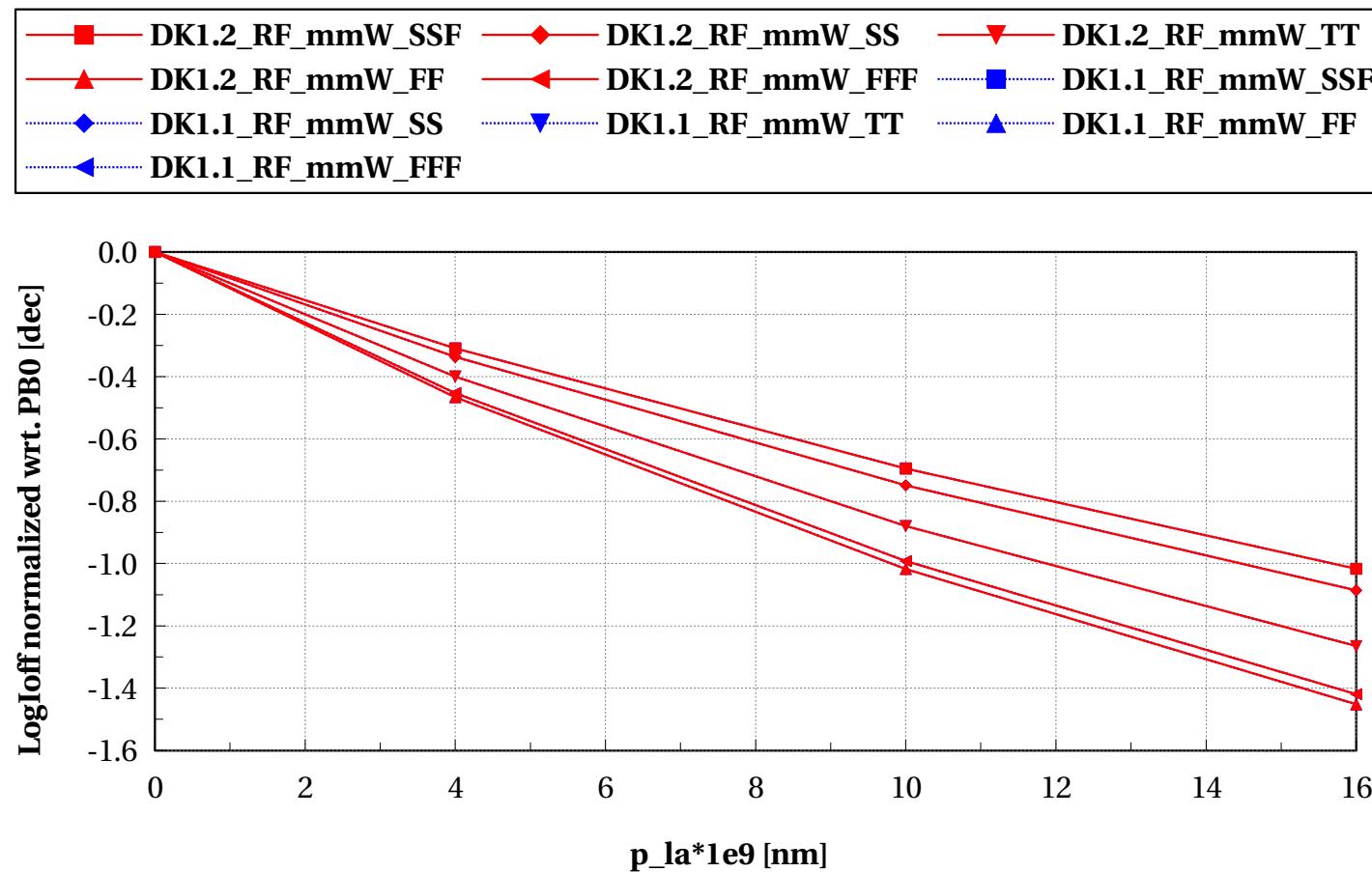
lvtnfet_acc, Isat normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



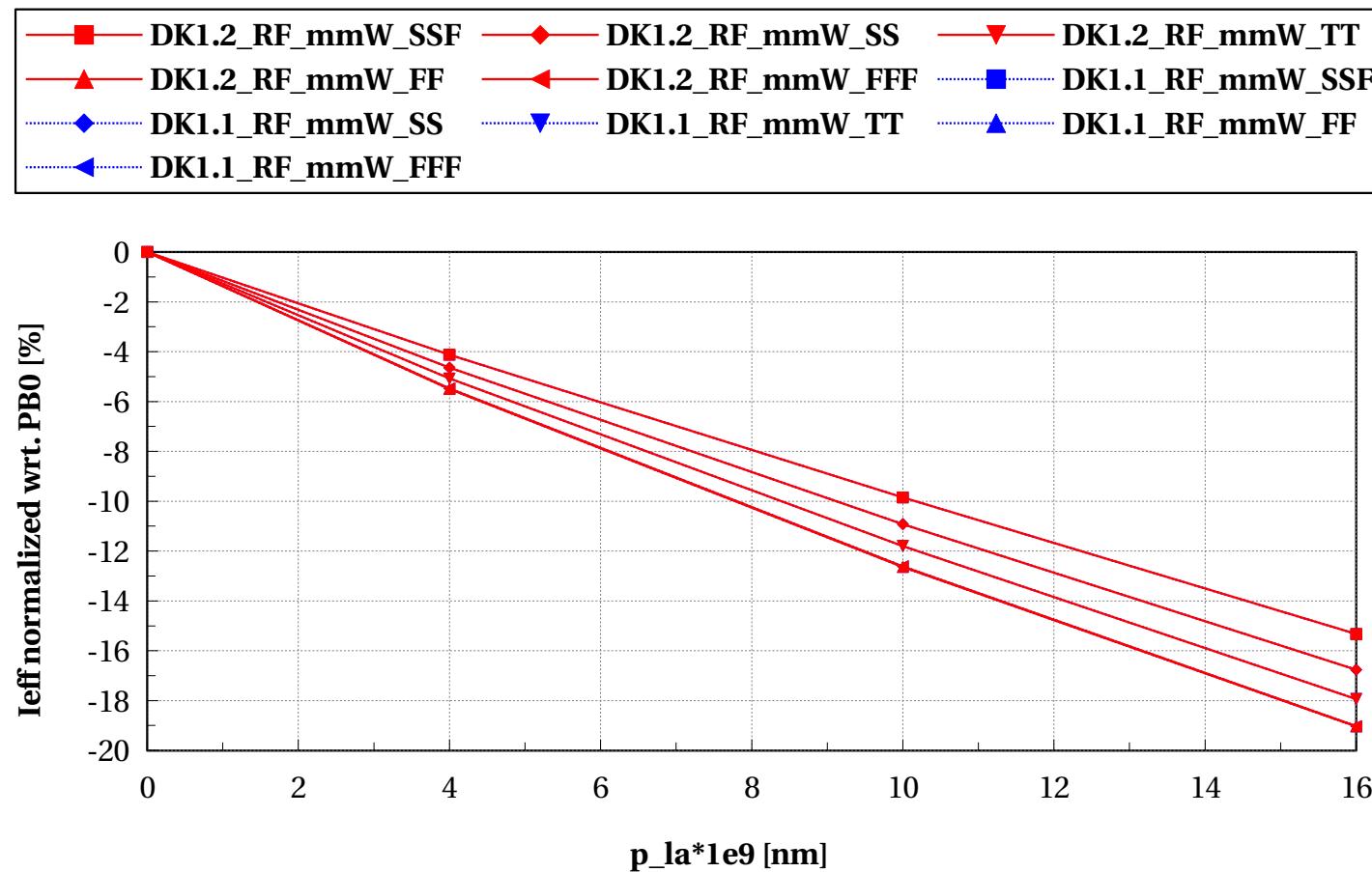
lvtnfet_acc, LogIoff normalized wrt. PB0 [dec] vs p_la*1e9 [nm]

$l==30e-9$ and $w==0.21e-6$ and $V_{bs}==0$ and $Temp==25$ and $devType=="PCELLwoWPE"$



lvtnfet_acc, Ieff normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.21e-6$ and $V_{BS} = 0$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



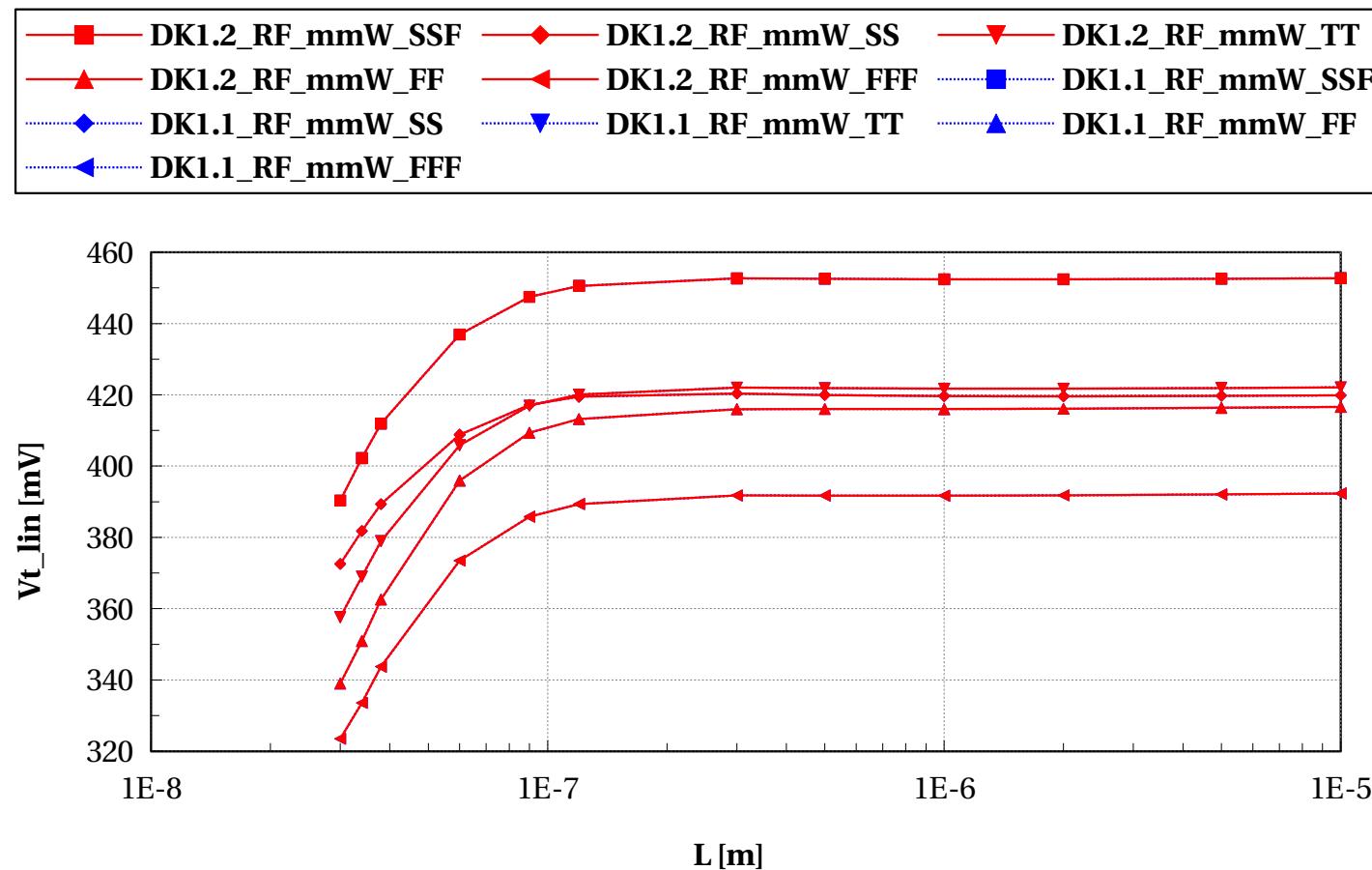
lvtpfet_acc

Electrical characteristics scaling

Scaling versus Length ($W=1\text{ }\mu\text{m}$)

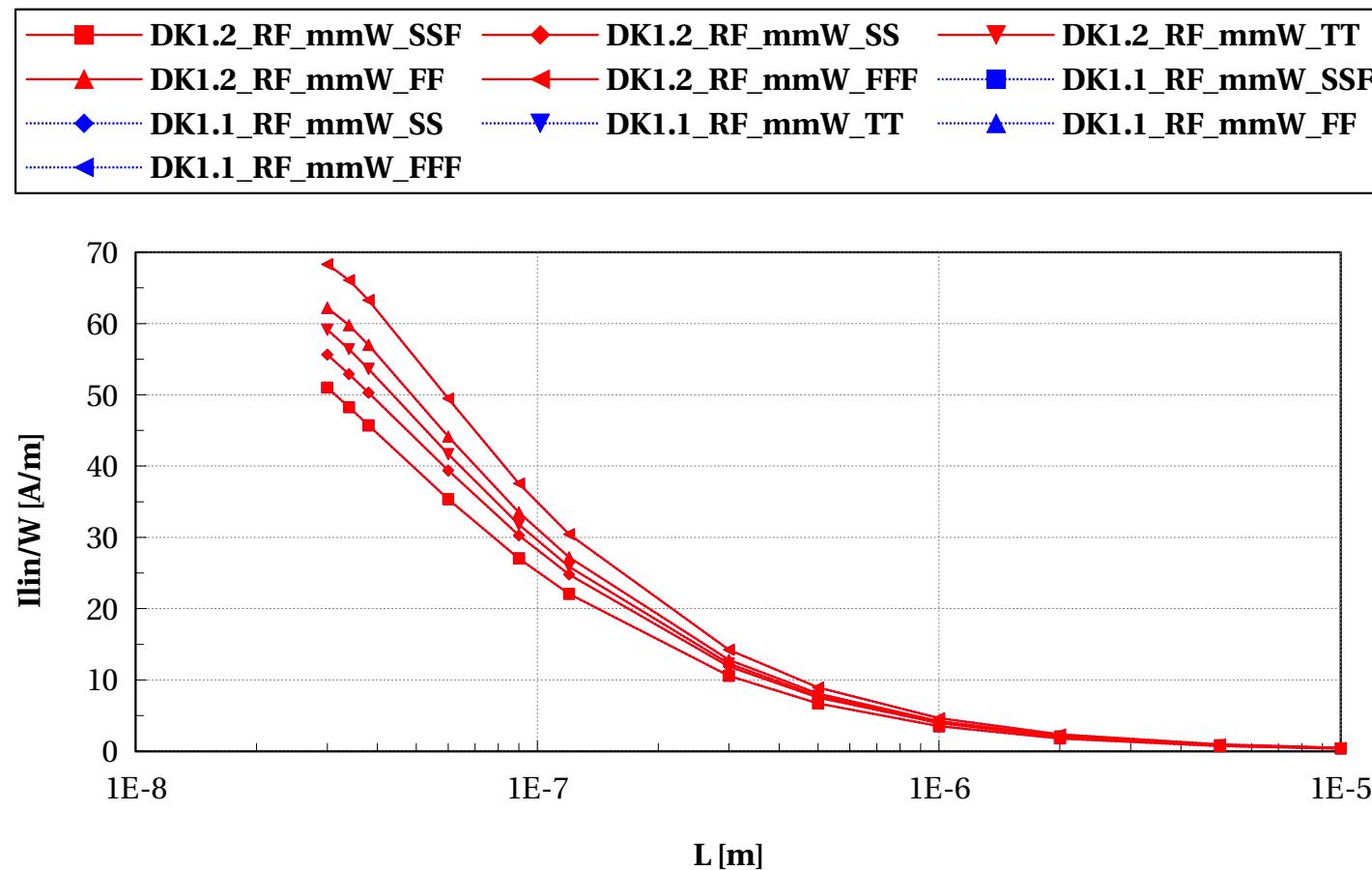
lvtpfet_acc, Vt_lin [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



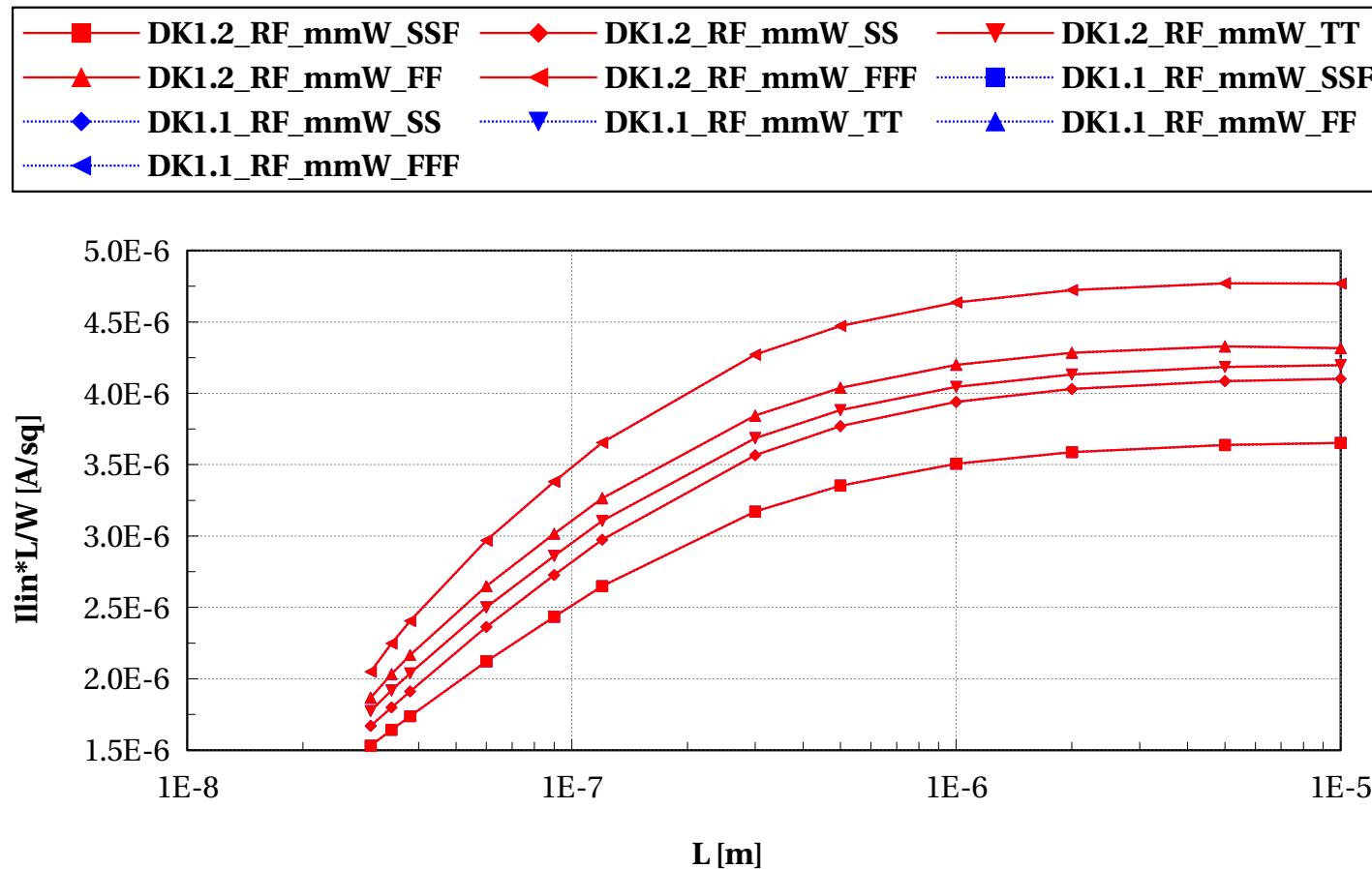
lvtpfet_acc, Ilin/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



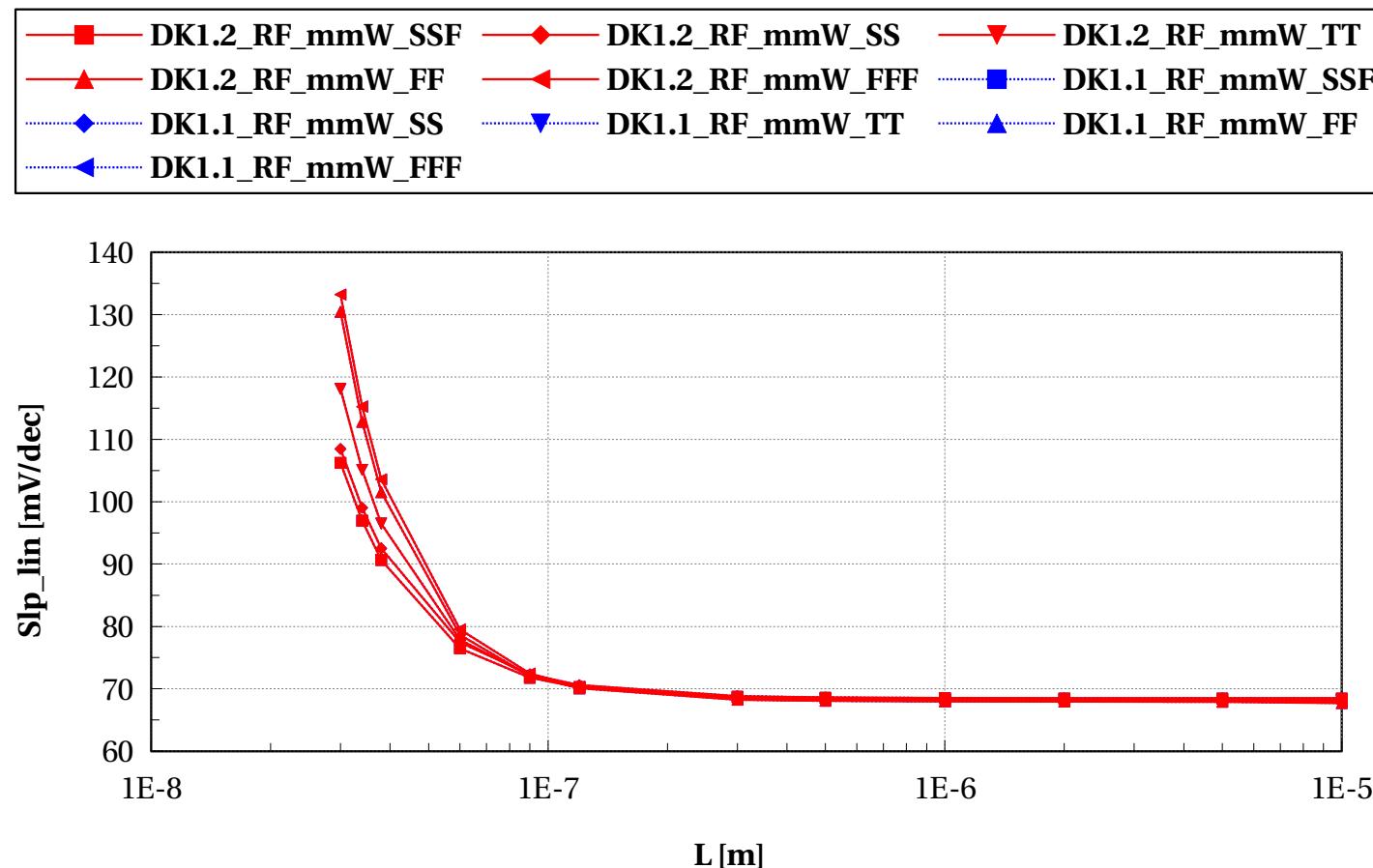
lvtpfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



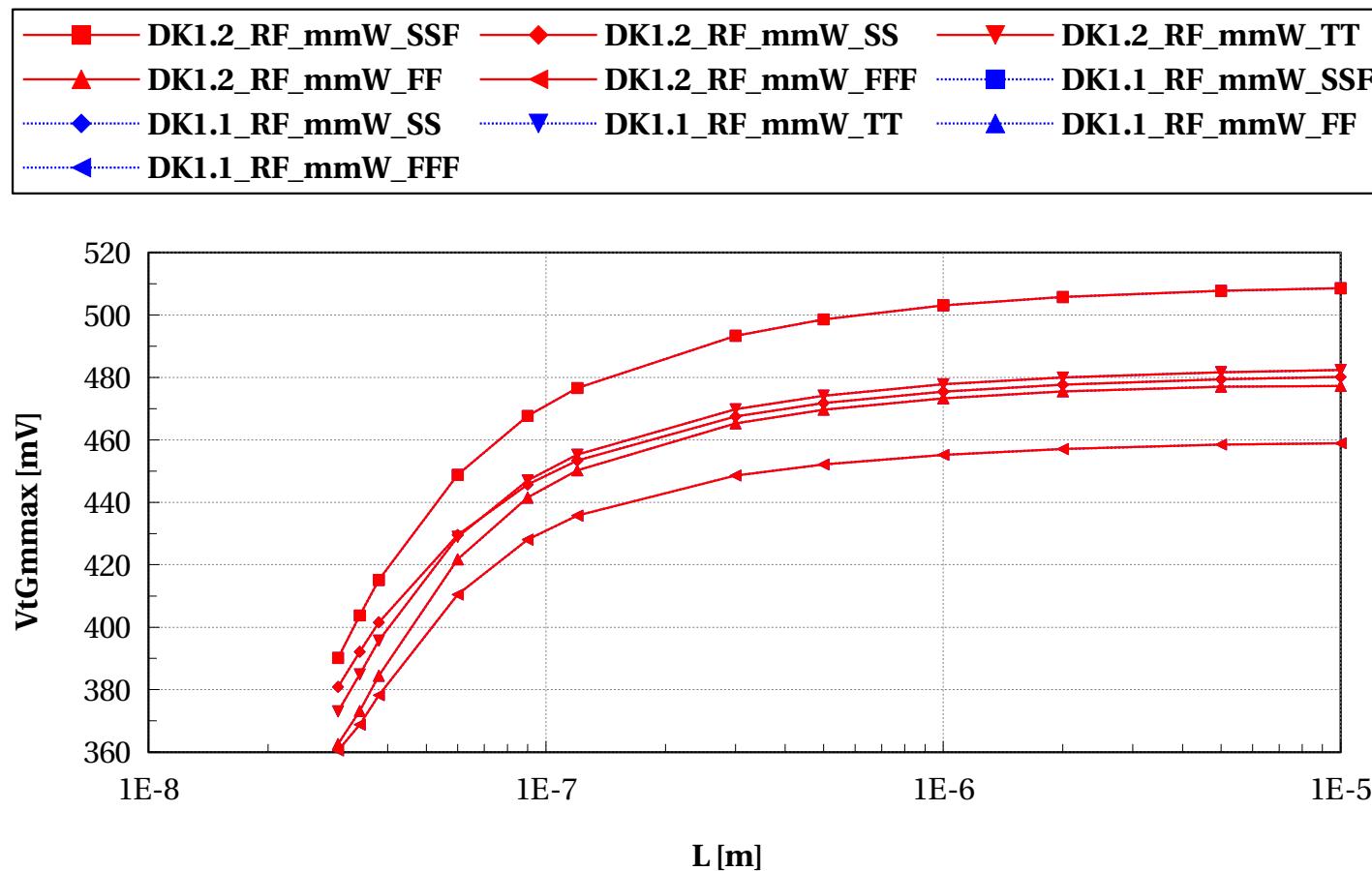
lvtpfet_acc, Slp_lin [mV/dec] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



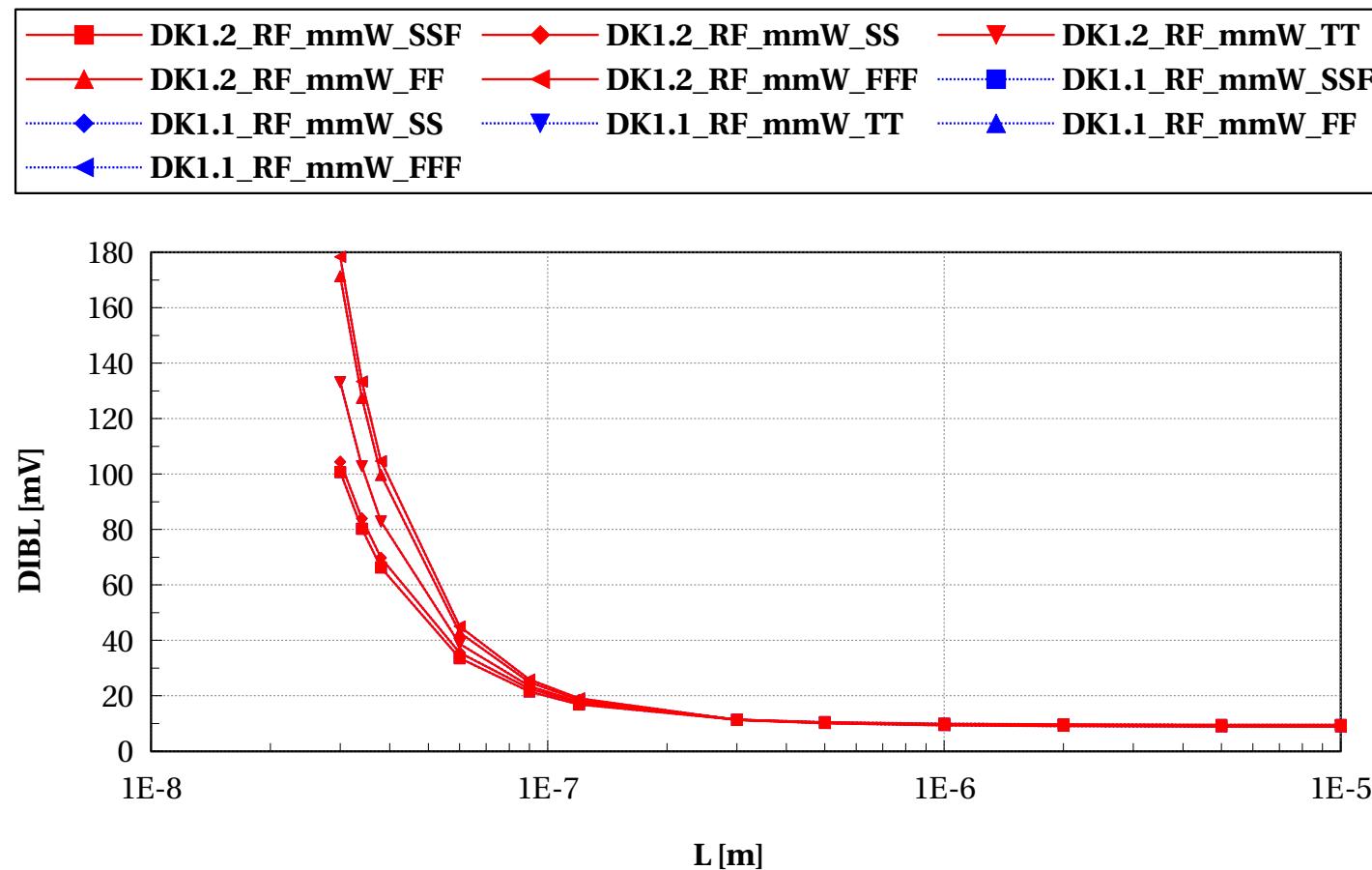
lvtpfet_acc, VtGmmax [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



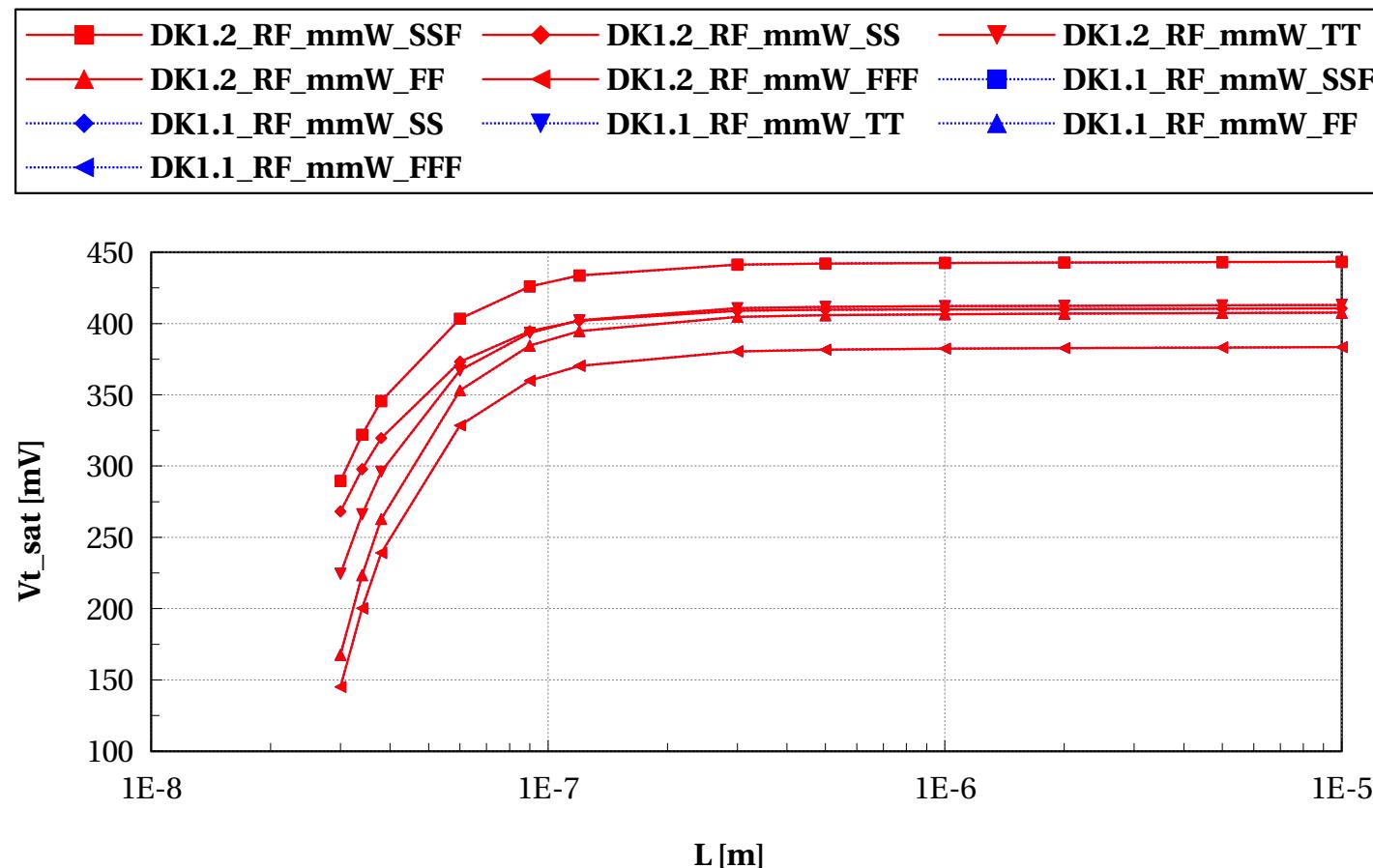
lvtpfet_acc, DIBL [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



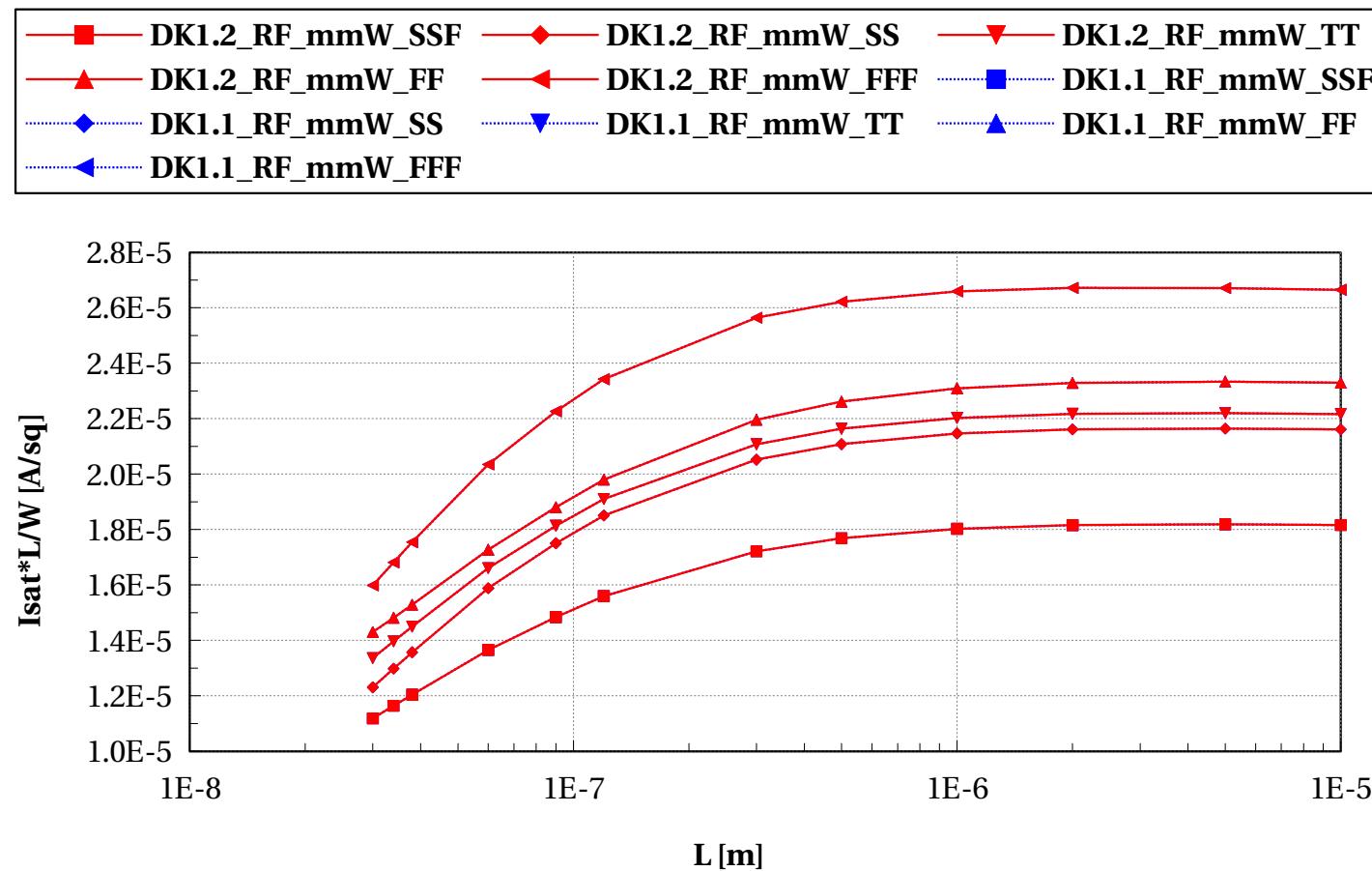
lvtpfet_acc, Vt_sat [mV] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



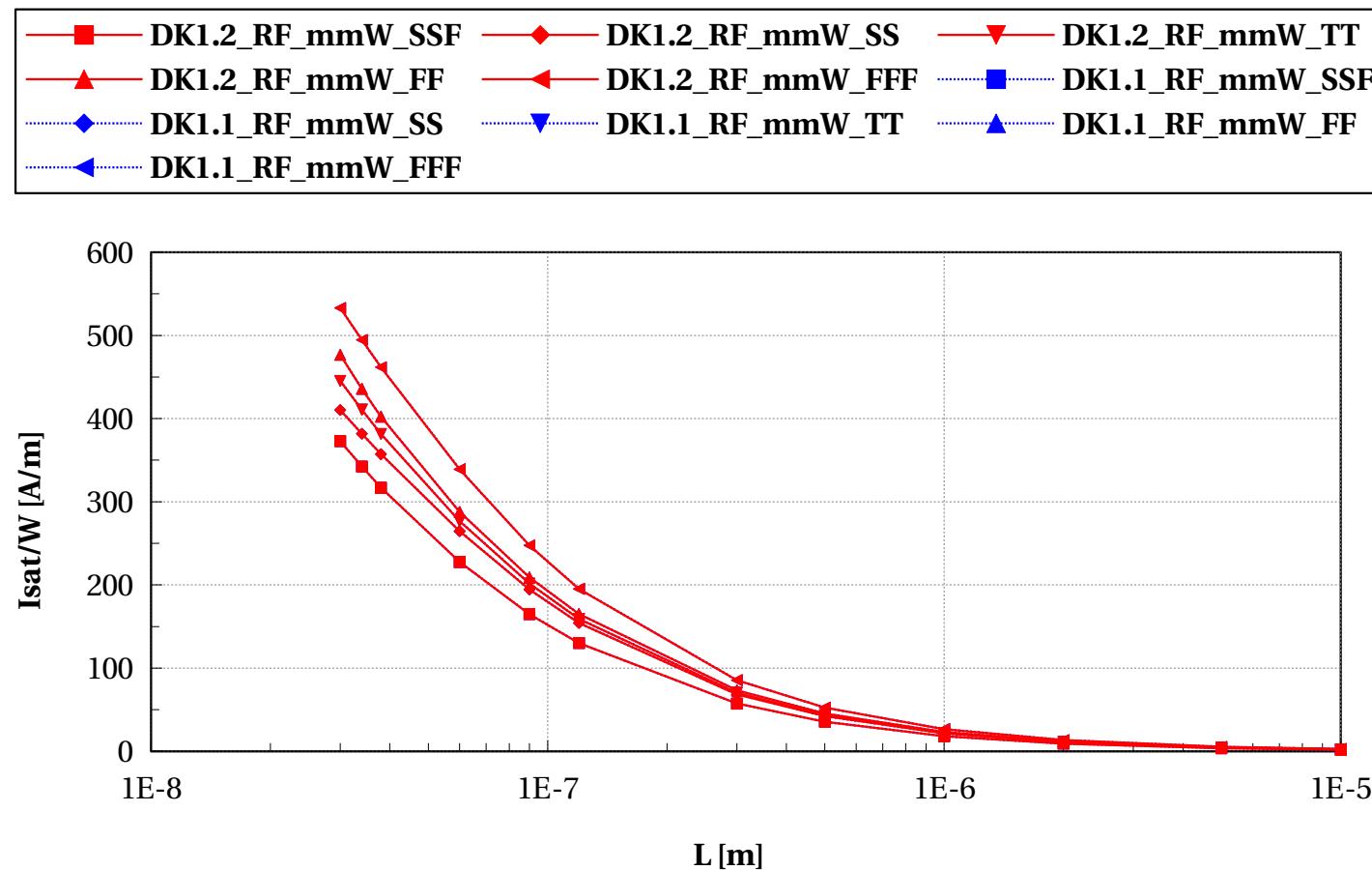
lvtpfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



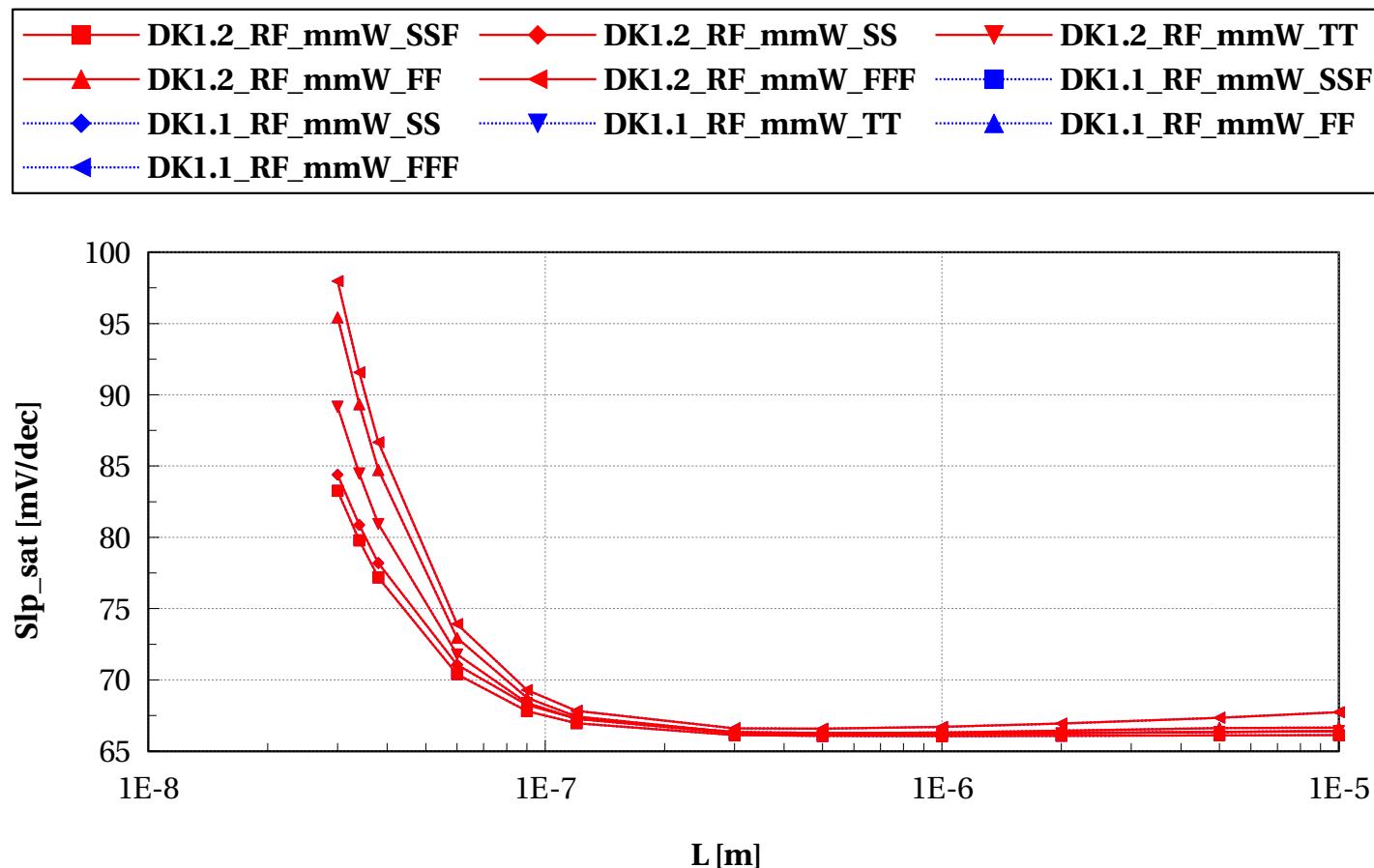
lvtpfet_acc, Isat/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



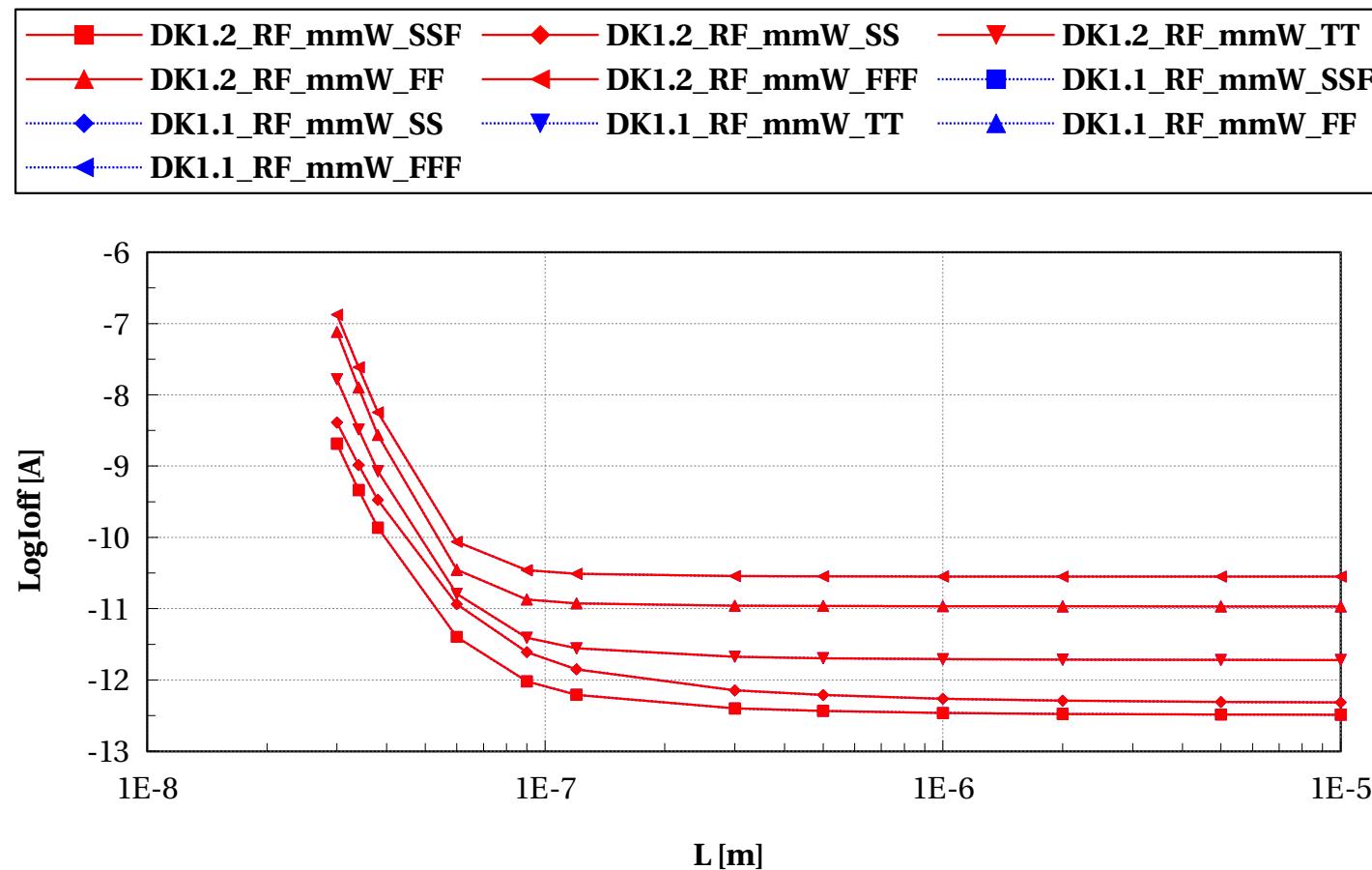
lvtpfet_acc, Slp_sat [mV/dec] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



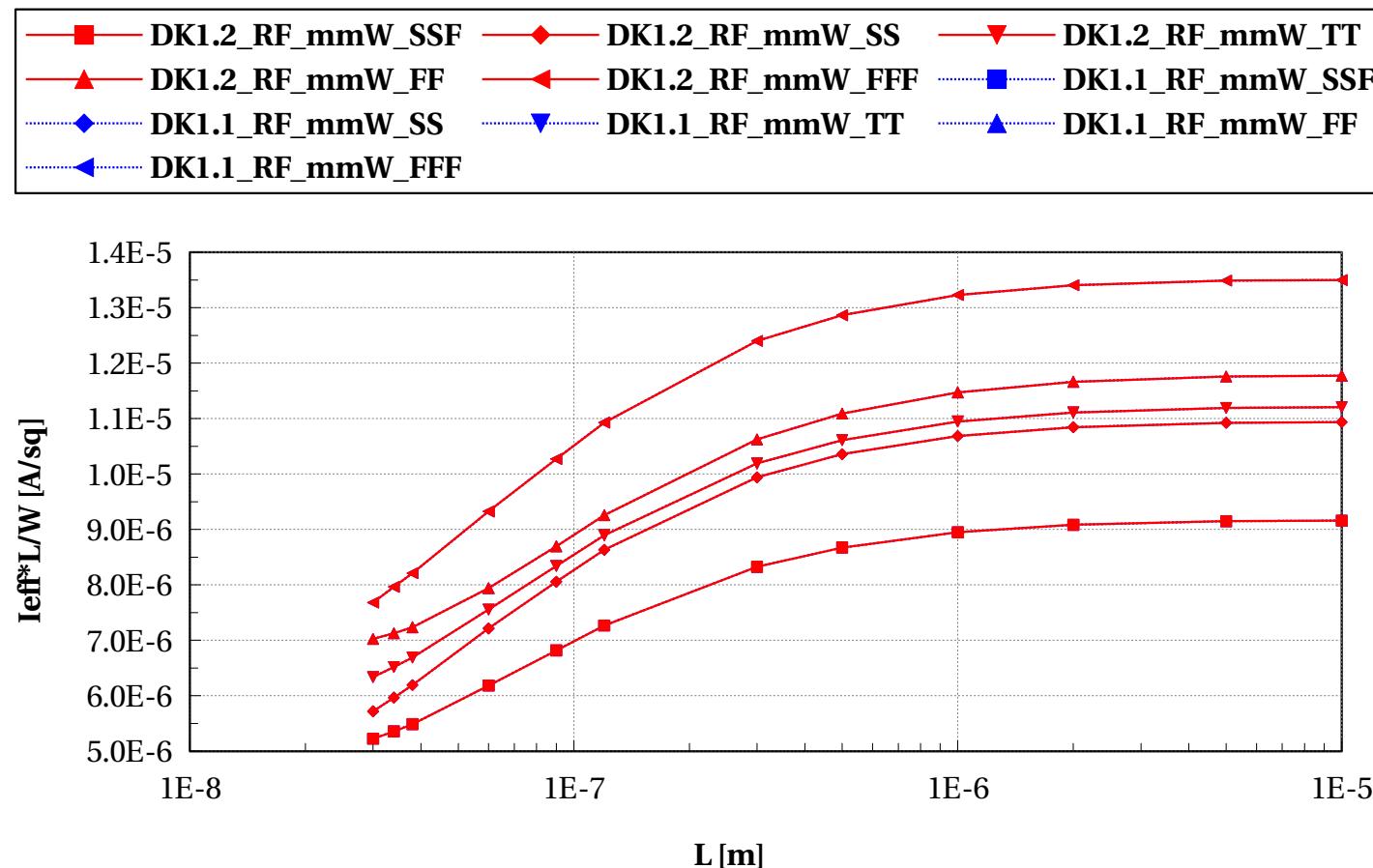
lvtpfet_acc, LogIoff [A] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



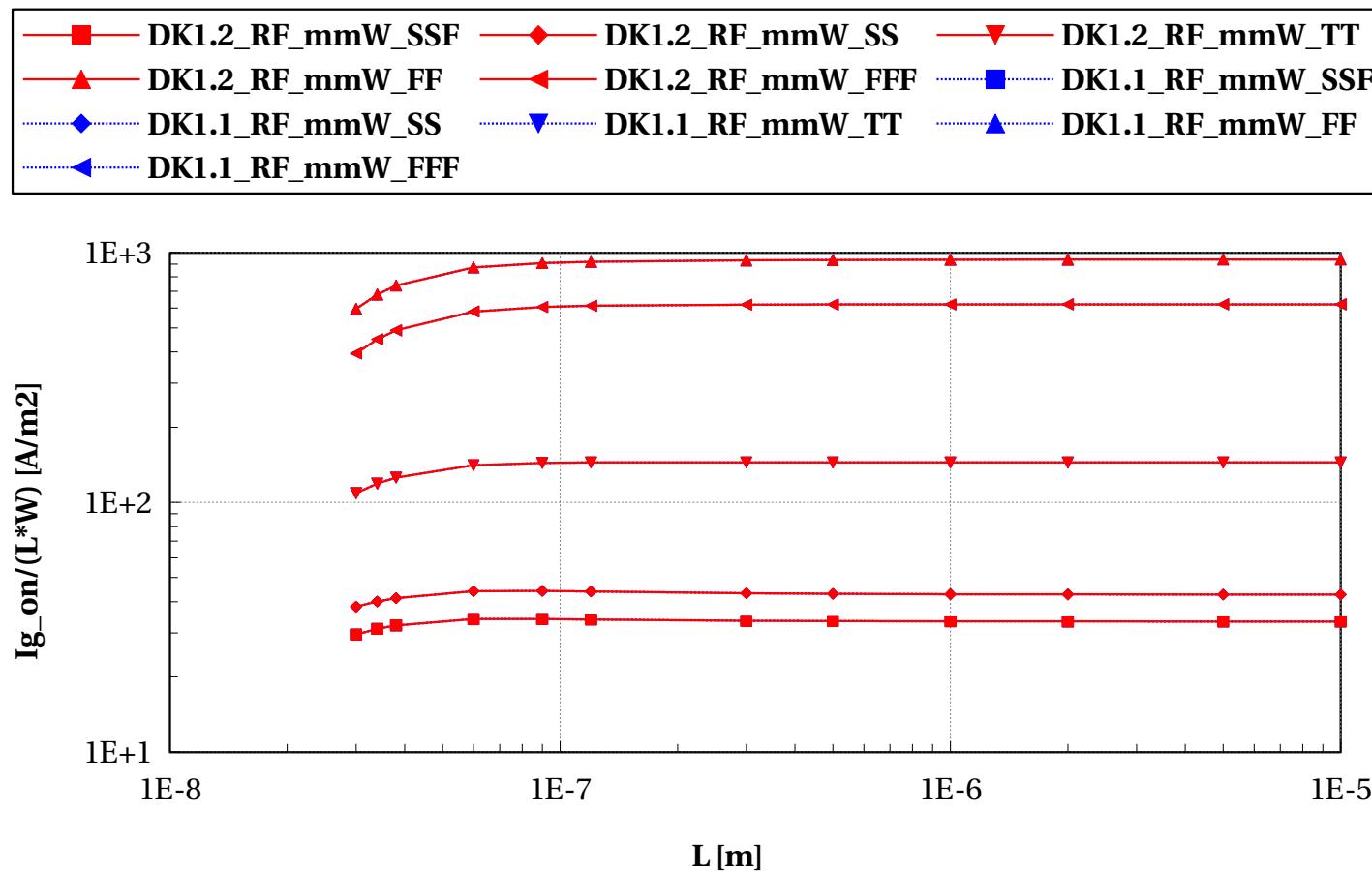
lvtpfet_acc, $I_{eff} \cdot L/W$ [A/sq] vs L [m]

$w=1e-6$ and $Temp=25$ and $V_{bs}=1$ and $p_{la}=0$ and $devType=="PCELLwoWPE"$



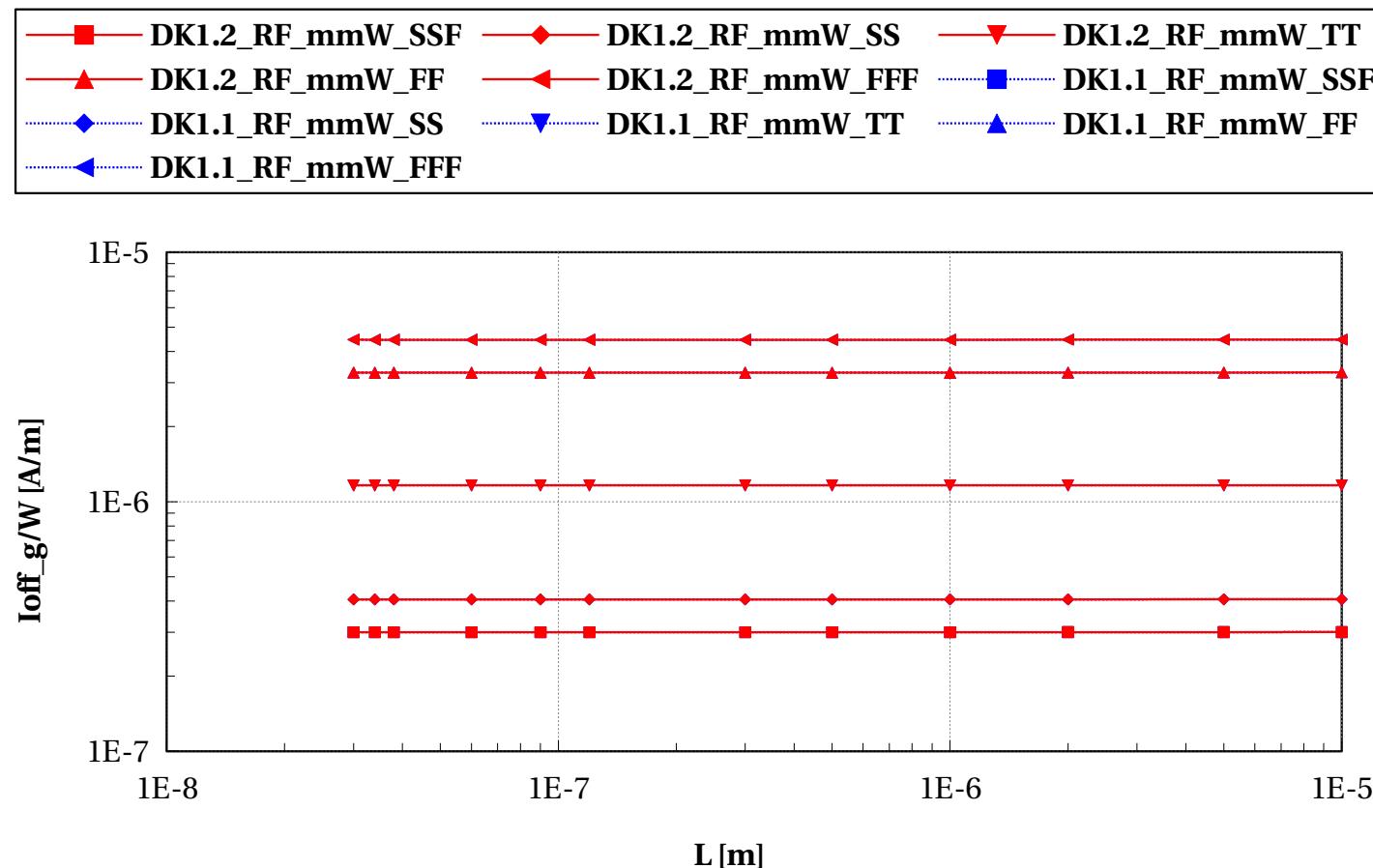
lvtpfet_acc, Ig_on/(L*W) [A/m2] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



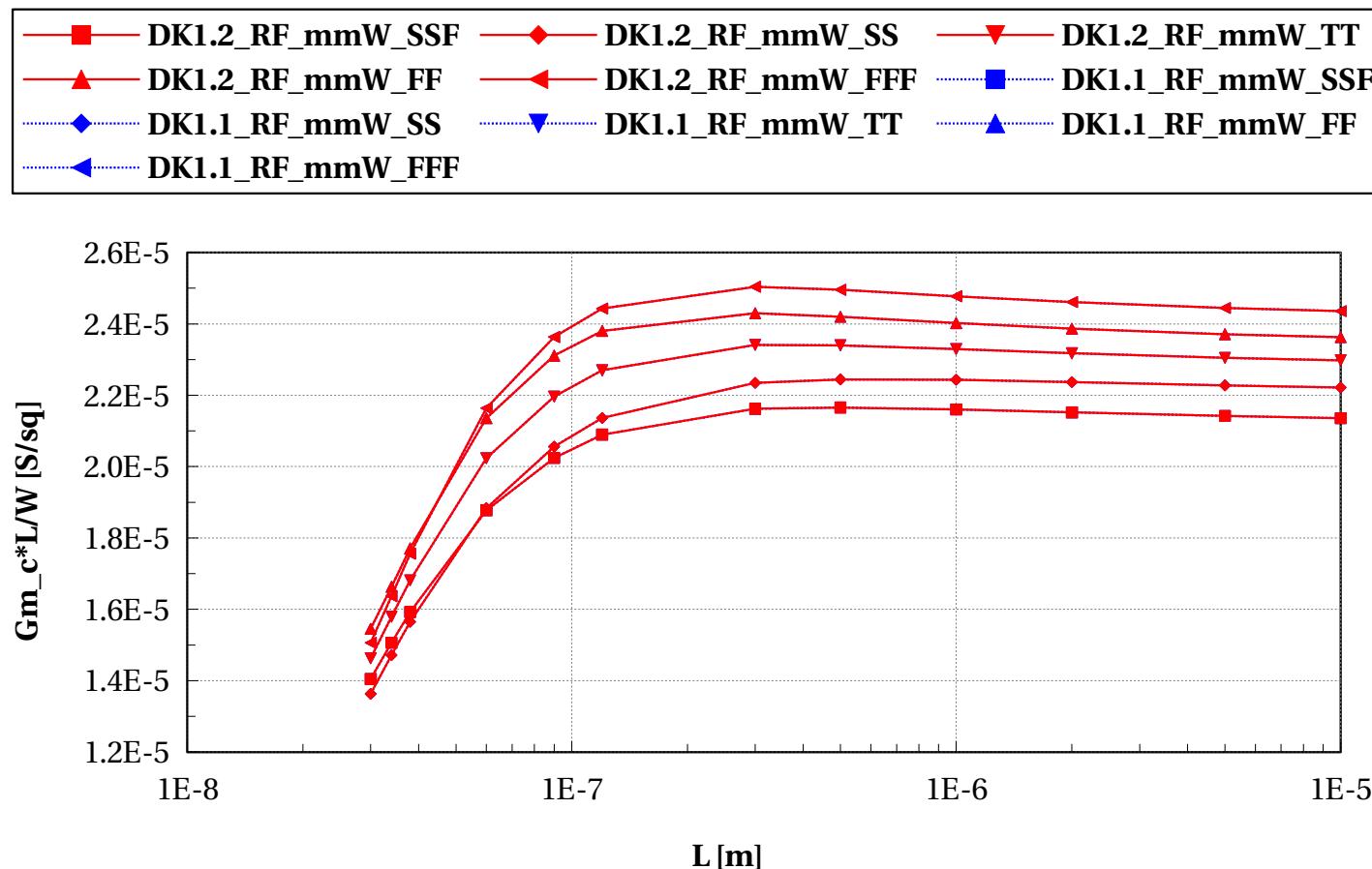
lvtpfet_acc, Ioff_g/W [A/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



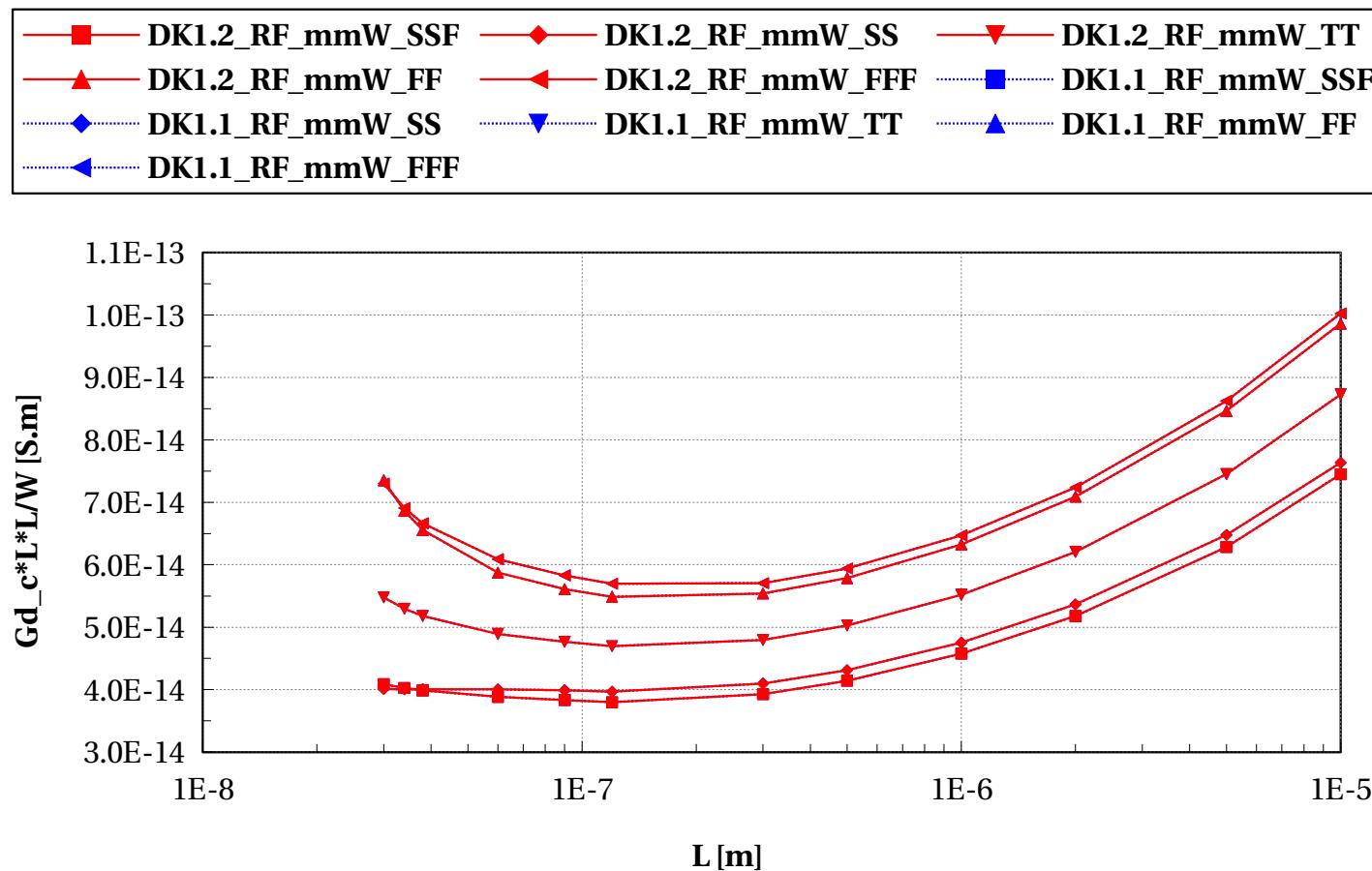
lvtpfet_acc, $Gm_c \cdot L/W$ [S/sq] vs L [m]

$w=1e-6$ and $Temp=25$ and $Vbs=1$ and $p_la=0$ and $devType=="PCELLwoWPE"$



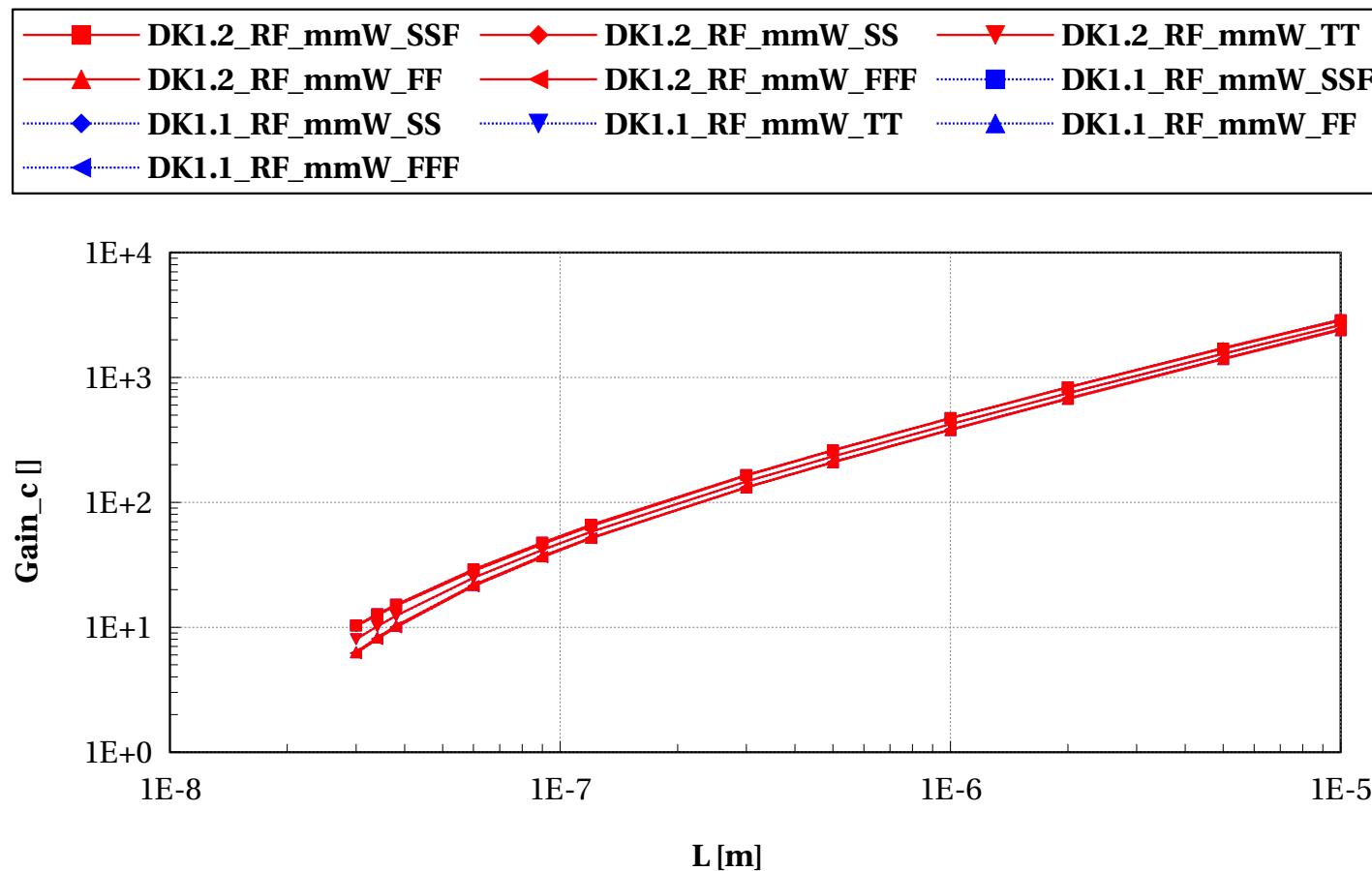
lvtpfet_acc, Gd_c*L*W [S.m] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



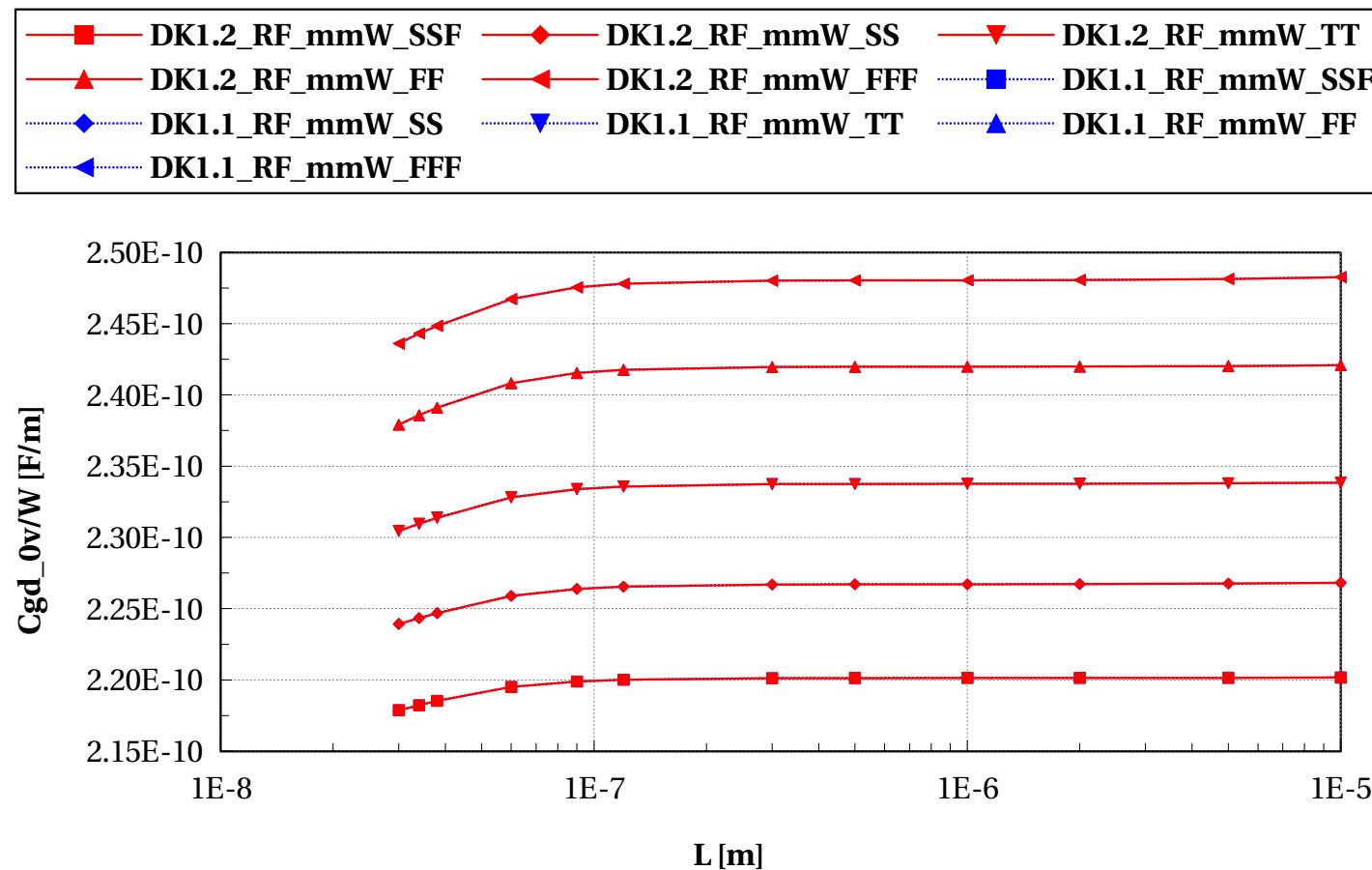
lvtpfet_acc, Gain_c [] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



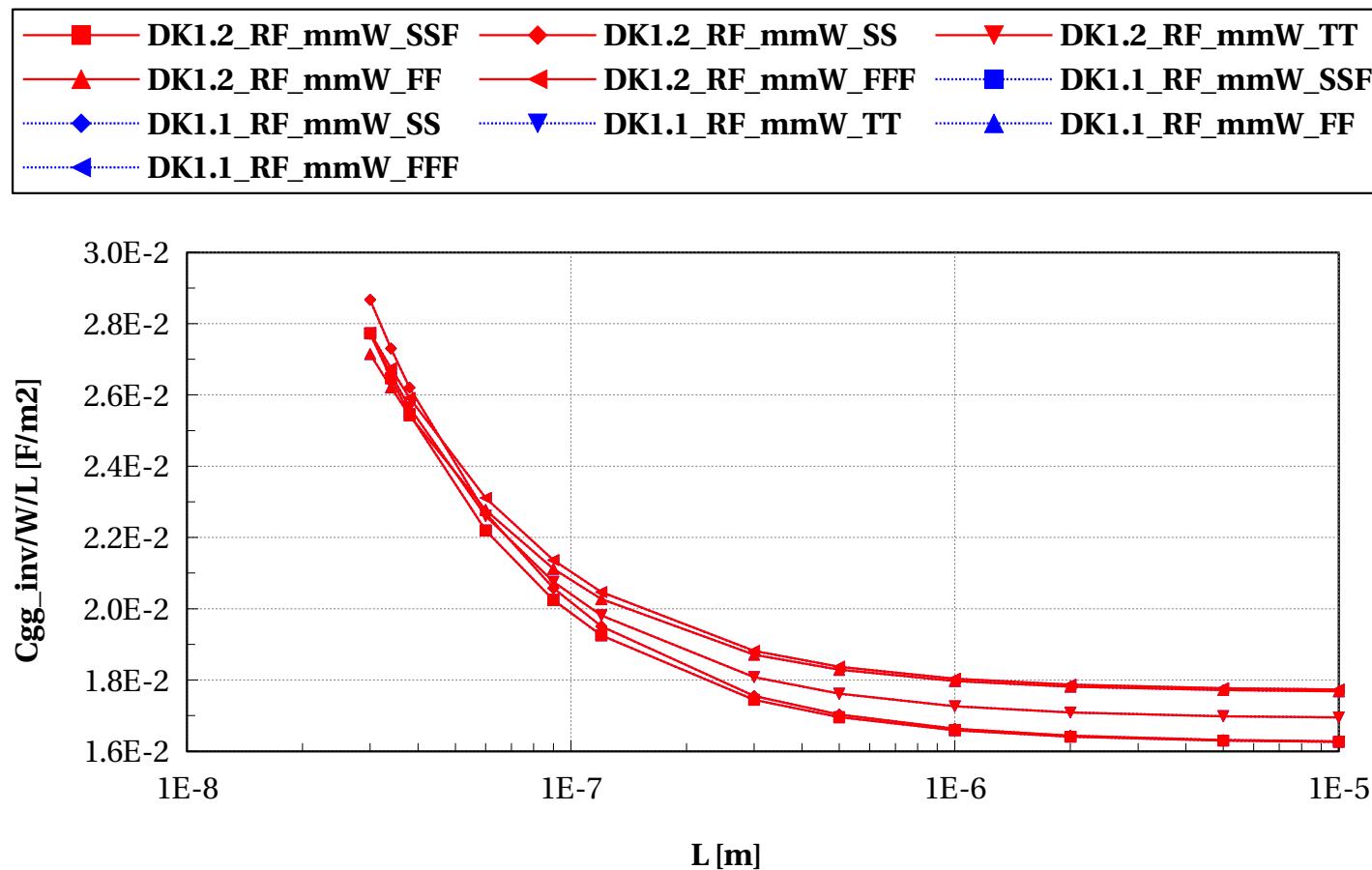
lvtpfet_acc, Cgd_0v/W [F/m] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



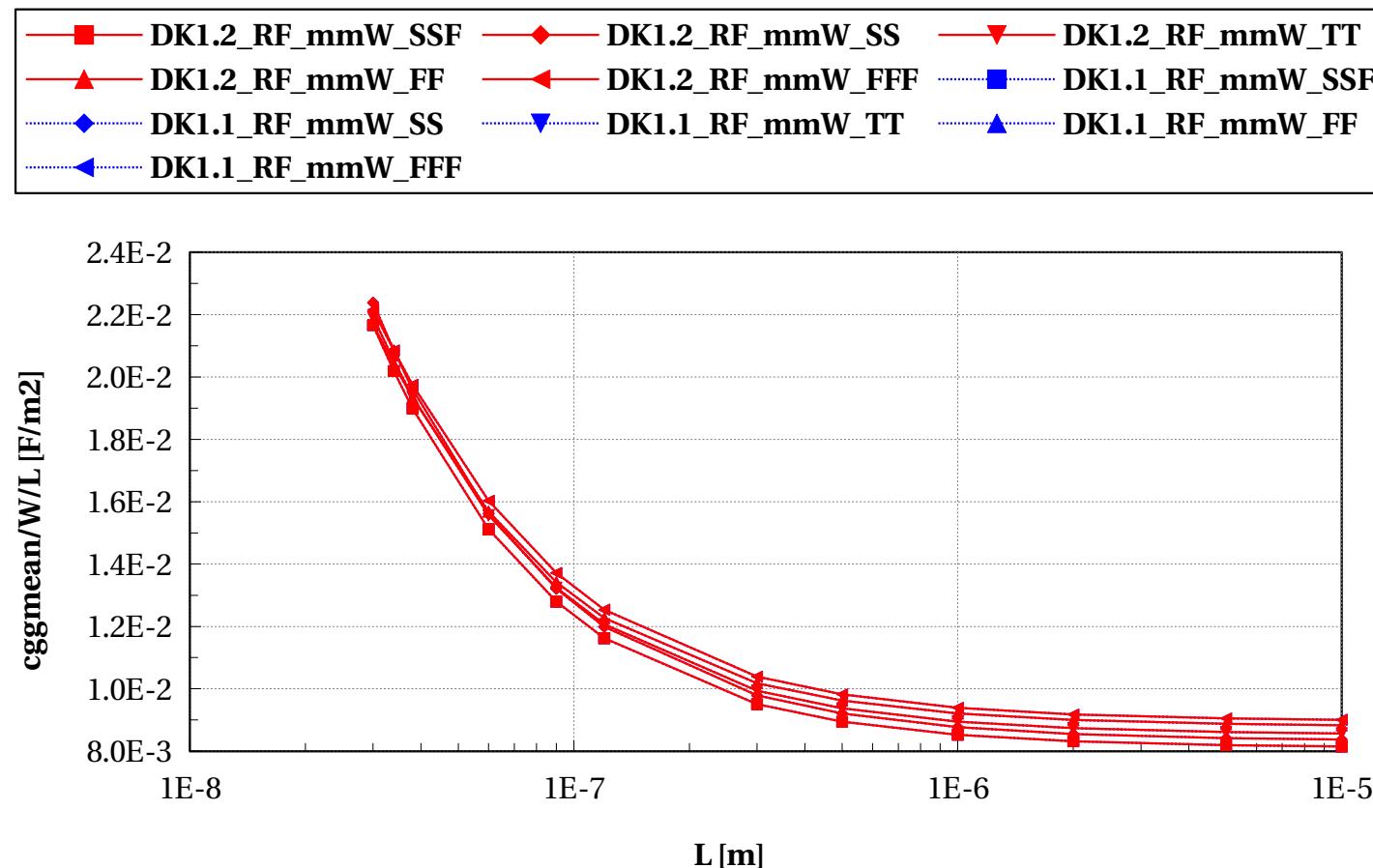
lvtpfet_acc, C_{gg}_inv/W/L [F/m²] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



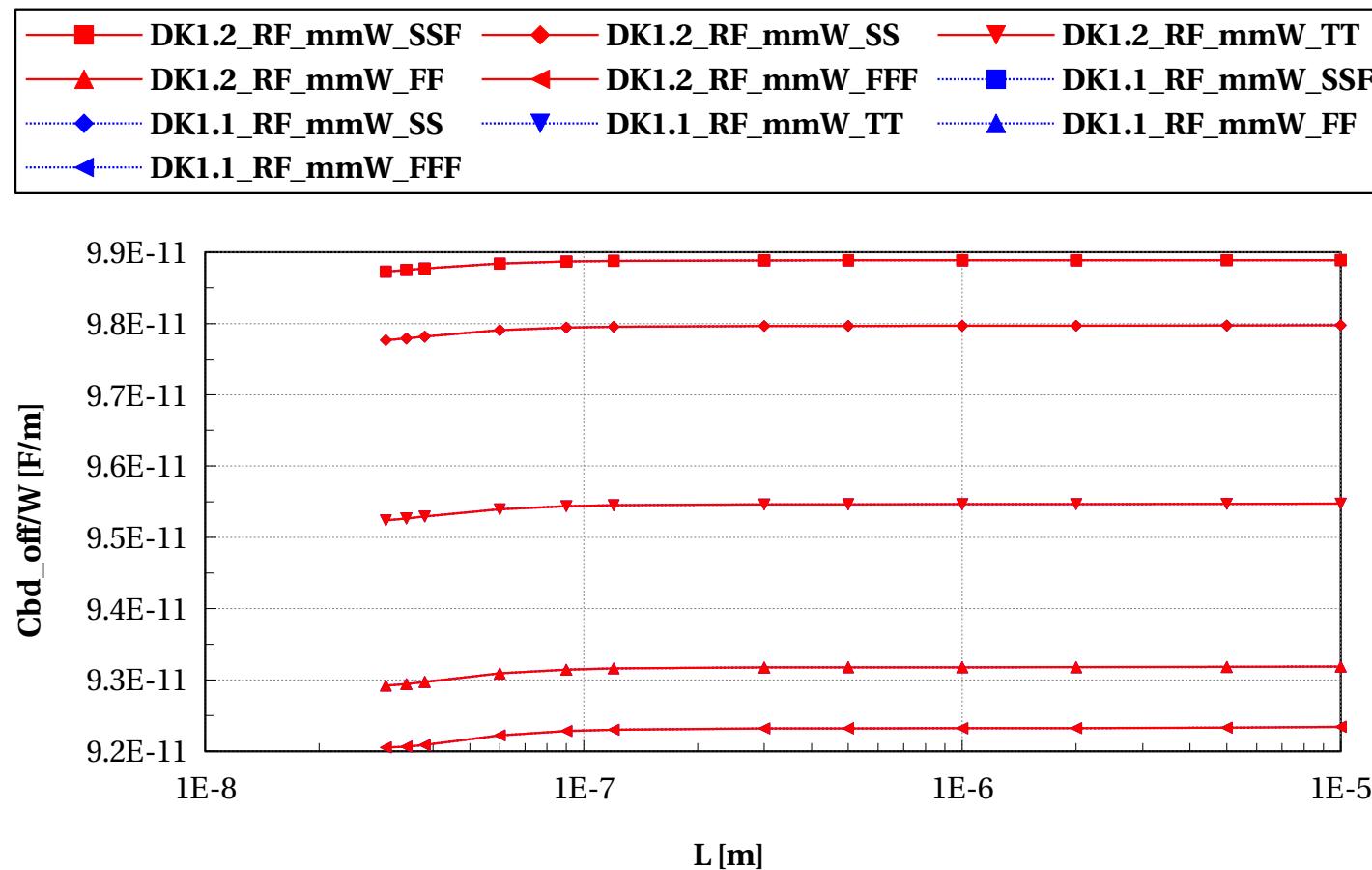
lvtpfet_acc, cgmean/W/L [F/m²] vs L [m]

w==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, C_{bd_off}/W [F/m] vs L [m]

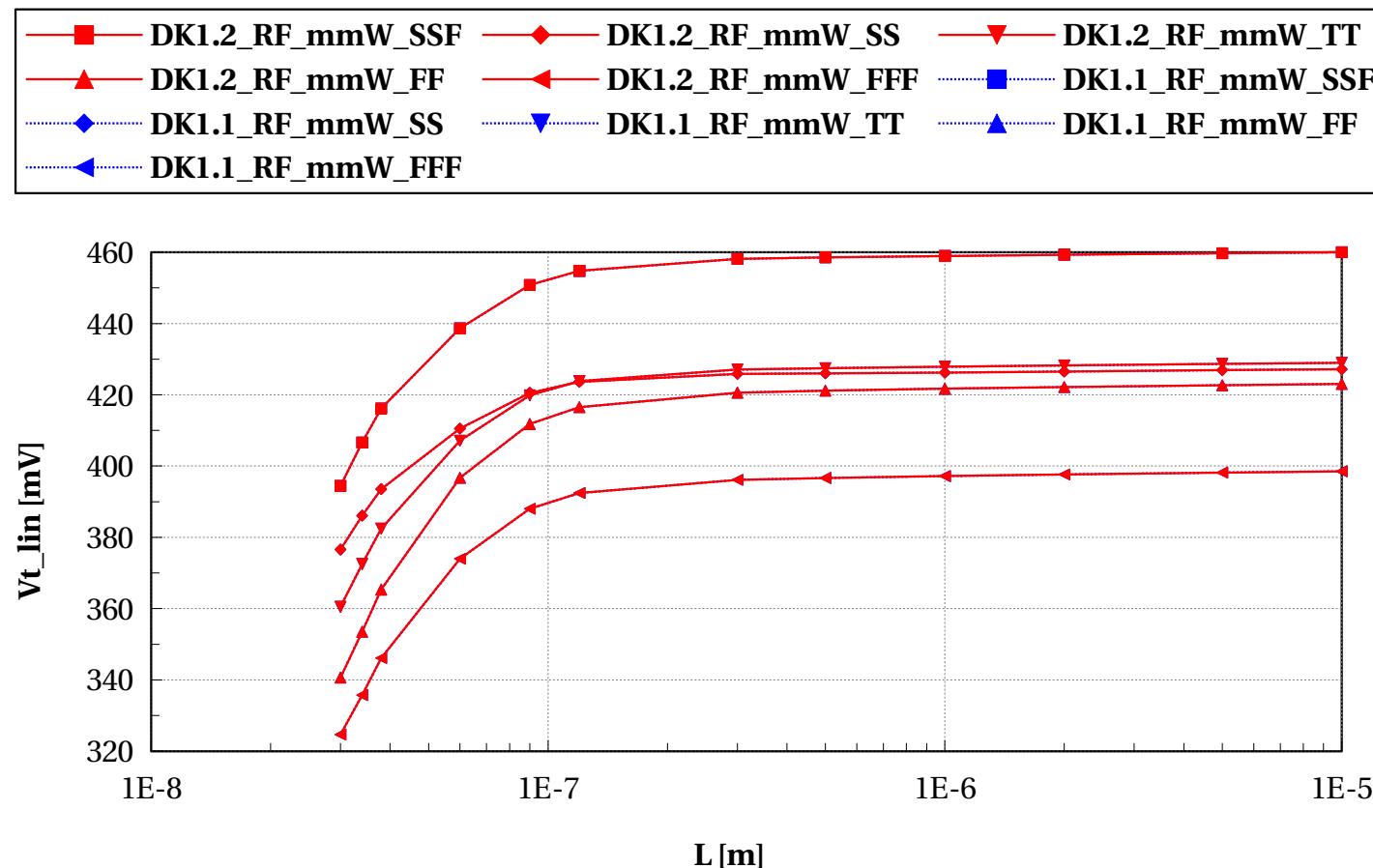
$w=1e-6$ and $Temp=25$ and $V_{bs}=1$ and $p_{la}=0$ and $devType=="PCELLwoWPE"$



Scaling versus Length (W=300nm)

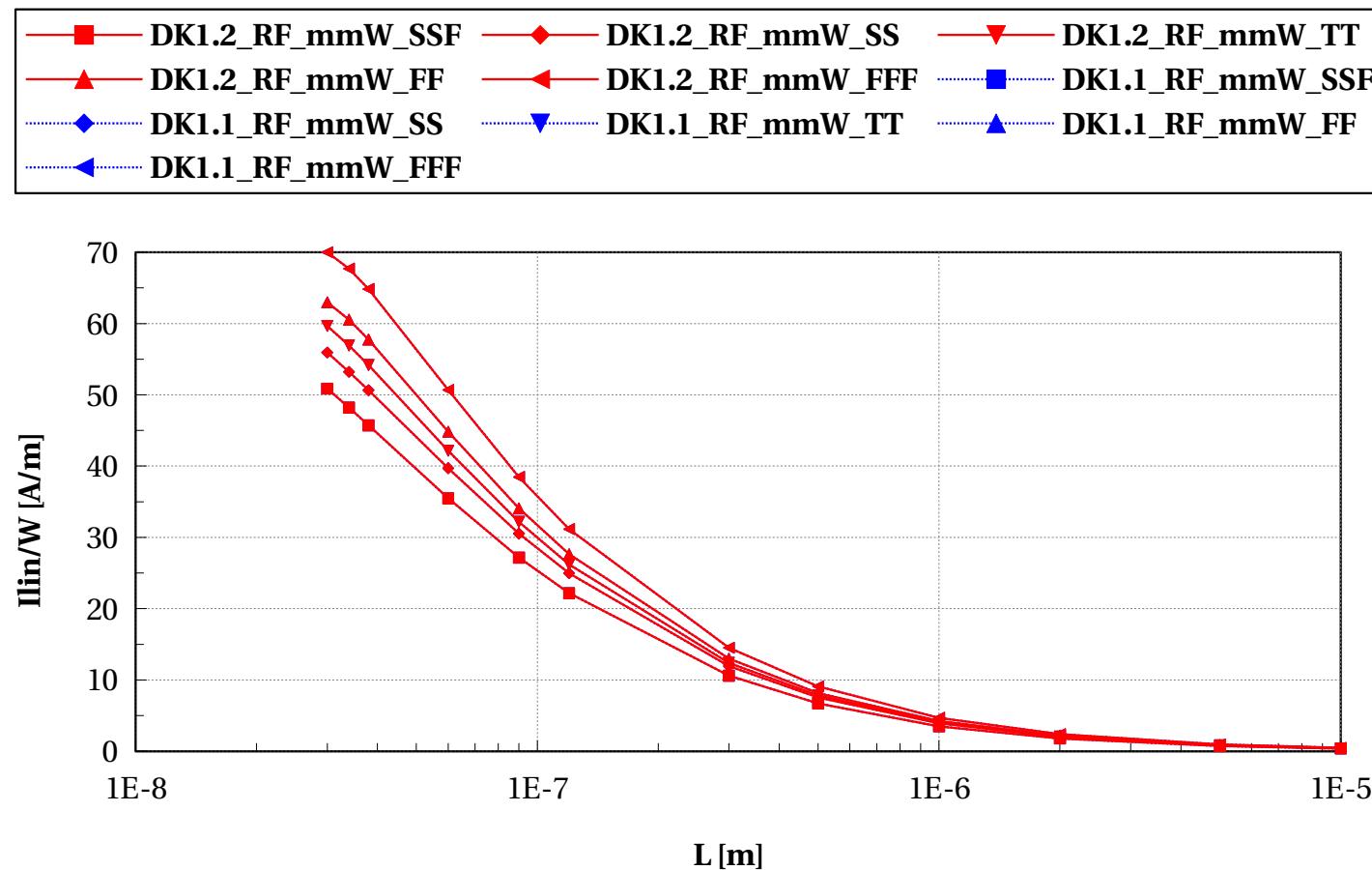
lvtpfet_acc, Vt_lin [mV] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



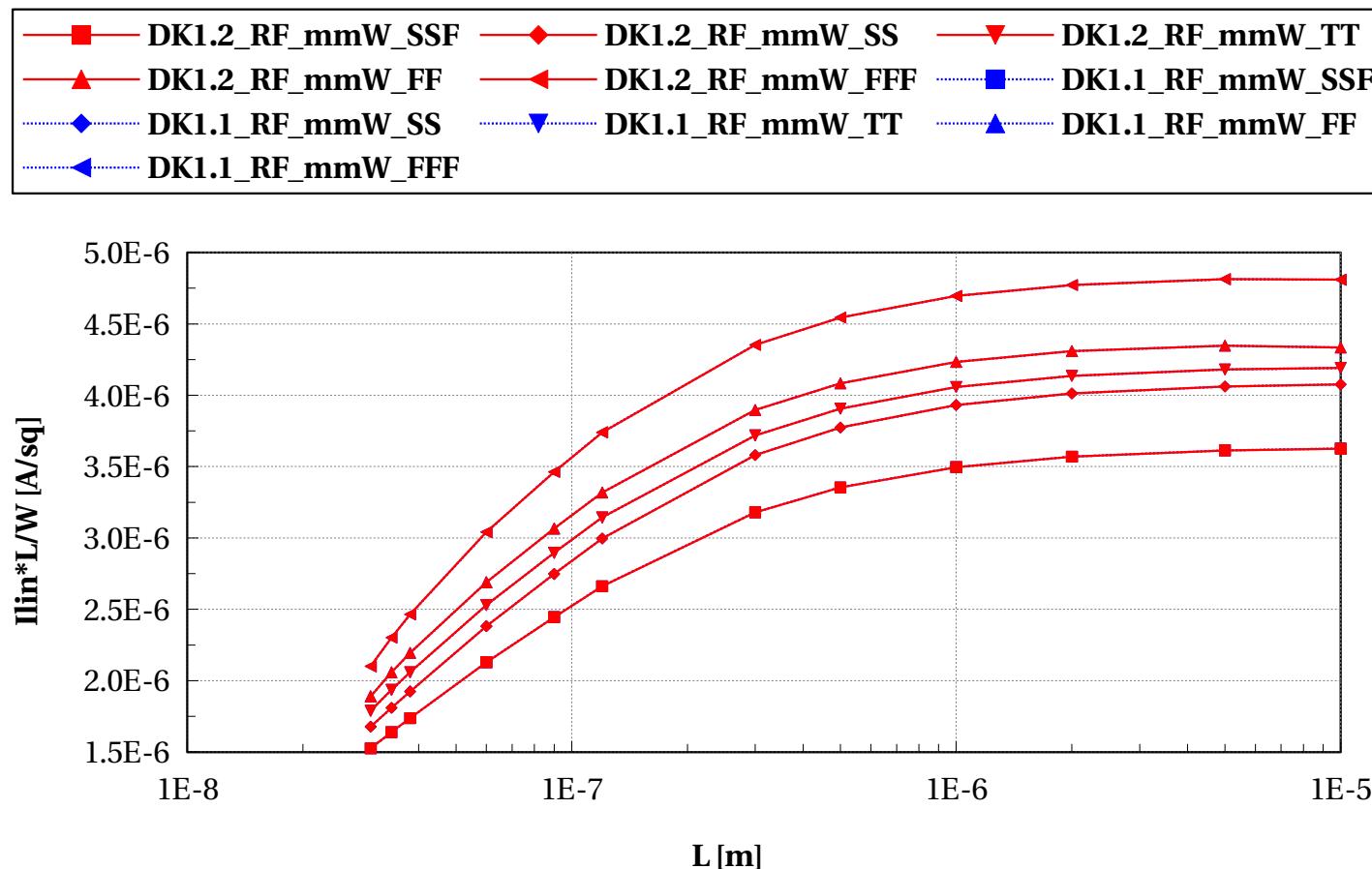
lvtpfet_acc, Ilin/W [A/m] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



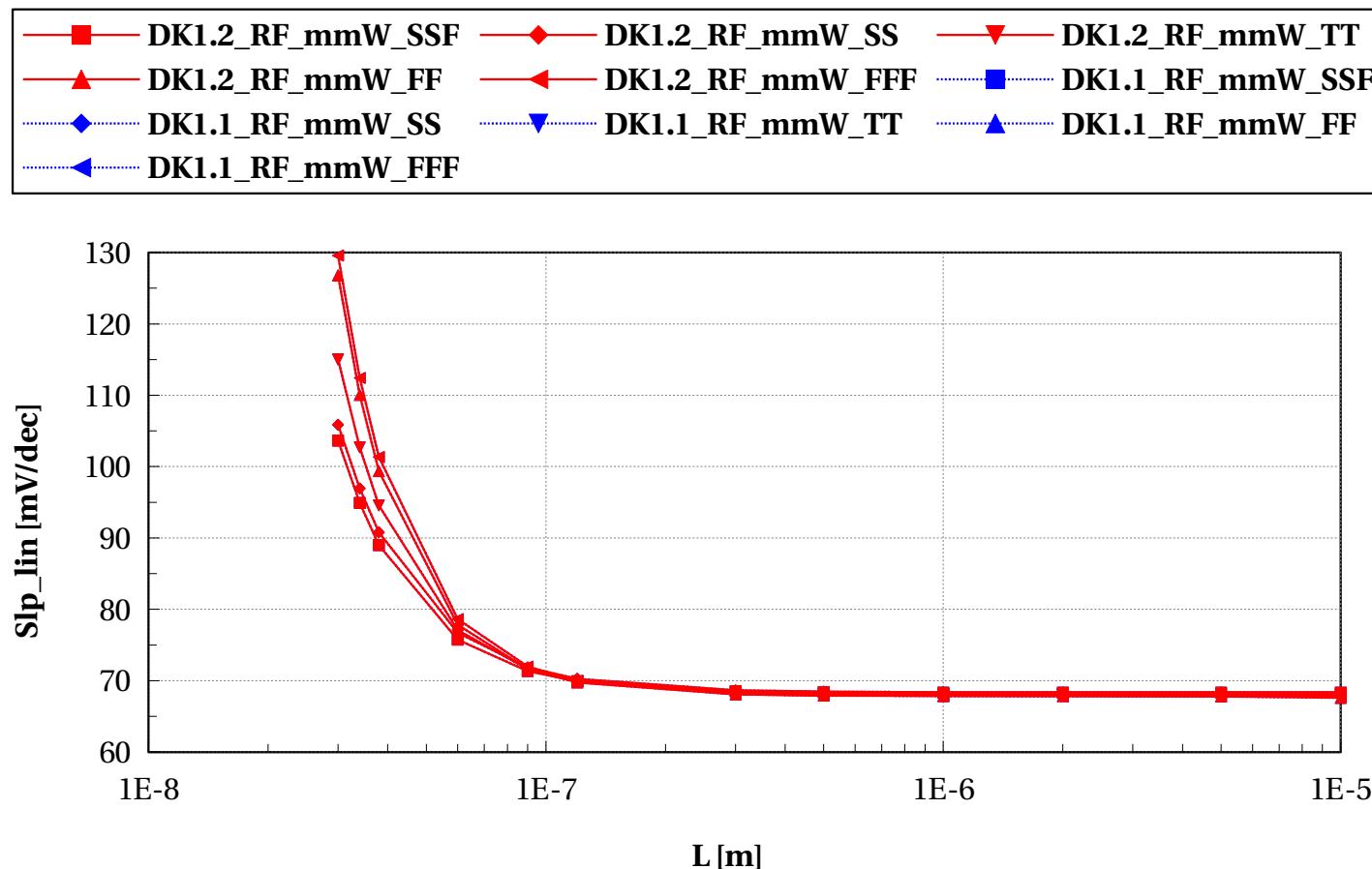
lvtpfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs L [m]

$w==0.3e-6$ and $Temp==25$ and $V_{bs}==1$ and $p_{la}==0$ and $devType=="PCELLwoWPE"$



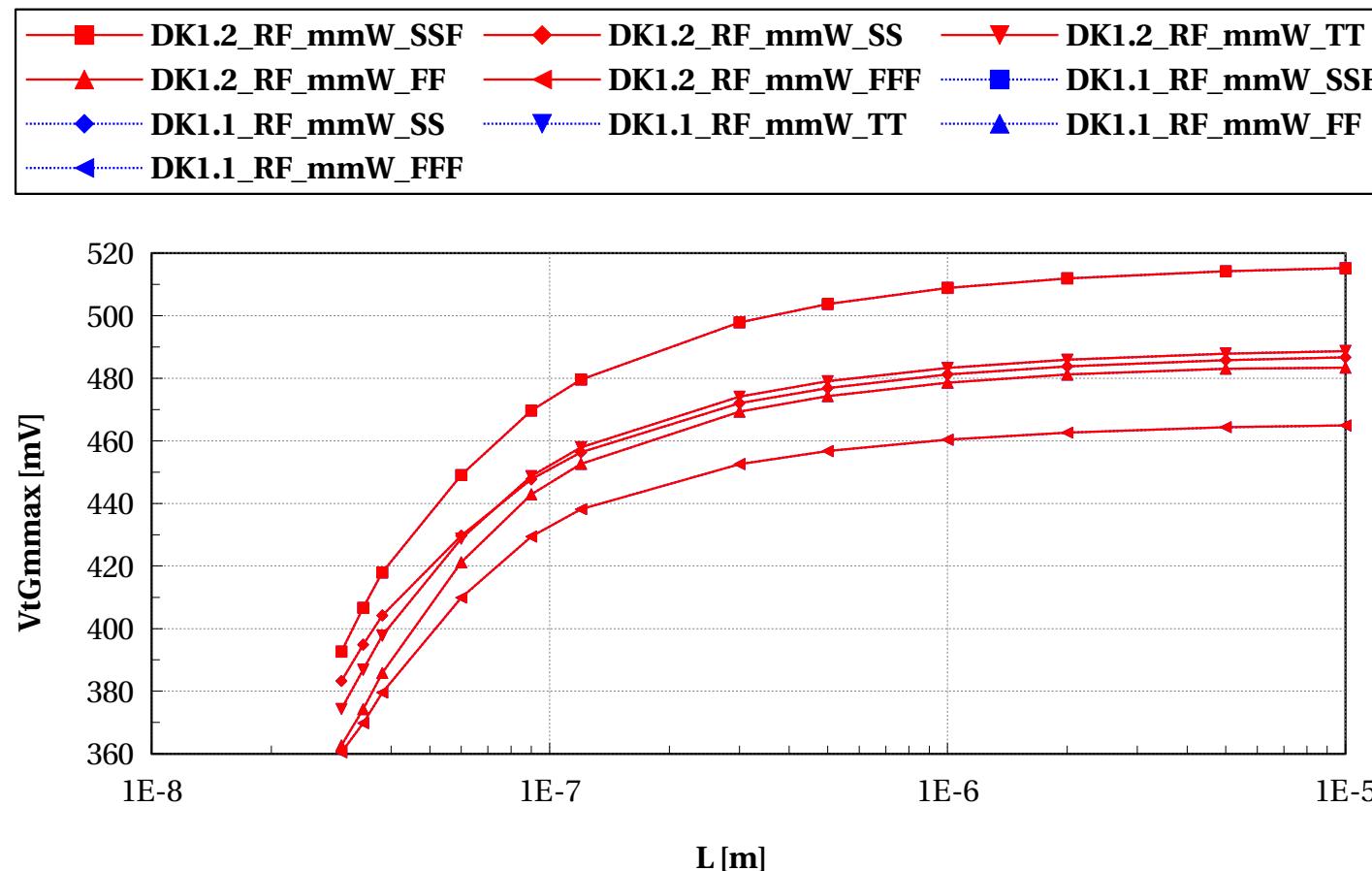
lvtpfet_acc, Slp_lin [mV/dec] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



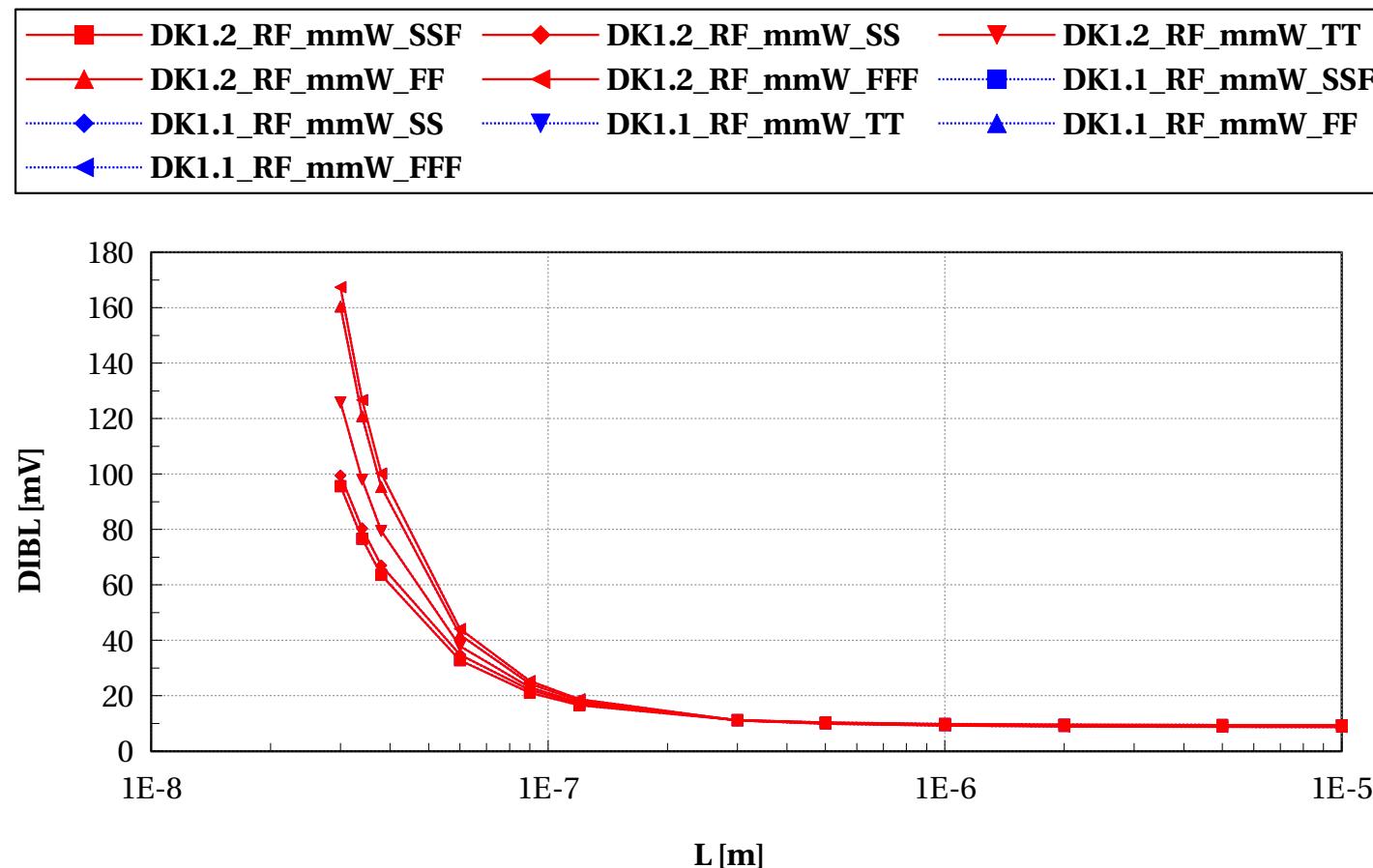
lvtpfet_acc, VtGmmax [mV] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



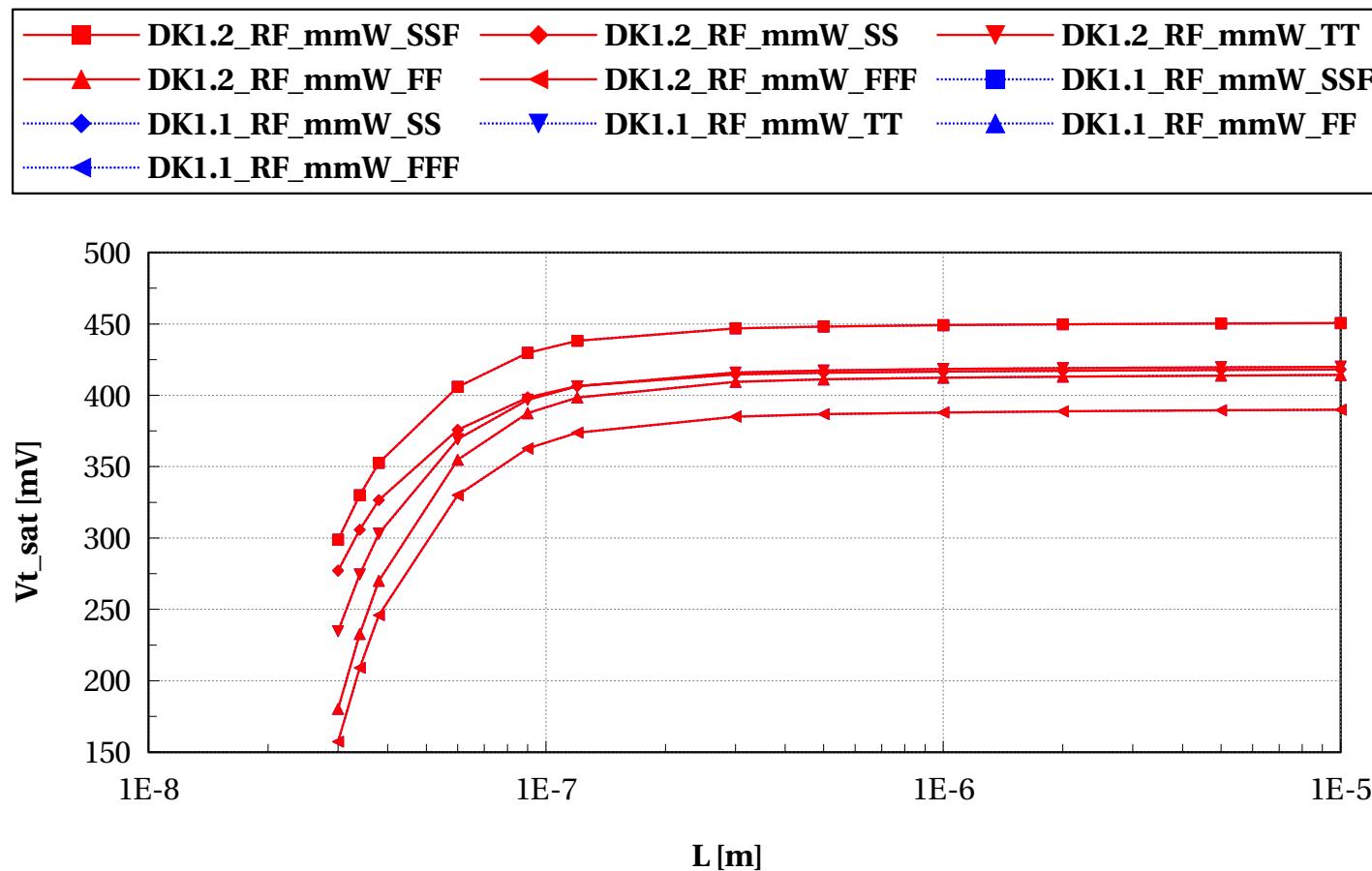
lvtpfet_acc, DIBL [mV] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



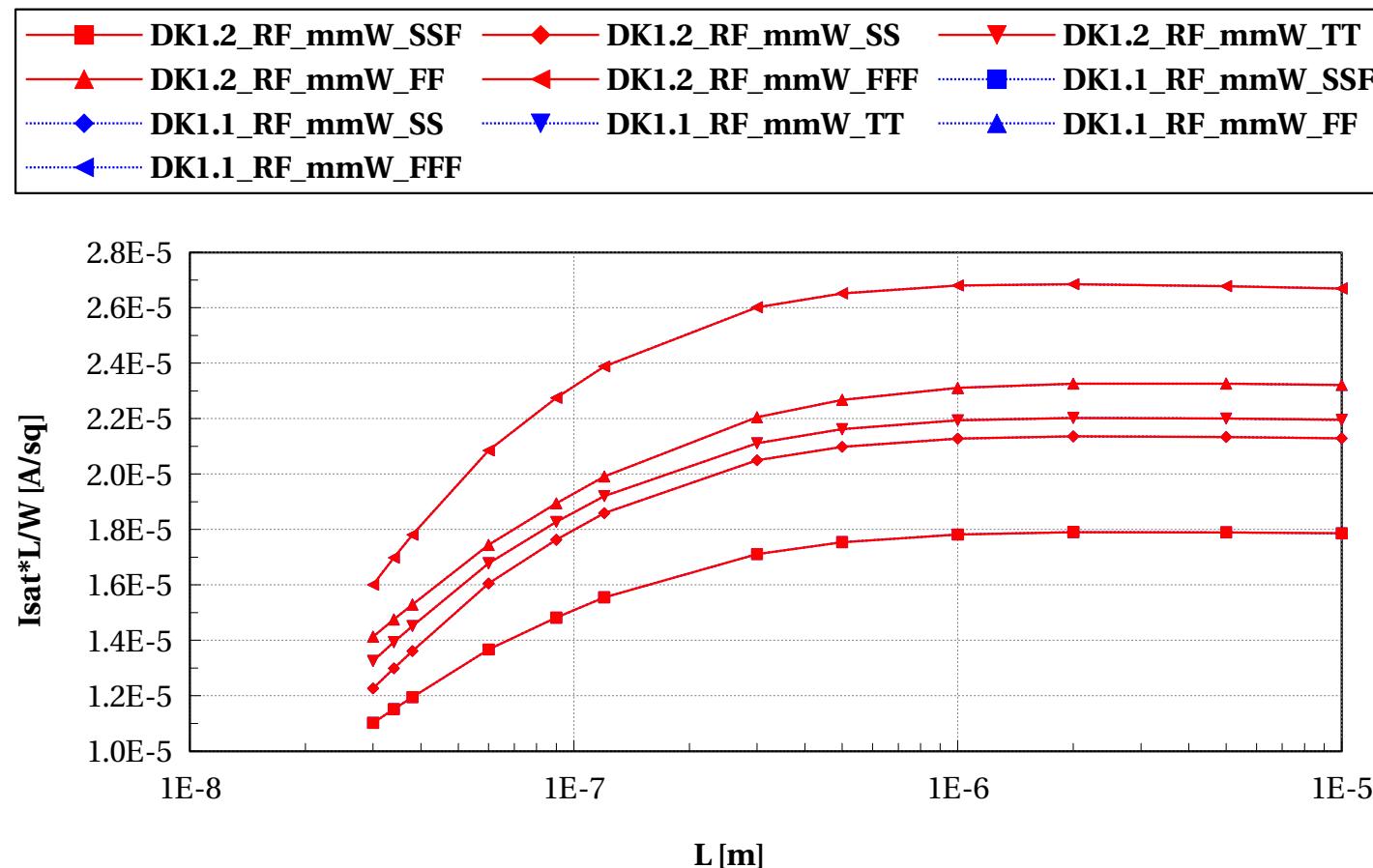
lvtpfet_acc, Vt_sat [mV] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



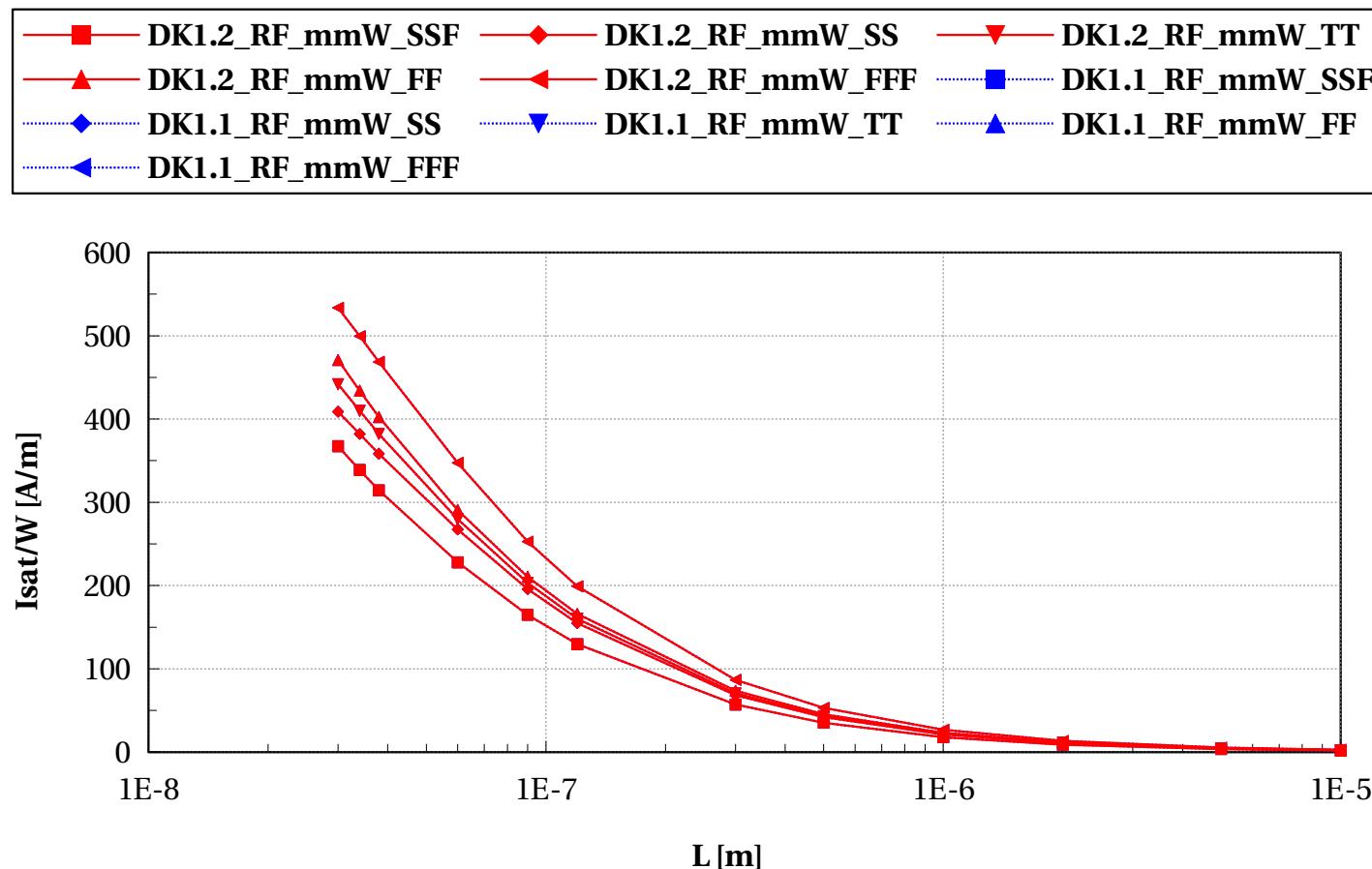
lvtpfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs L [m]

$w==0.3e-6$ and $Temp==25$ and $V_{bs}==1$ and $p_la==0$ and $devType=="PCELLwoWPE"$



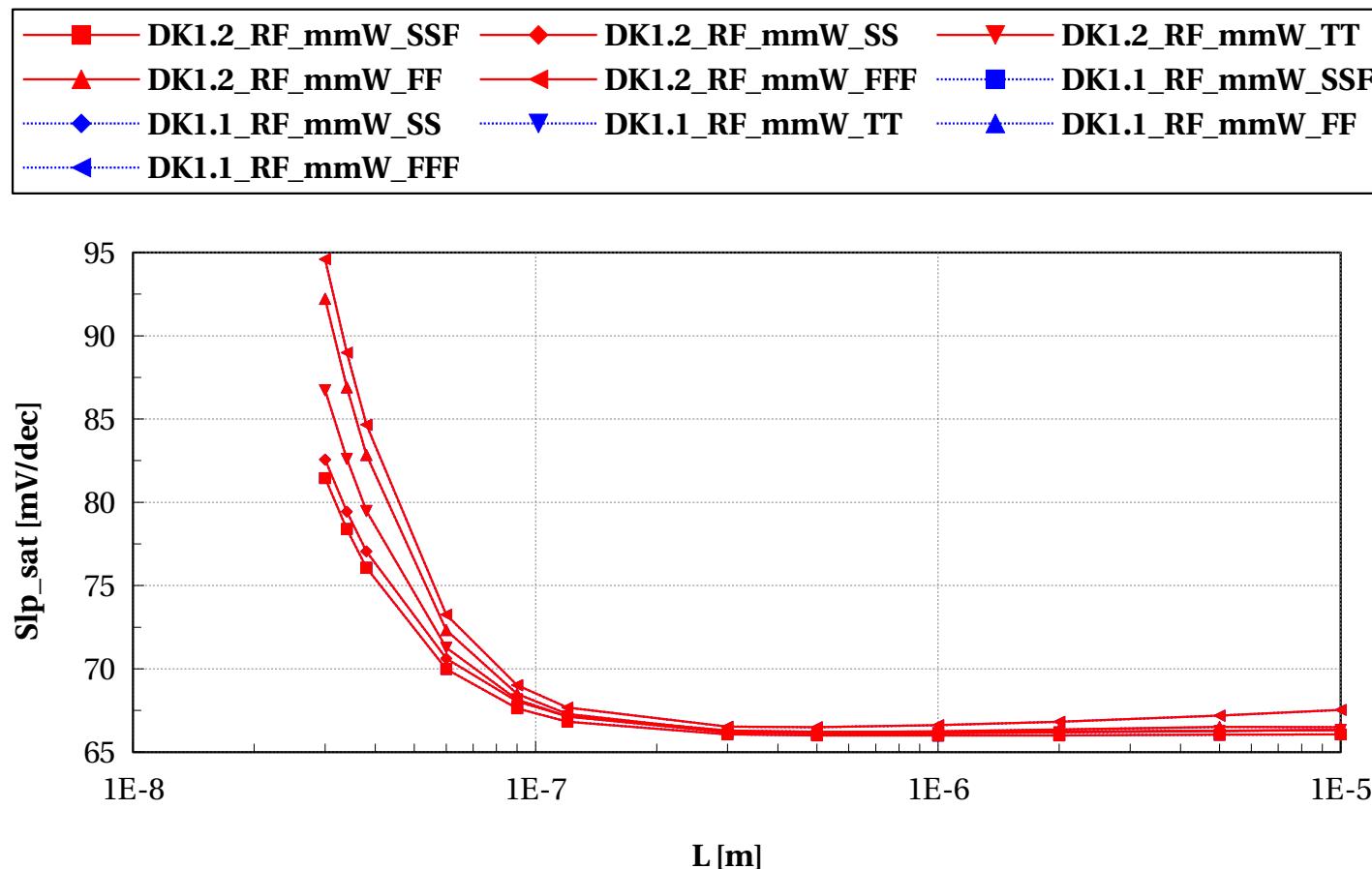
lvtpfet_acc, Isat/W [A/m] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



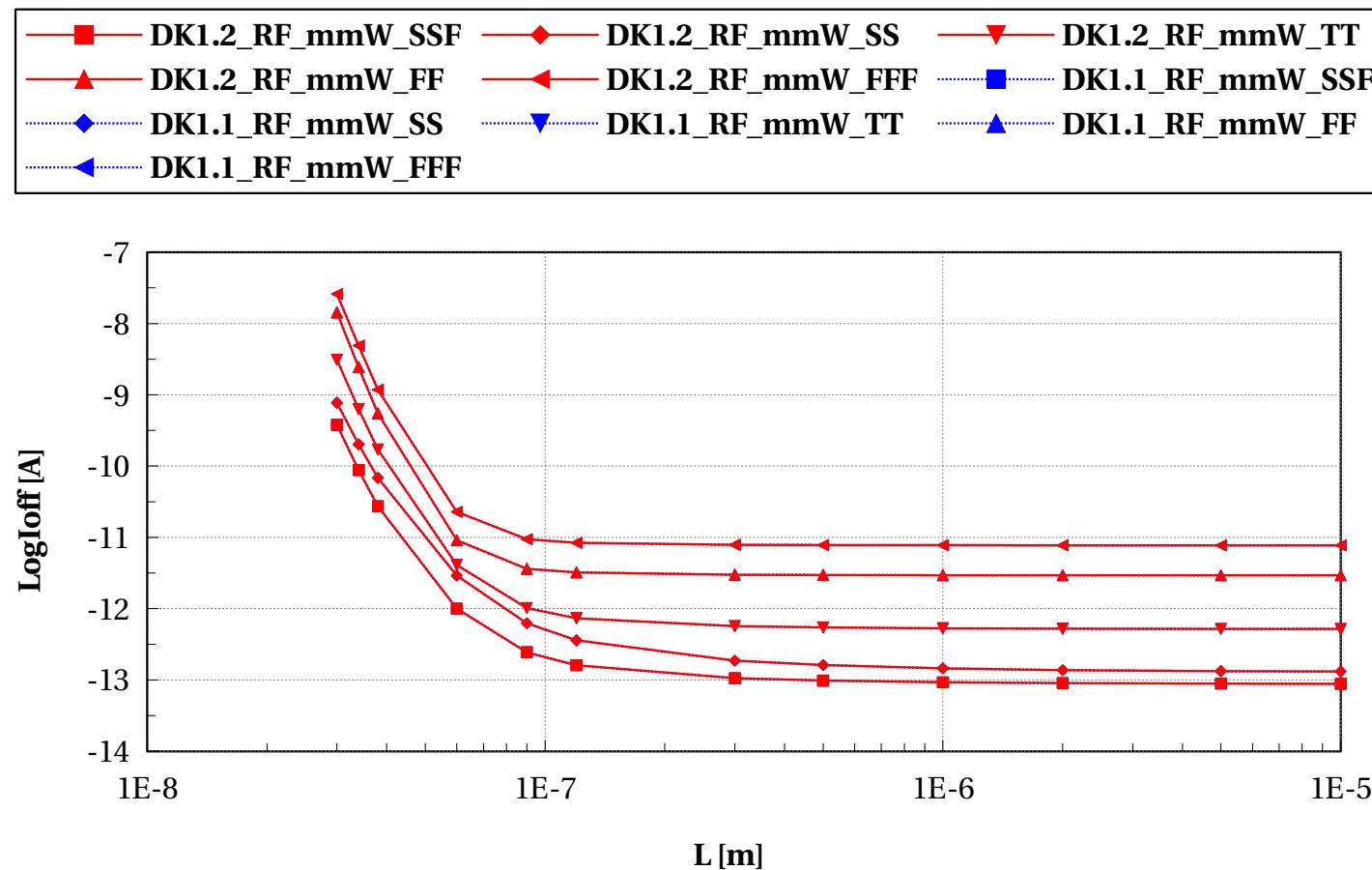
lvtpfet_acc, Slp_sat [mV/dec] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



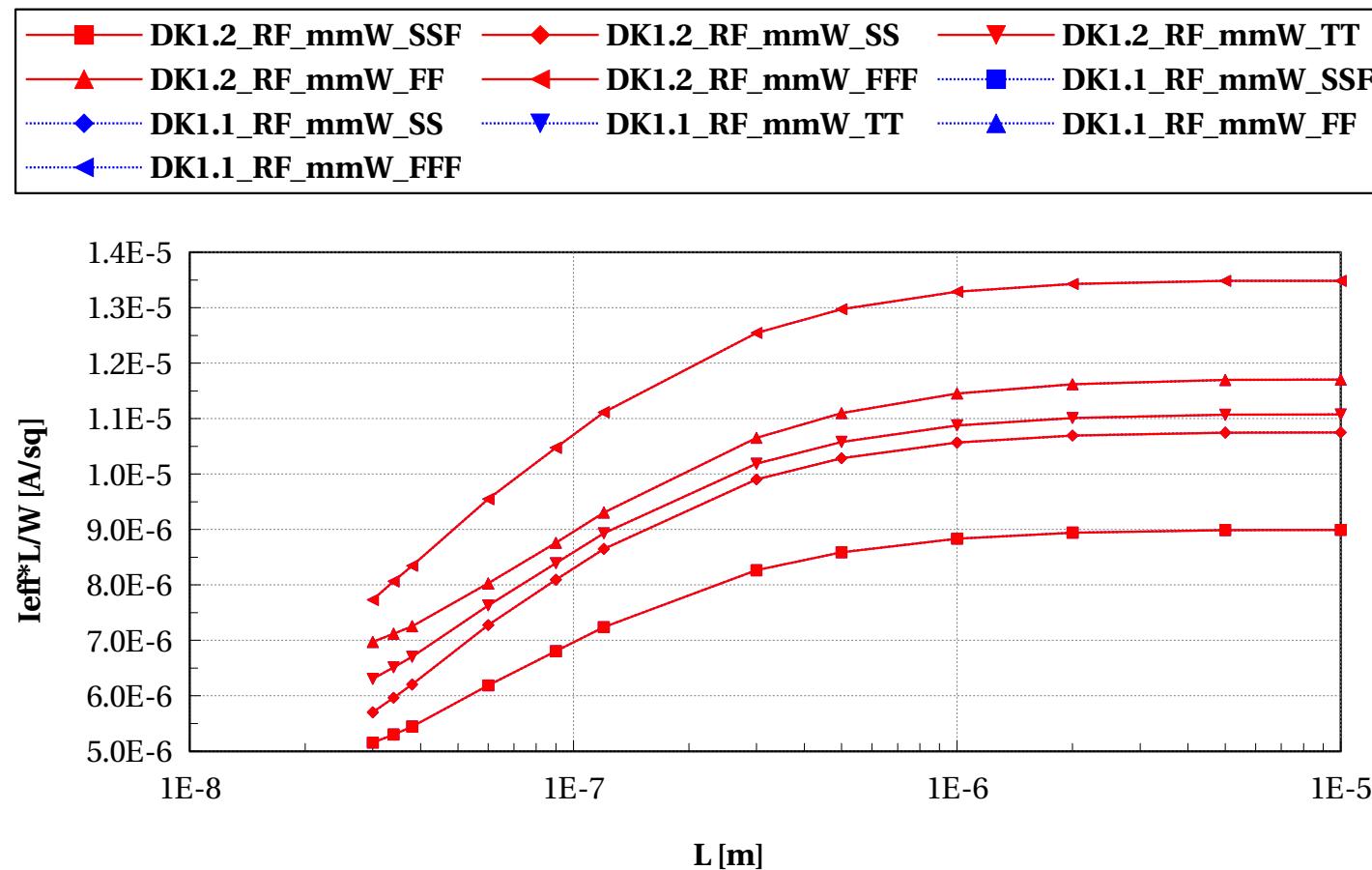
lvtpfet_acc, LogIoff [A] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



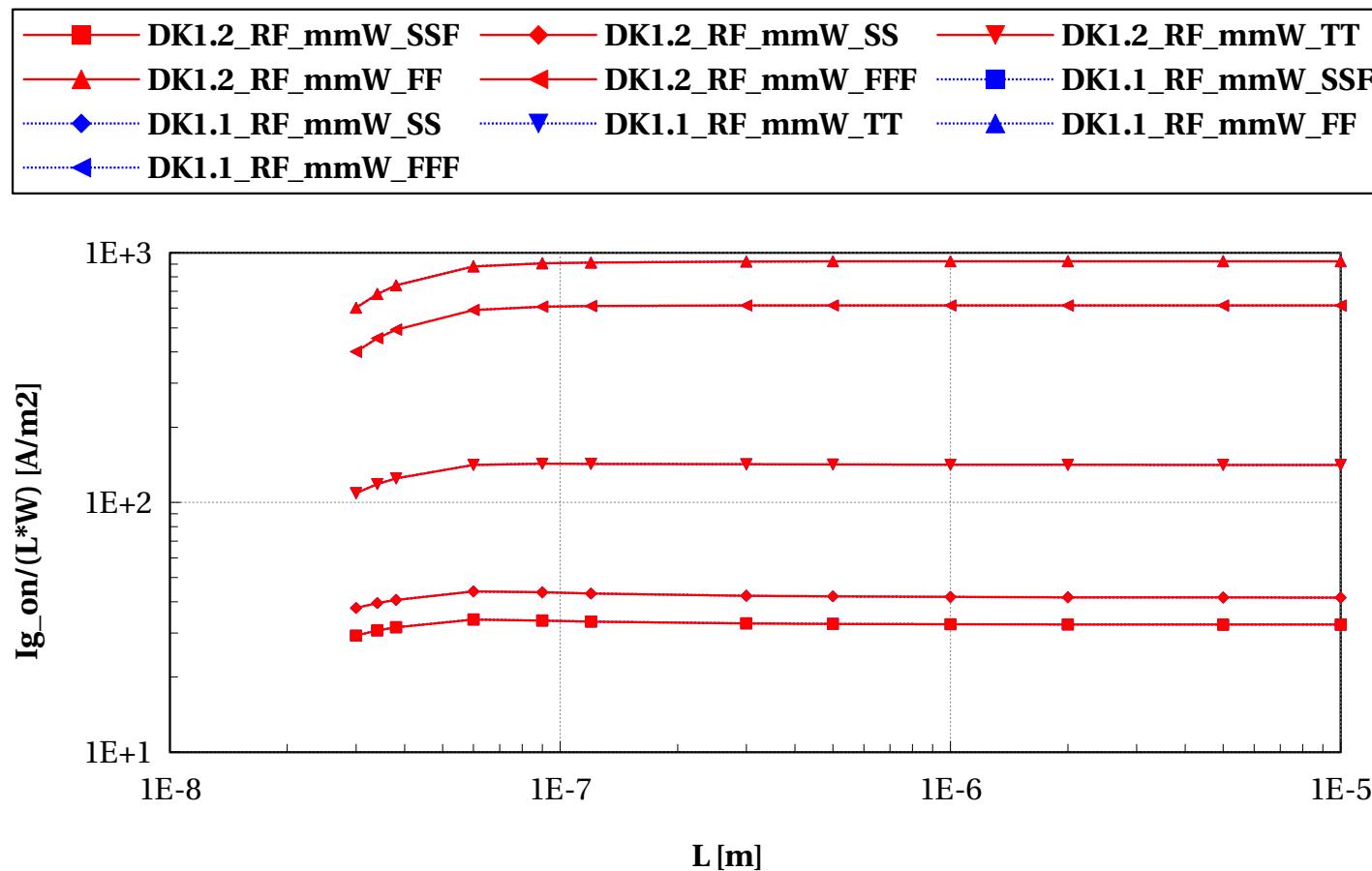
lvtpfet_acc, Ieff*L/W [A/sq] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



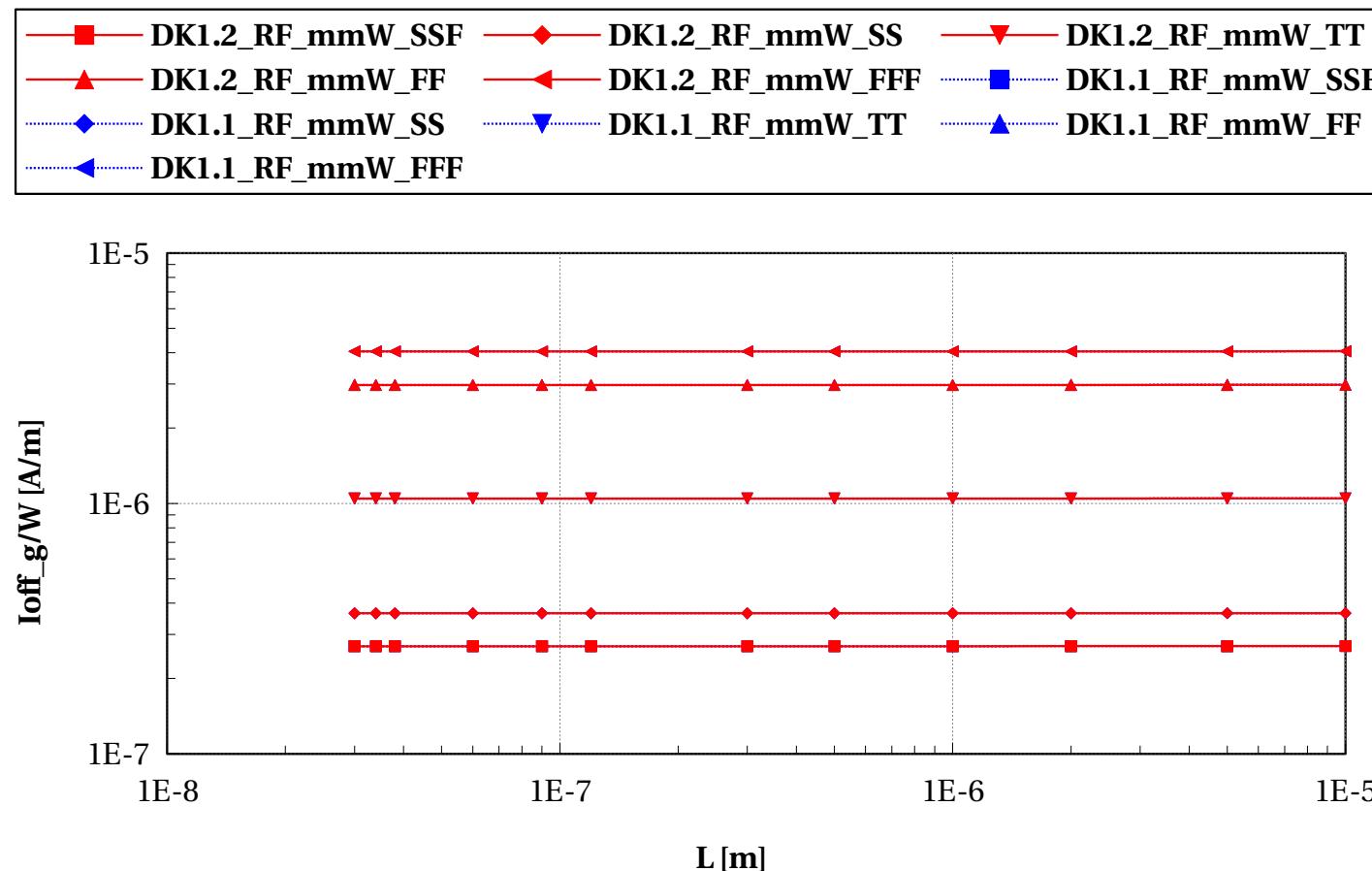
lvtpfet_acc, Ig_on/(L*W) [A/m2] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



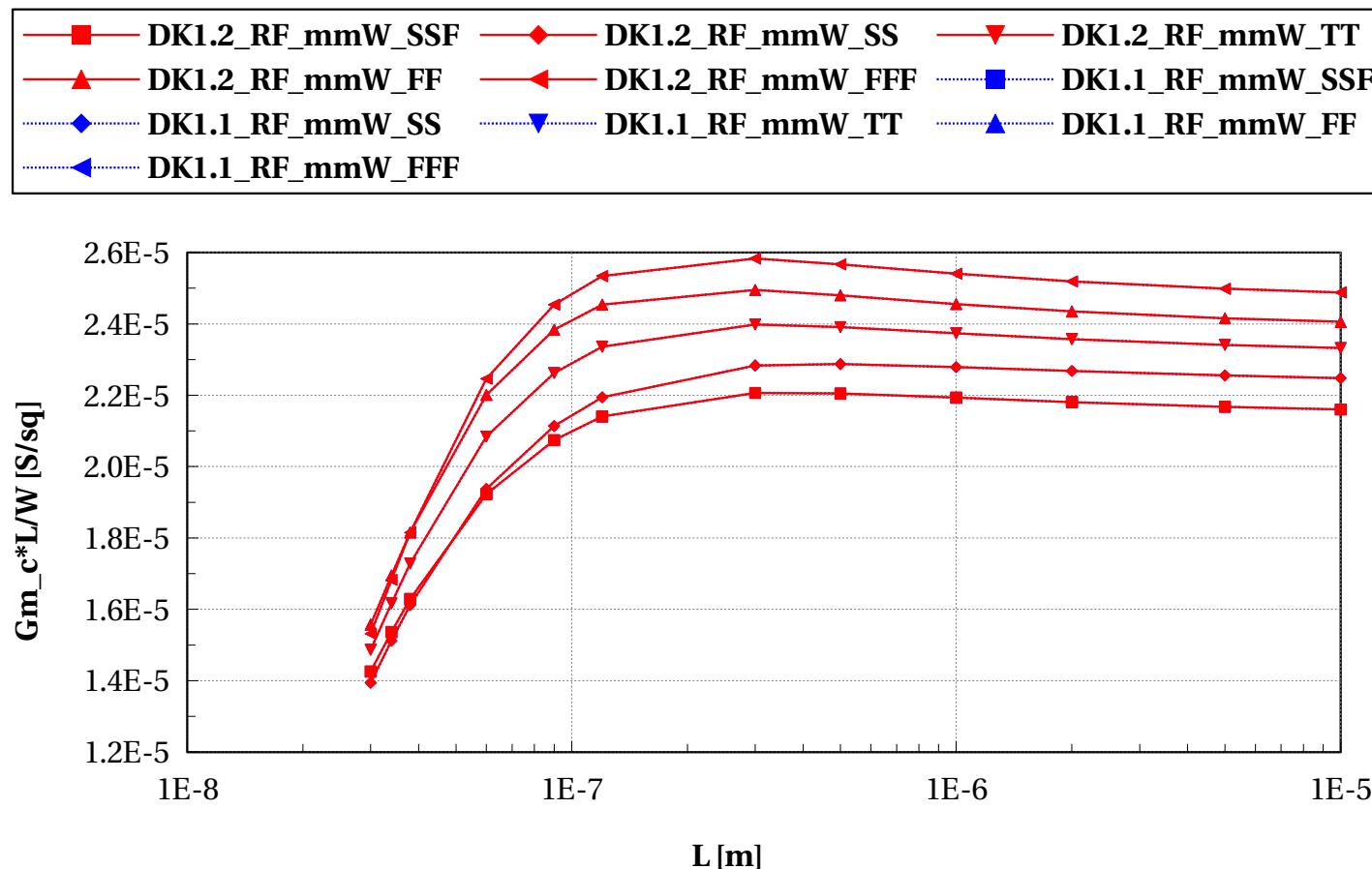
lvtpfet_acc, Ioff_g/W [A/m] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



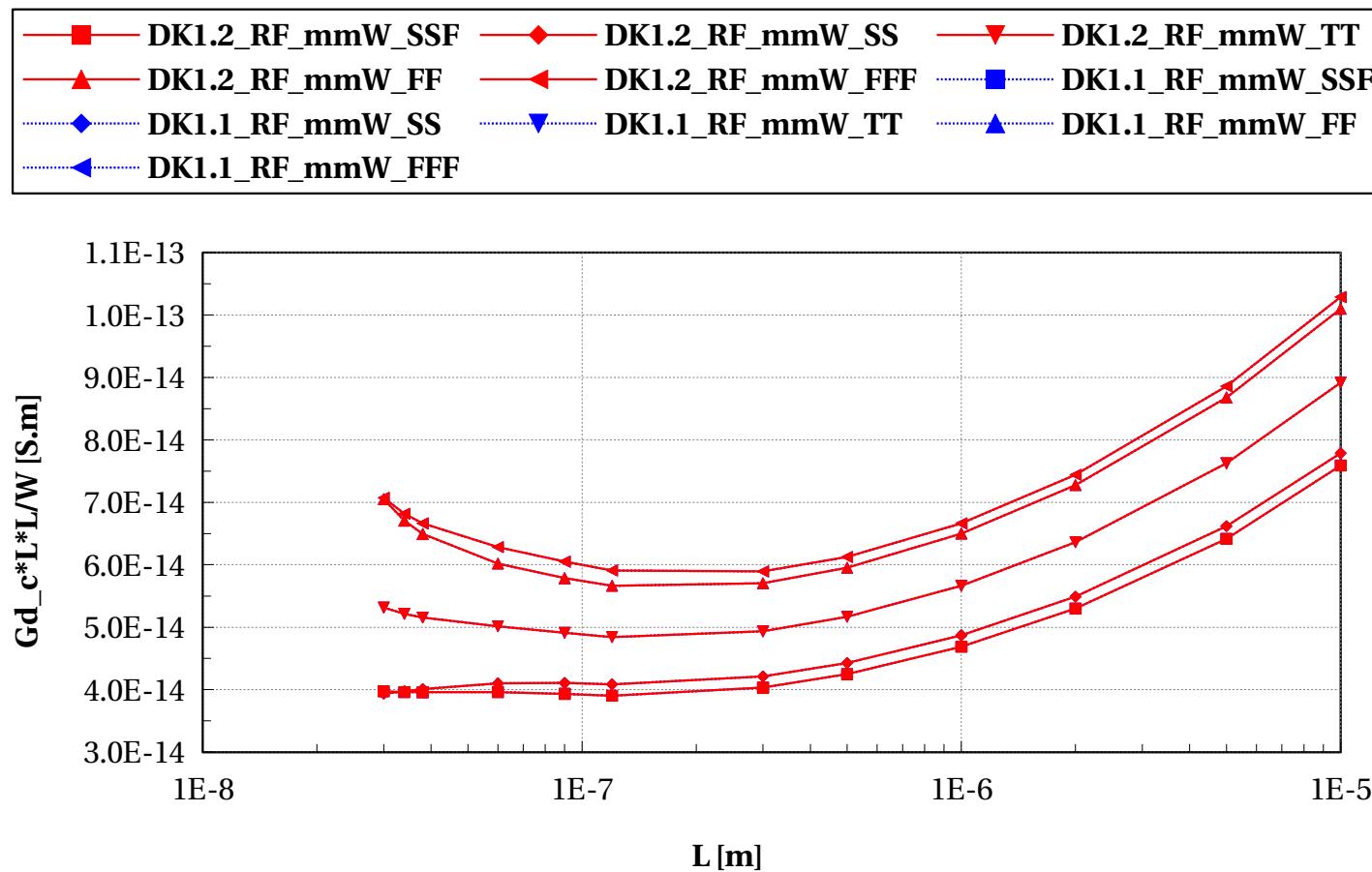
lvtpfet_acc, Gm_c*L/W [S/sq] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



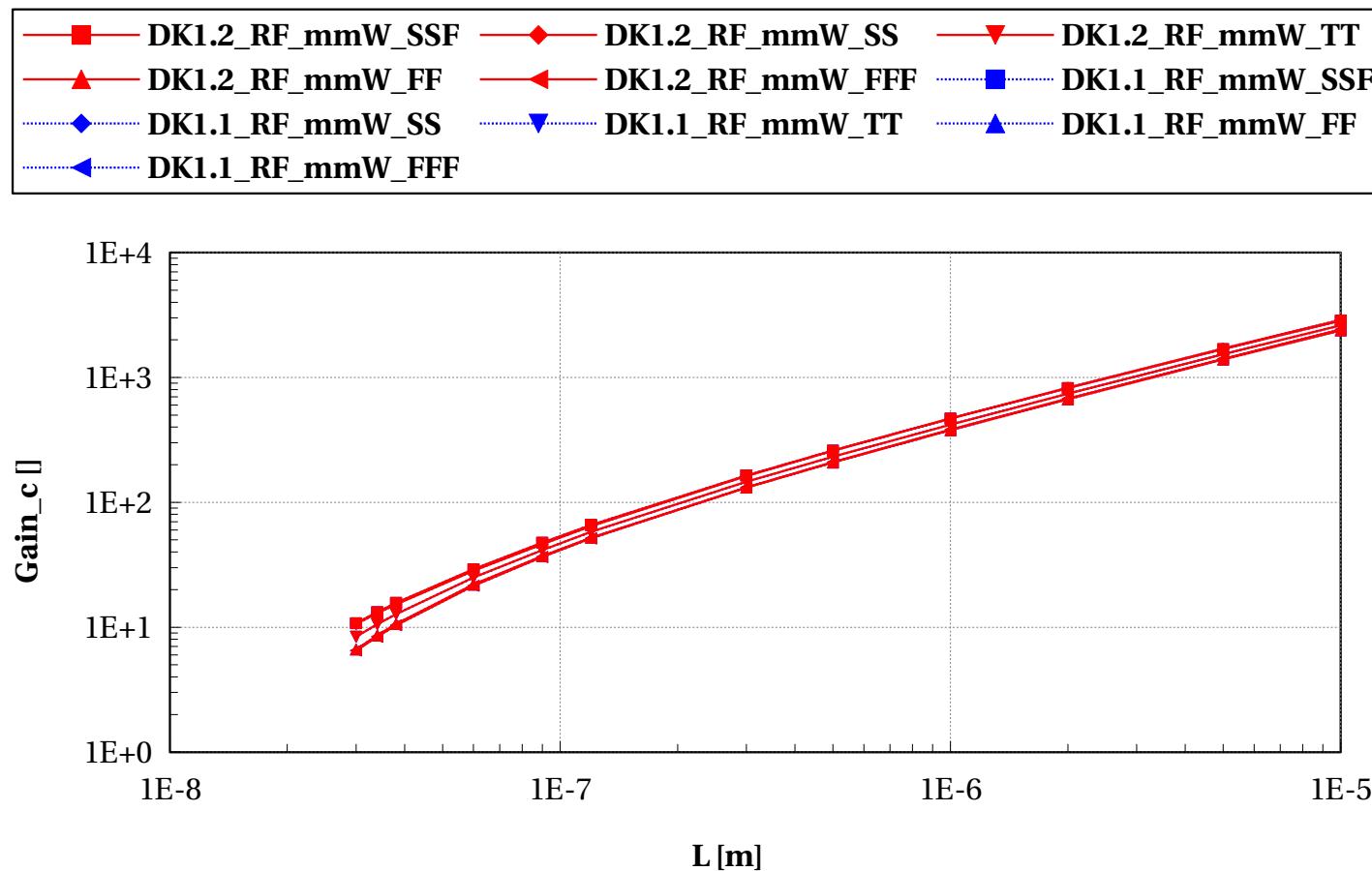
lvtpfet_acc, Gd_c*L/W [S.m] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



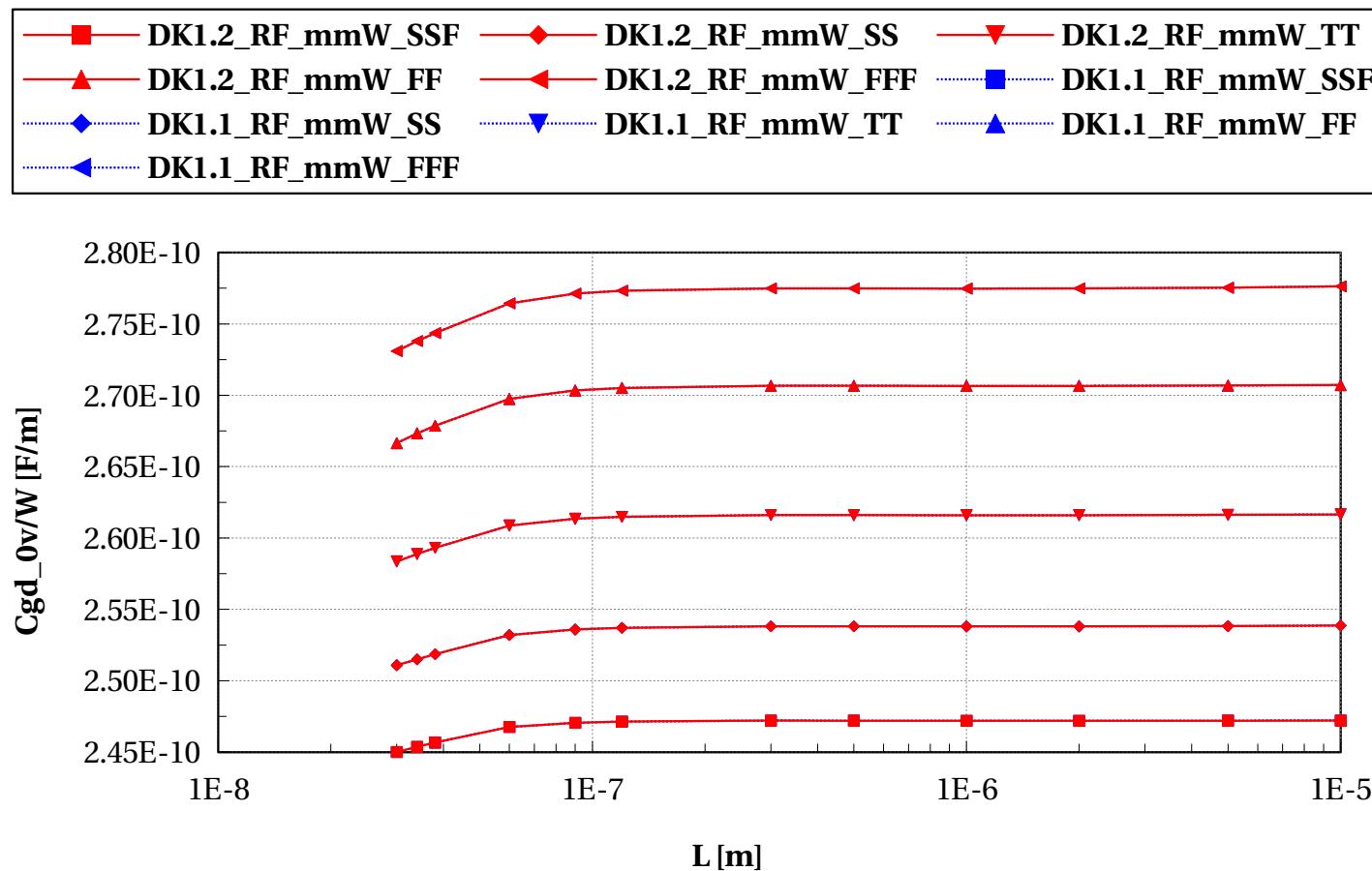
lvtpfet_acc, Gain_c [] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



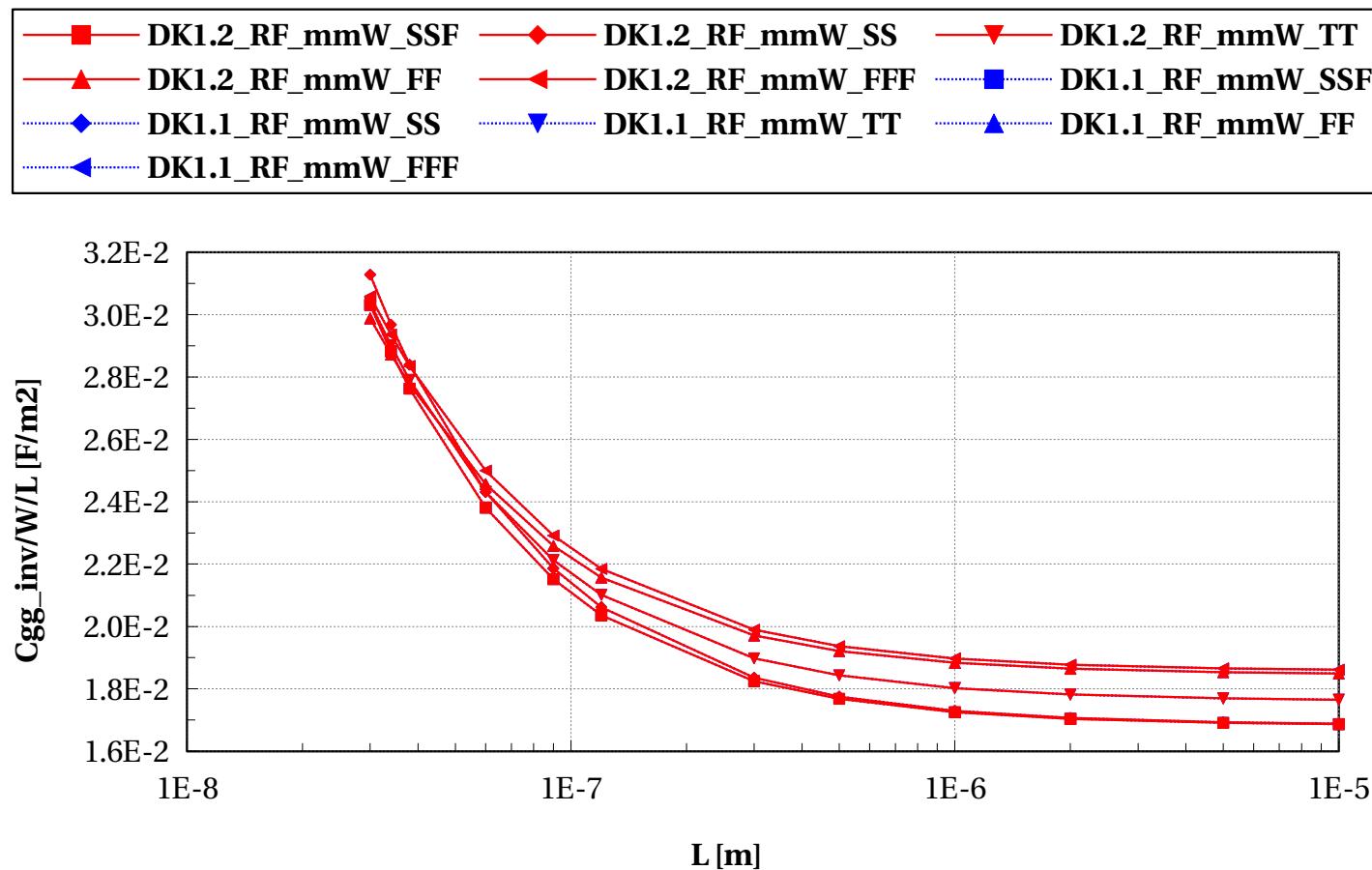
lvtpfet_acc, Cgd_0v/W [F/m] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



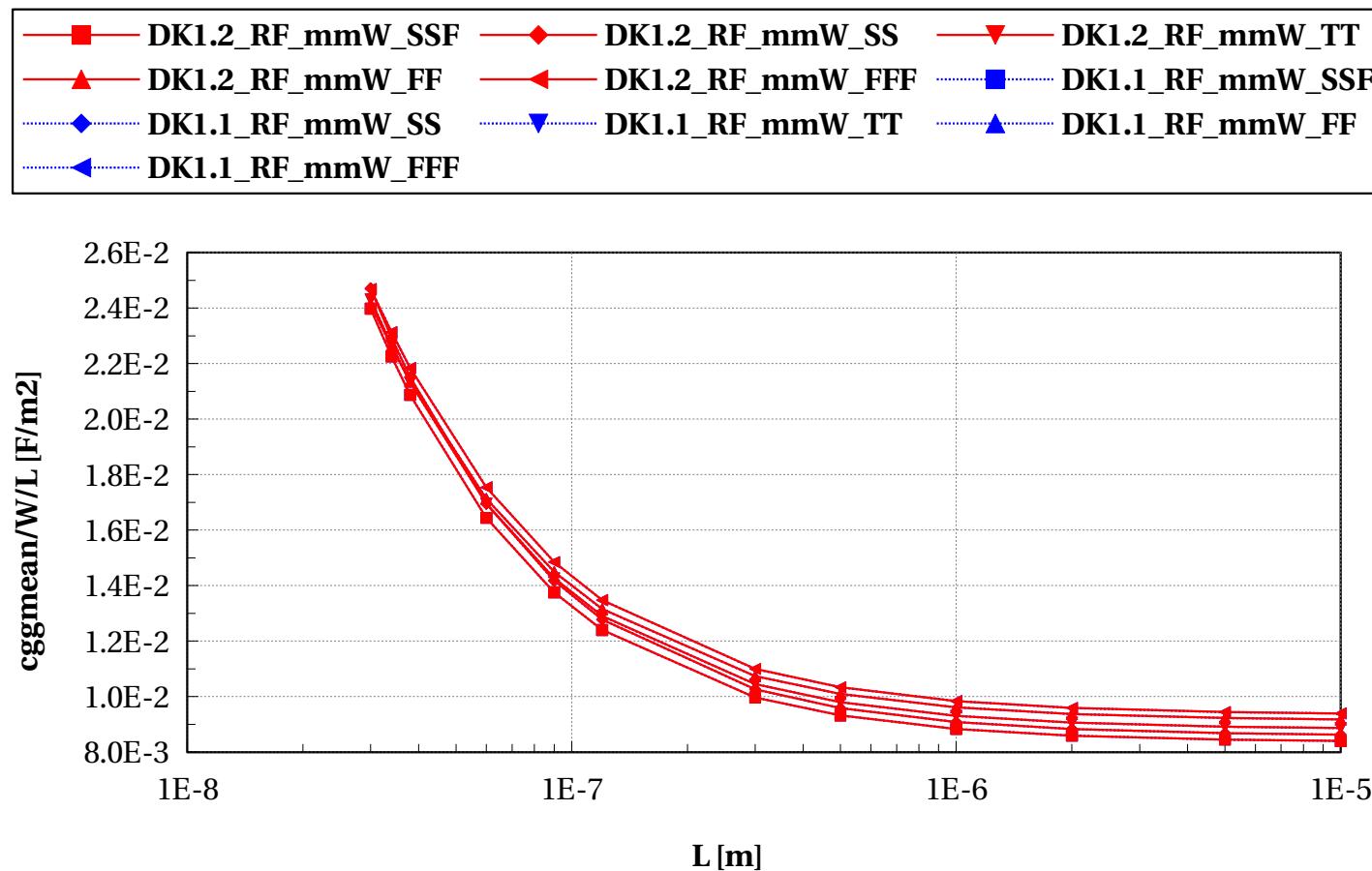
lvtpfet_acc, Cgg_inv/W/L [F/m2] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



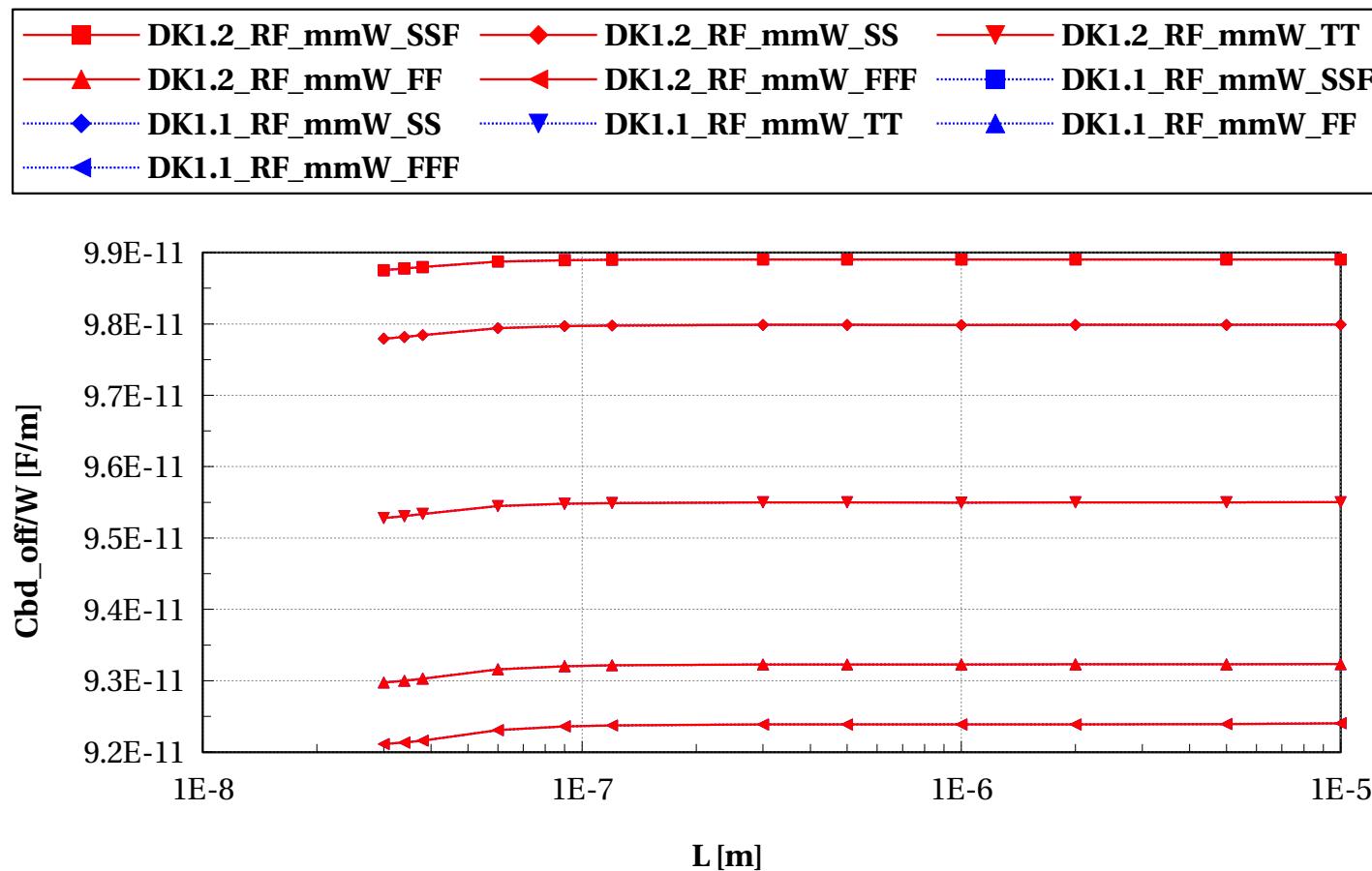
lvtpfet_acc, cggmean/W/L [F/m²] vs L [m]

w==0.3e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, C_{bd_off}/W [F/m] vs L [m]

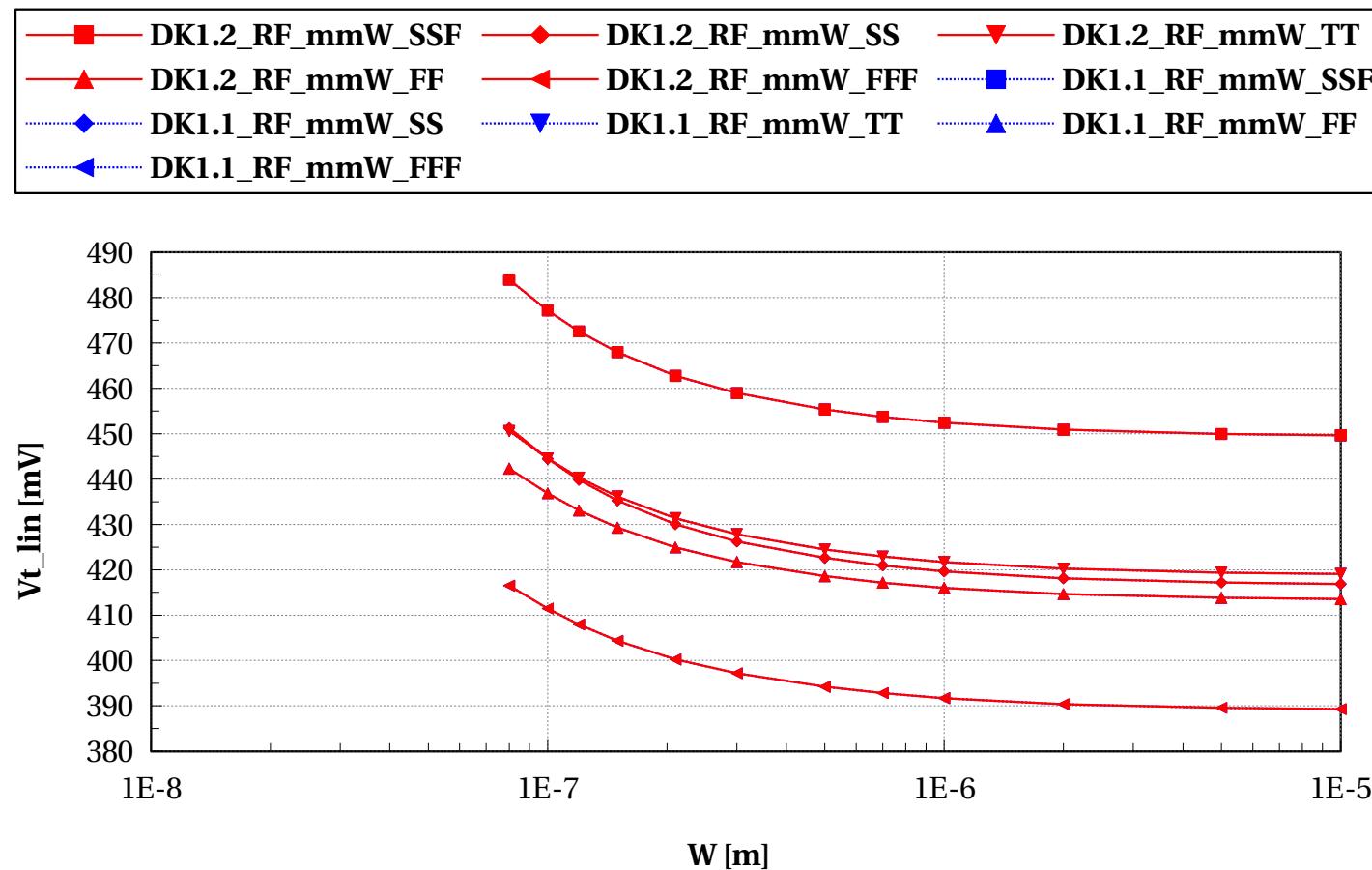
$w==0.3e-6$ and $Temp==25$ and $V_{bs}==1$ and $p_{la}==0$ and $devType=="PCELLwoWPE"$



Scaling versus Width (L=1um)

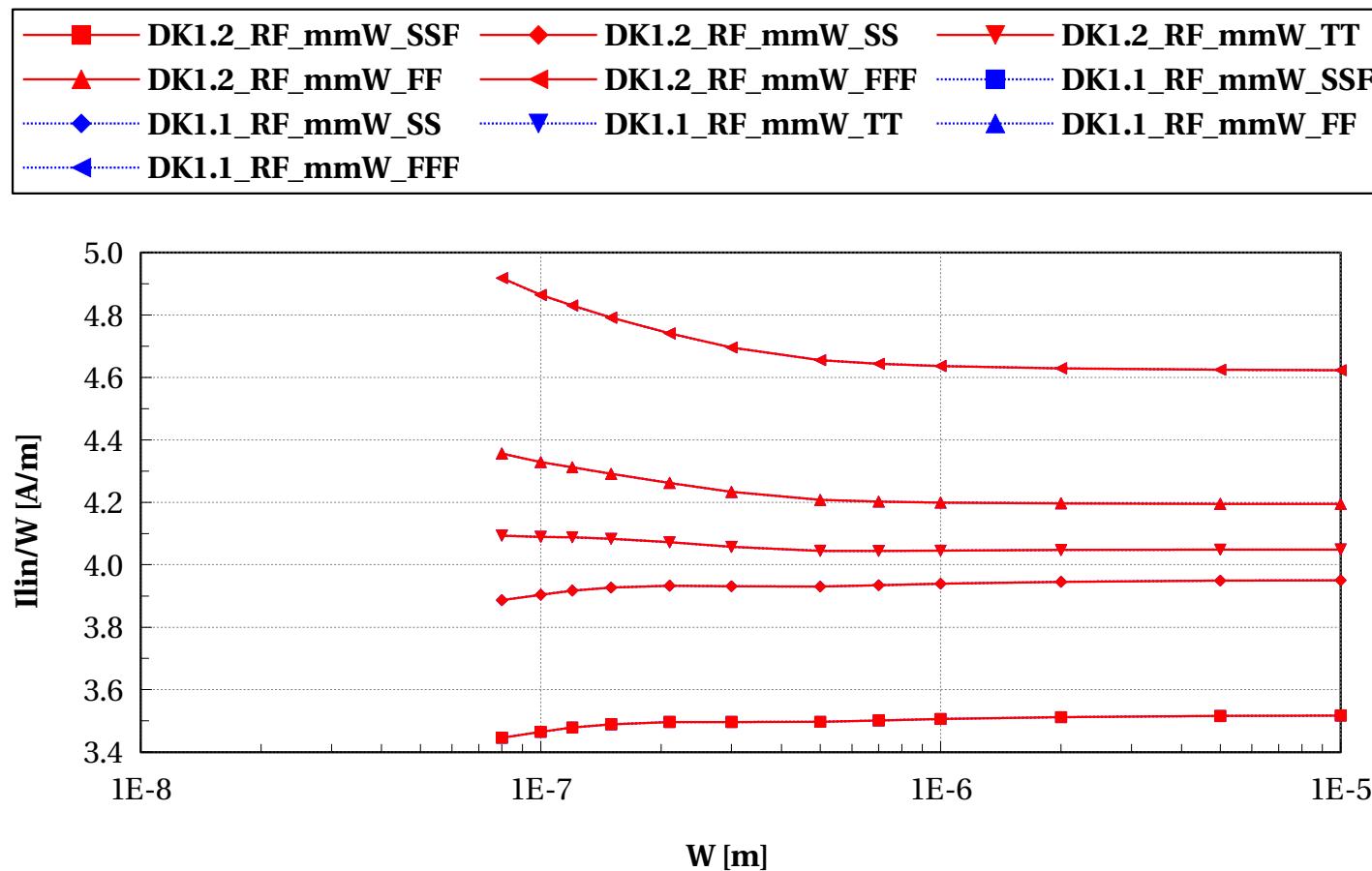
lvtpfet_acc, Vt_lin [mV] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



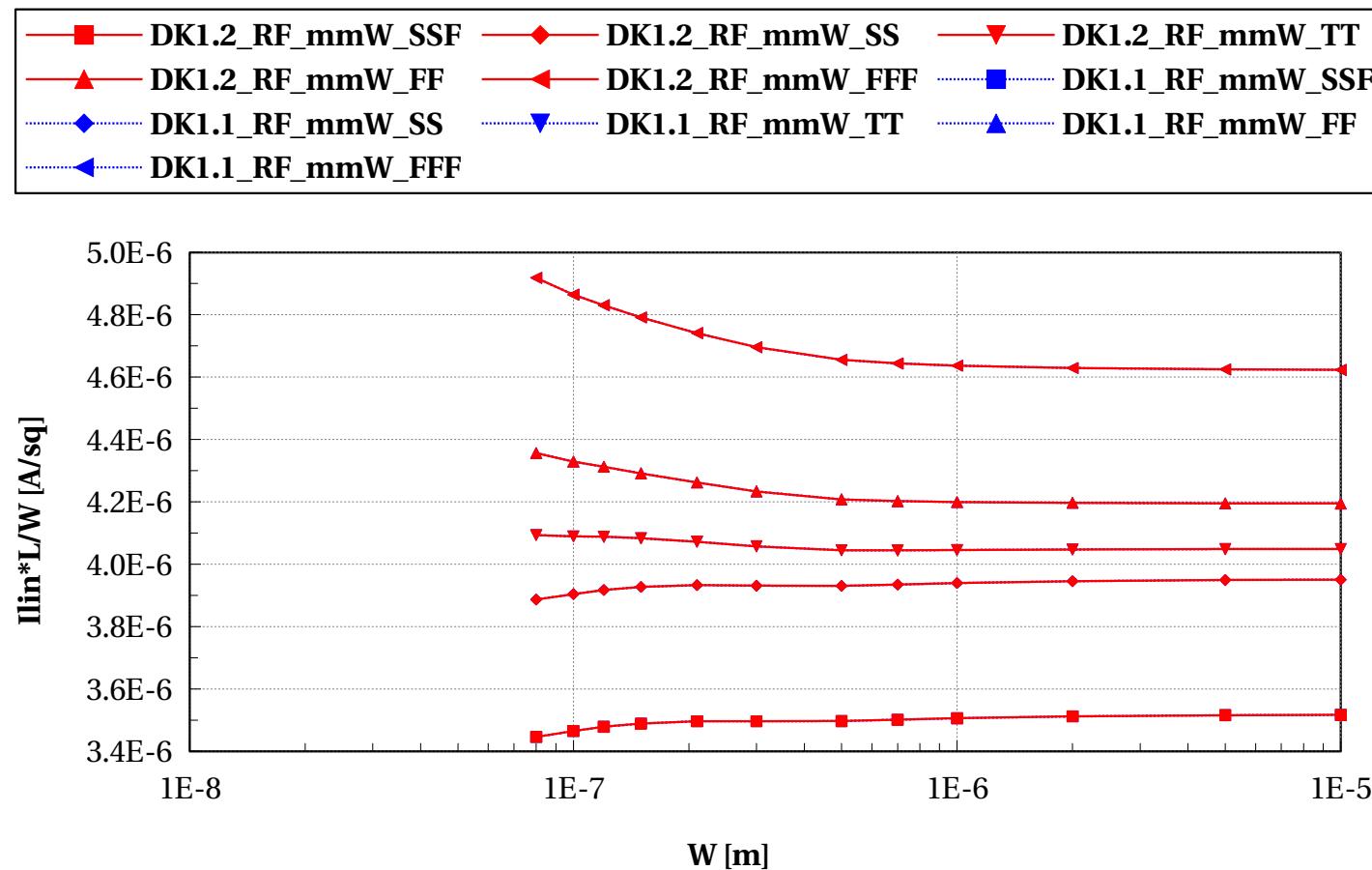
lvtpfet_acc, Ilin/W [A/m] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



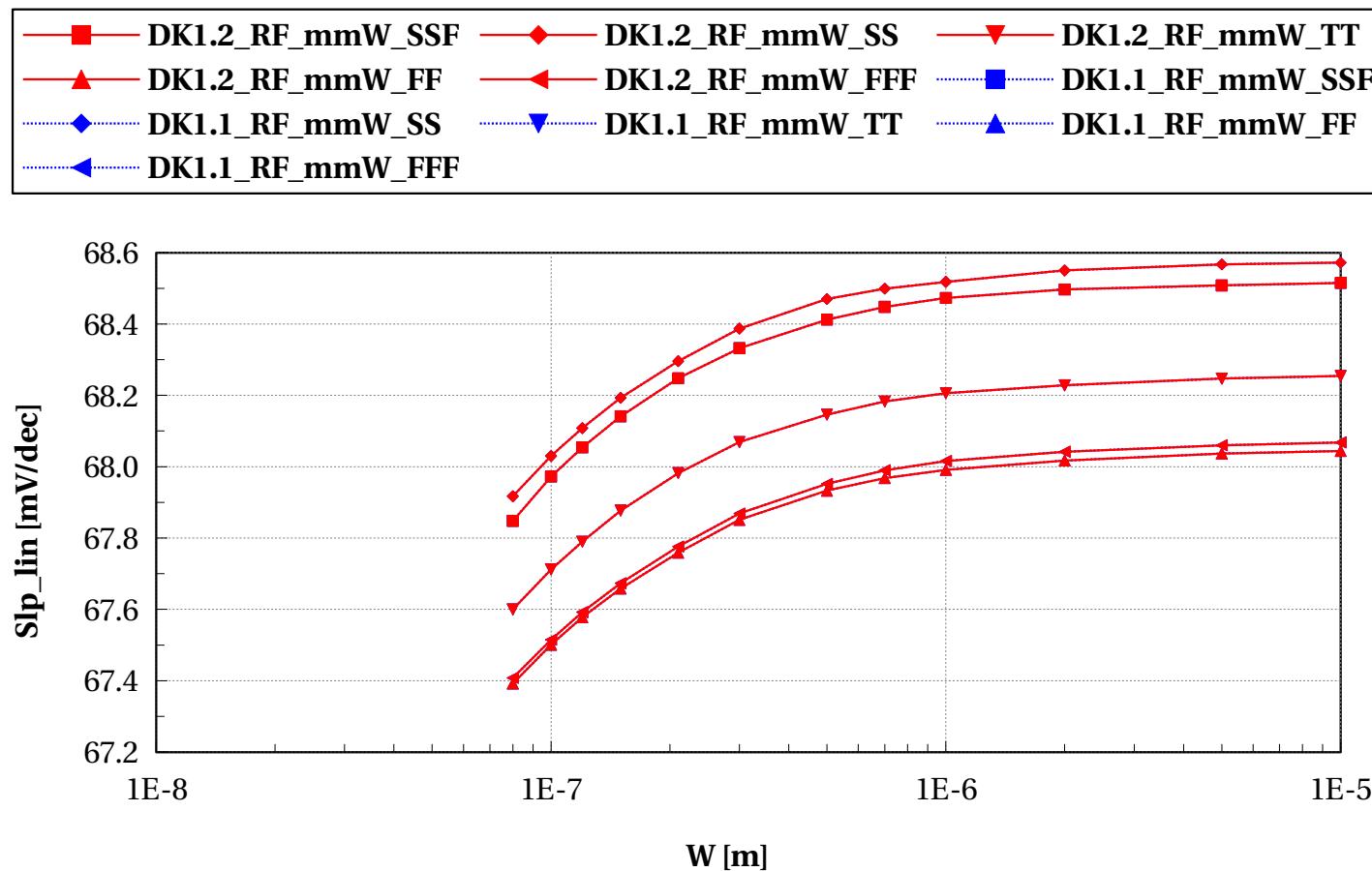
lvtpfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs W [m]

$I=1e-6$ and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



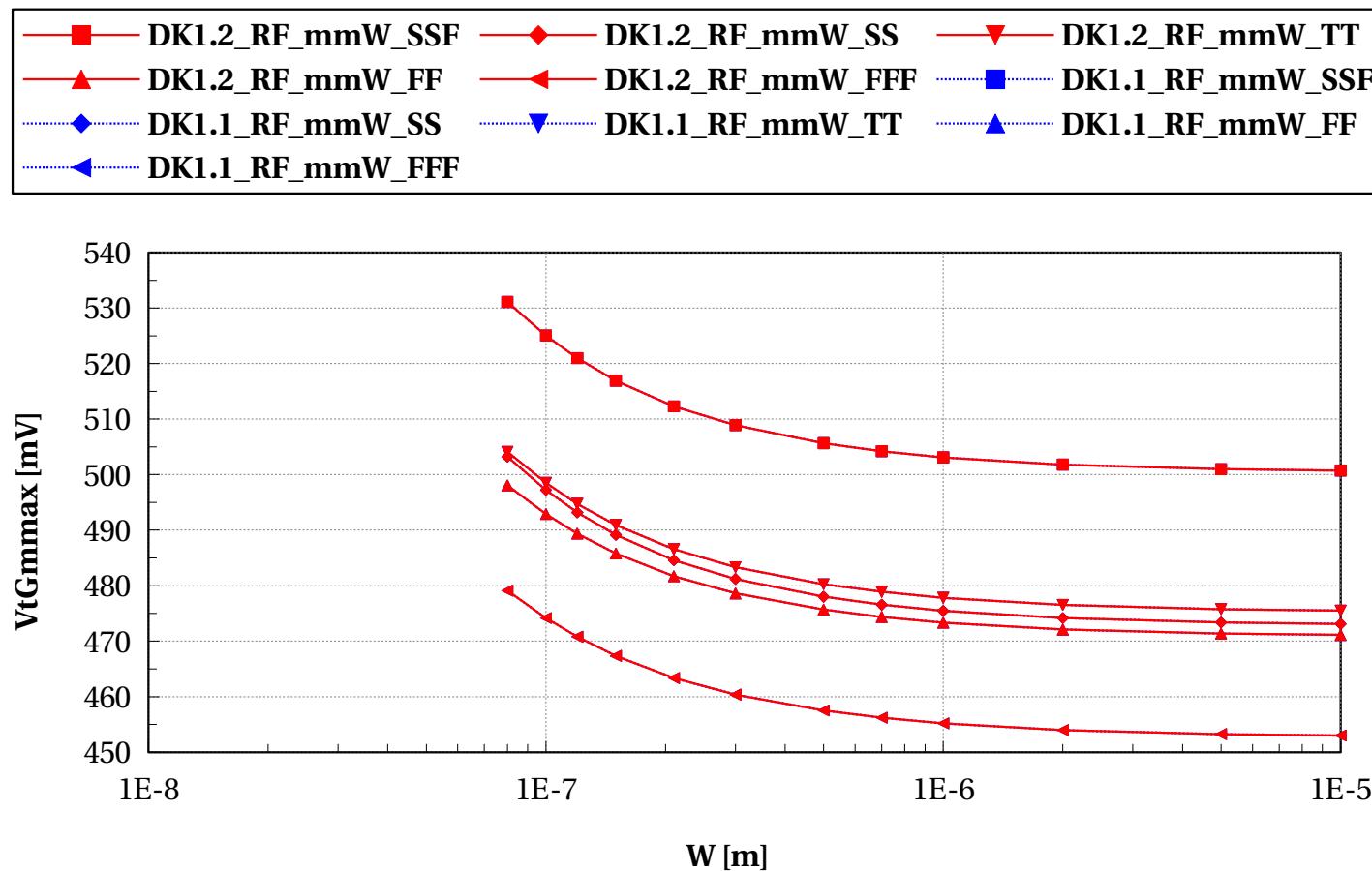
lvtpfet_acc, Slp_lin [mV/dec] vs W [m]

l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



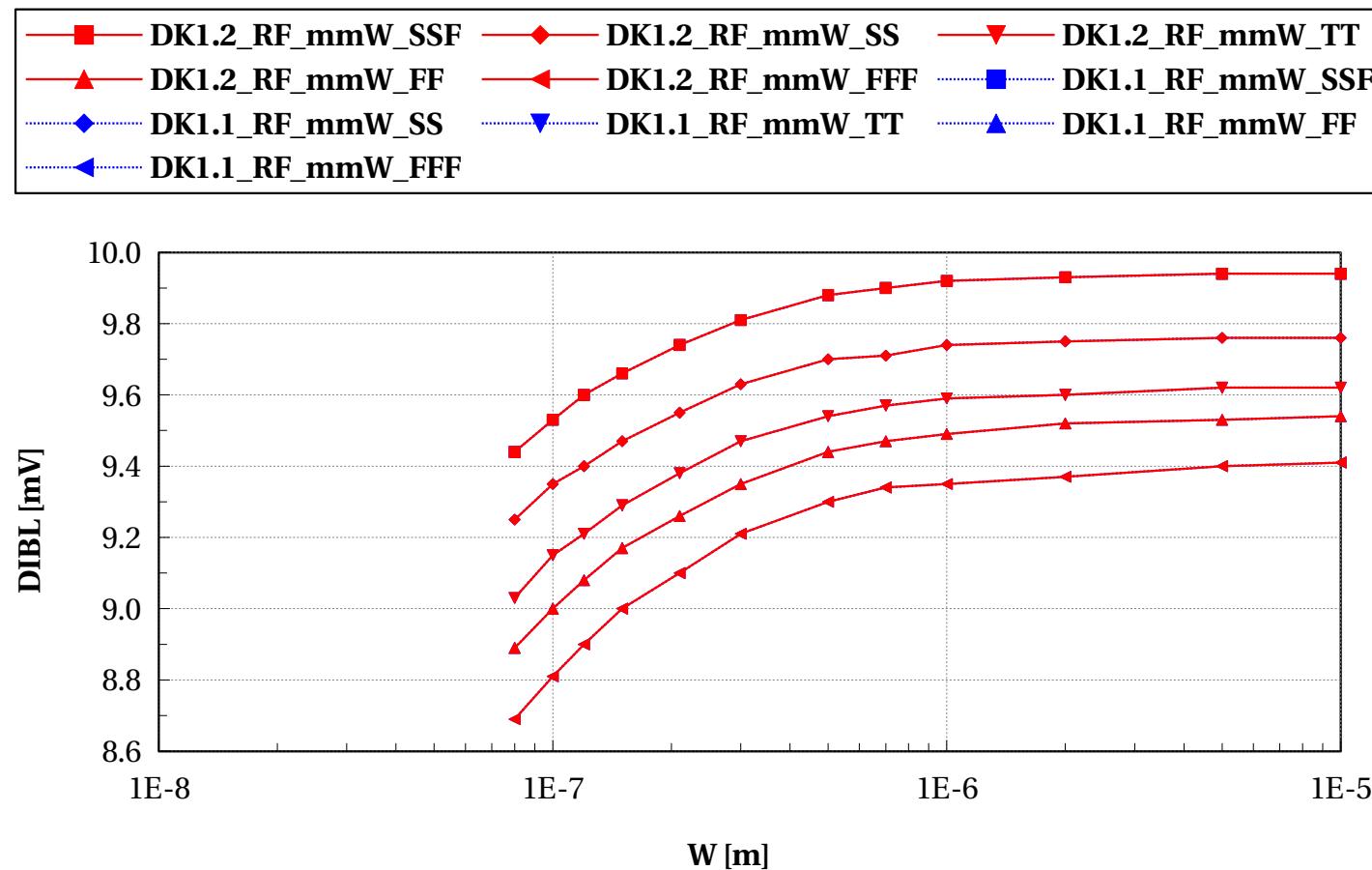
lvtpfet_acc, VtGmmax [mV] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



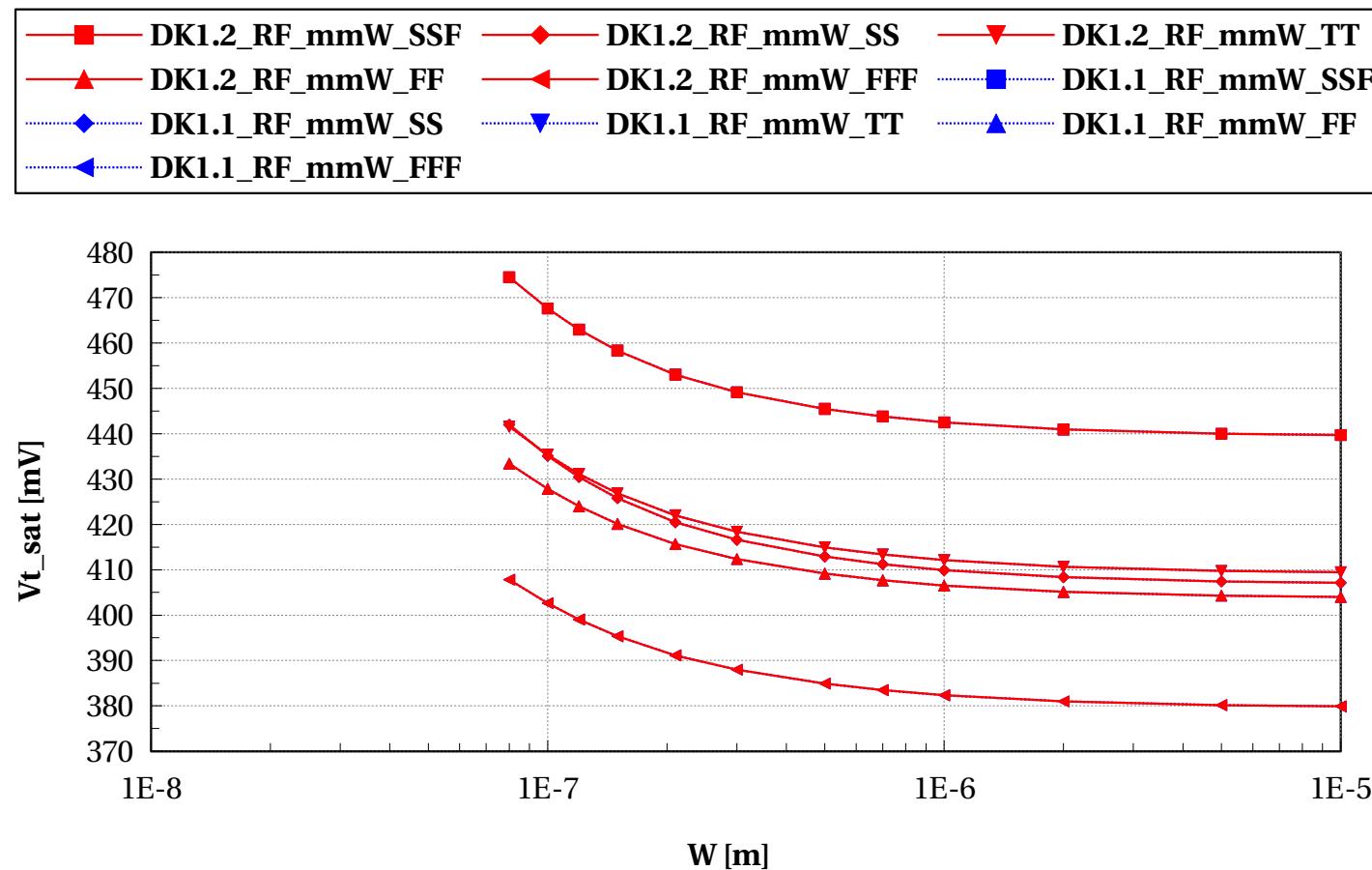
lvtpfet_acc, DIBL [mV] vs W [m]

l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



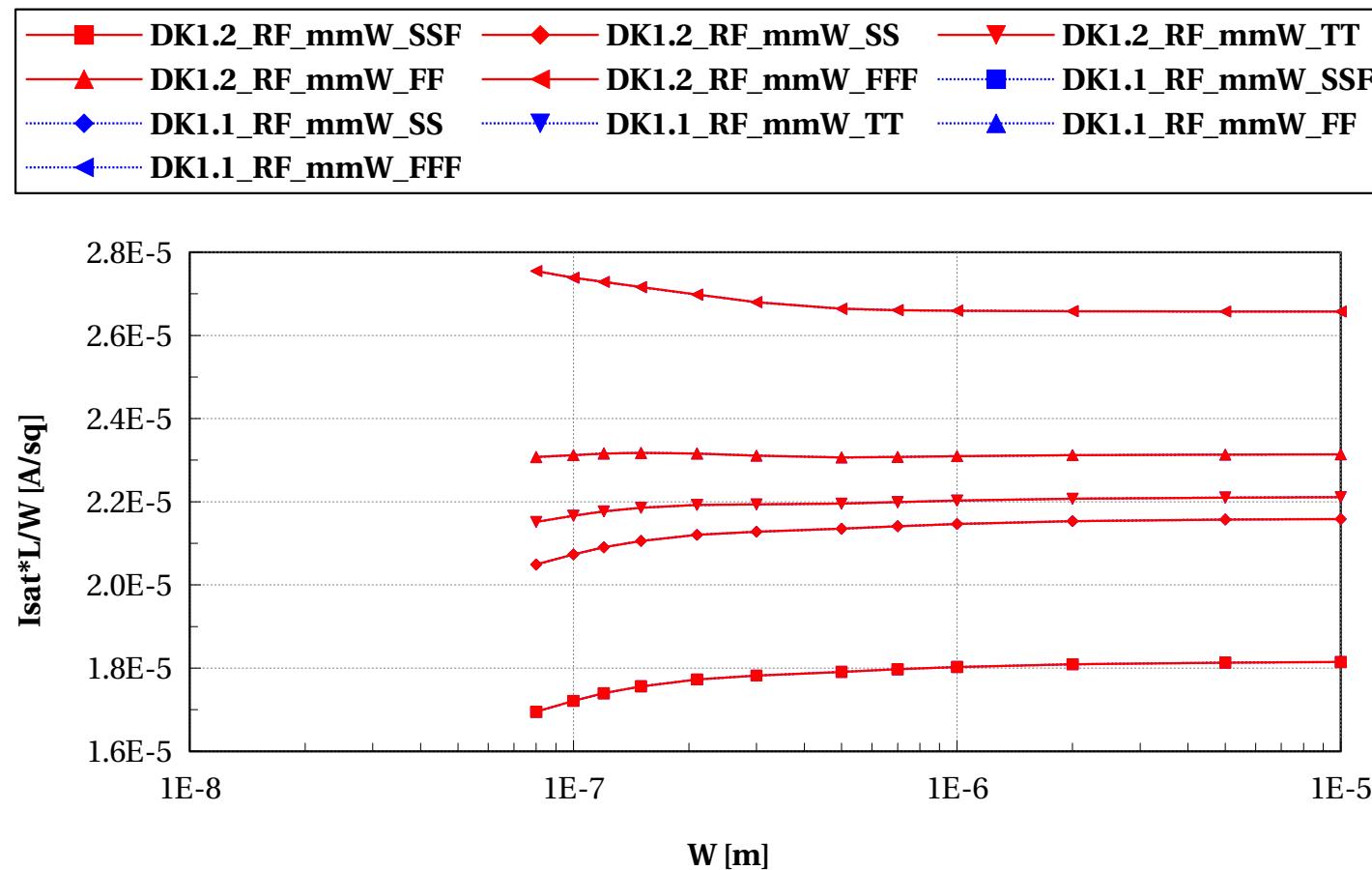
lvtpfet_acc, Vt_sat [mV] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



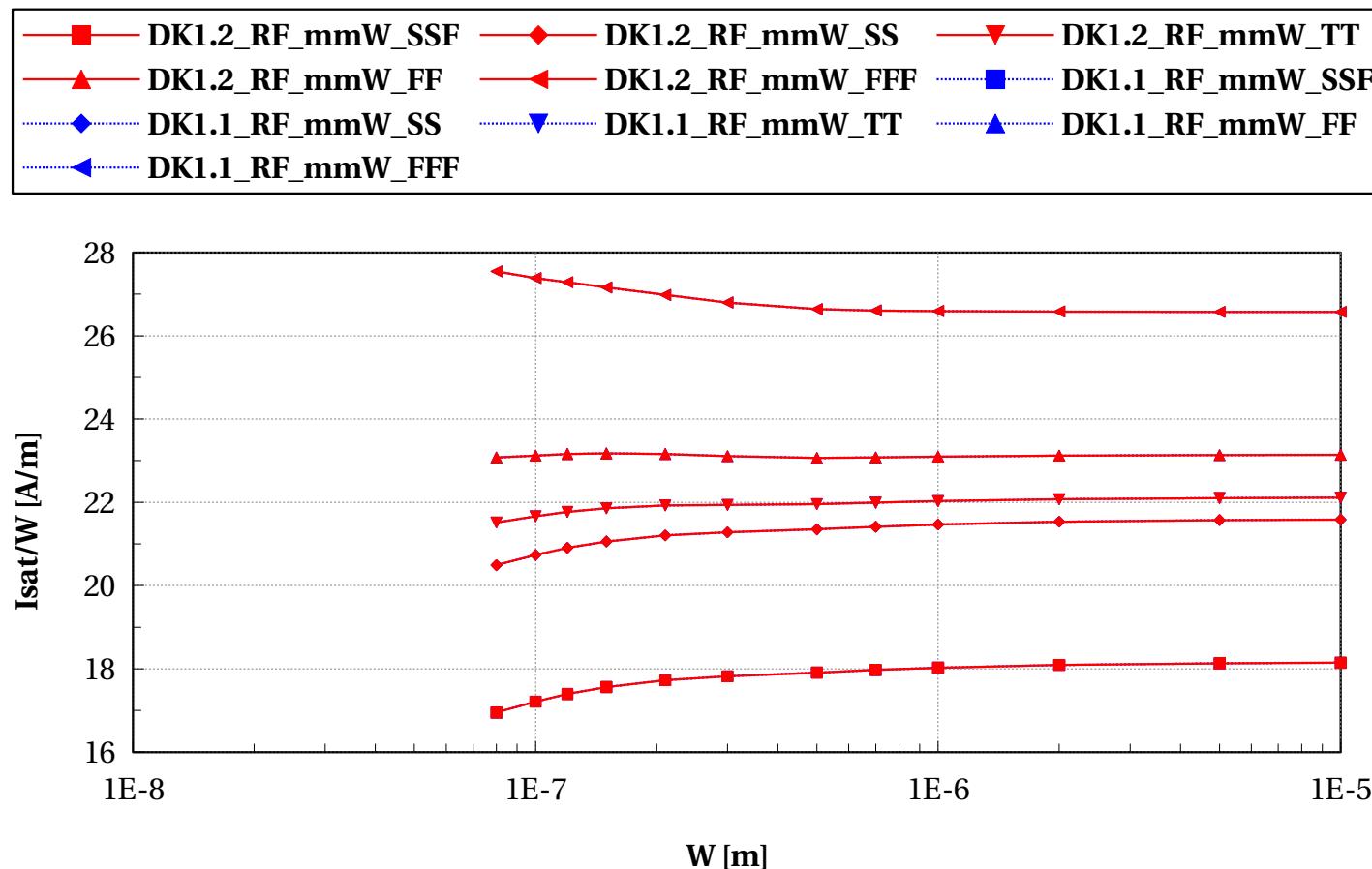
lvtpfet_acc, $I_{sat} \cdot L/W$ [A/sq] vs W [m]

$I = 1e-6$ and $Temp = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $devType = "PCELLwoWPE"$



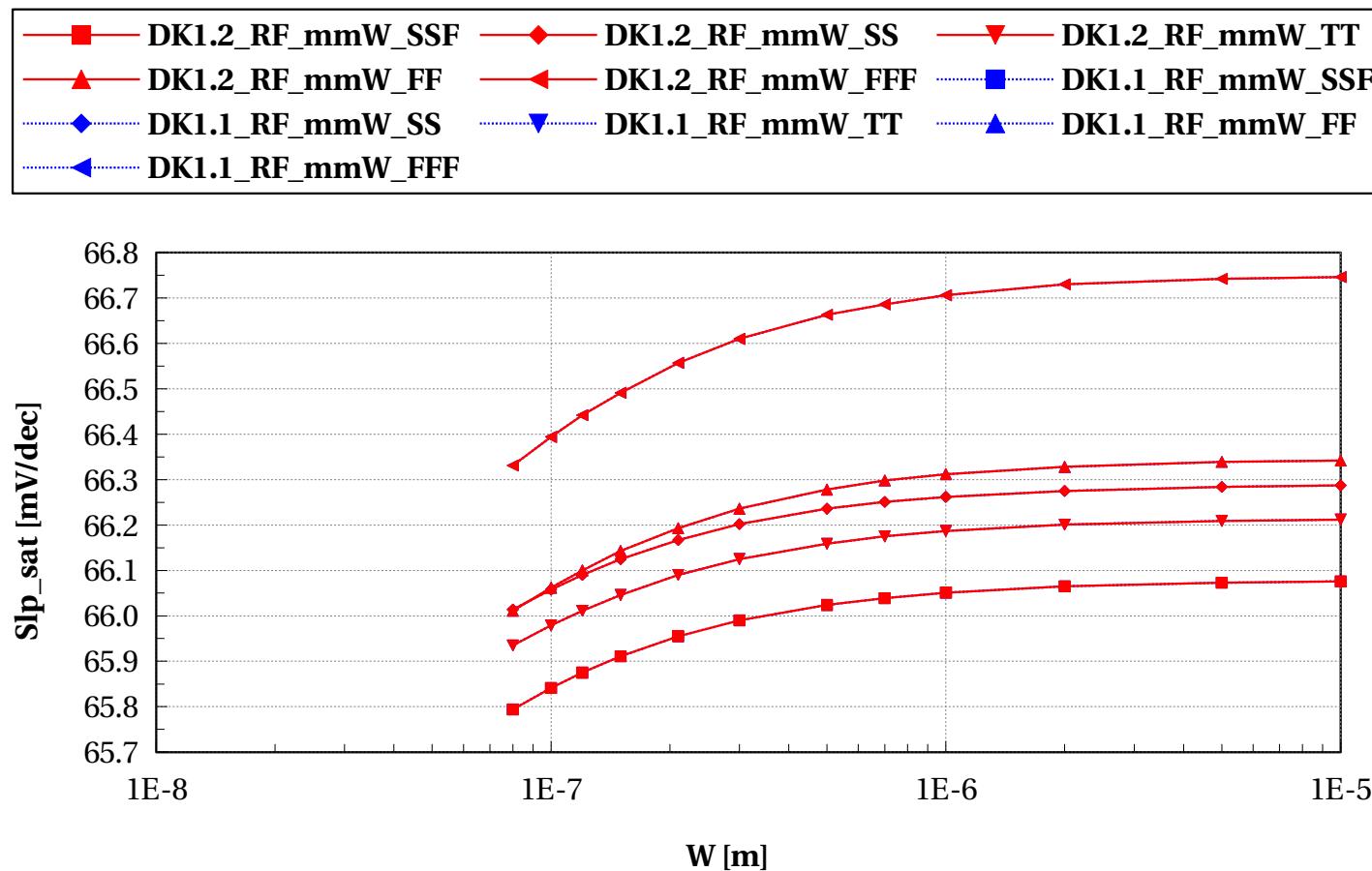
lvtpfet_acc, Isat/W [A/m] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



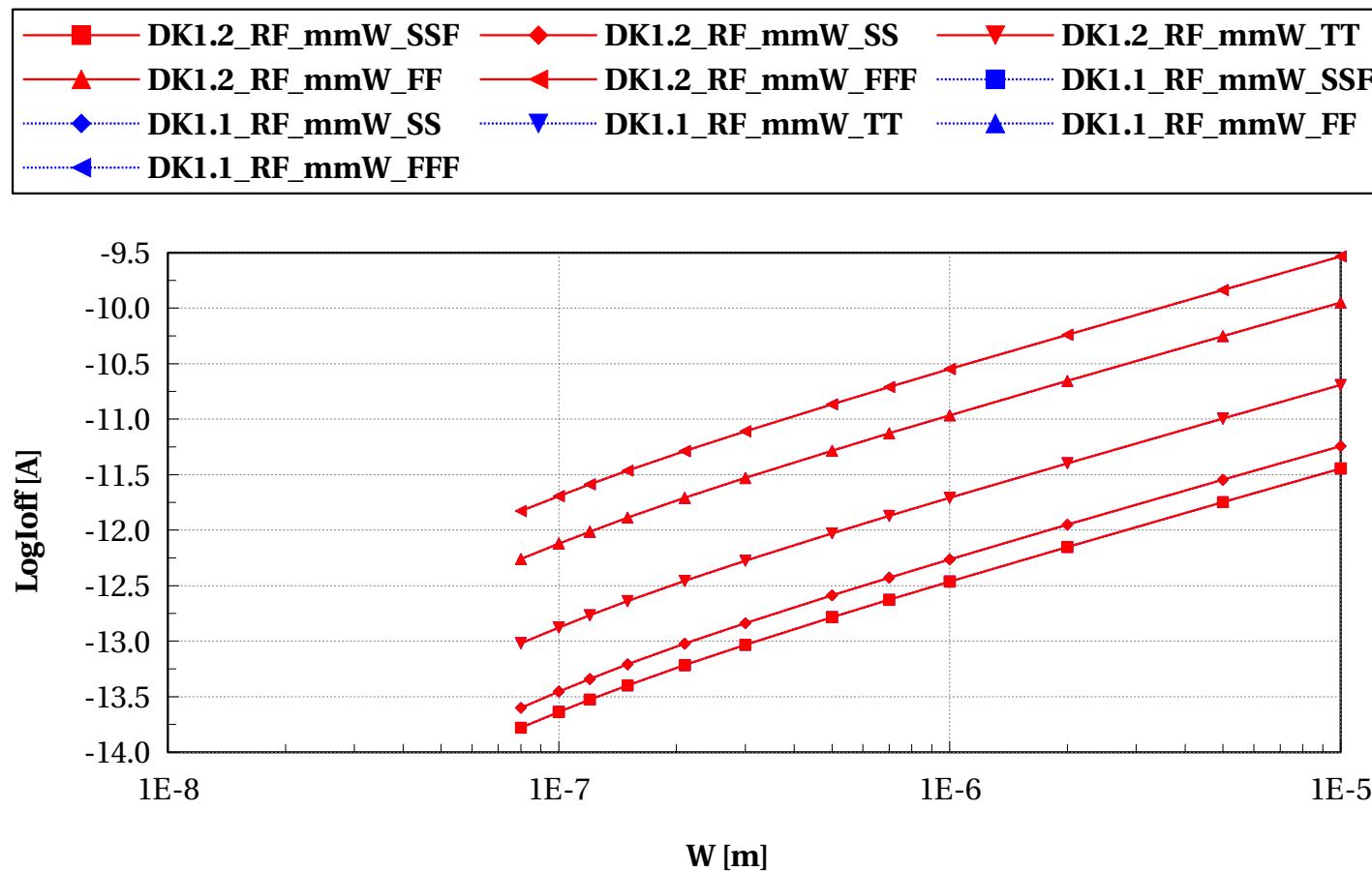
lvtpfet_acc, Slp_sat [mV/dec] vs W [m]

l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



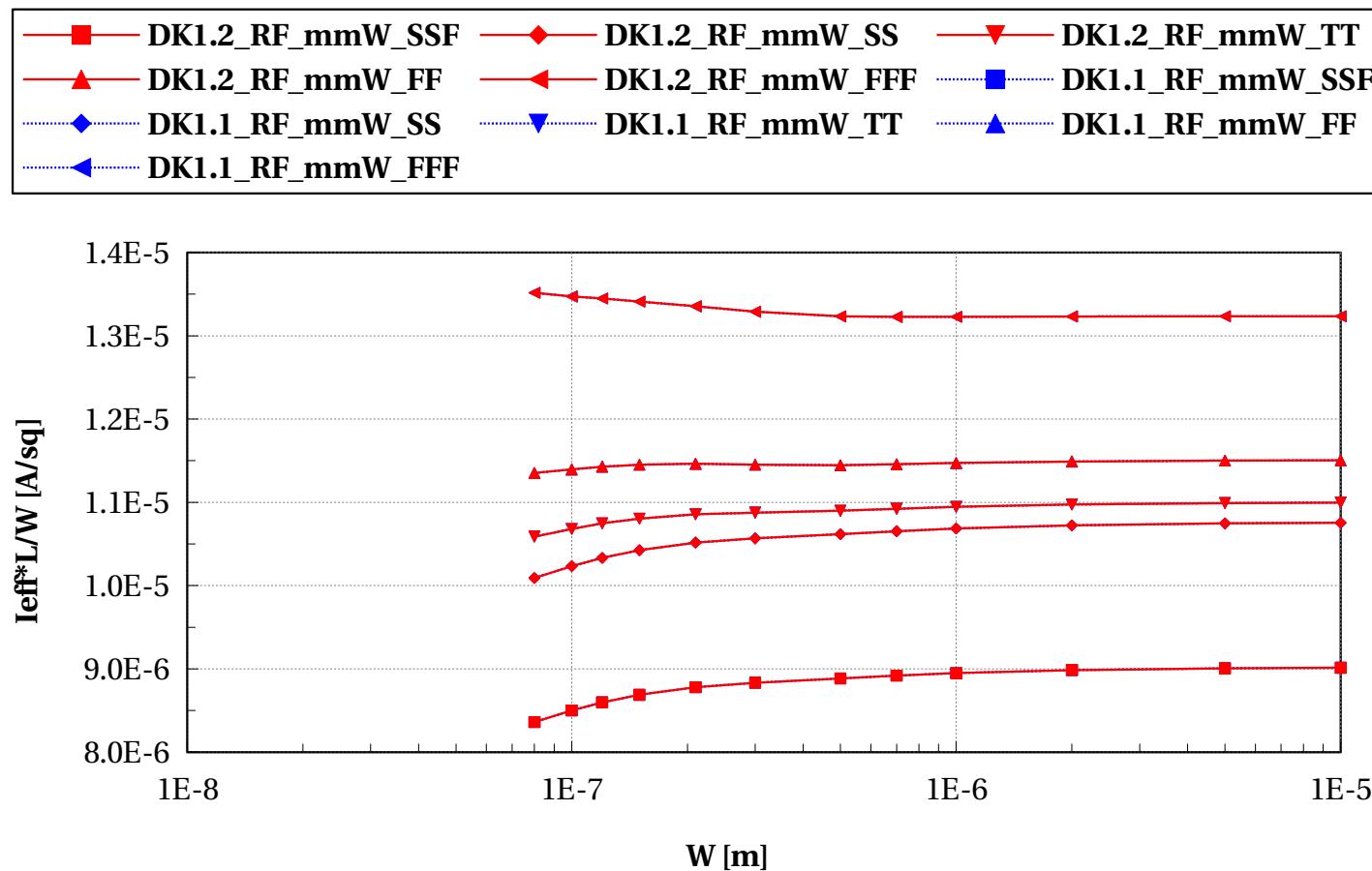
lvtpfet_acc, LogIoff [A] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



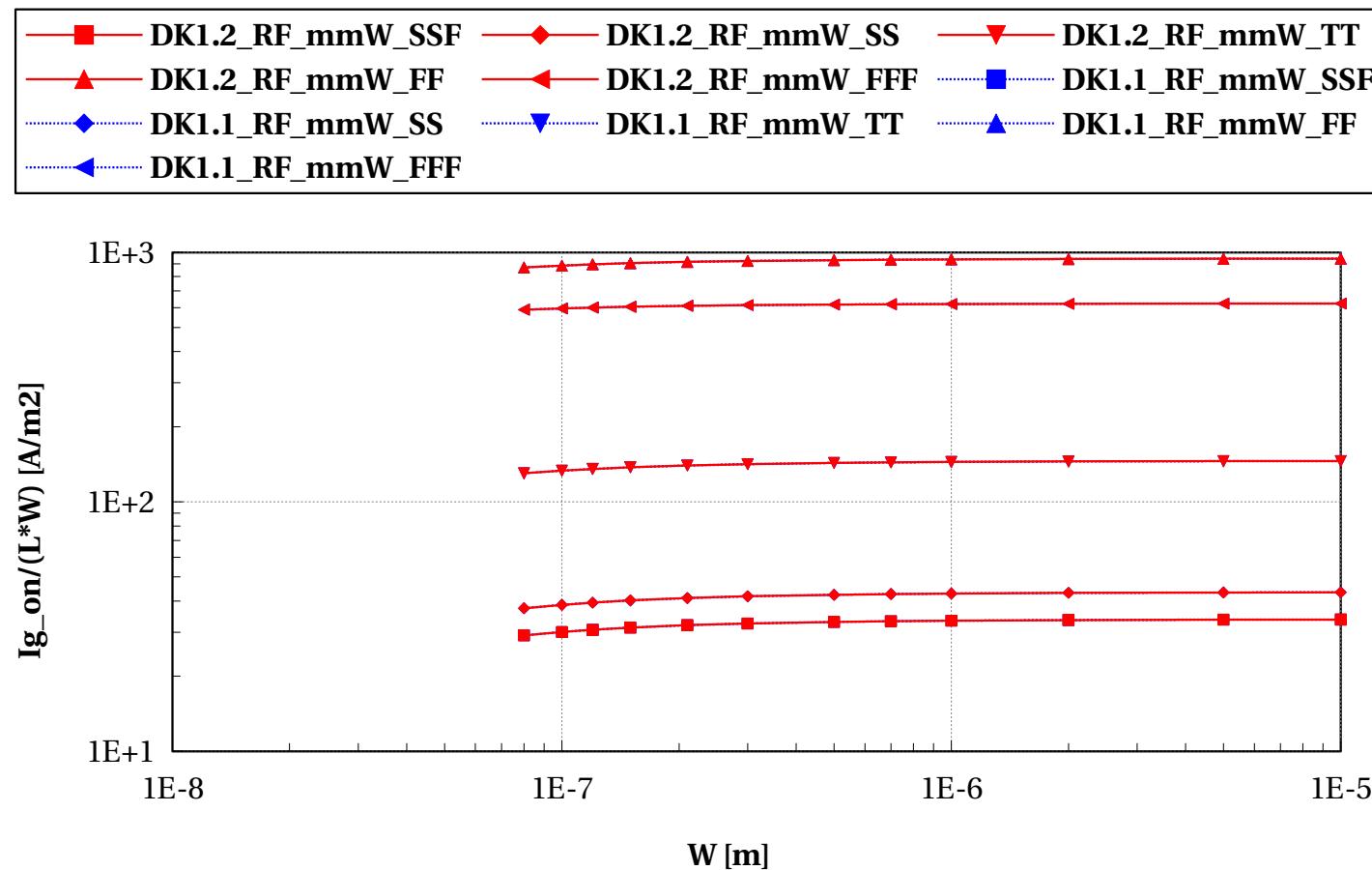
lvtpfet_acc, Ieff*L/W [A/sq] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



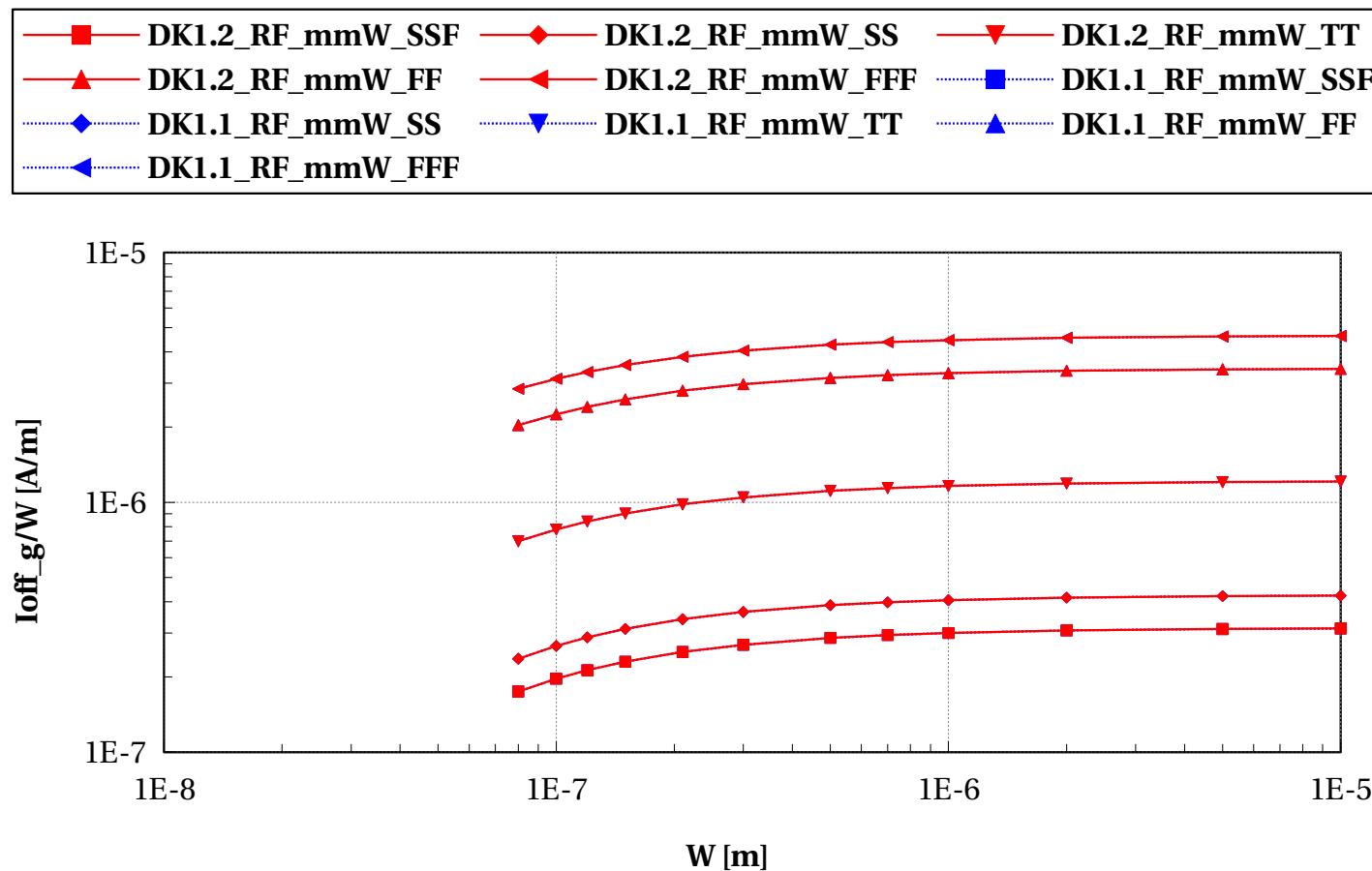
lvtpfet_acc, Ig_on/(L*W) [A/m²] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



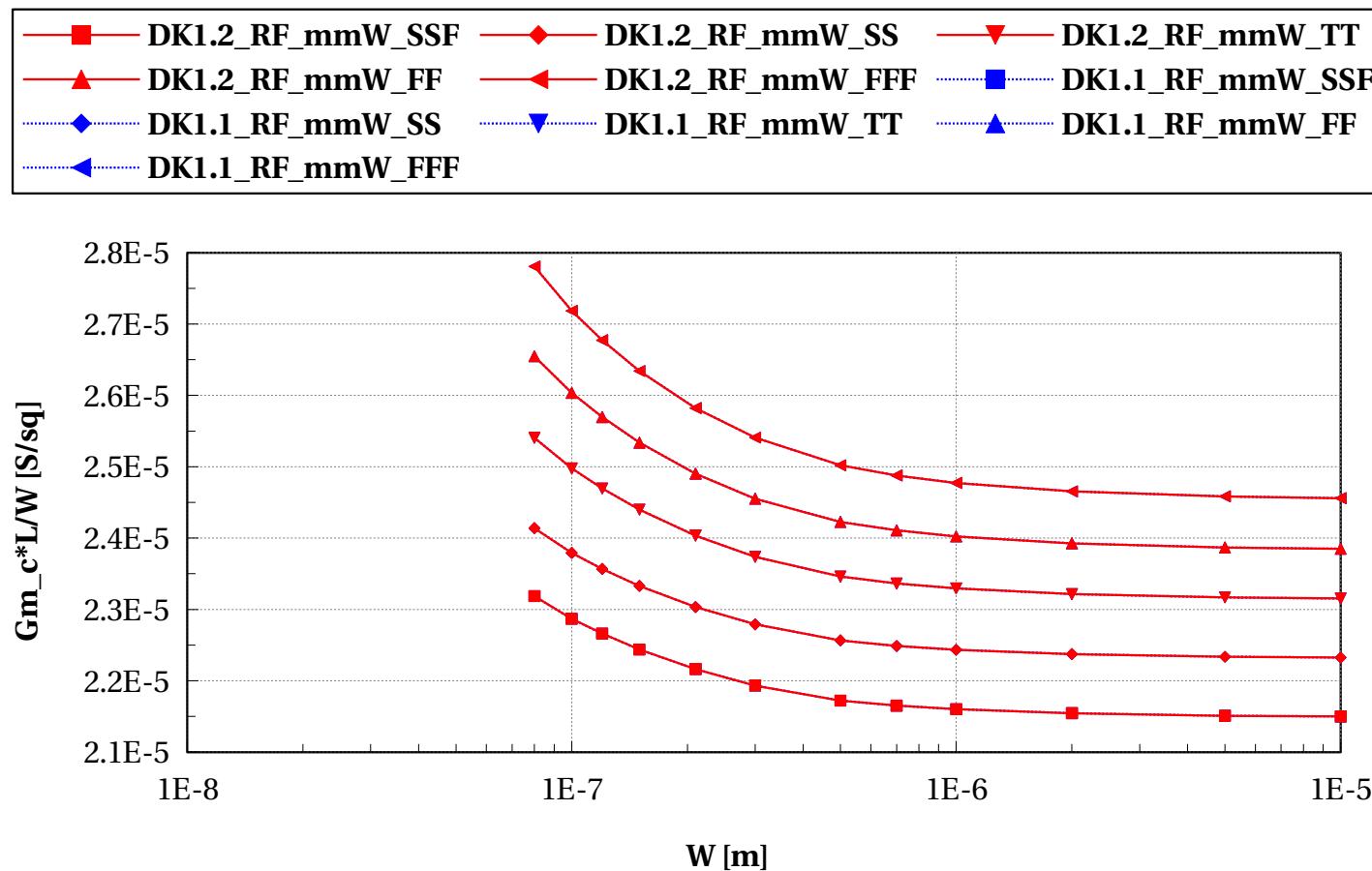
lvtpfet_acc, Ioff_g/W [A/m] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



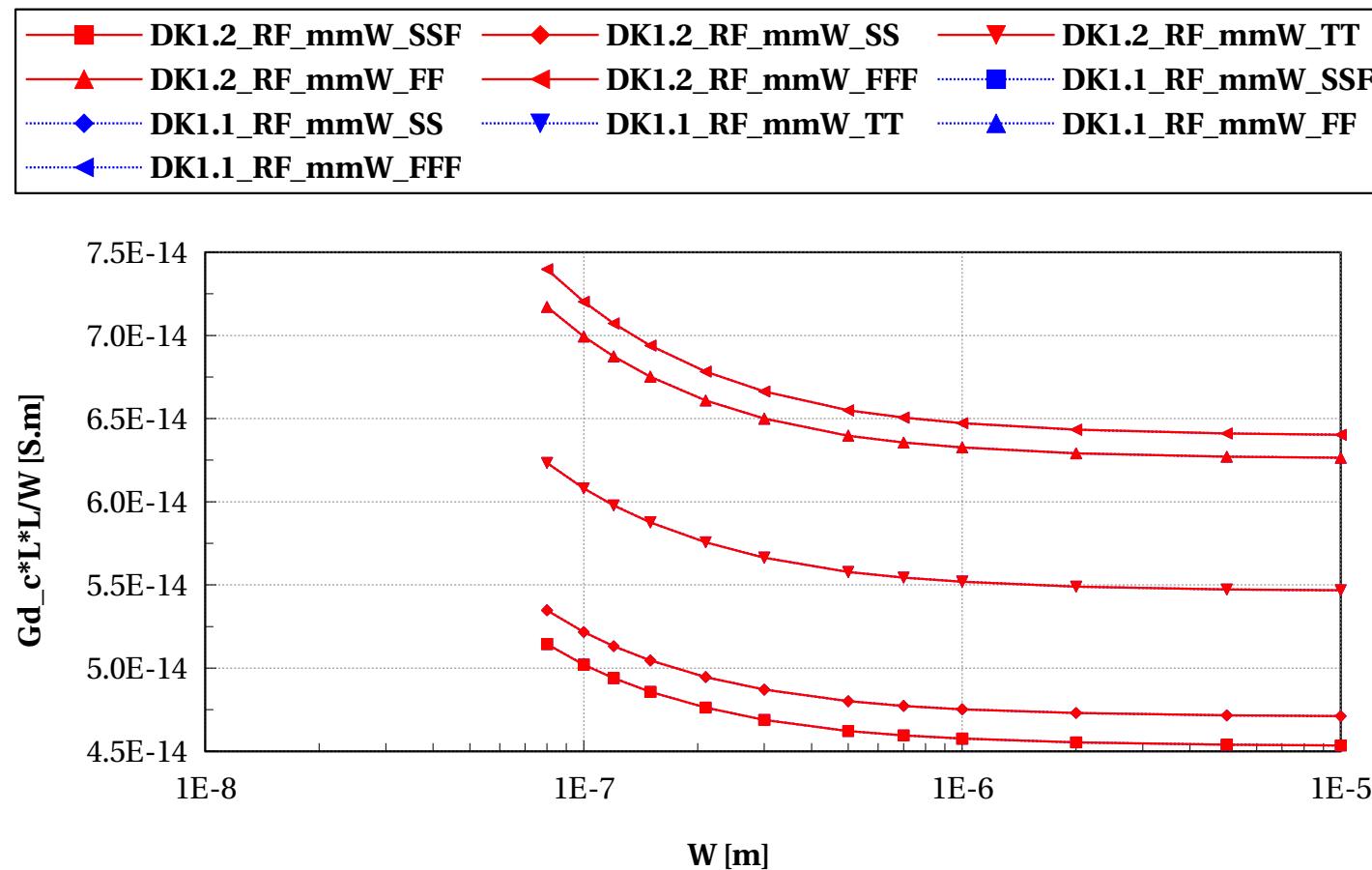
lvtpfet_acc, Gm_c*L/W [S/sq] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



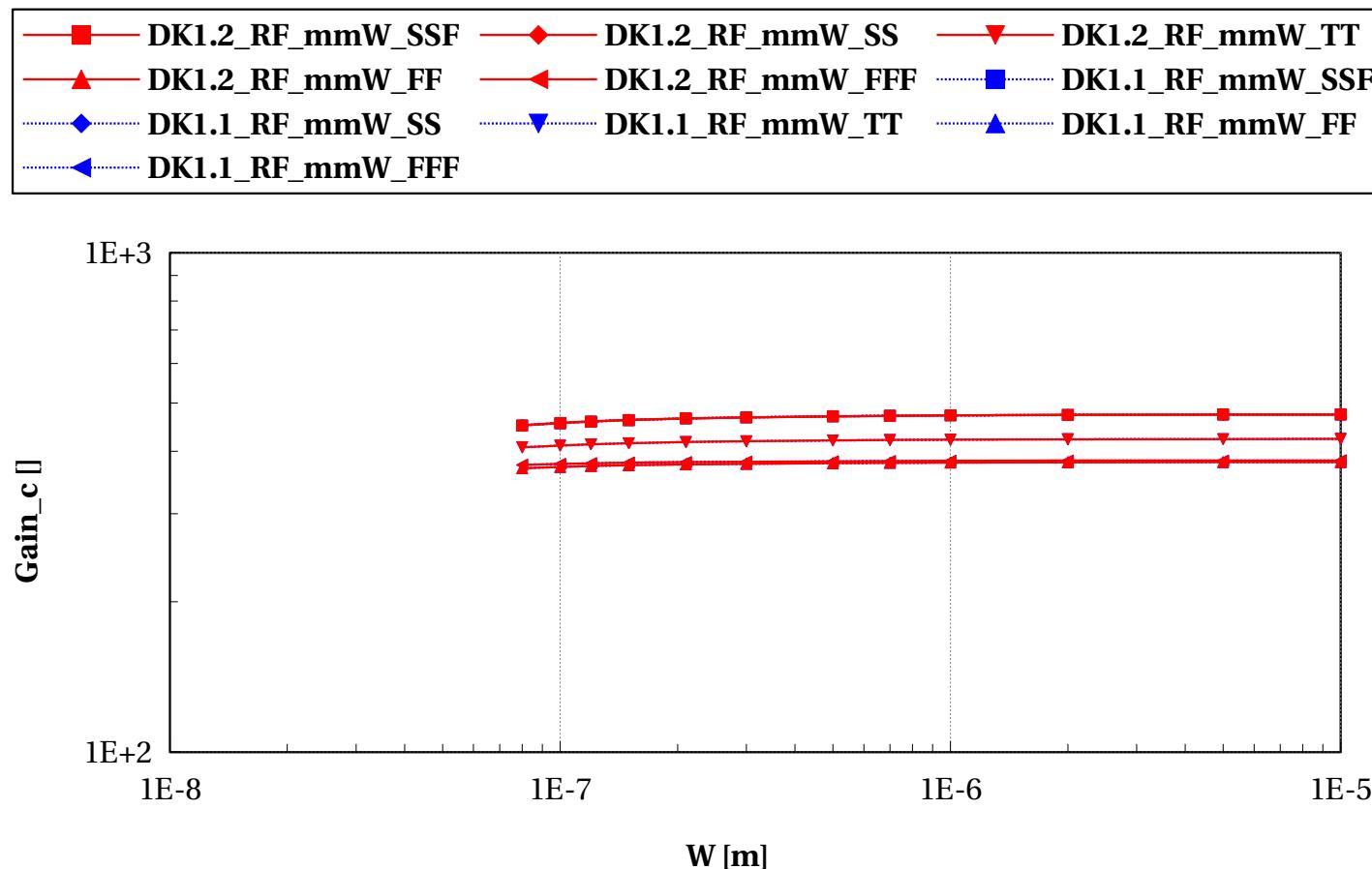
lvtpfet_acc, Gd_c*L*W [S.m] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



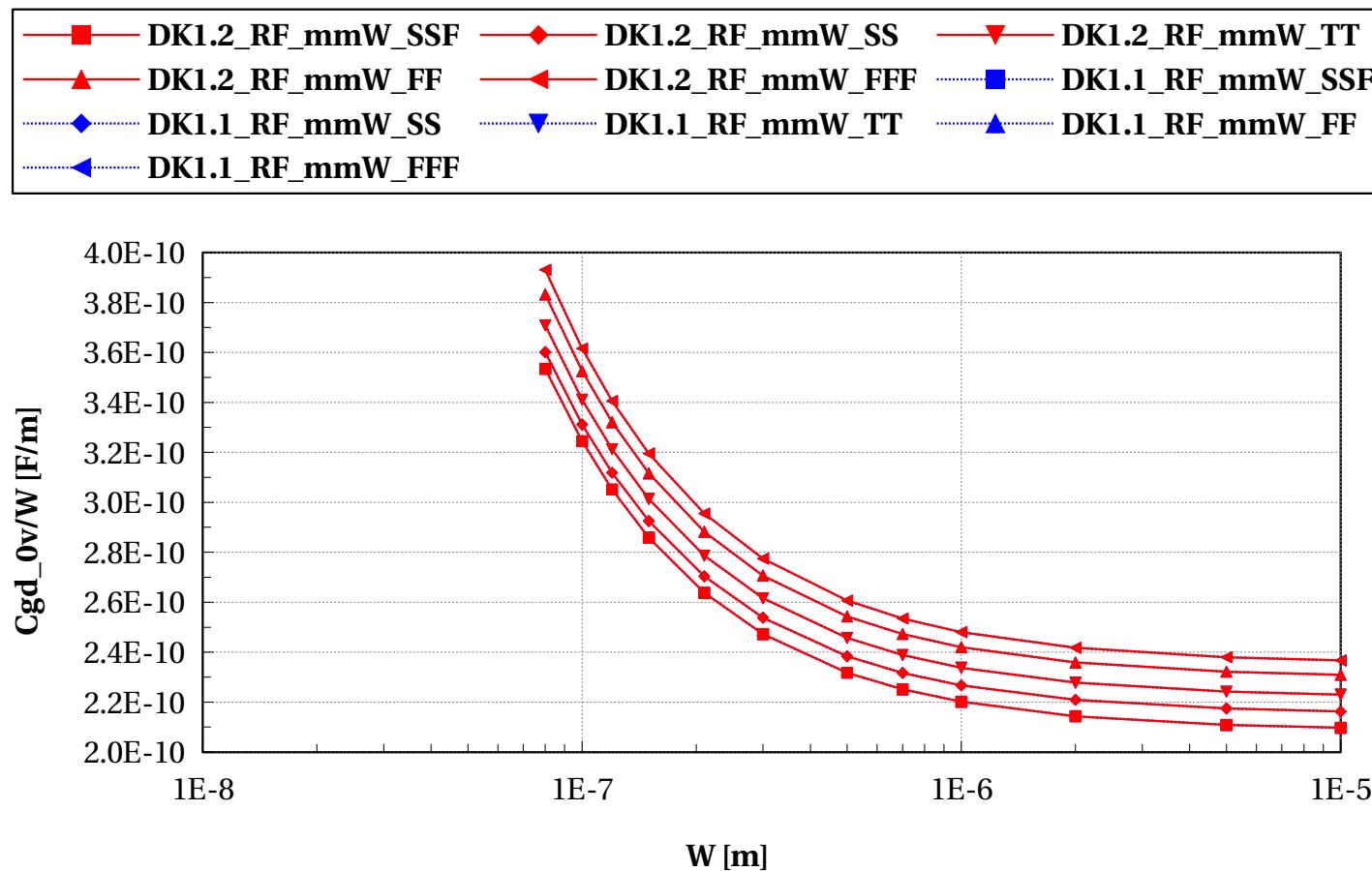
lvtpfet_acc, Gain_c [] vs W [m]

$I = 1e-6$ and $\text{Temp} = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



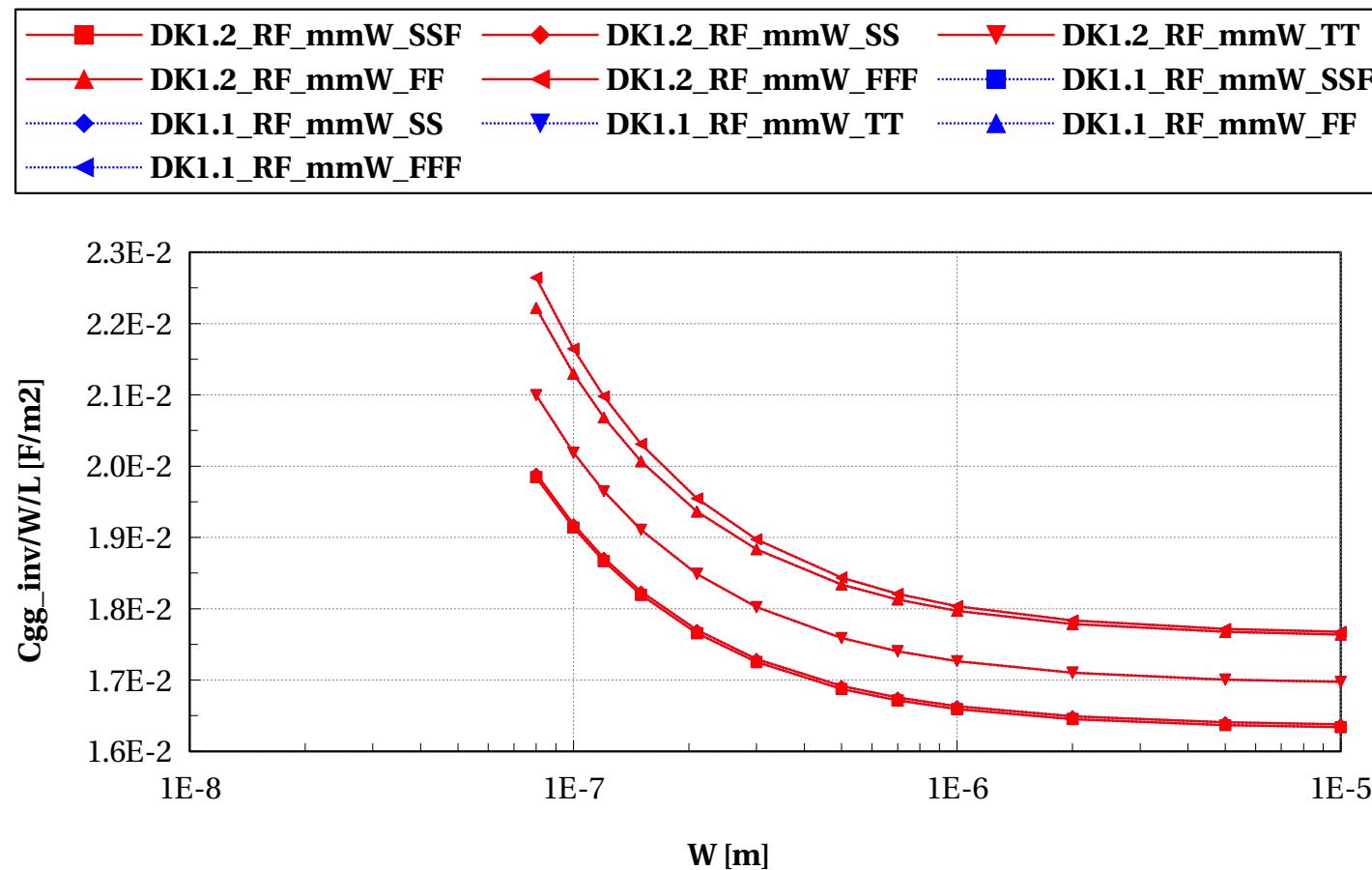
lvtpfet_acc, Cgd_0v/W [F/m] vs W [m]

l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



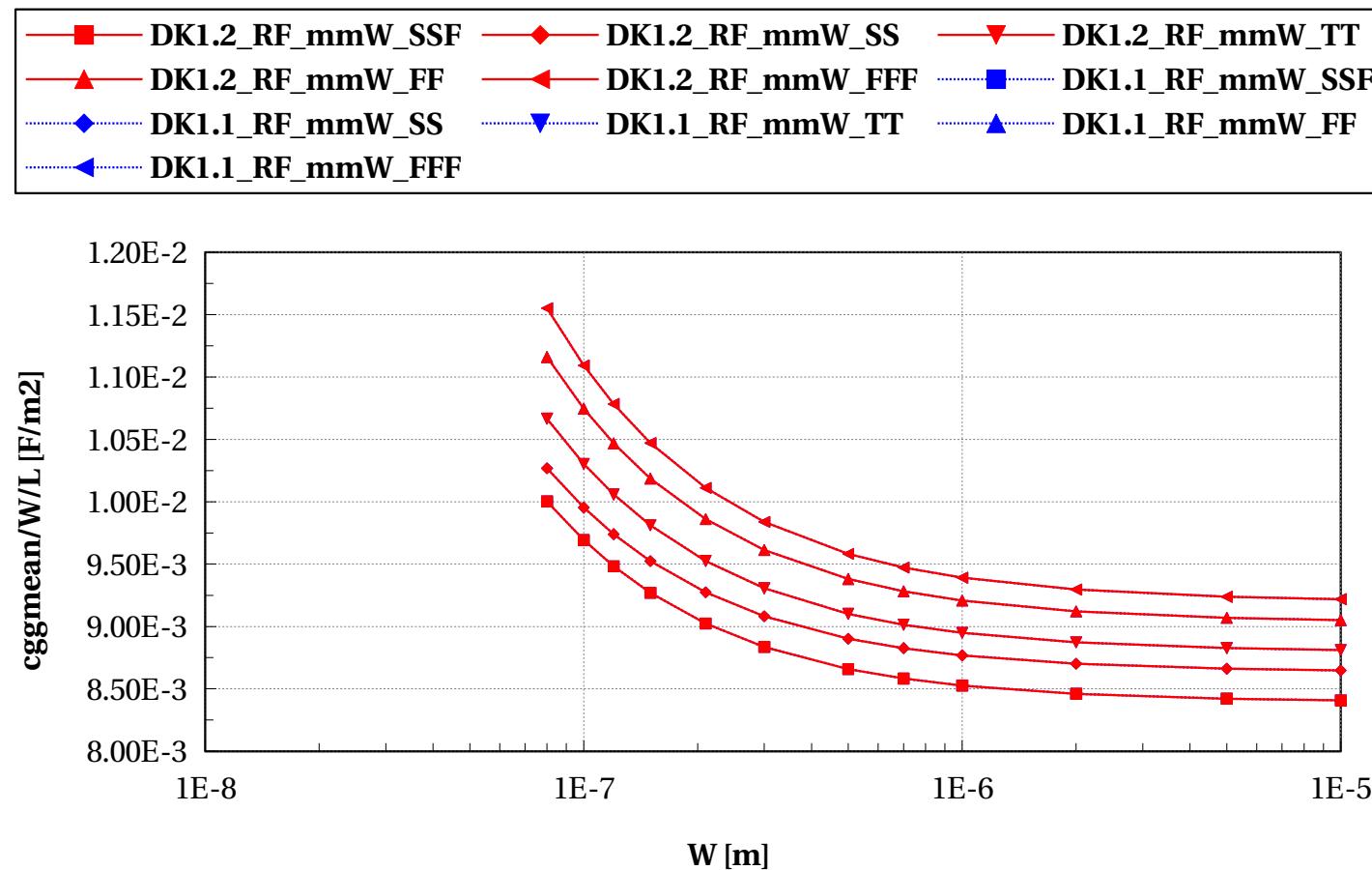
lvtpfet_acc, C_{gg}_inv/W/L [F/m²] vs W [m]

I==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



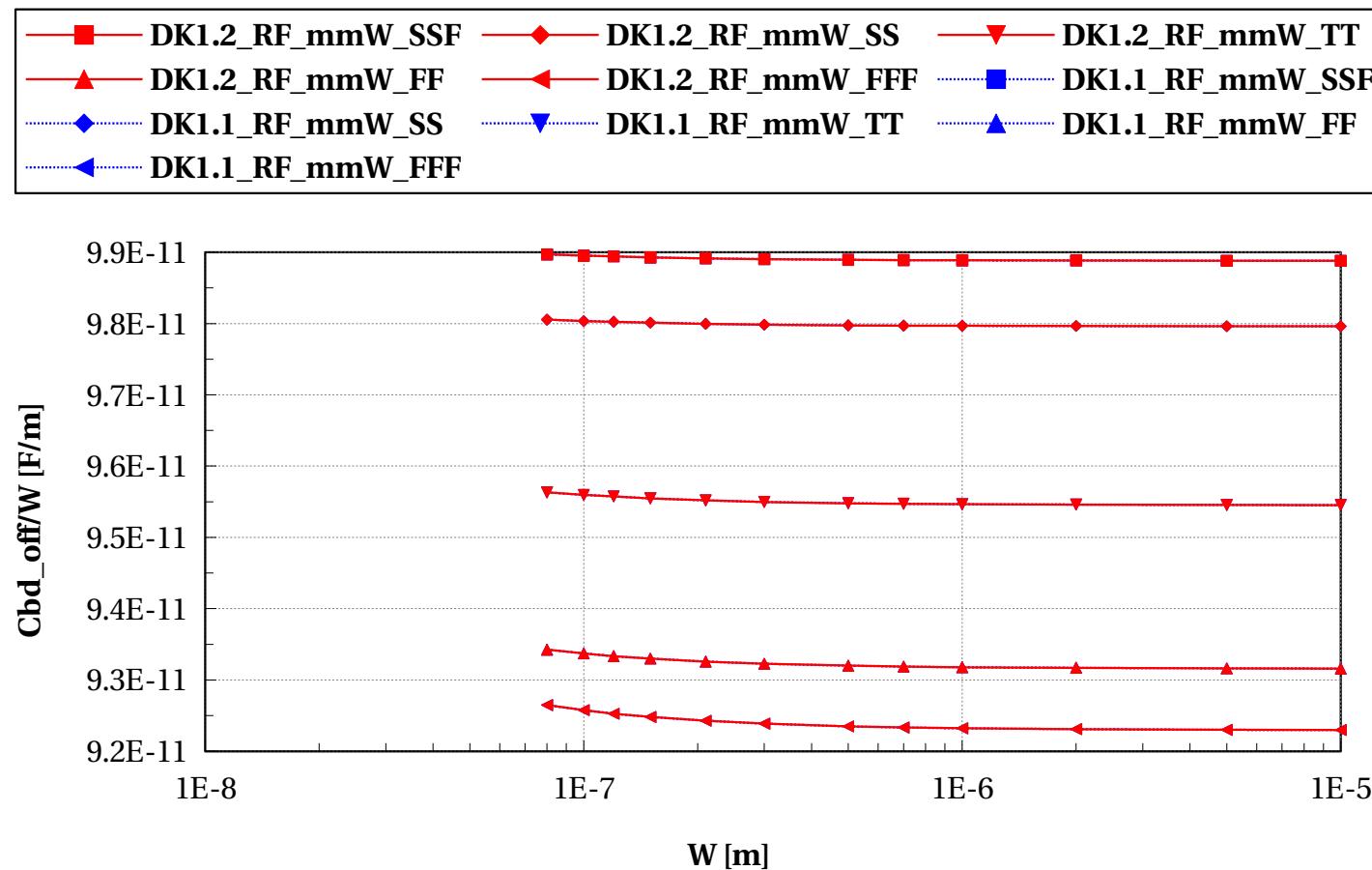
lvtpfet_acc, cgmean/W/L [F/m²] vs W [m]

l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, Cbd_off/W [F/m] vs W [m]

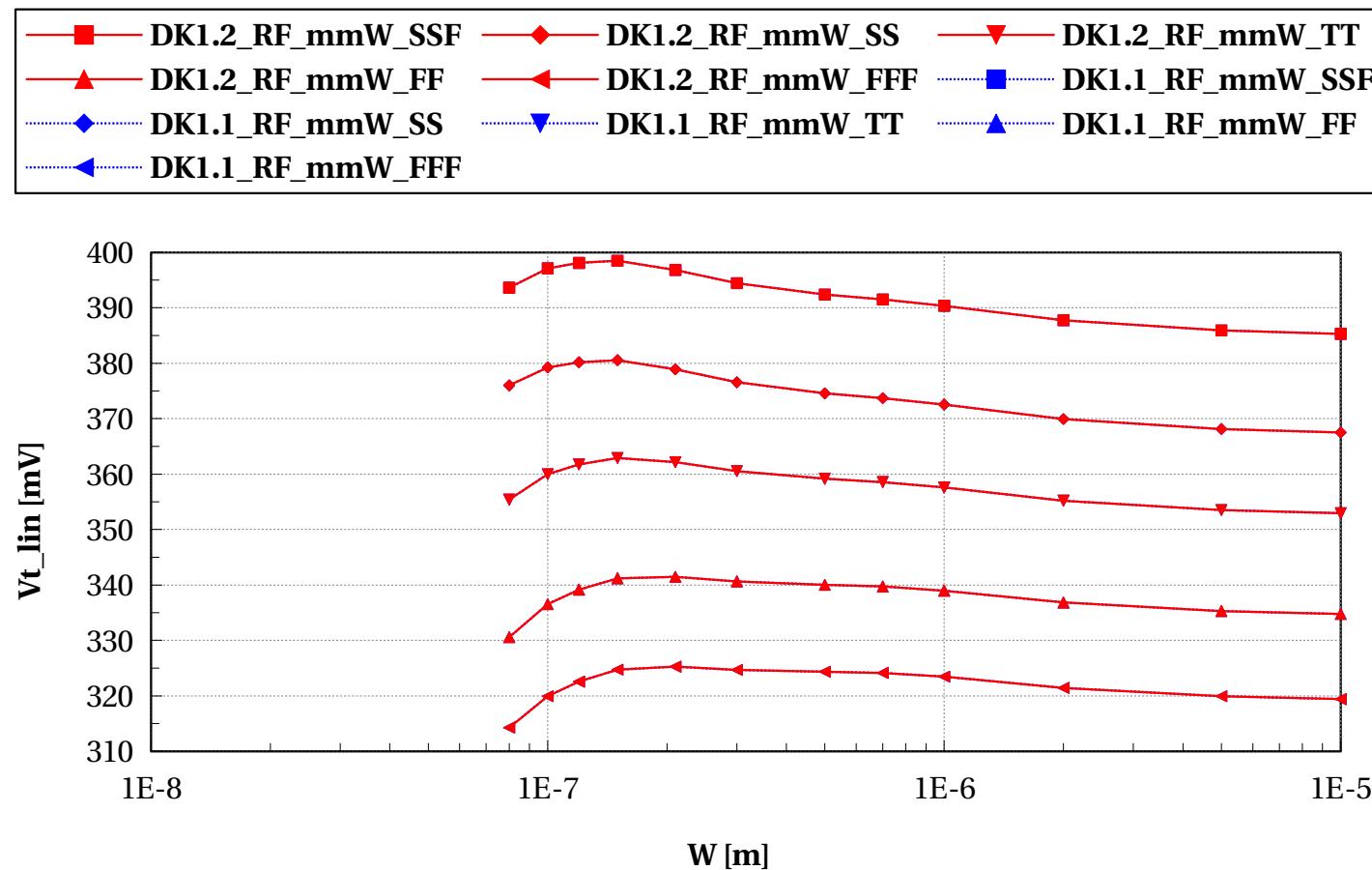
l==1e-6 and Temp==25 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Width (L=30nm)

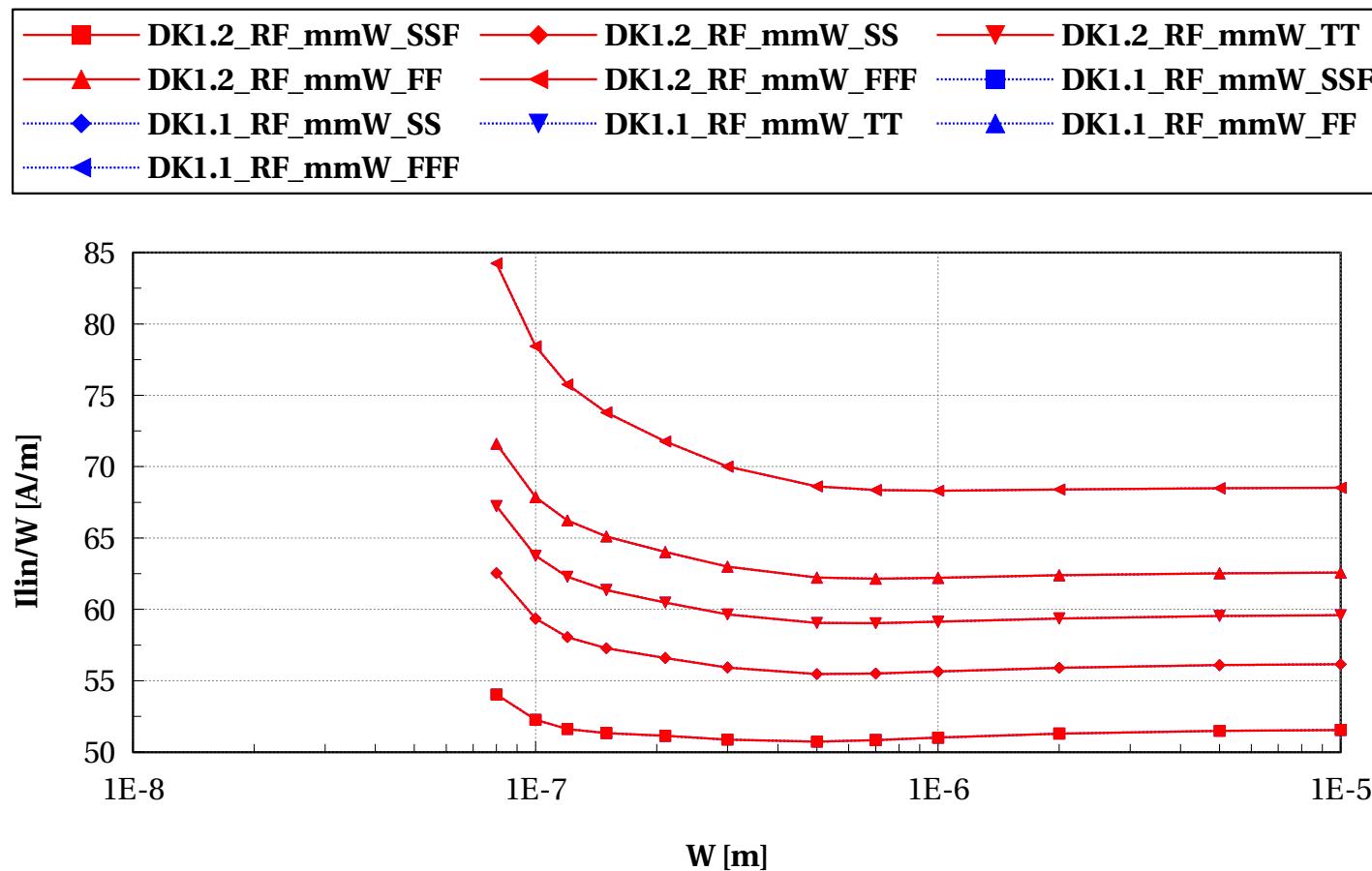
lvtpfet_acc, Vt_lin [mV] vs W [m]

$I_{DS} = 0.030e-6$ and Temp = 25 and Vbs = 1 and p_la = 0 and devType = "PCELLwoWPE"



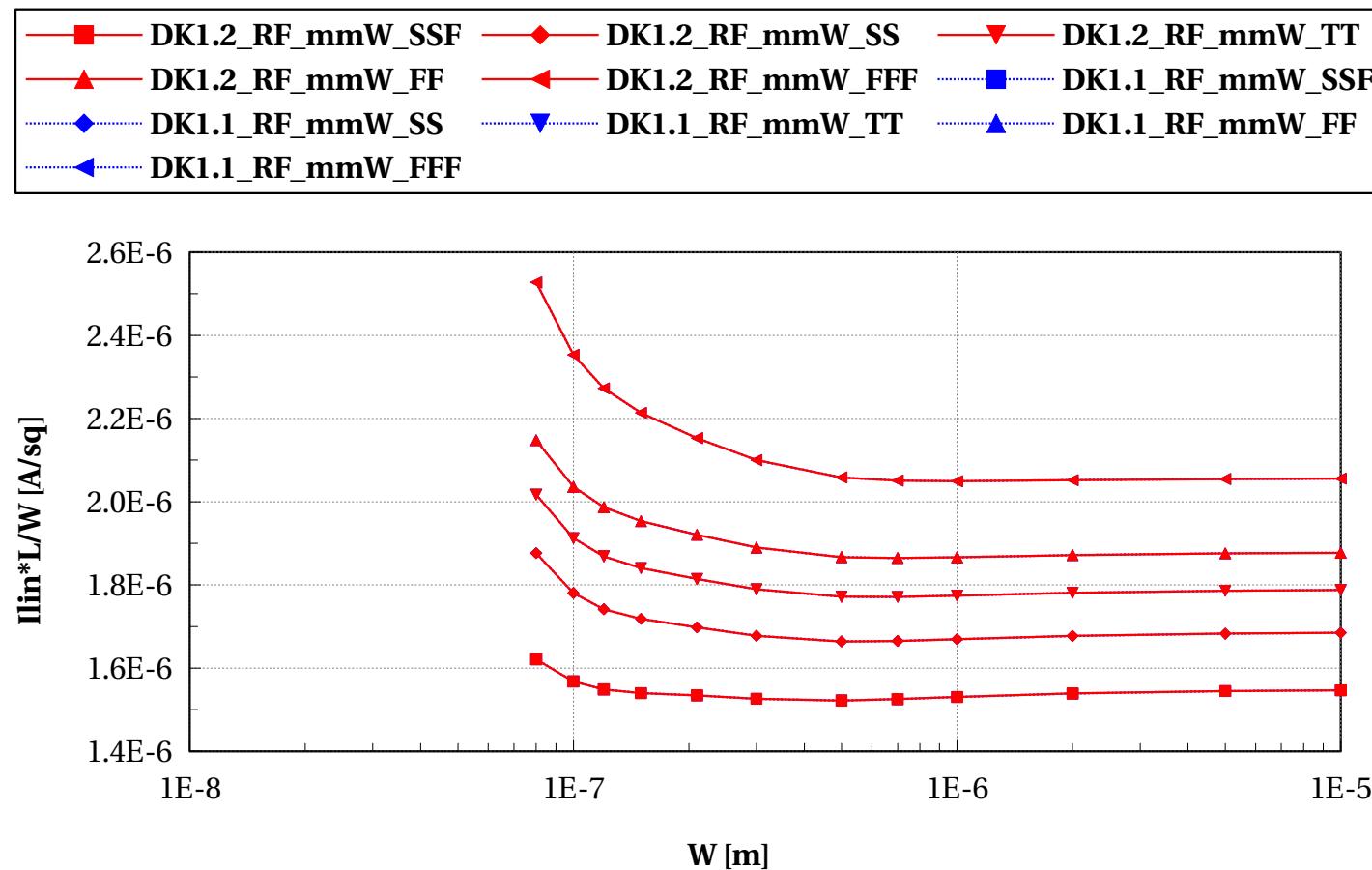
lvtpfet_acc, Ilin/W [A/m] vs W [m]

$I_{ds} = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



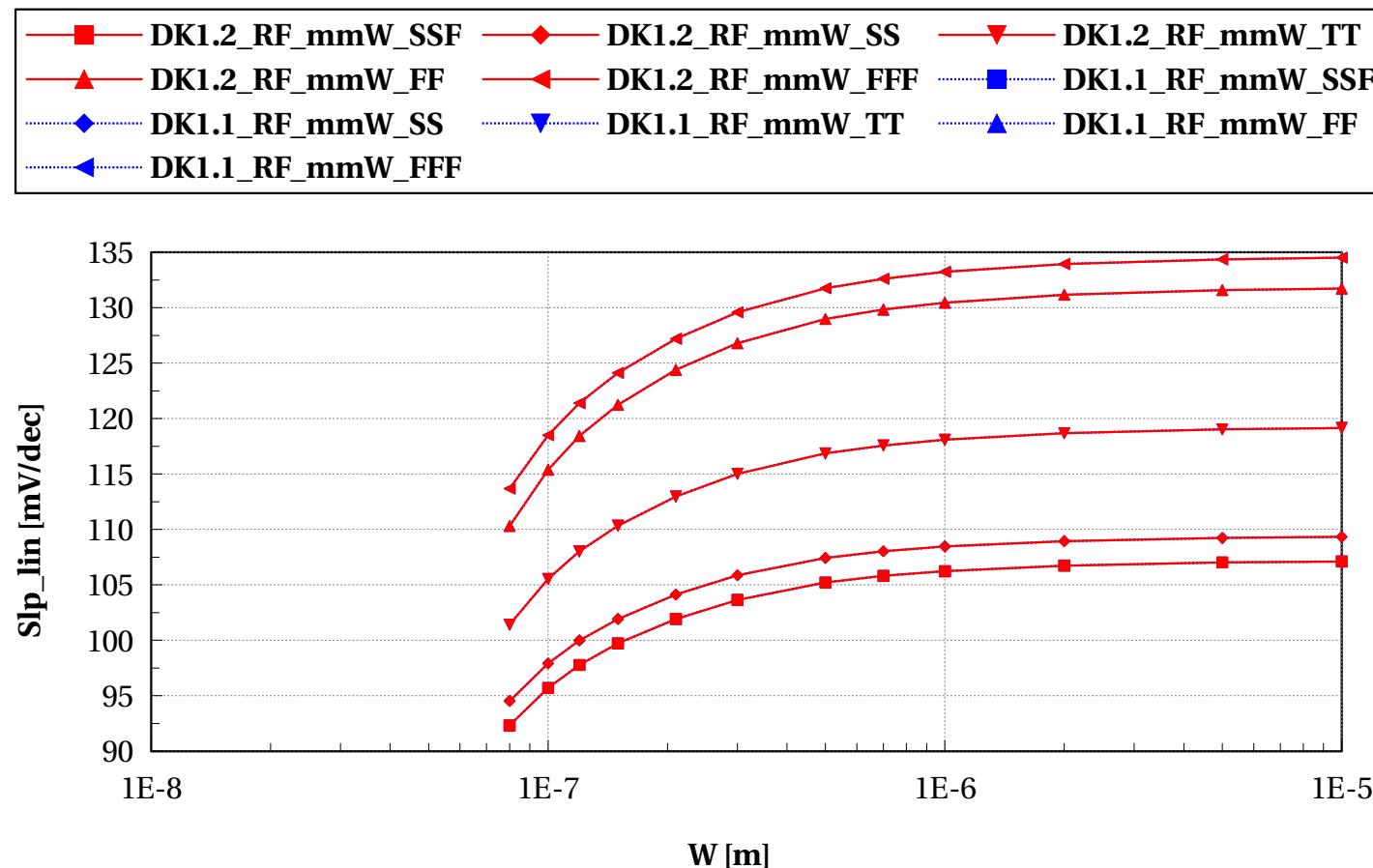
lvtpfet_acc, $I_{lin} \cdot L/W$ [A/sq] vs W [m]

$I=0.030e-6$ and $Temp=25$ and $V_{bs}=1$ and $p_{la}=0$ and $devType="PCELLwoWPE"$



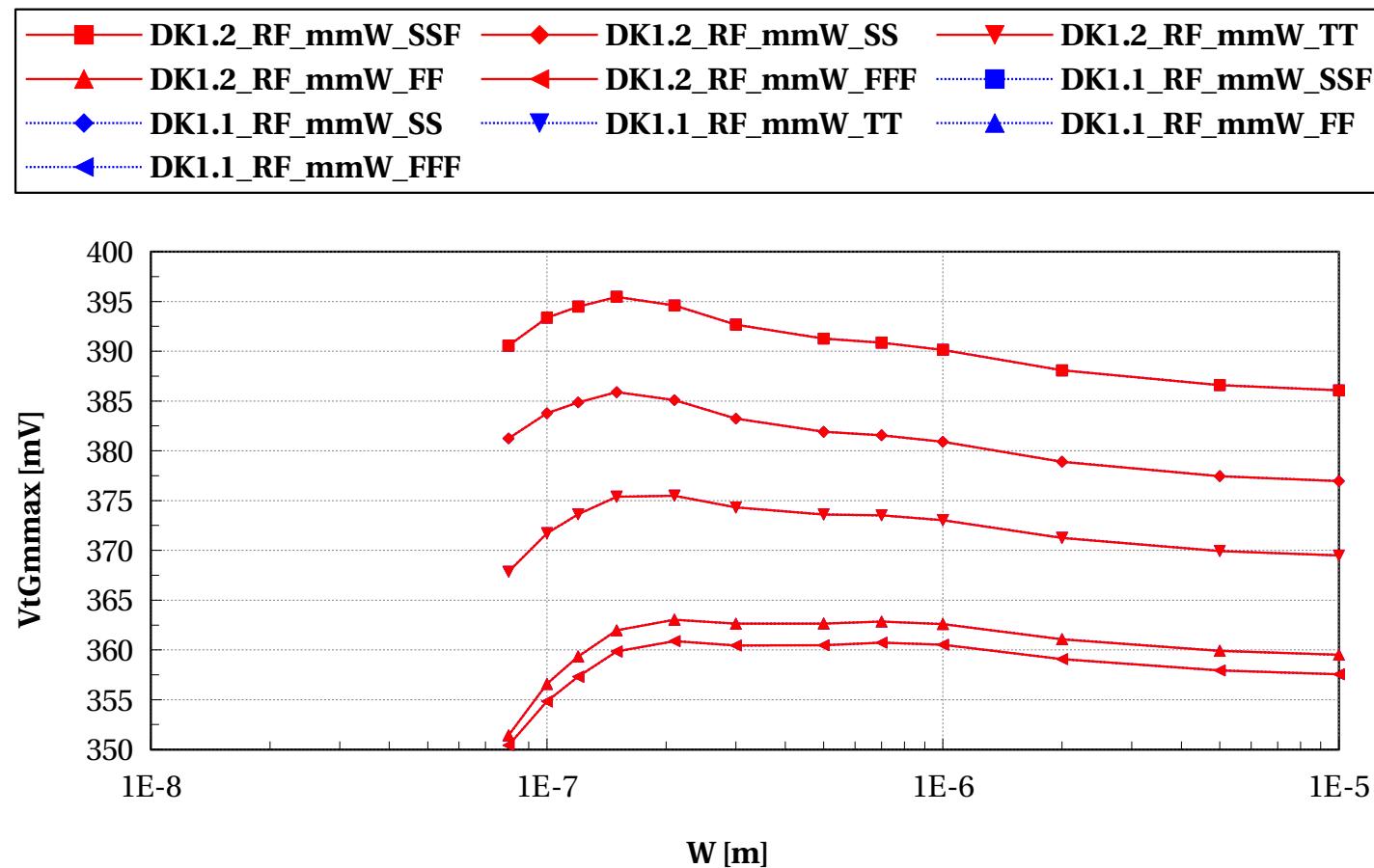
lvtpfet_acc, Slp_lin [mV/dec] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



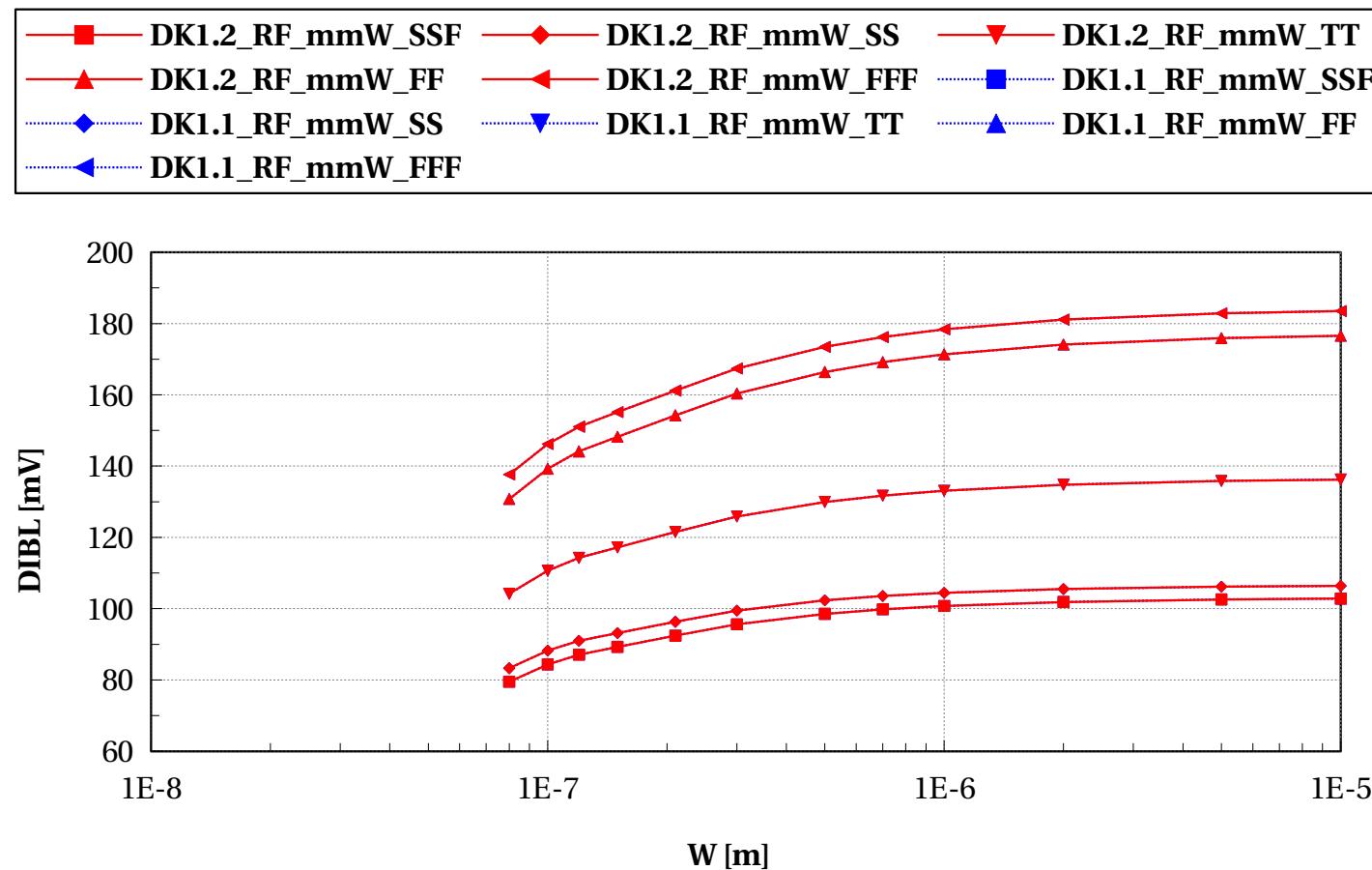
lvtpfet_acc, VtGmmax [mV] vs W [m]

$I_{DS} = 0.030e-6$ and Temp = 25 and Vbs = 1 and p_la = 0 and devType = "PCELLwoWPE"



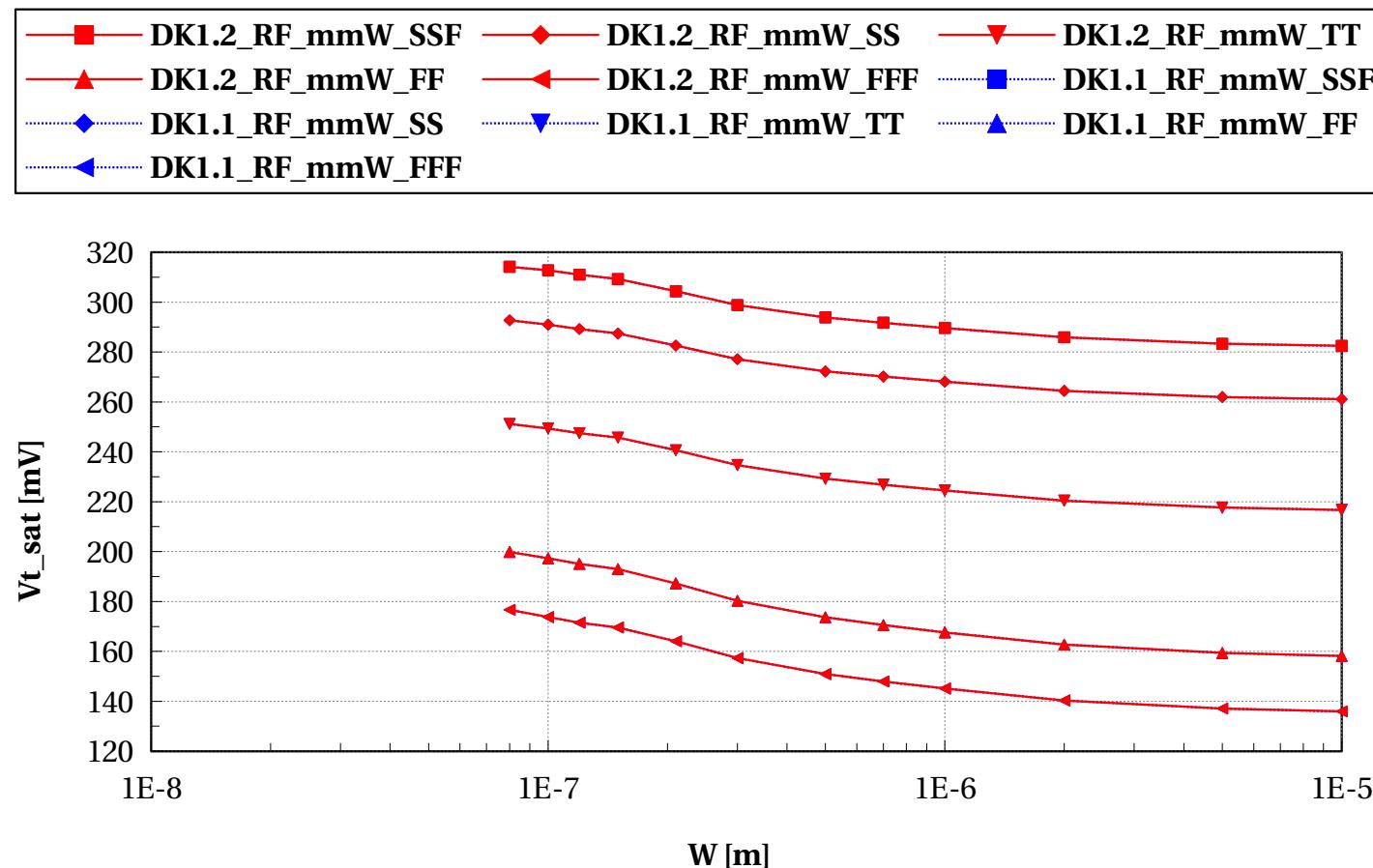
lvtpfet_acc, DIBL [mV] vs W [m]

$I_{DS} = 0.030e-6$ and $Temp = 25$ and $V_{BS} = 1$ and $p_{LA} = 0$ and $devType = "PCELLwoWPE"$



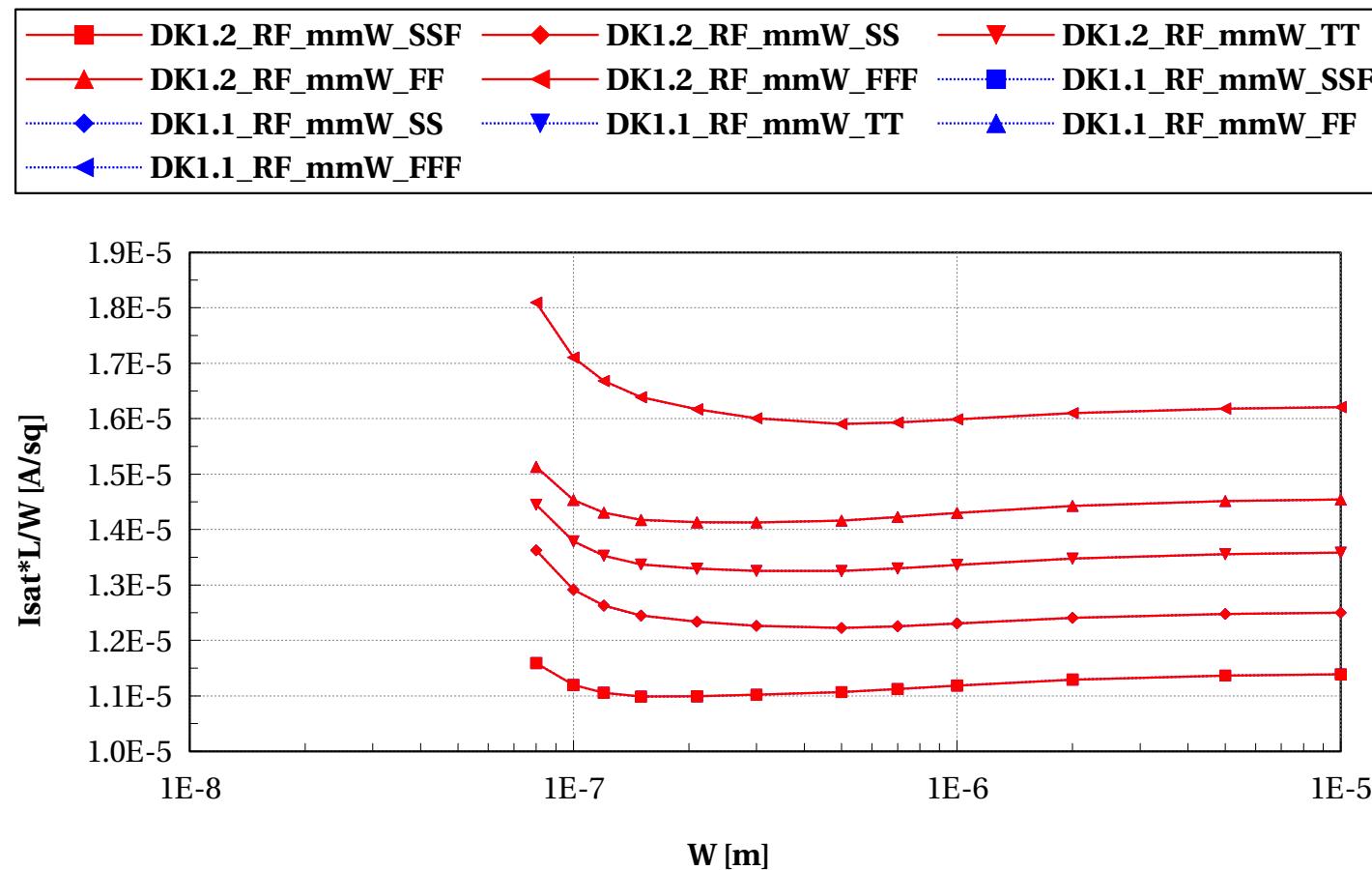
lvtpfet_acc, Vt_sat [mV] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



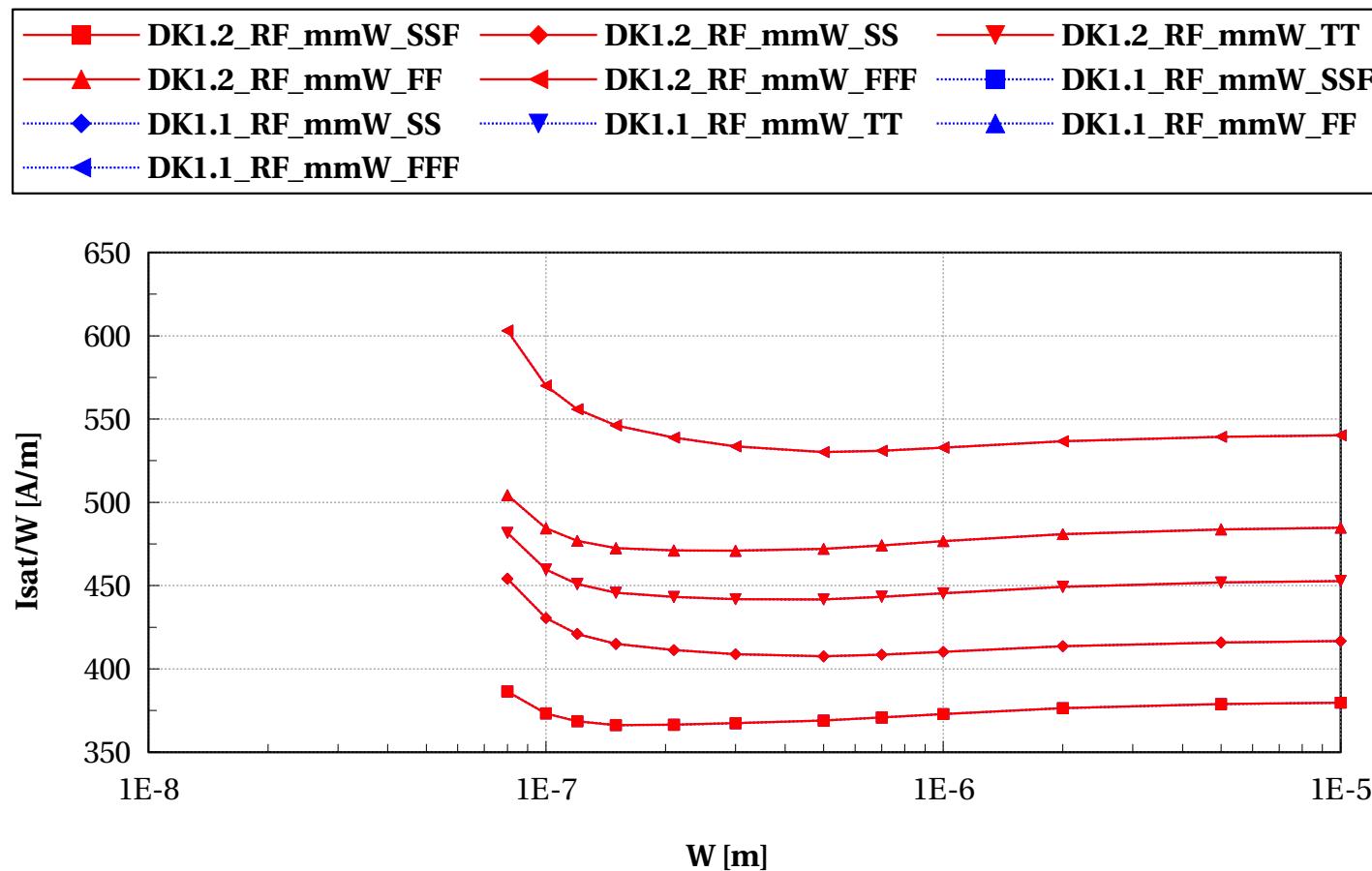
lvtpfet_acc, Isat*L/W [A/sq] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{bs}=1$ and $p_{la}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



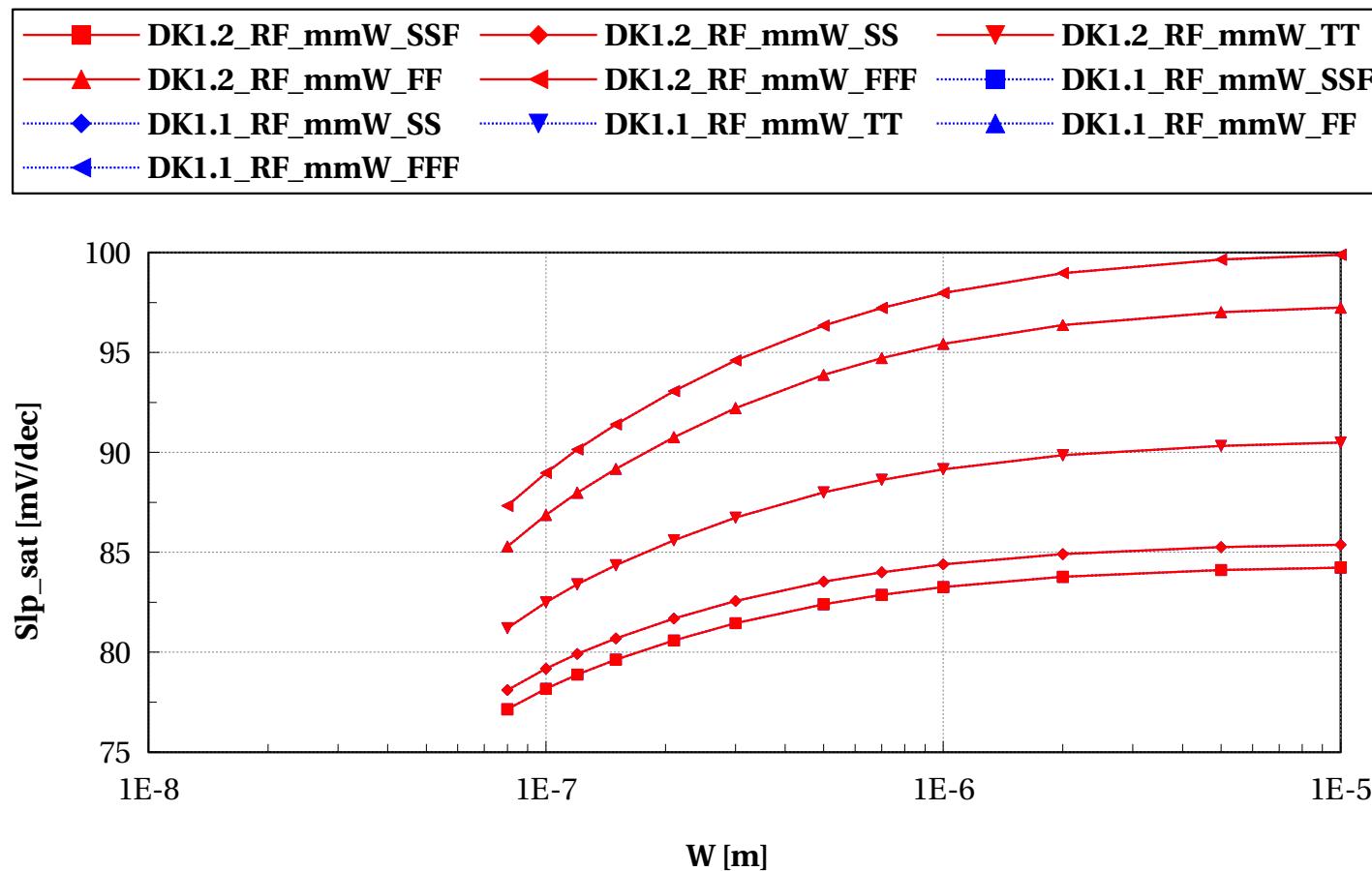
lvtpfet_acc, Isat/W [A/m] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{bs}=1$ and $p_{la}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



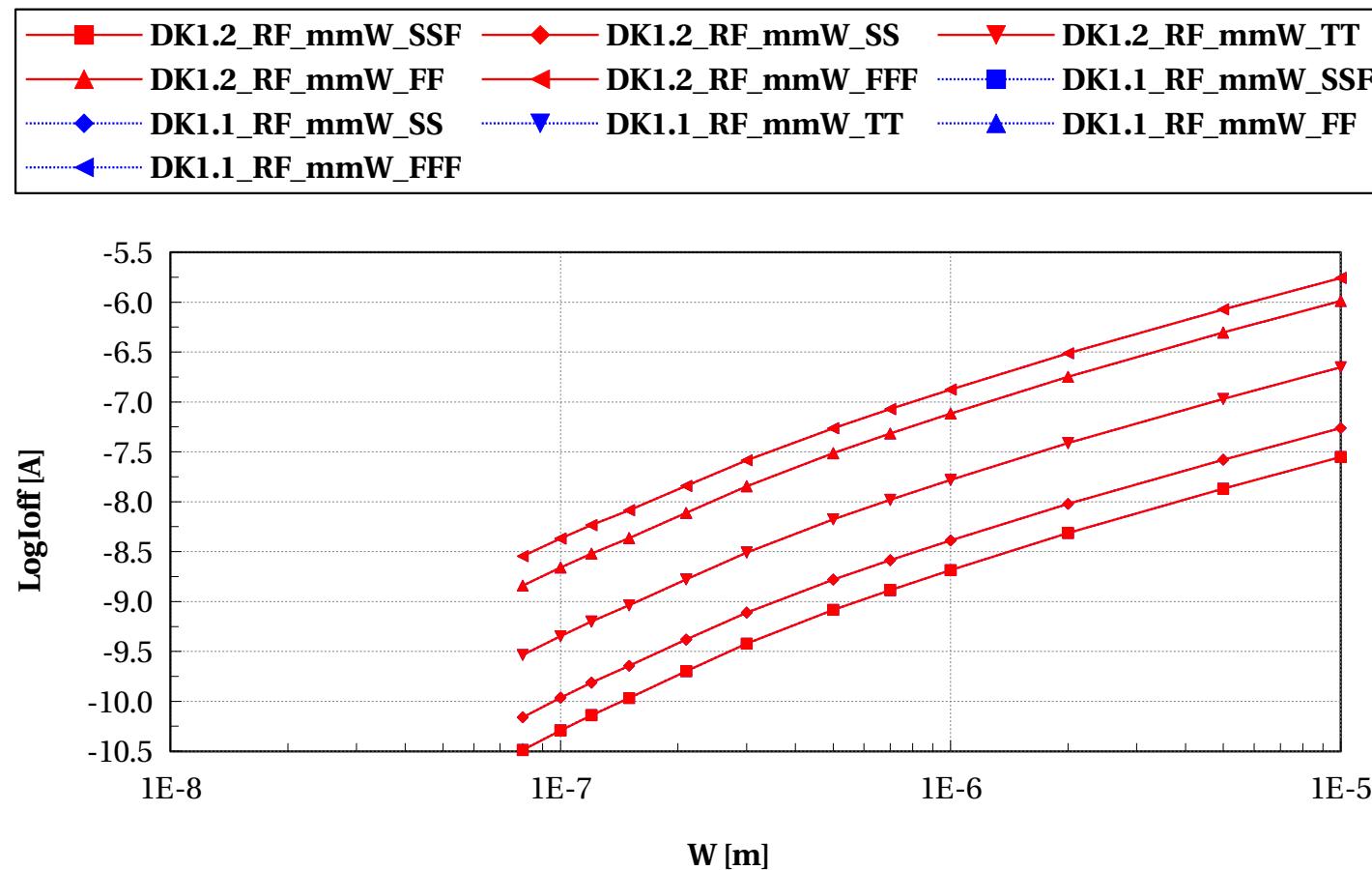
lvtpfet_acc, Slp_sat [mV/dec] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



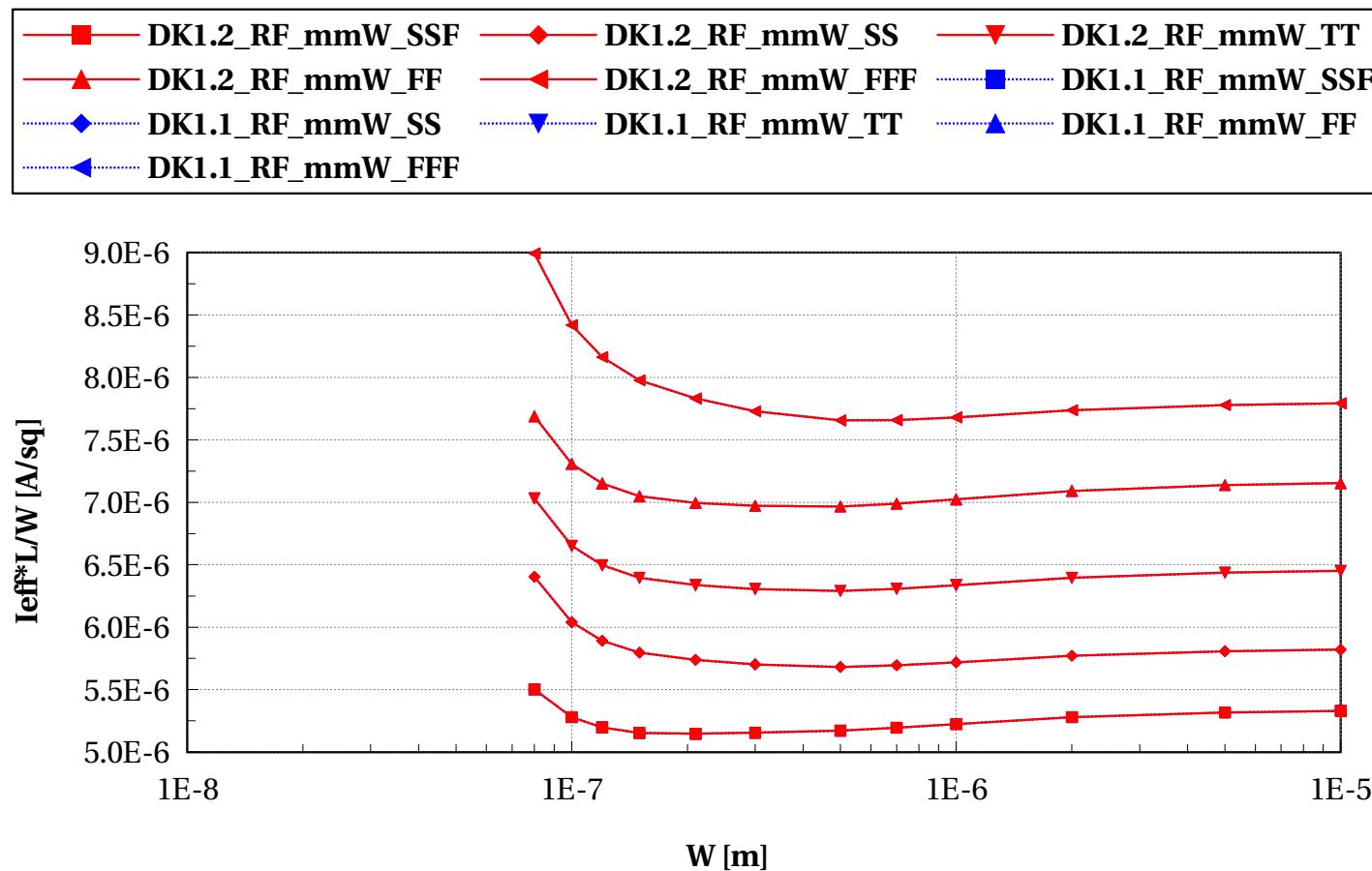
lvtpfet_acc, LogIoff [A] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



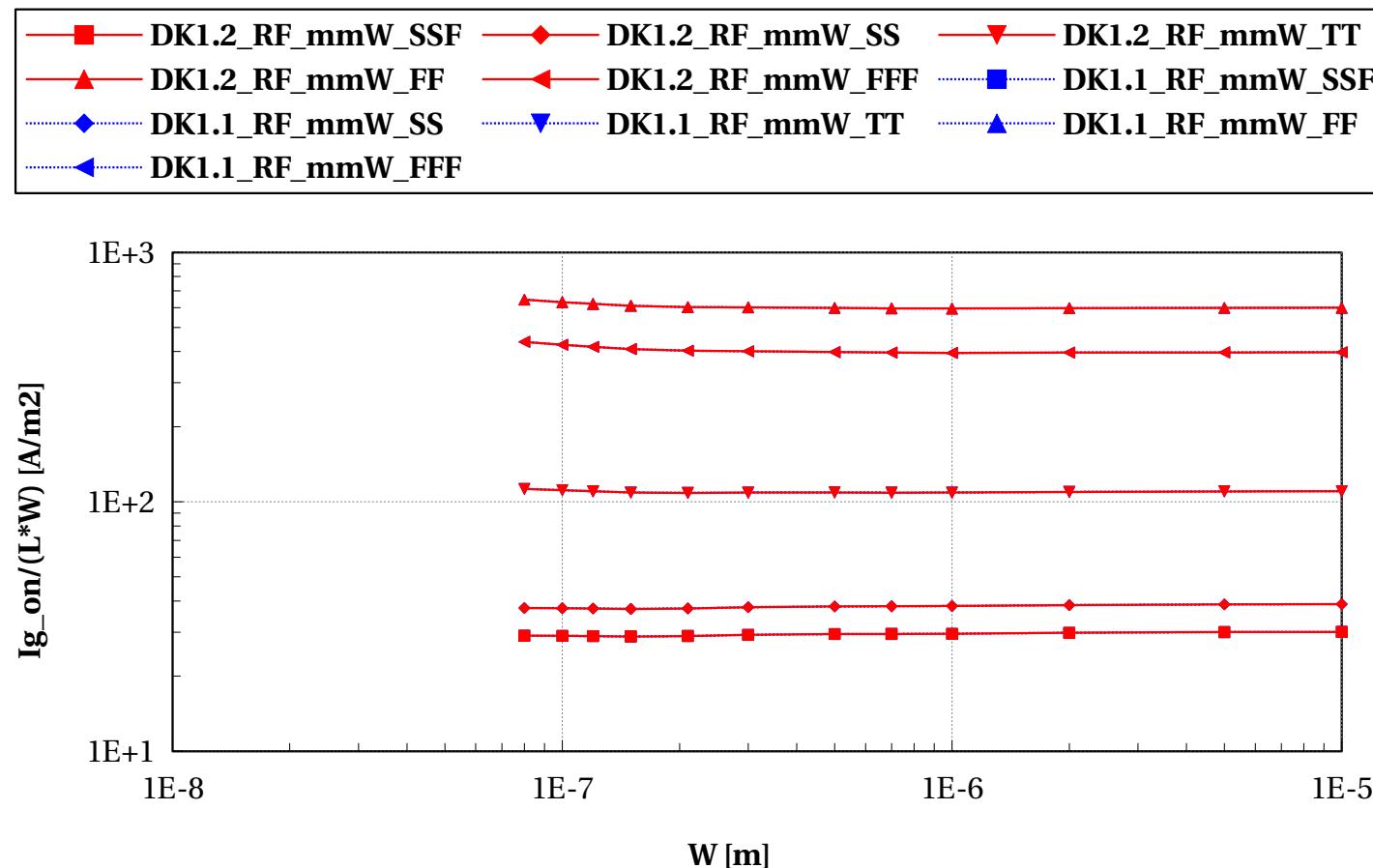
lvtpfet_acc, Ieff*L/W [A/sq] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



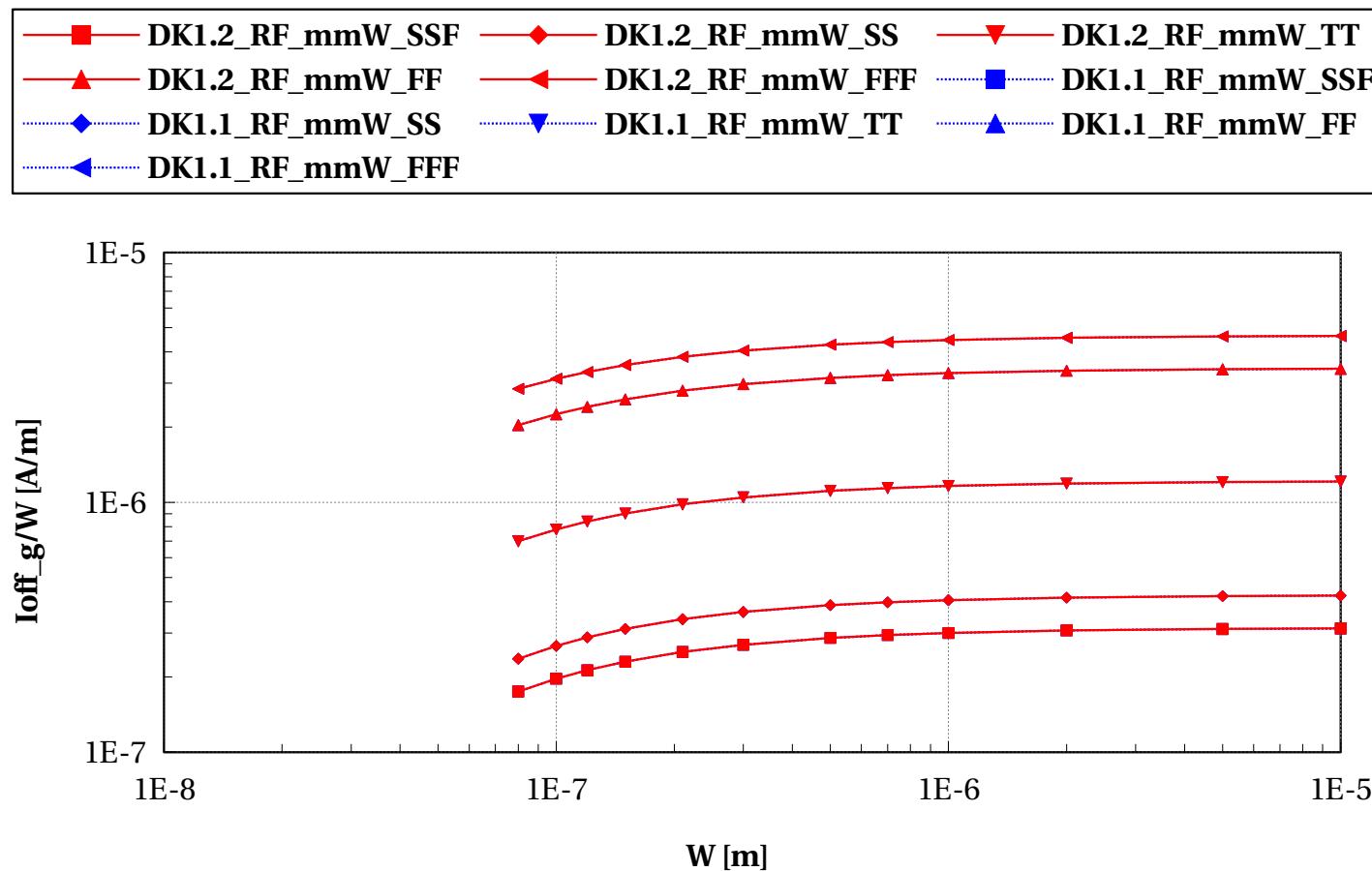
lvtpfet_acc, Ig_on/(L*W) [A/m²] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



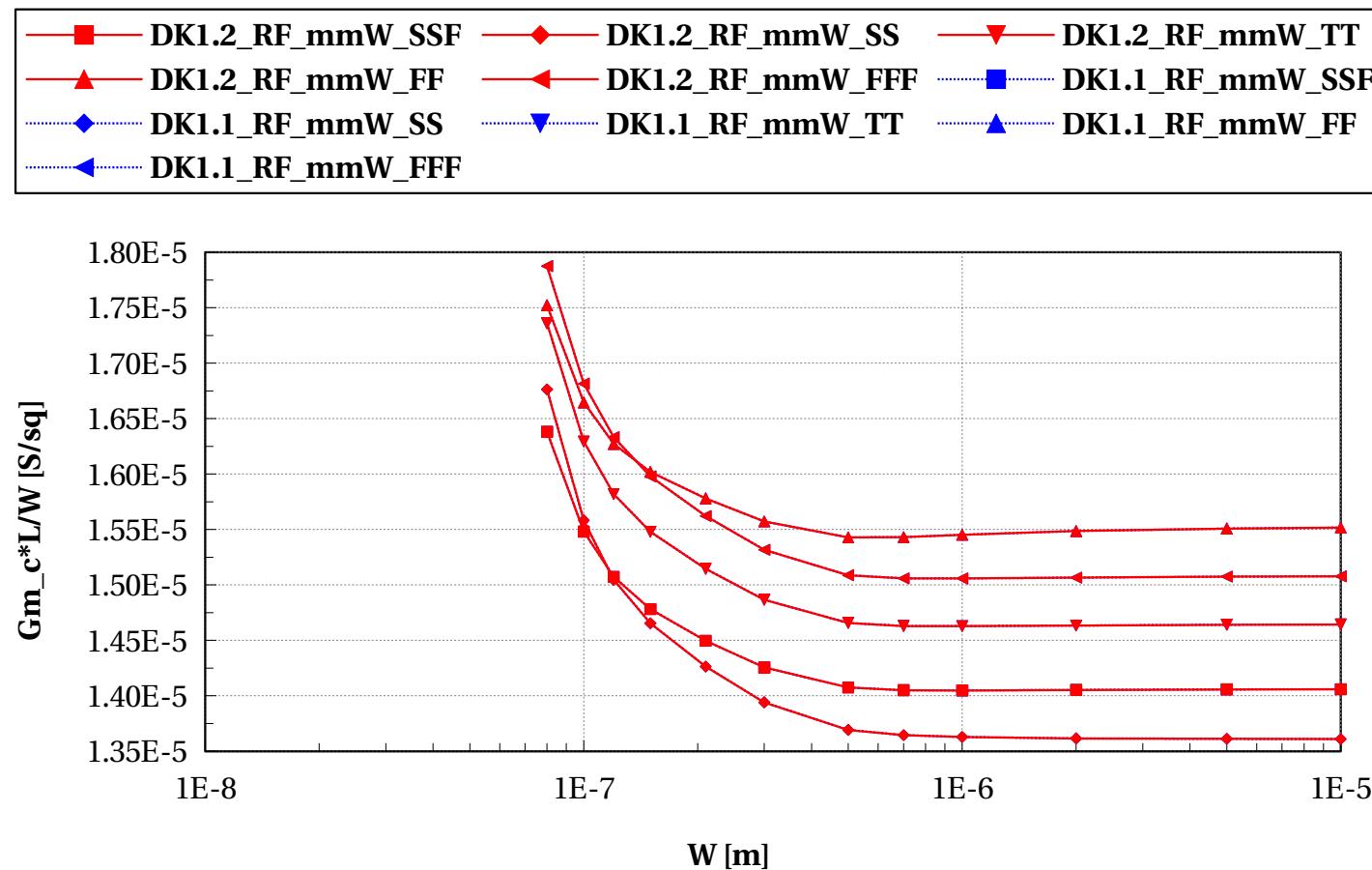
lvtpfet_acc, Ioff_g/W [A/m] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



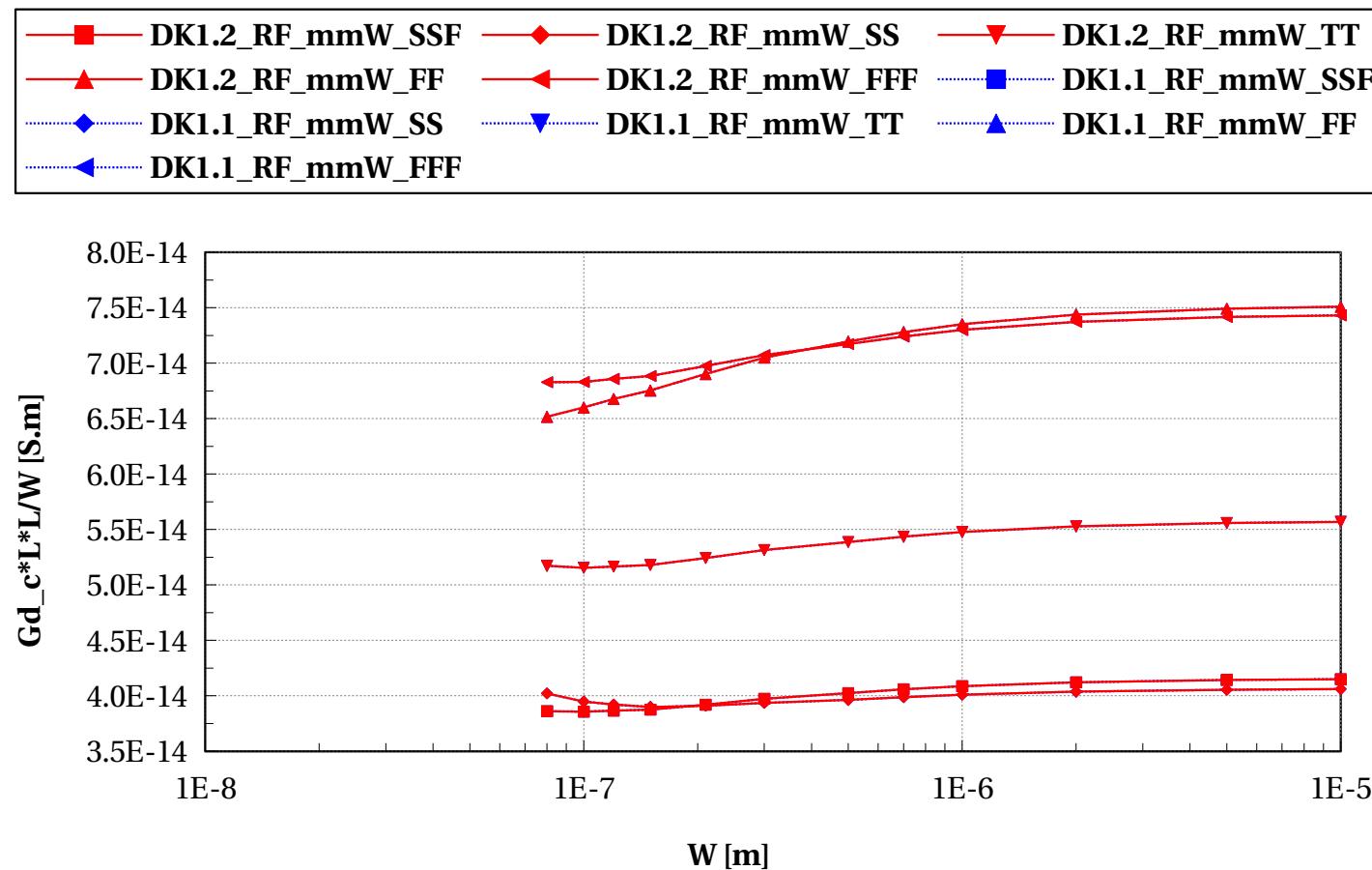
lvtpfet_acc, Gm_c*L/W [S/sq] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



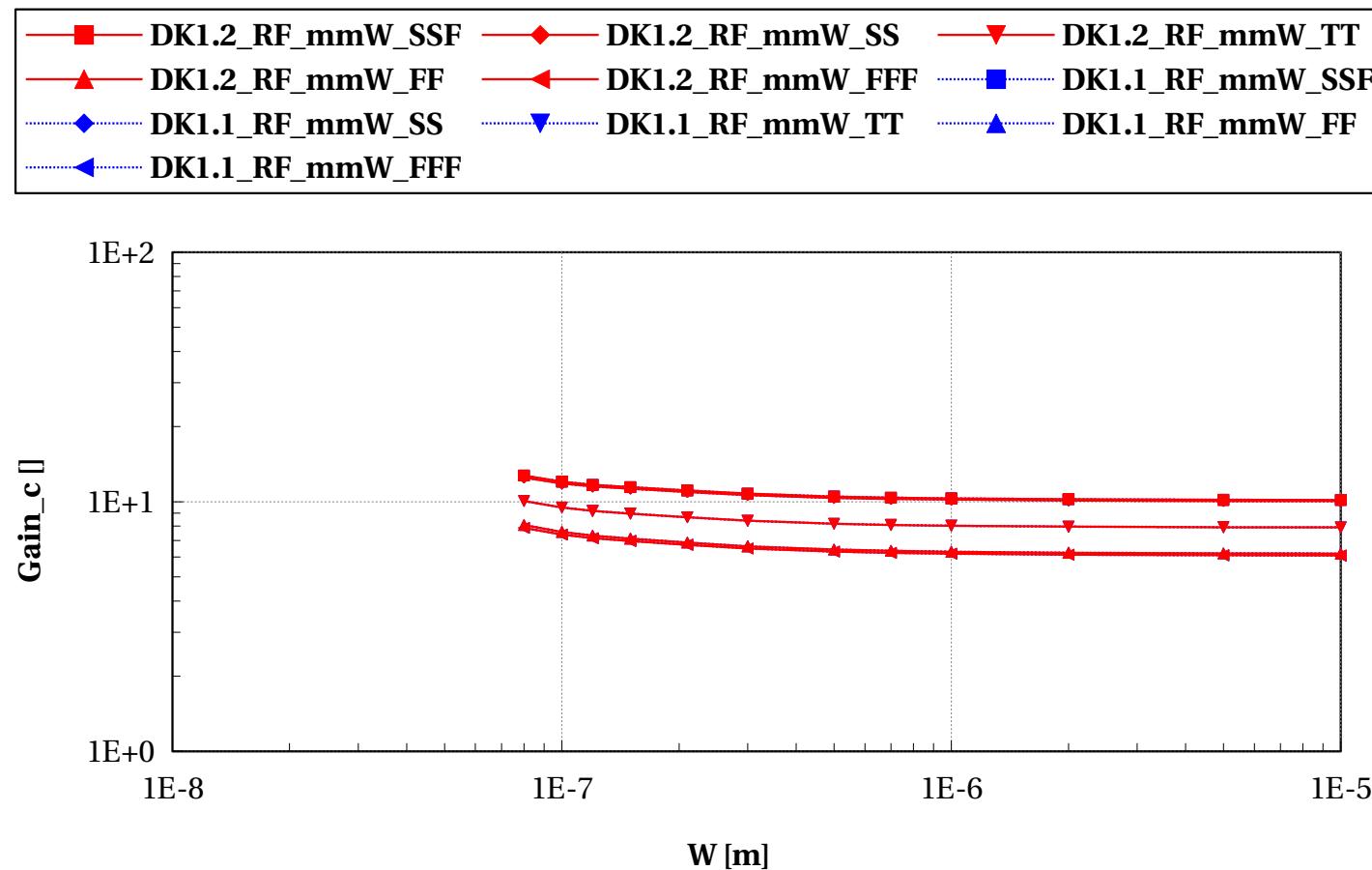
lvtpfet_acc, Gd_c*L*W [S.m] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



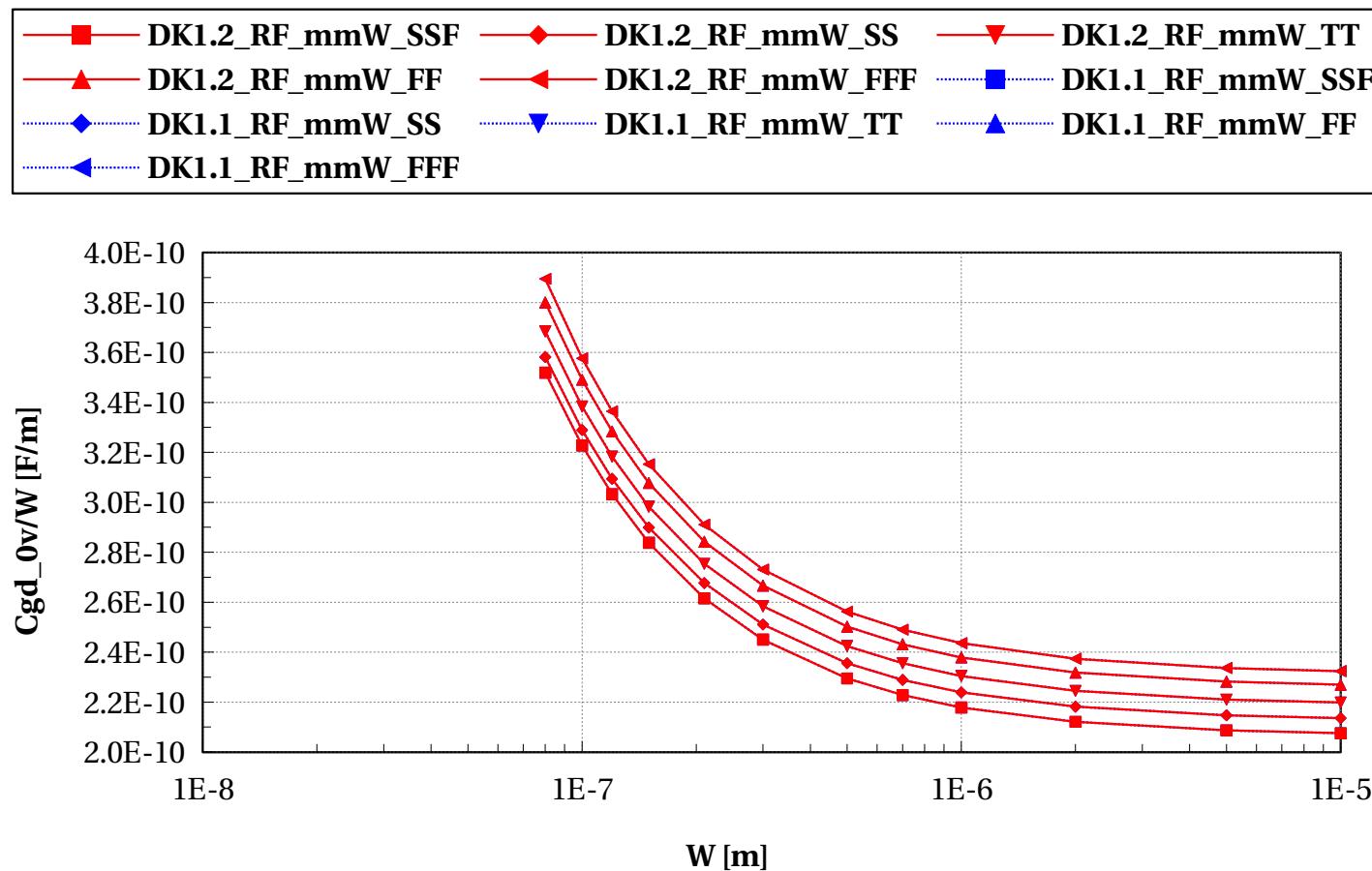
lvtpfet_acc, Gain_c [] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



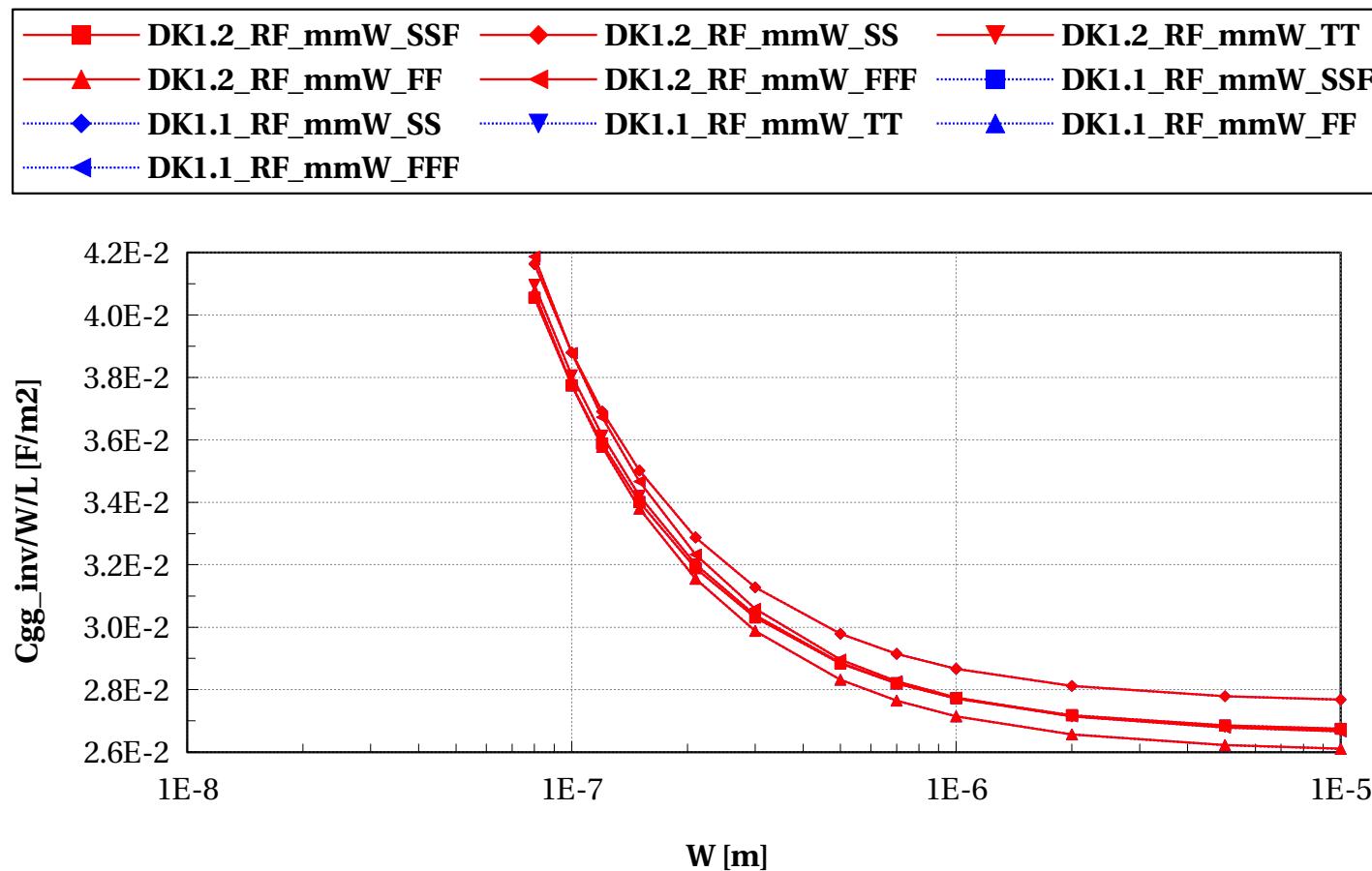
lvtpfet_acc, Cgd_0v/W [F/m] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



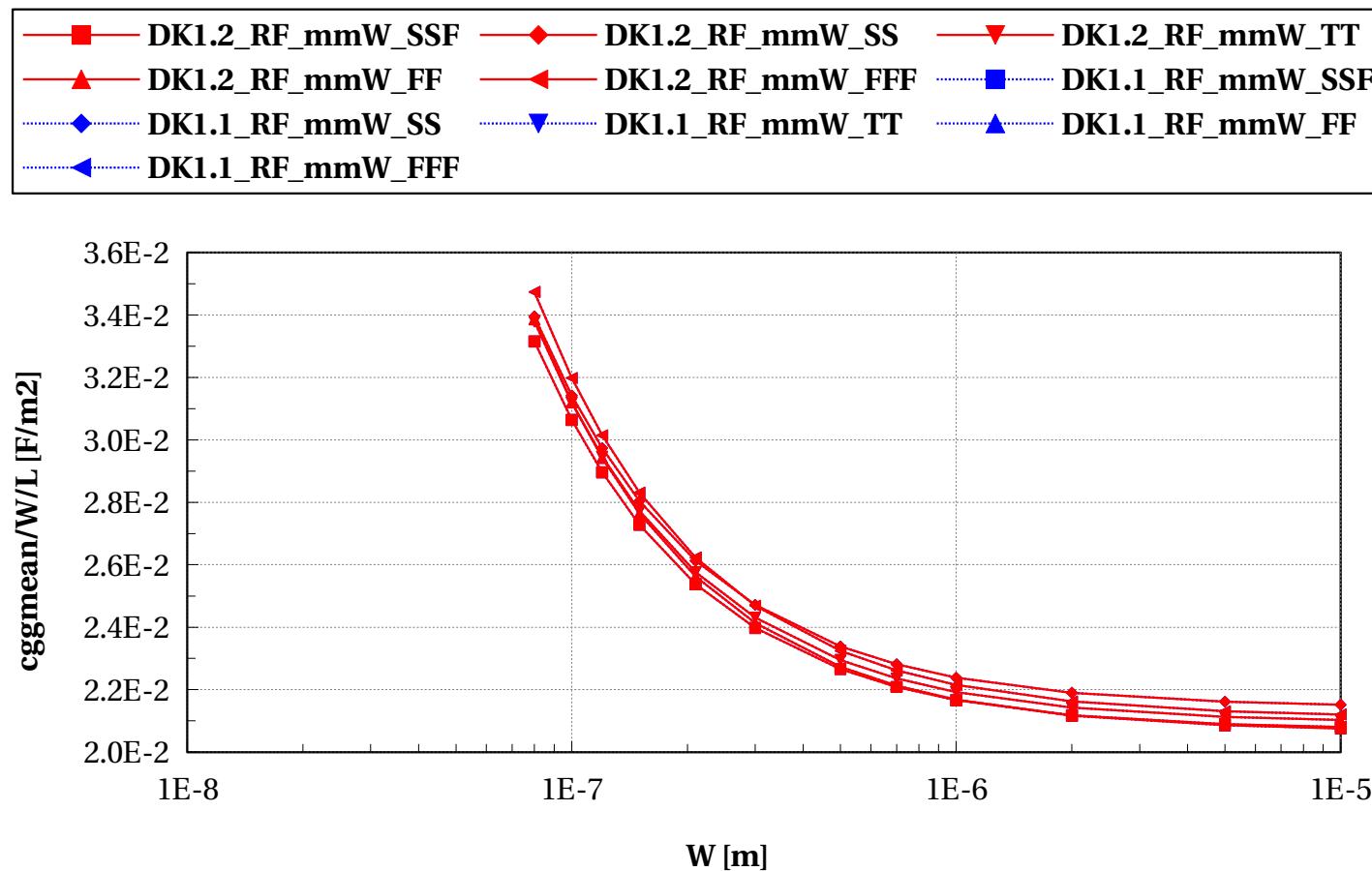
lvtpfet_acc, C_{gg}_inv/W/L [F/m²] vs W [m]

$I = 0.030e-6$ and $\text{Temp} = 25$ and $V_{bs} = 1$ and $p_{la} = 0$ and $\text{devType} = \text{"PCELLwoWPE"}$



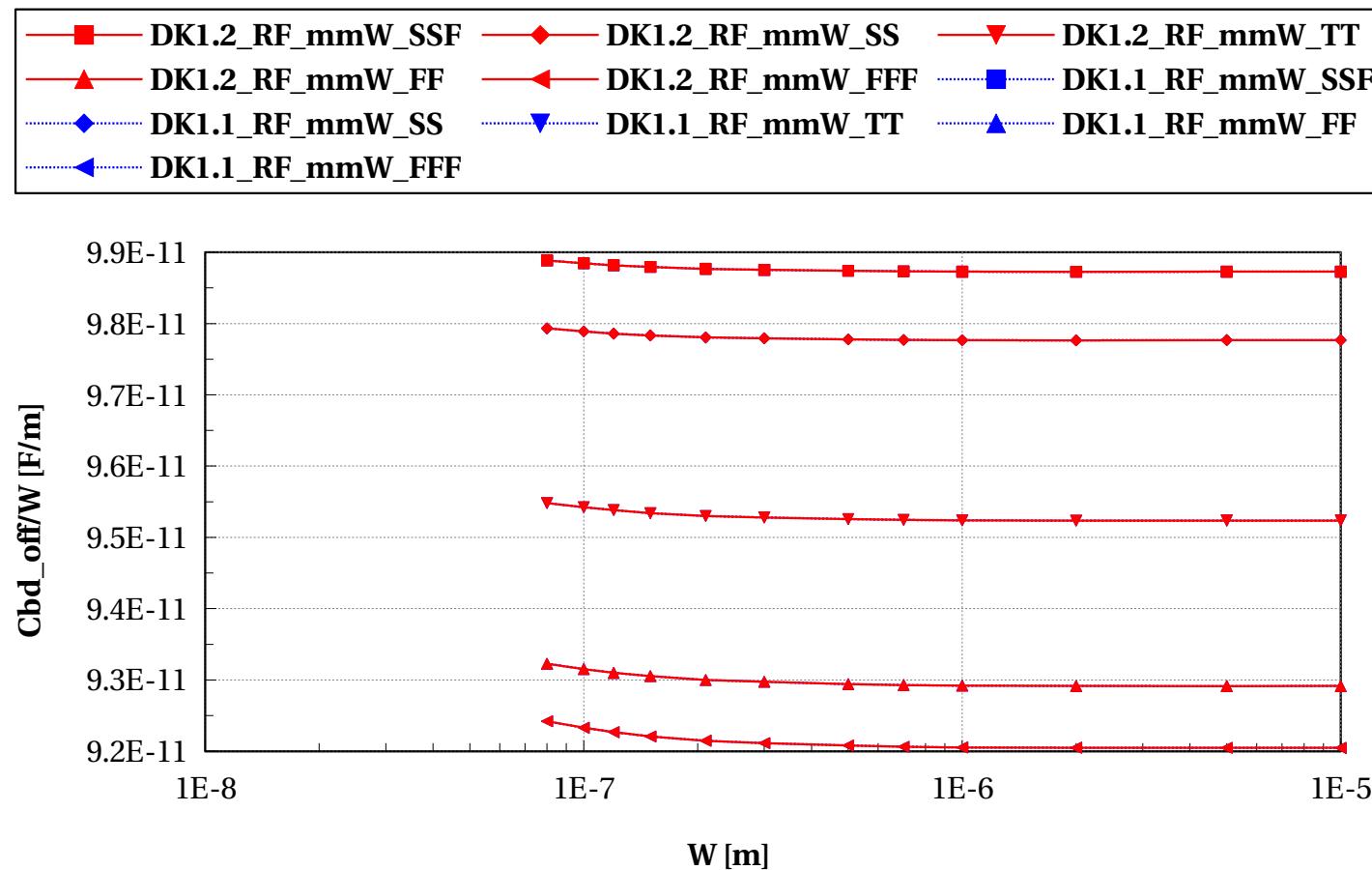
lvtpfet_acc, cgmean/W/L [F/m²] vs W [m]

$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



lvtpfet_acc, Cbd_off/W [F/m] vs W [m]

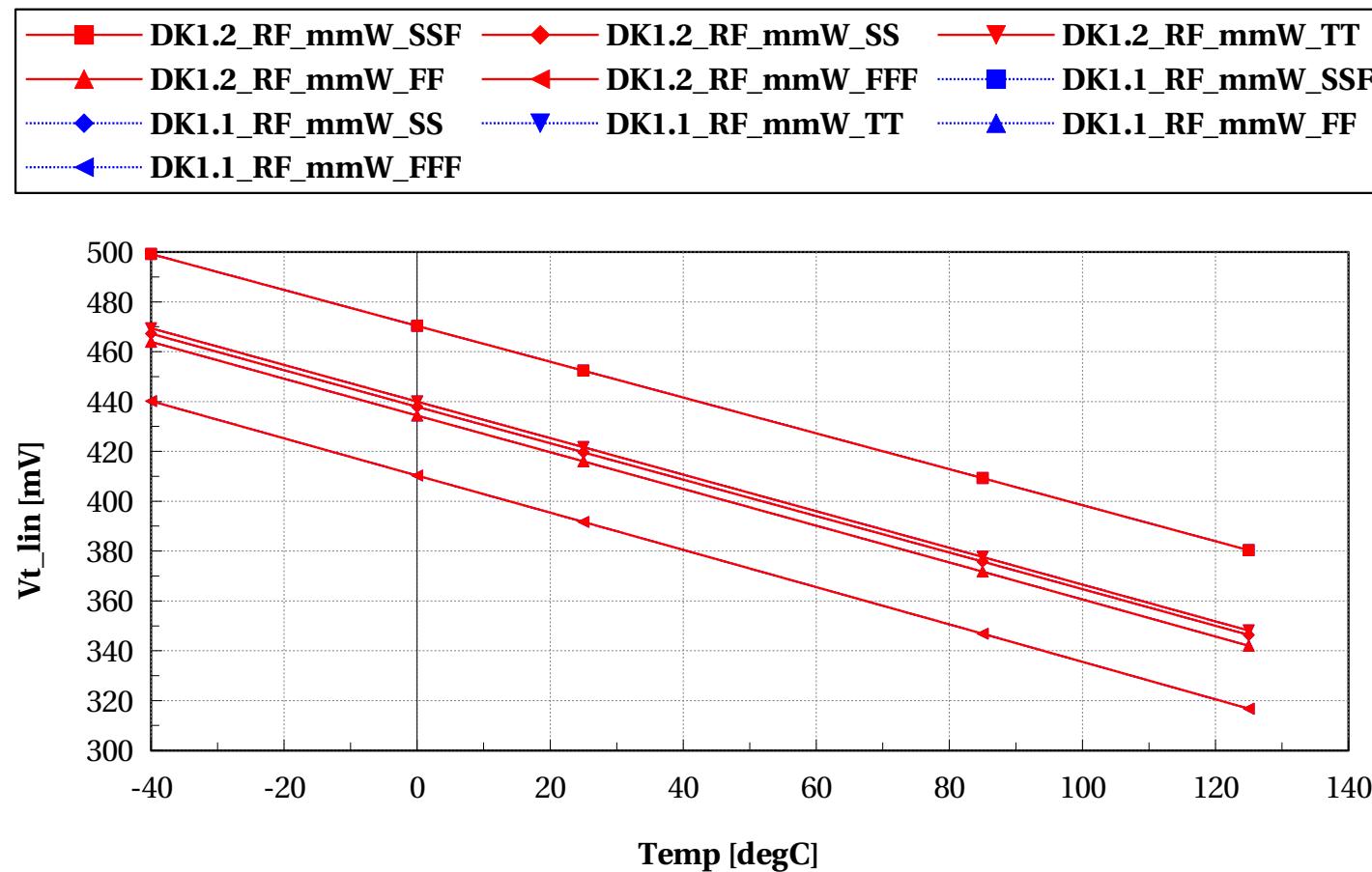
$I=0.030e-6$ and $\text{Temp}=25$ and $V_{BS}=1$ and $p_{LA}=0$ and $\text{devType}=\text{"PCELLwoWPE"}$



Scaling versus Temp (L=1um,W=1um)

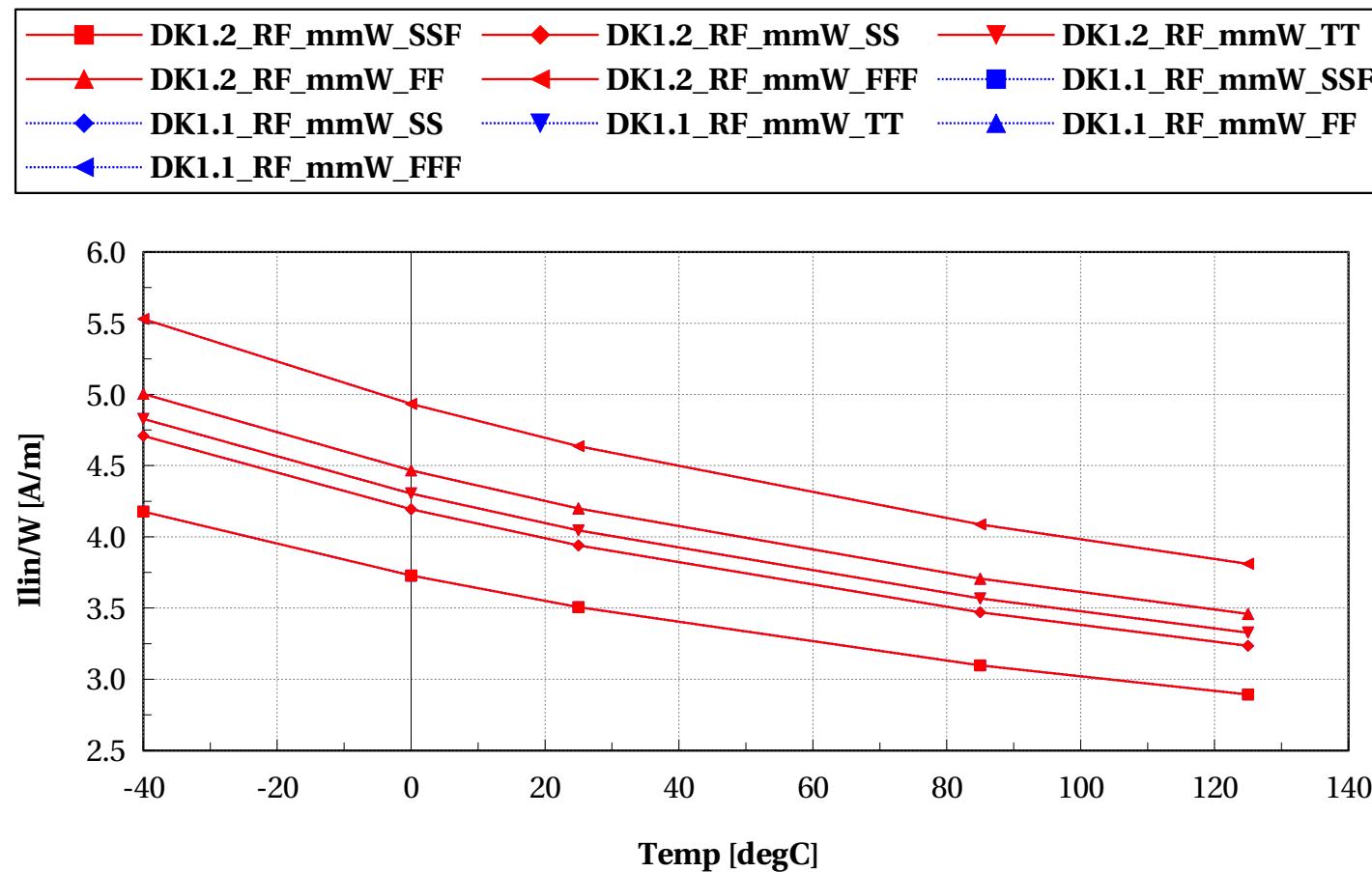
lvtpfet_acc, Vt_lin [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



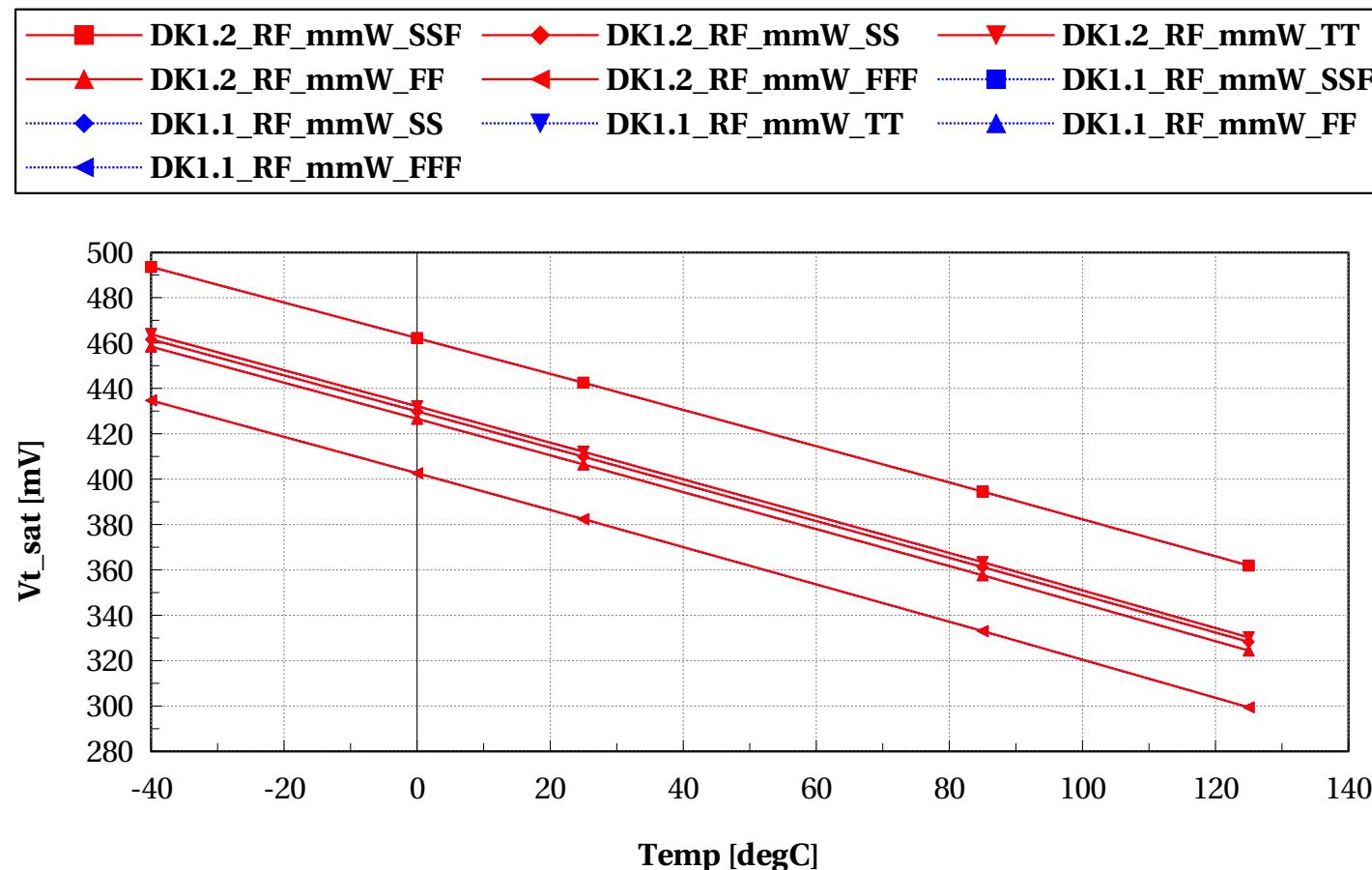
lvtpfet_acc, Ilin/W [A/m] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



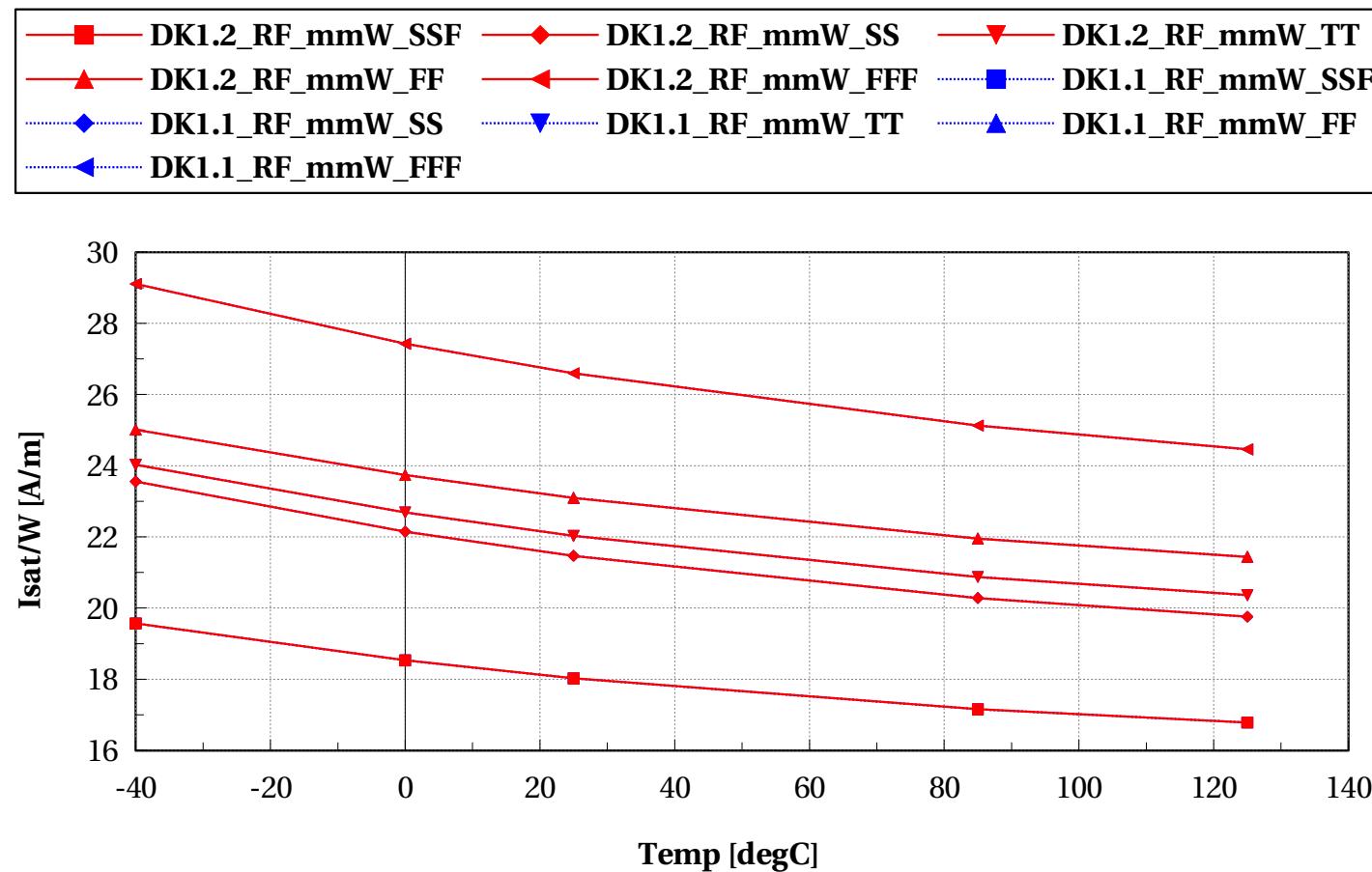
lvtpfet_acc, Vt_sat [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



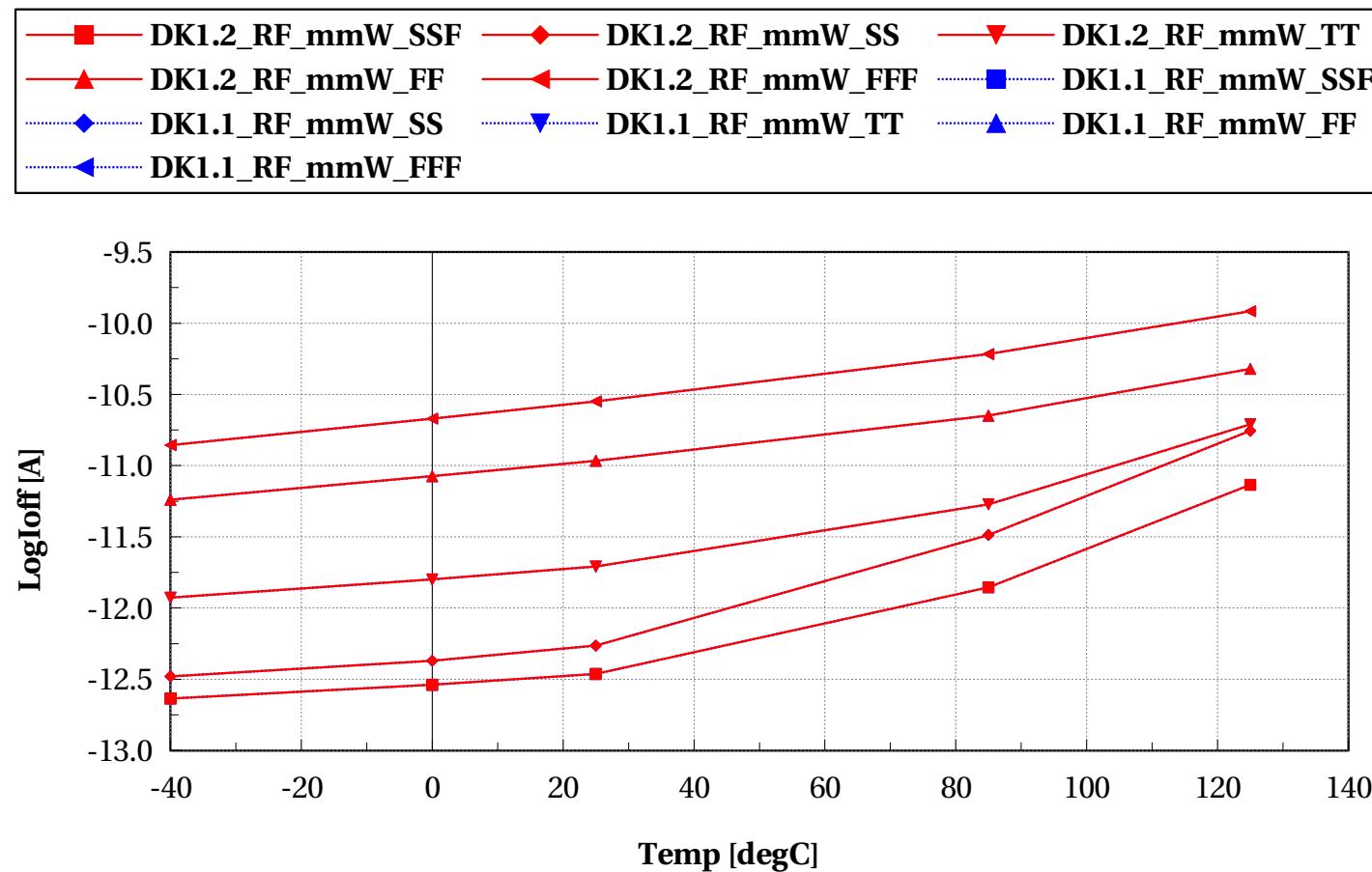
lvtpfet_acc, Isat/W [A/m] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



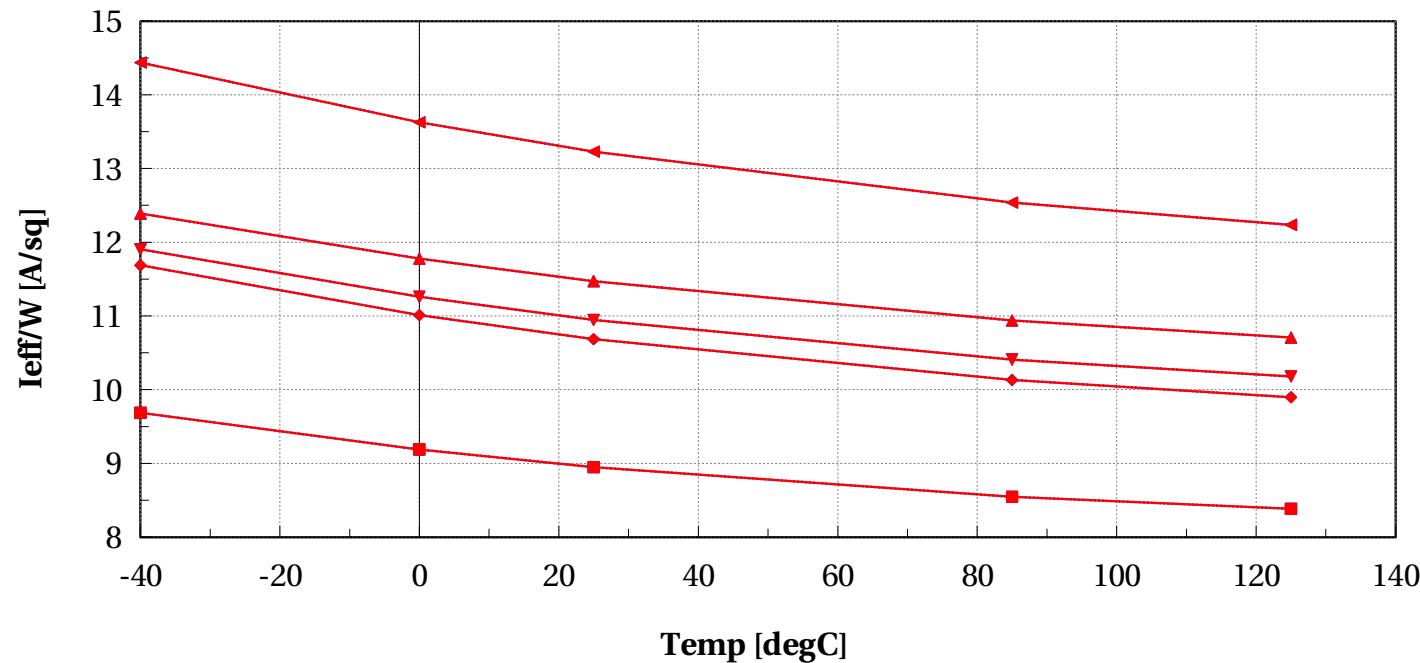
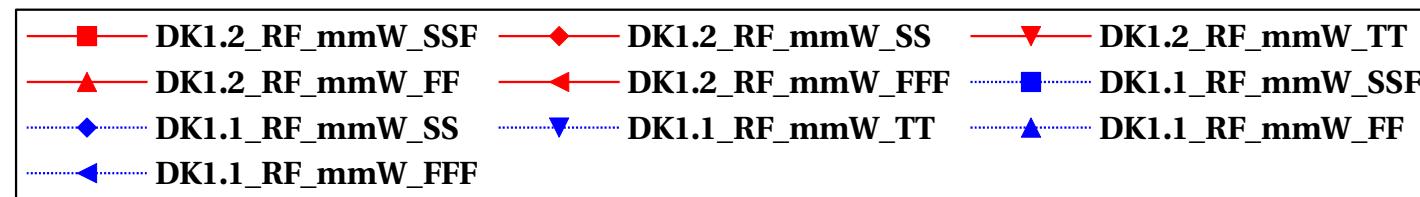
lvtpfet_acc, LogIoff [A] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, Ieff/W [A/sq] vs Temp [degC]

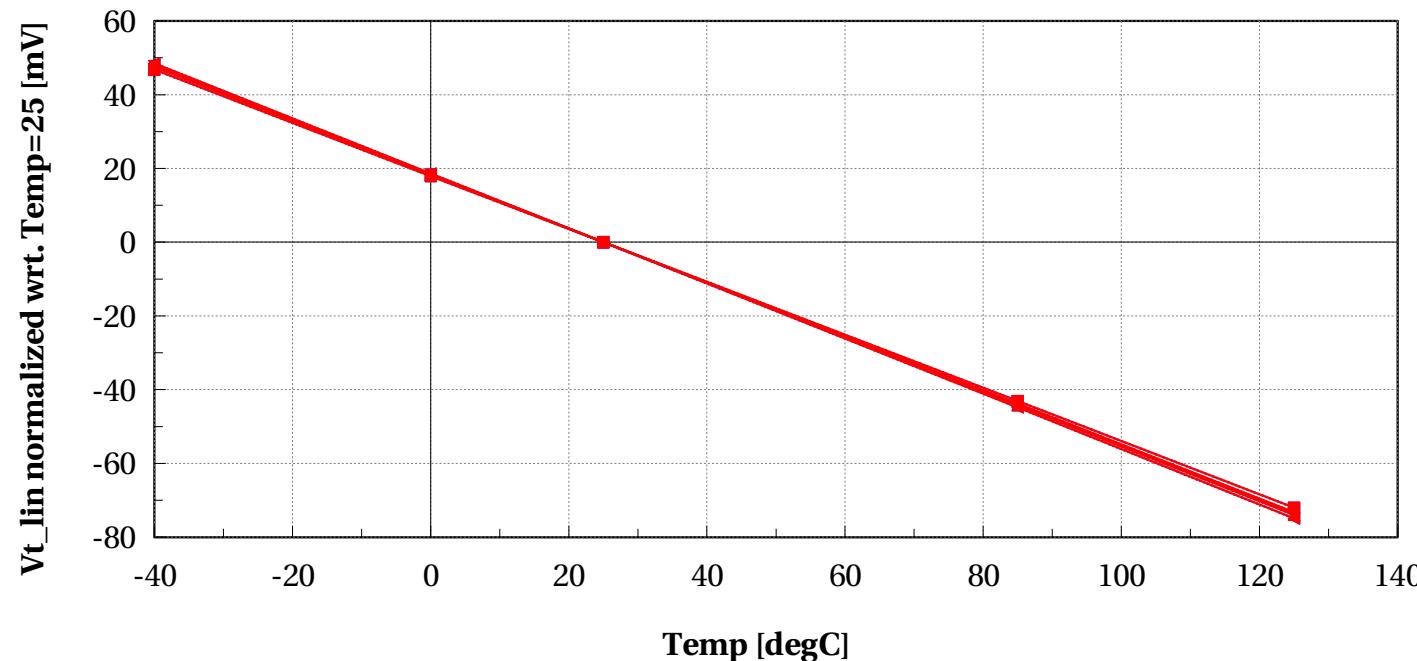
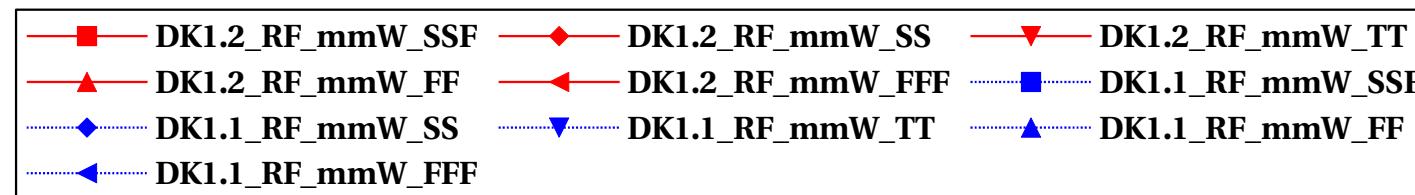
w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp normalized (L=1um,W=1um)

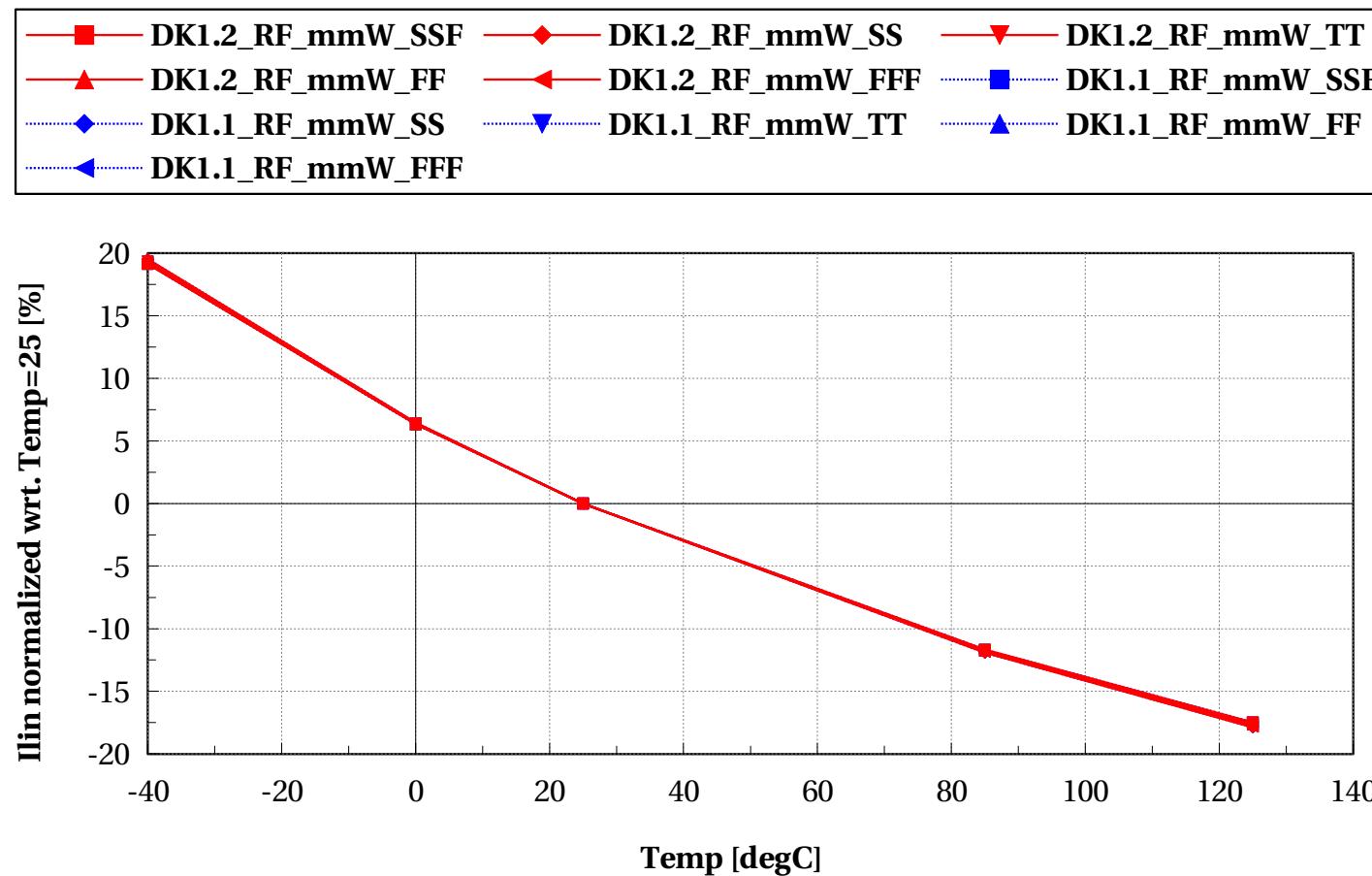
lvtpfet_acc, Vt_lin normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



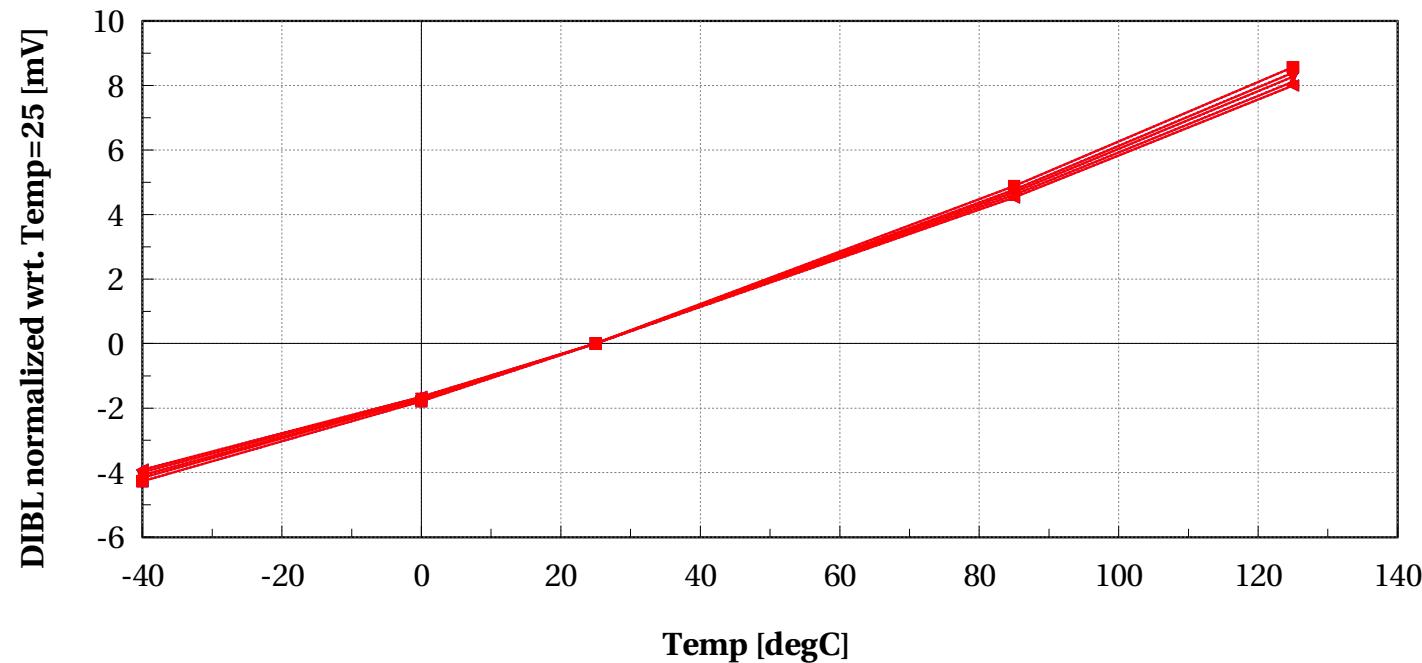
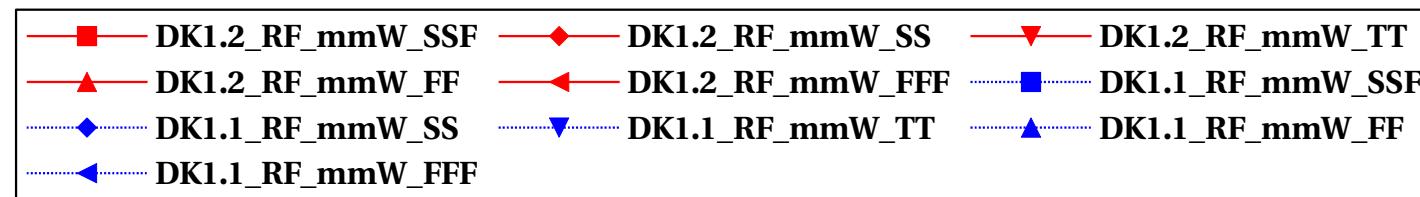
lvtpfet_acc, Ilin normalized wrt. Temp=25 [%] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



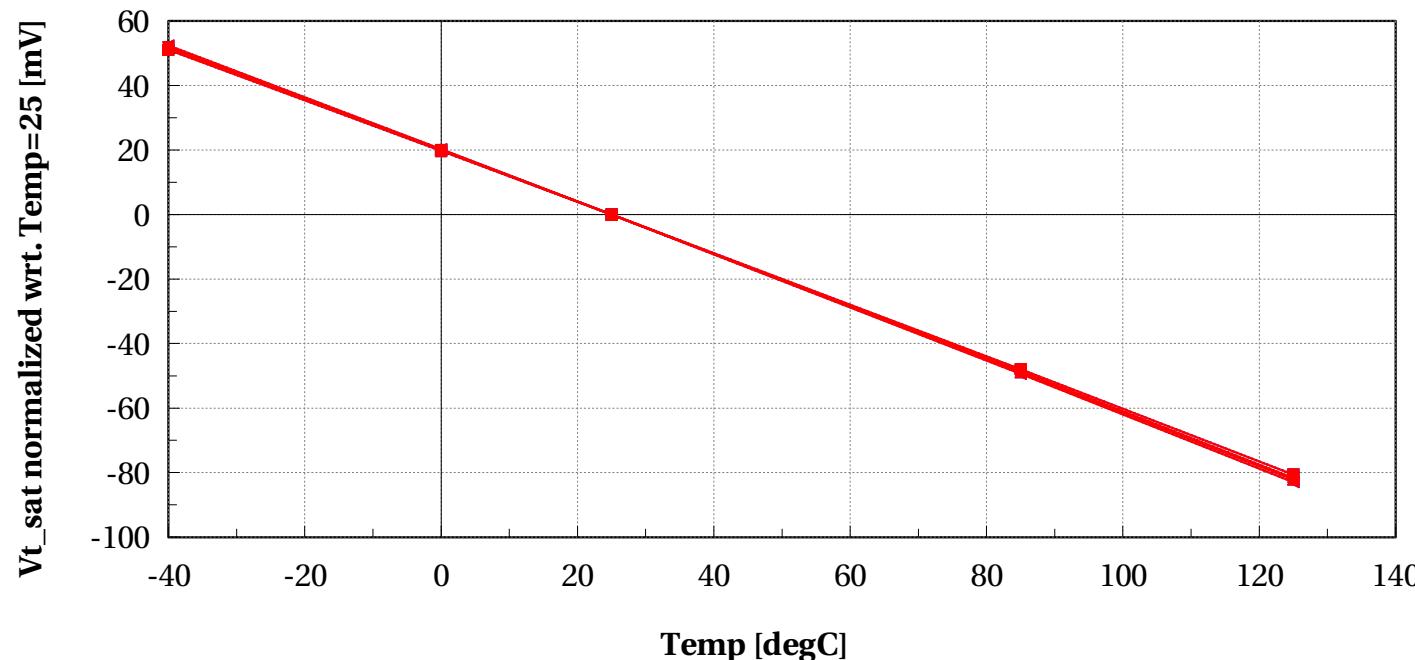
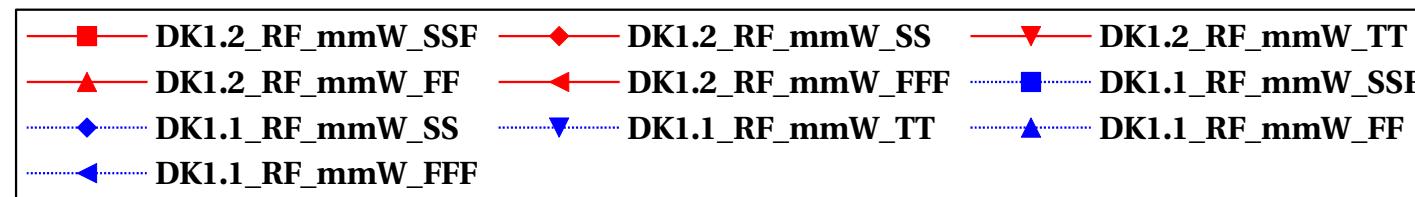
lvtpfet_acc, DIBL normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



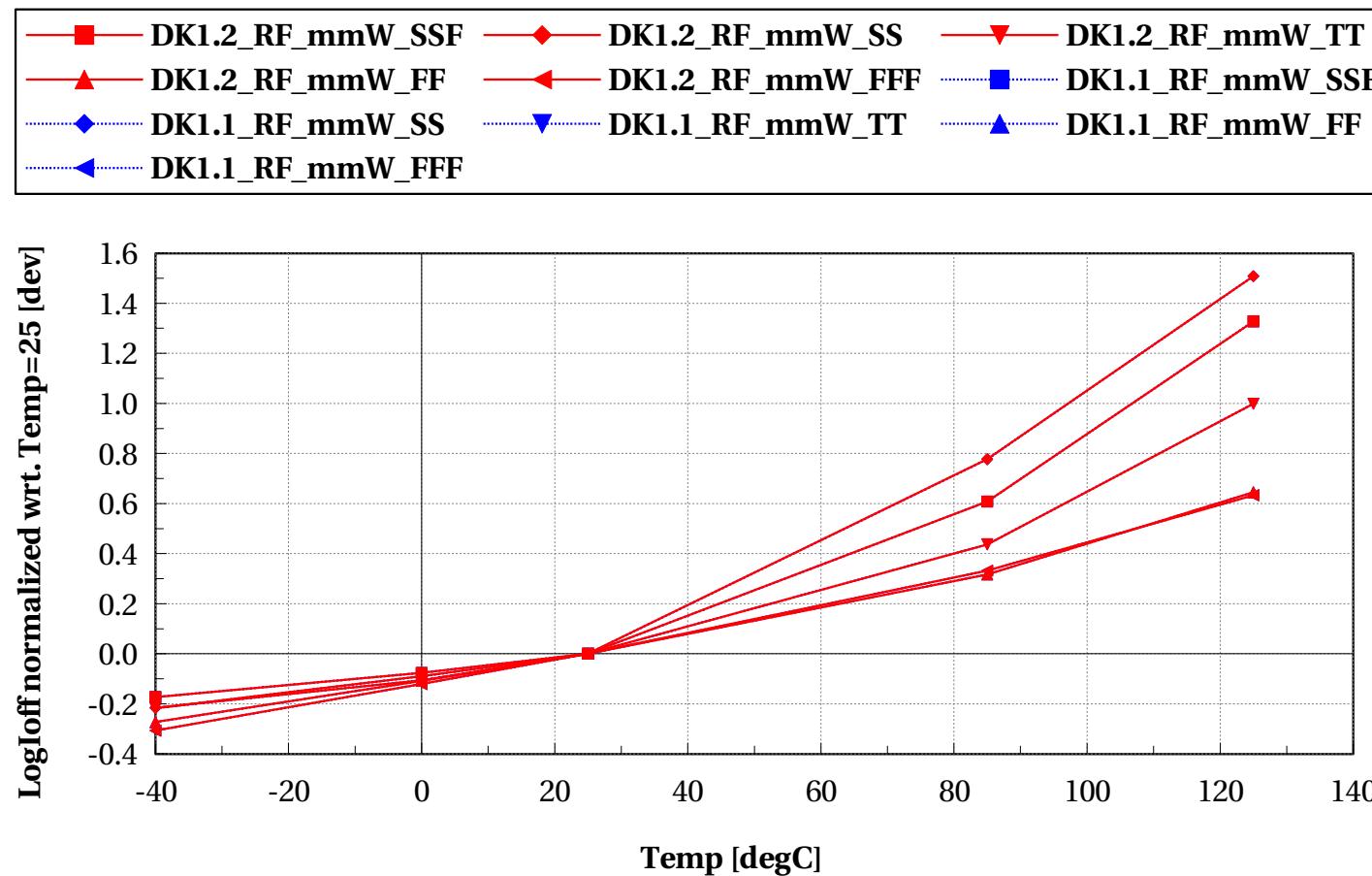
lvtpfet_acc, Vt_sat normalized wrt. Temp=25 [mV] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



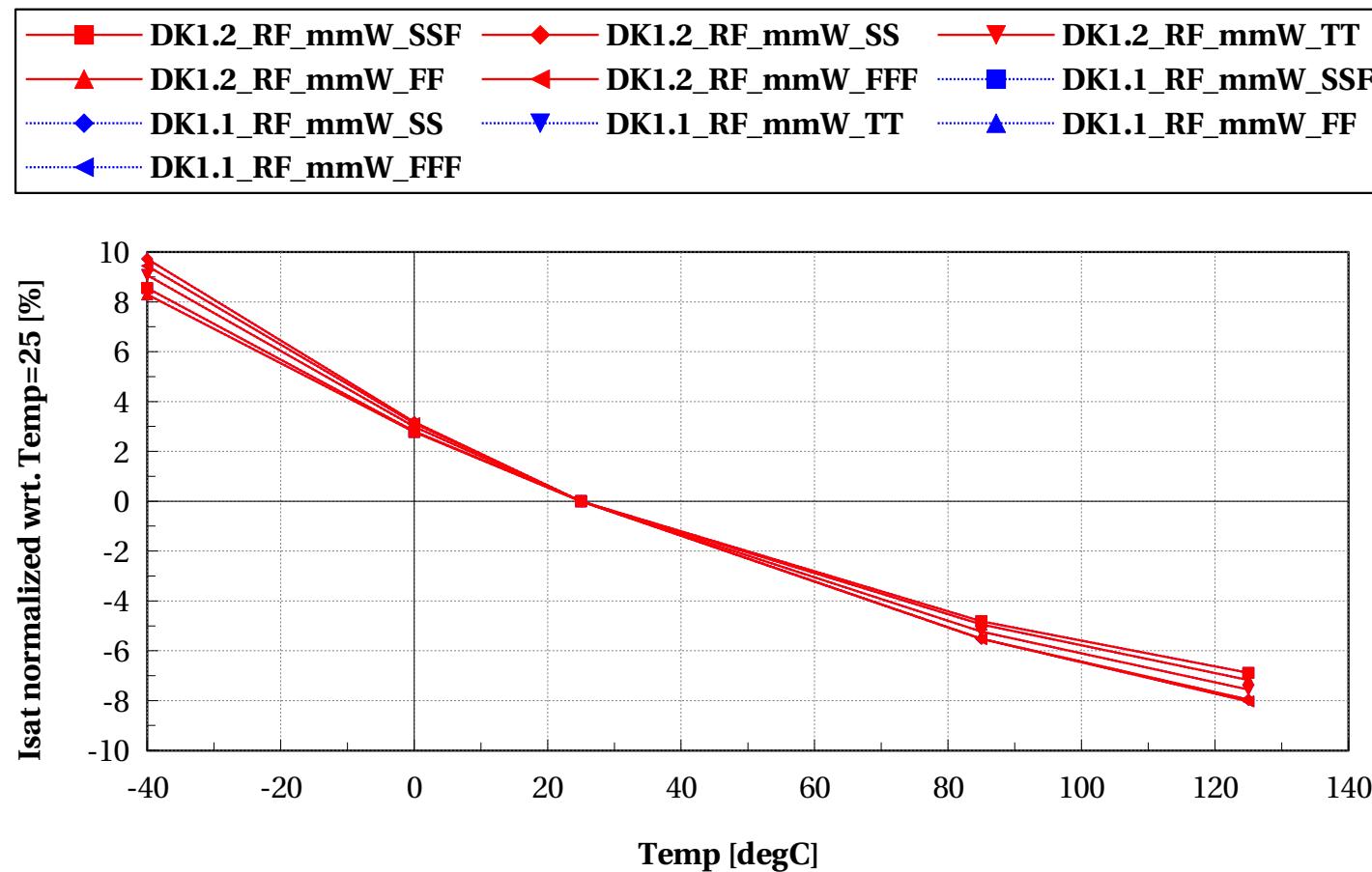
lvtpfet_acc, LogIoff normalized wrt. Temp=25 [dev] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



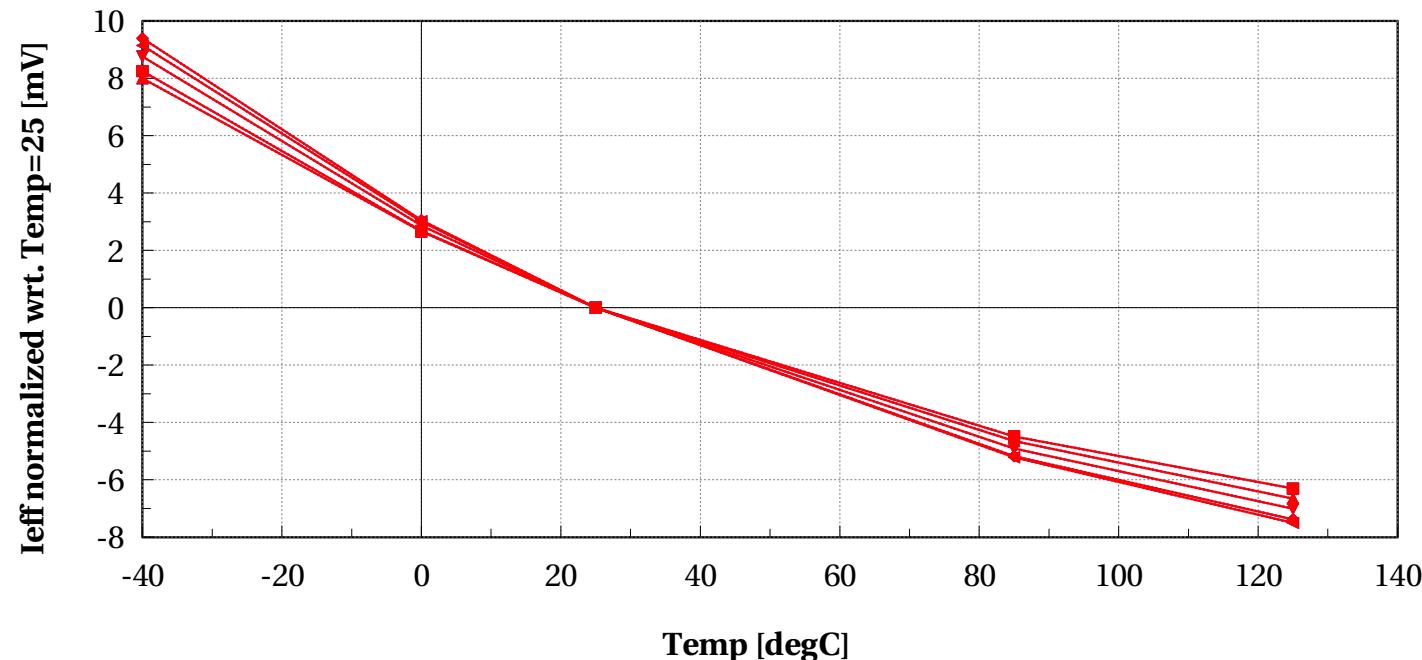
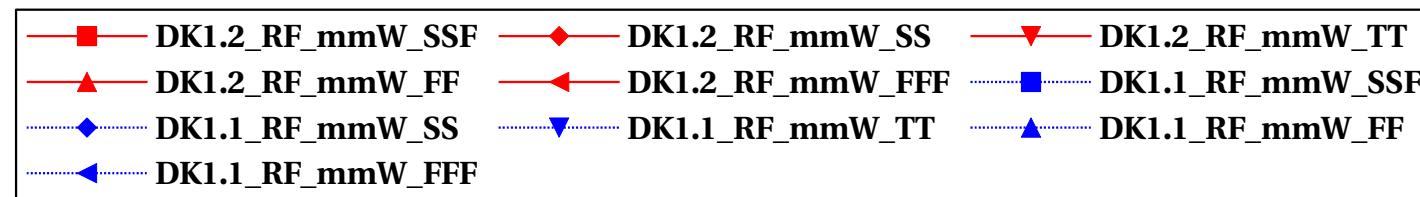
lvtpfet_acc, Isat normalized wrt. Temp=25 [%] vs Temp [degC]

w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, Ieff normalized wrt. Temp=25 [mV] vs Temp [degC]

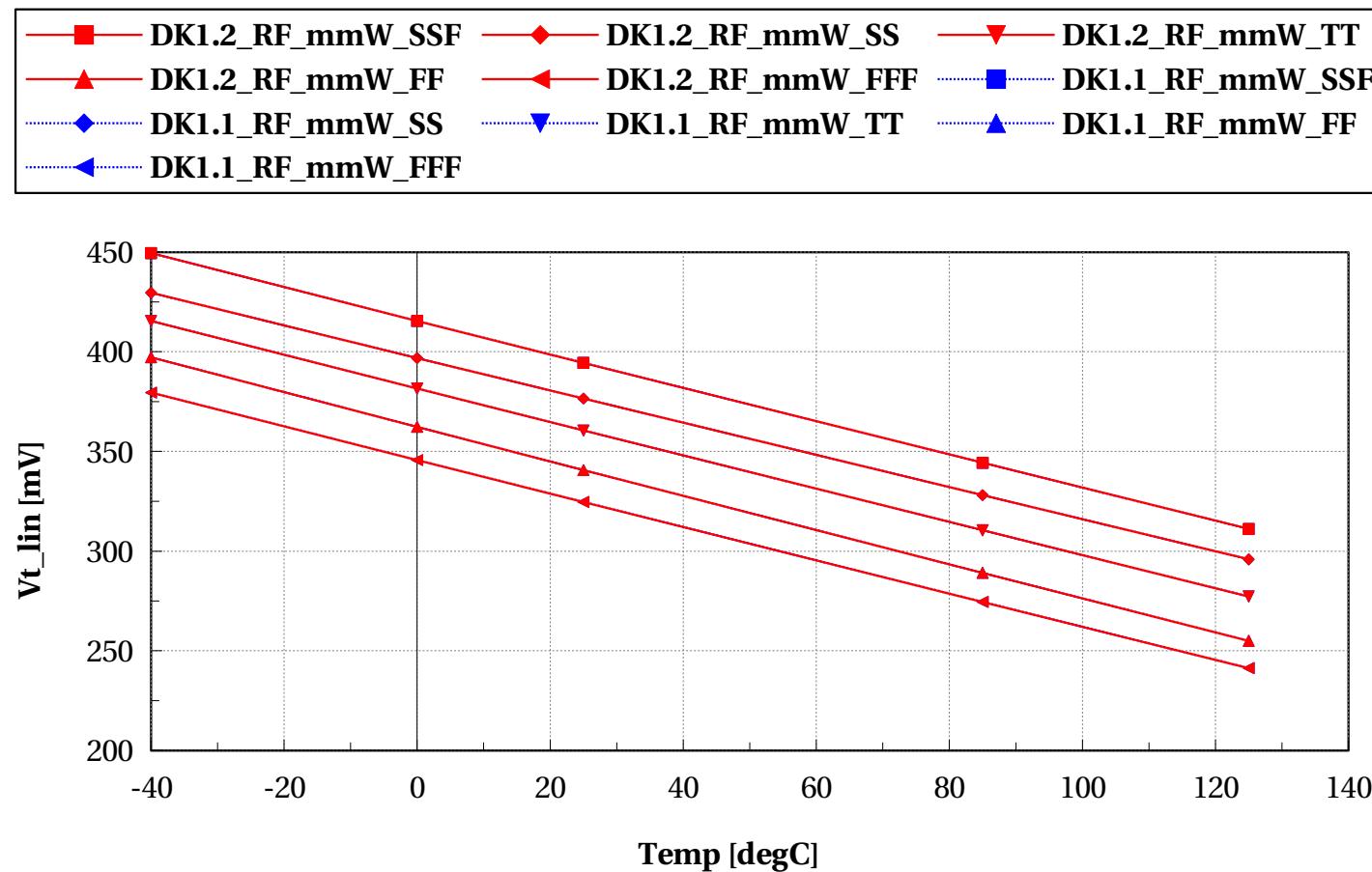
w==1e-6 and L==1e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp (L=30nm,W=300nm)

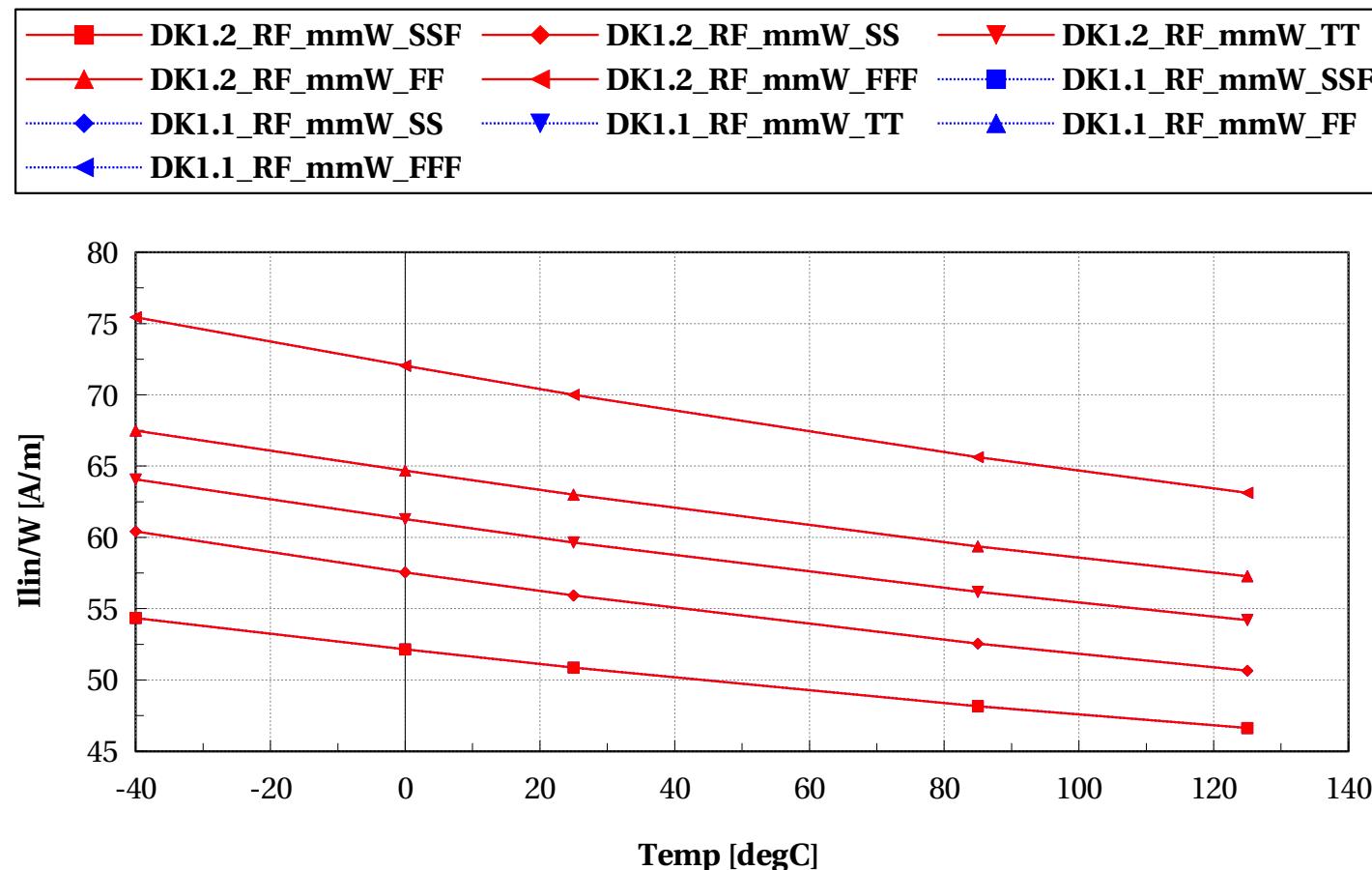
lvtpfet_acc, Vt_lin [mV] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



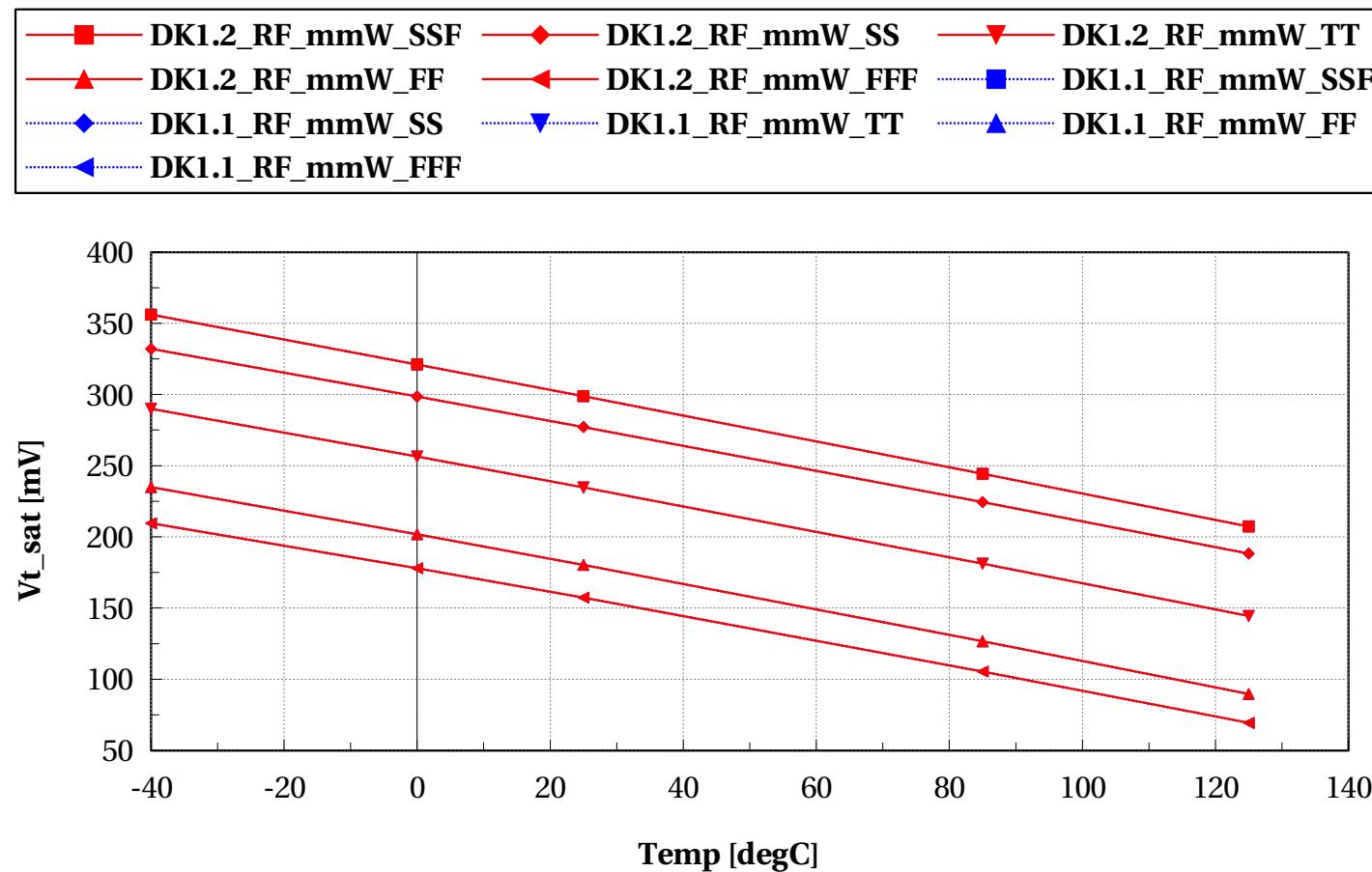
lvtpfet_acc, Ilin/W [A/m] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



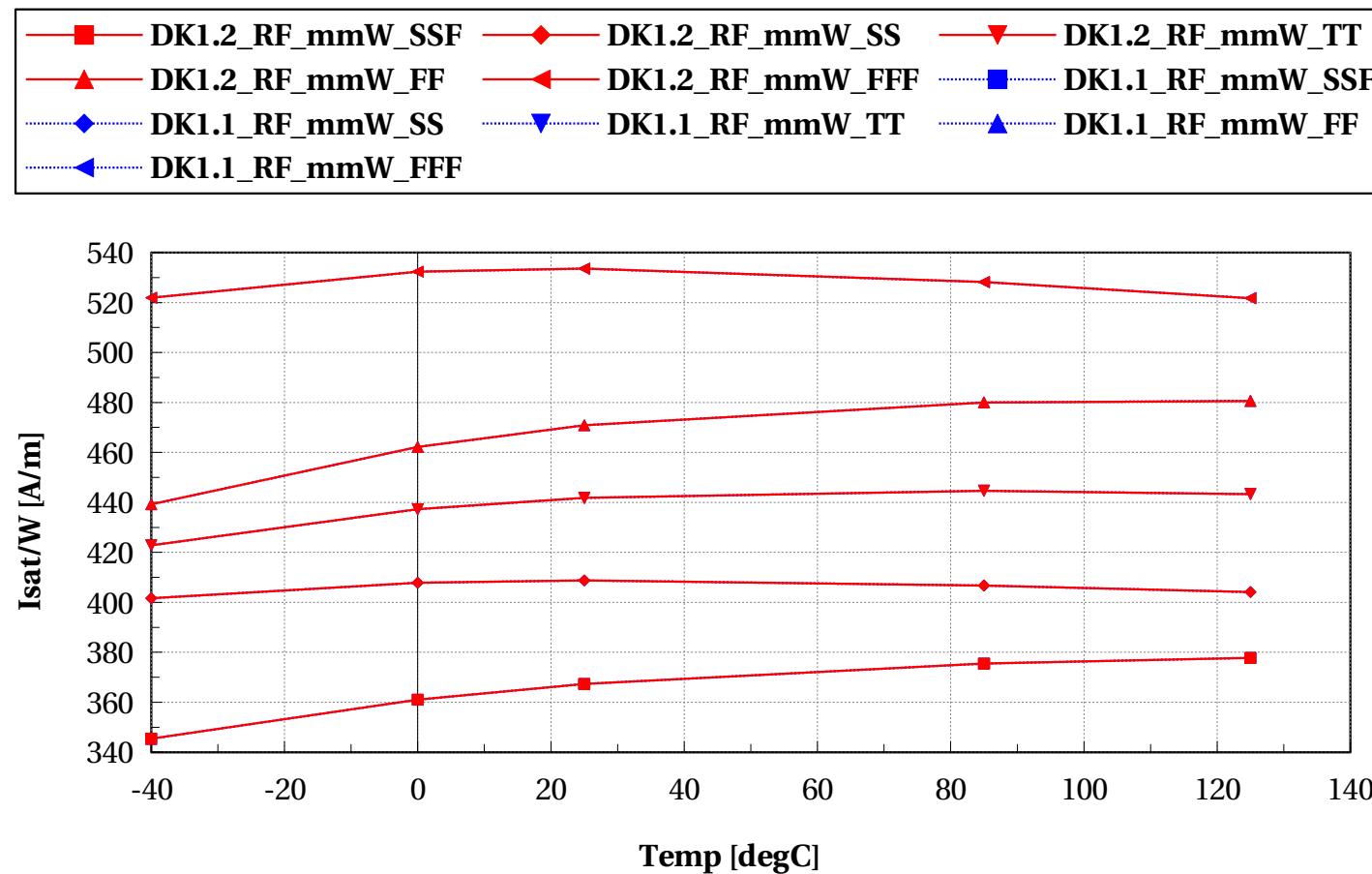
lvtpfet_acc, Vt_sat [mV] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



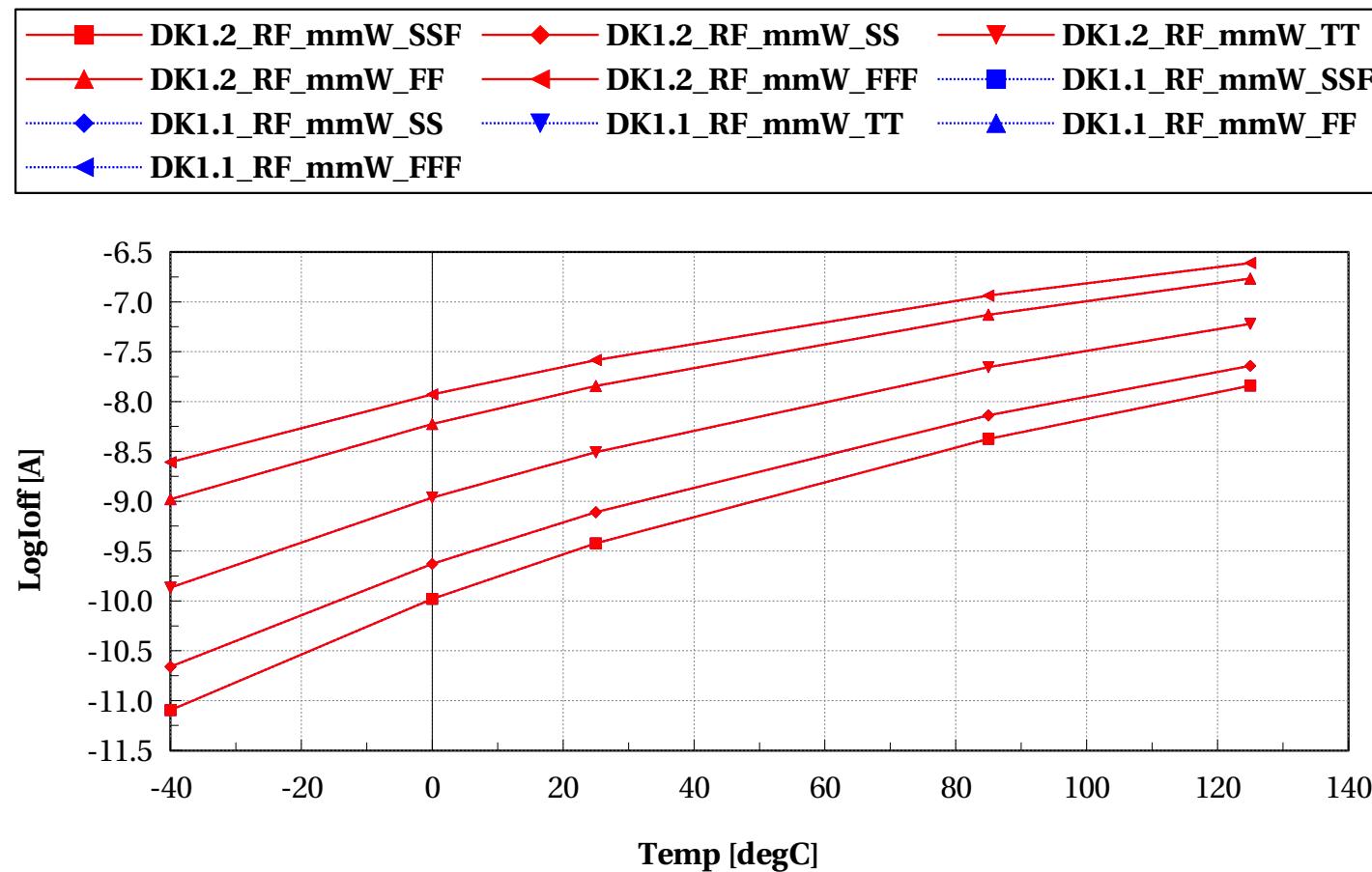
lvtpfet_acc, Isat/W [A/m] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



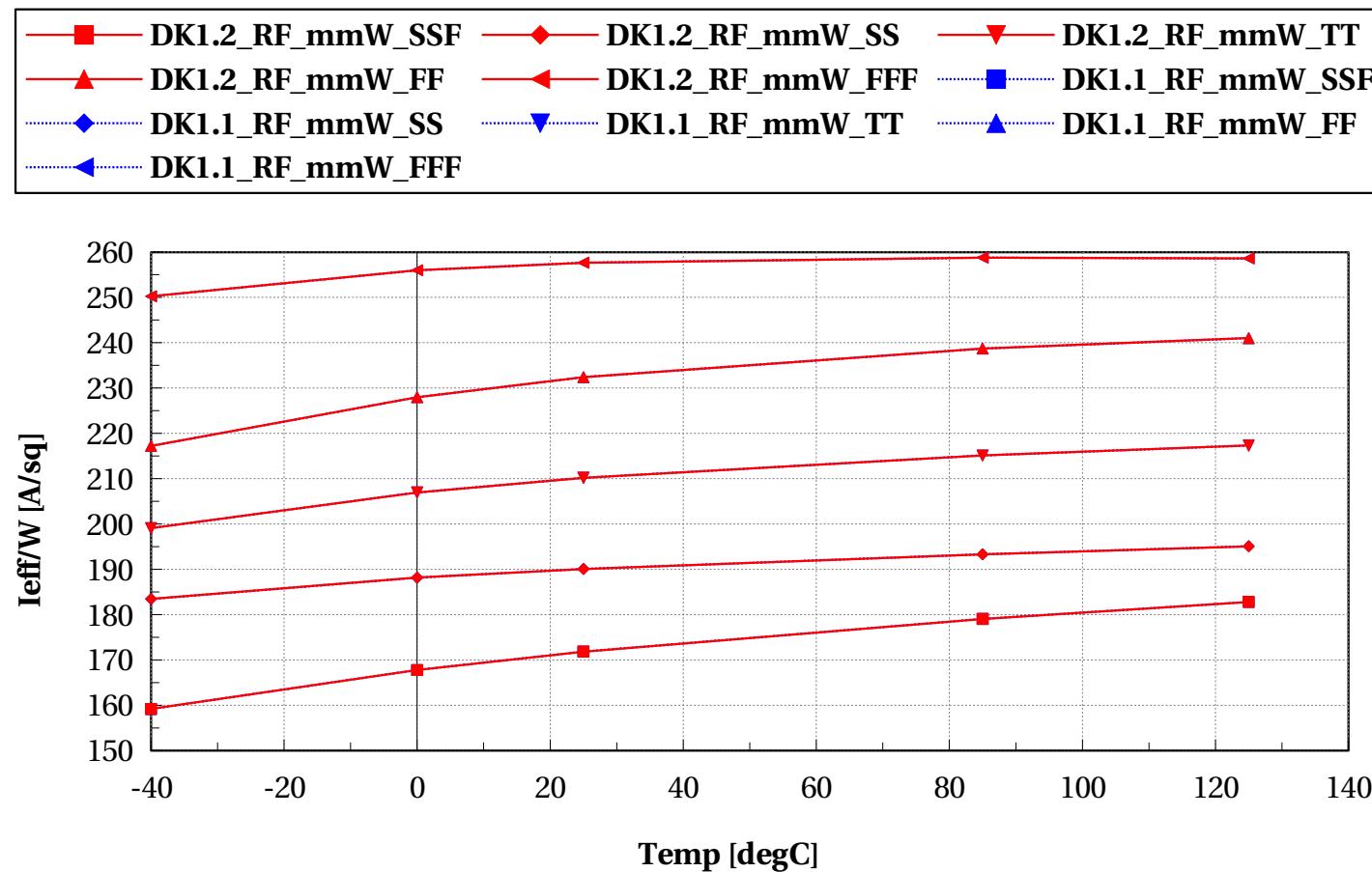
lvtpfet_acc, LogIoff [A] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, Ieff/W [A/sq] vs Temp [degC]

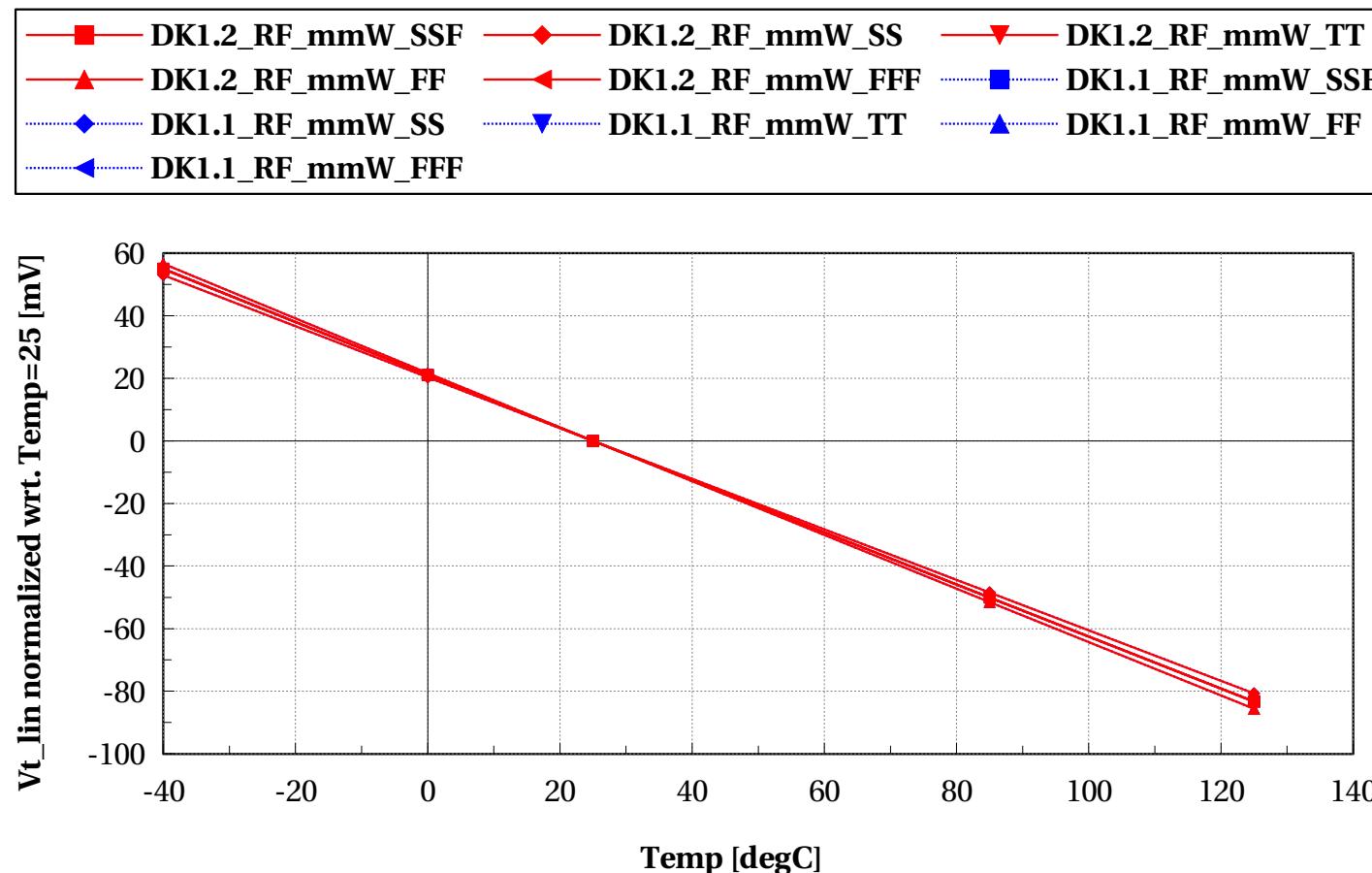
w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



Scaling versus Temp normalized (L=30nm,W=300nm)

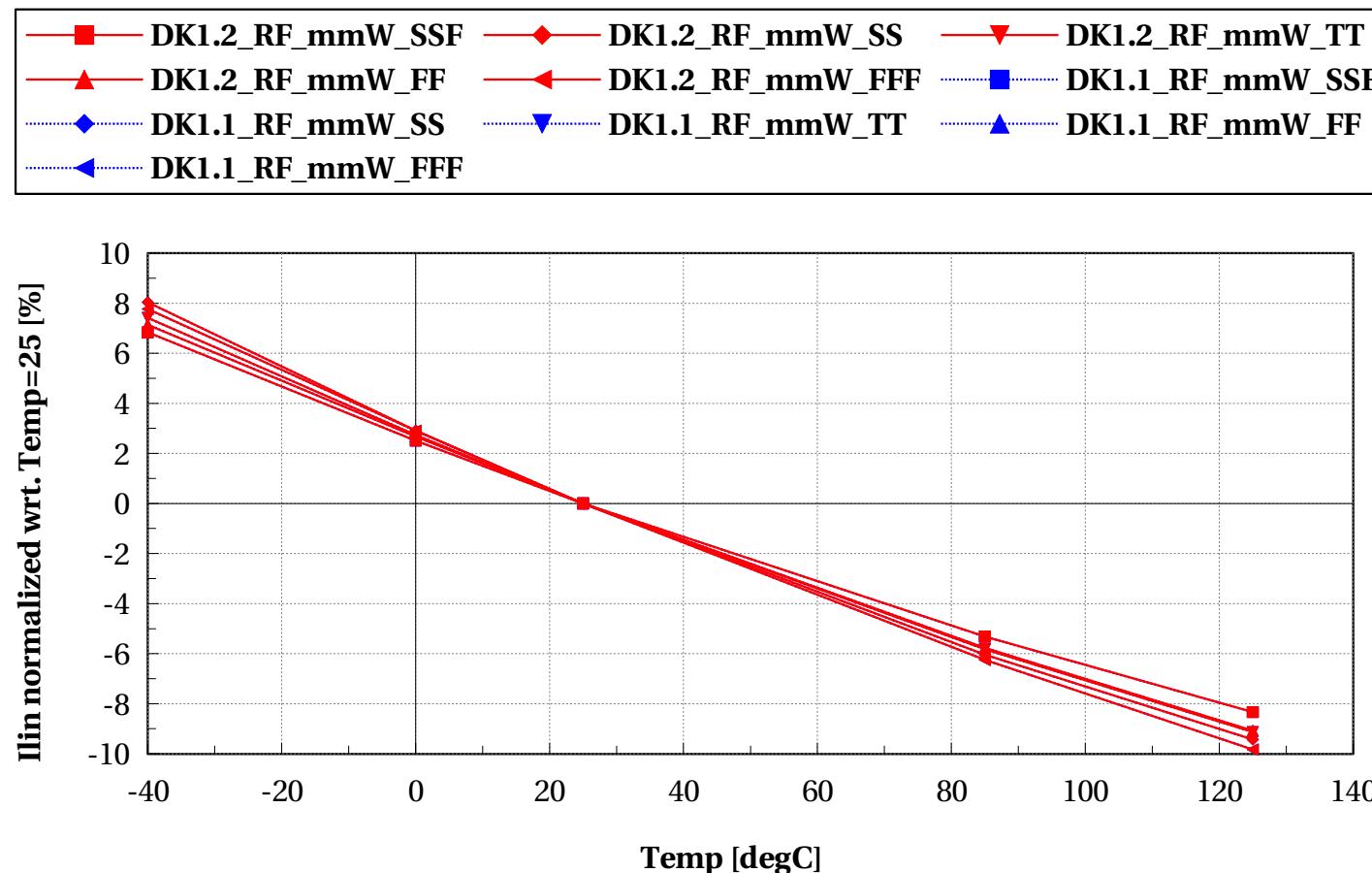
lvtpfet_acc, Vt_lin normalized wrt. Temp=25 [mV] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



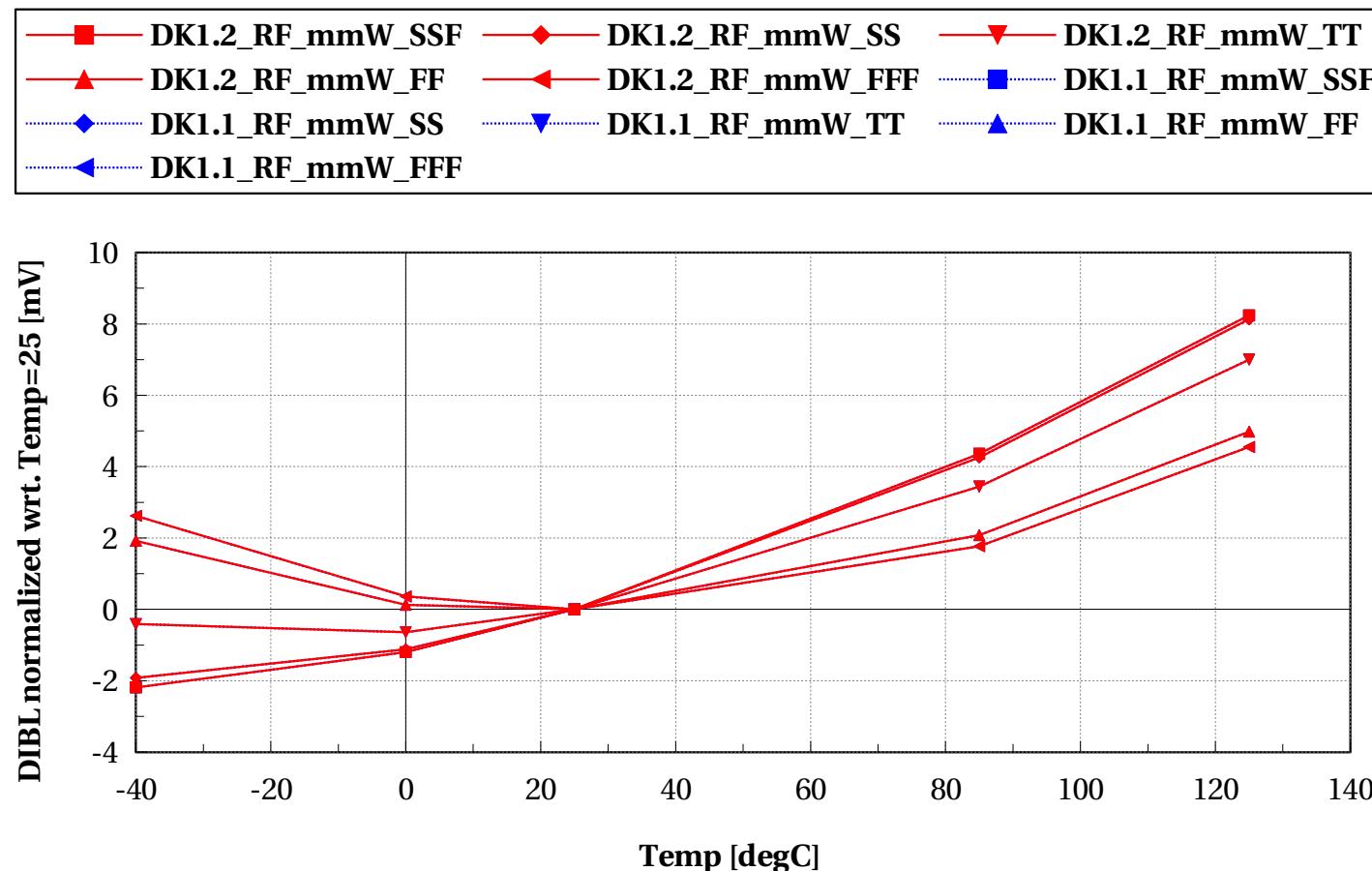
lvtpfet_acc, Ilin normalized wrt. Temp=25 [%] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



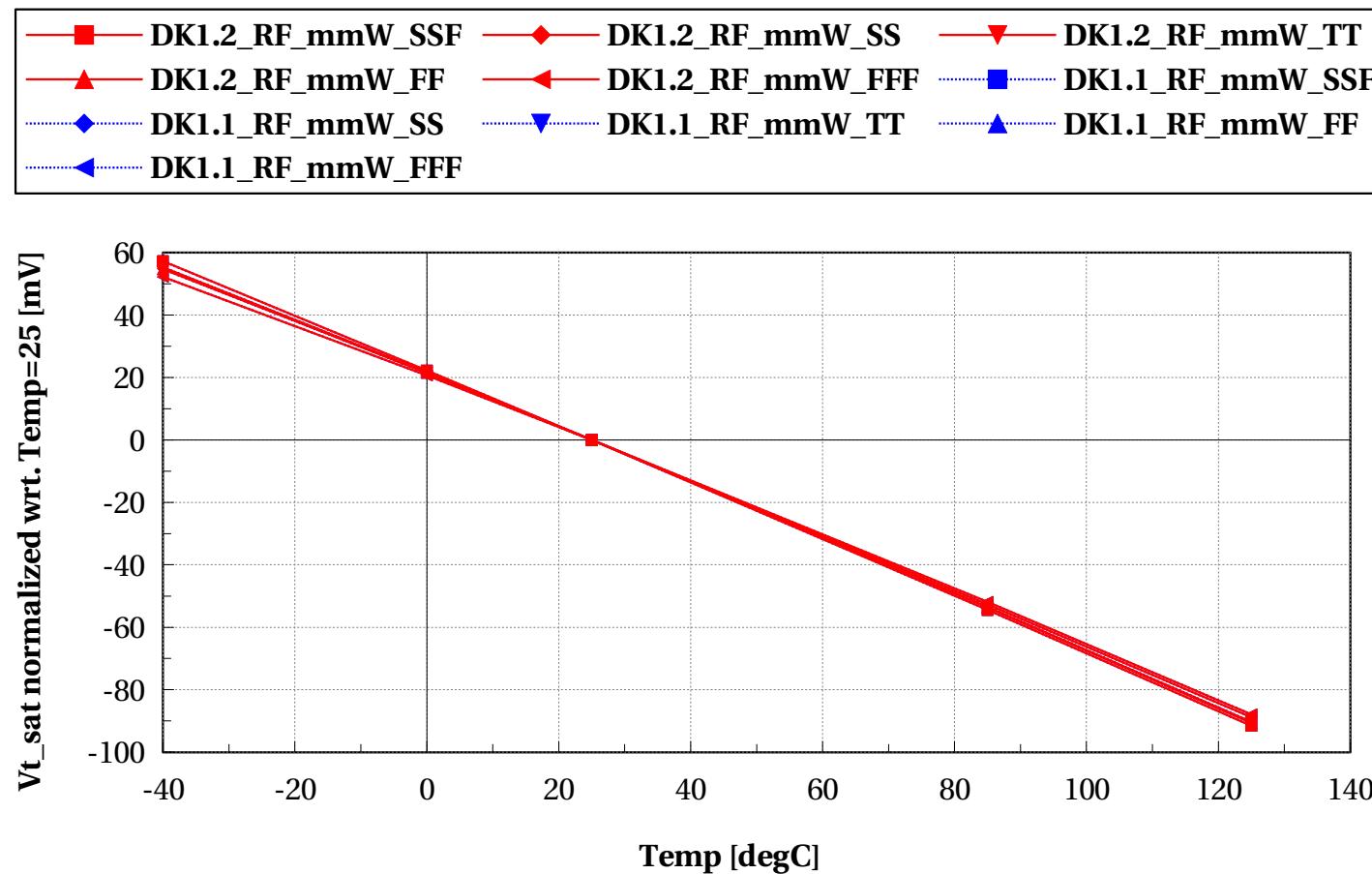
lvtpfet_acc, DIBL normalized wrt. Temp=25 [mV] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



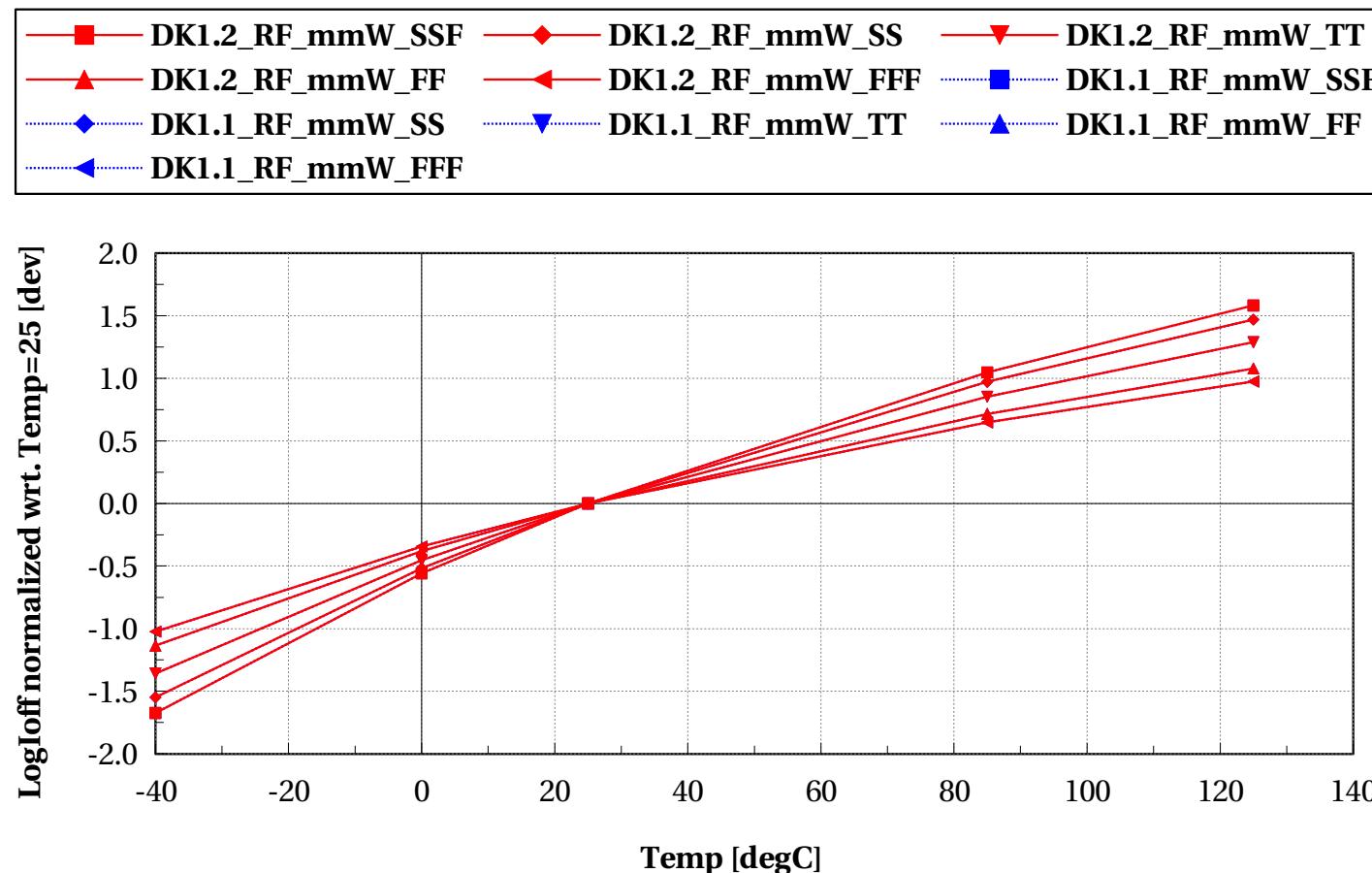
lvtpfet_acc, Vt_sat normalized wrt. Temp=25 [mV] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



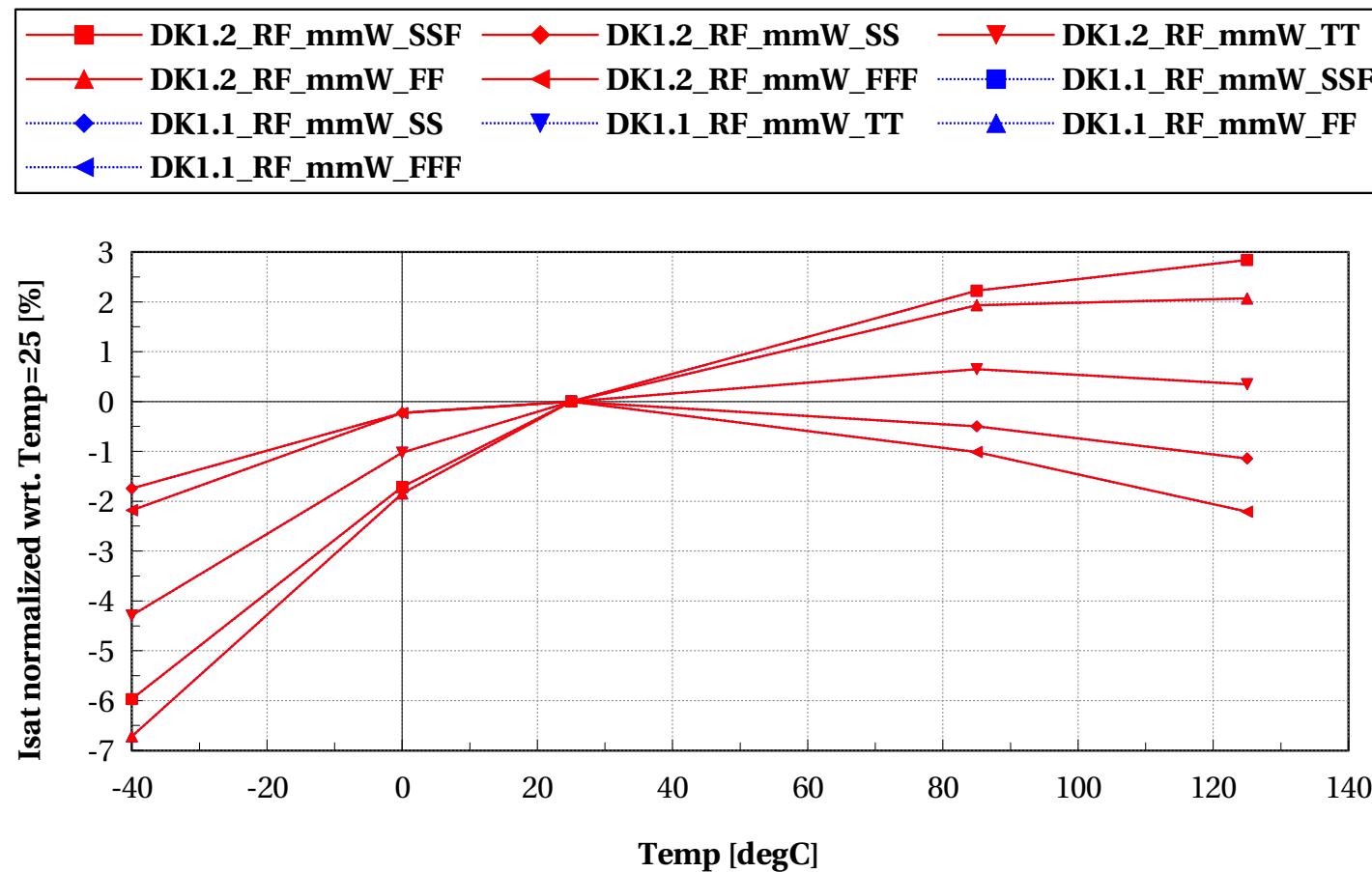
lvtpfet_acc, LogIoff normalized wrt. Temp=25 [dev] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



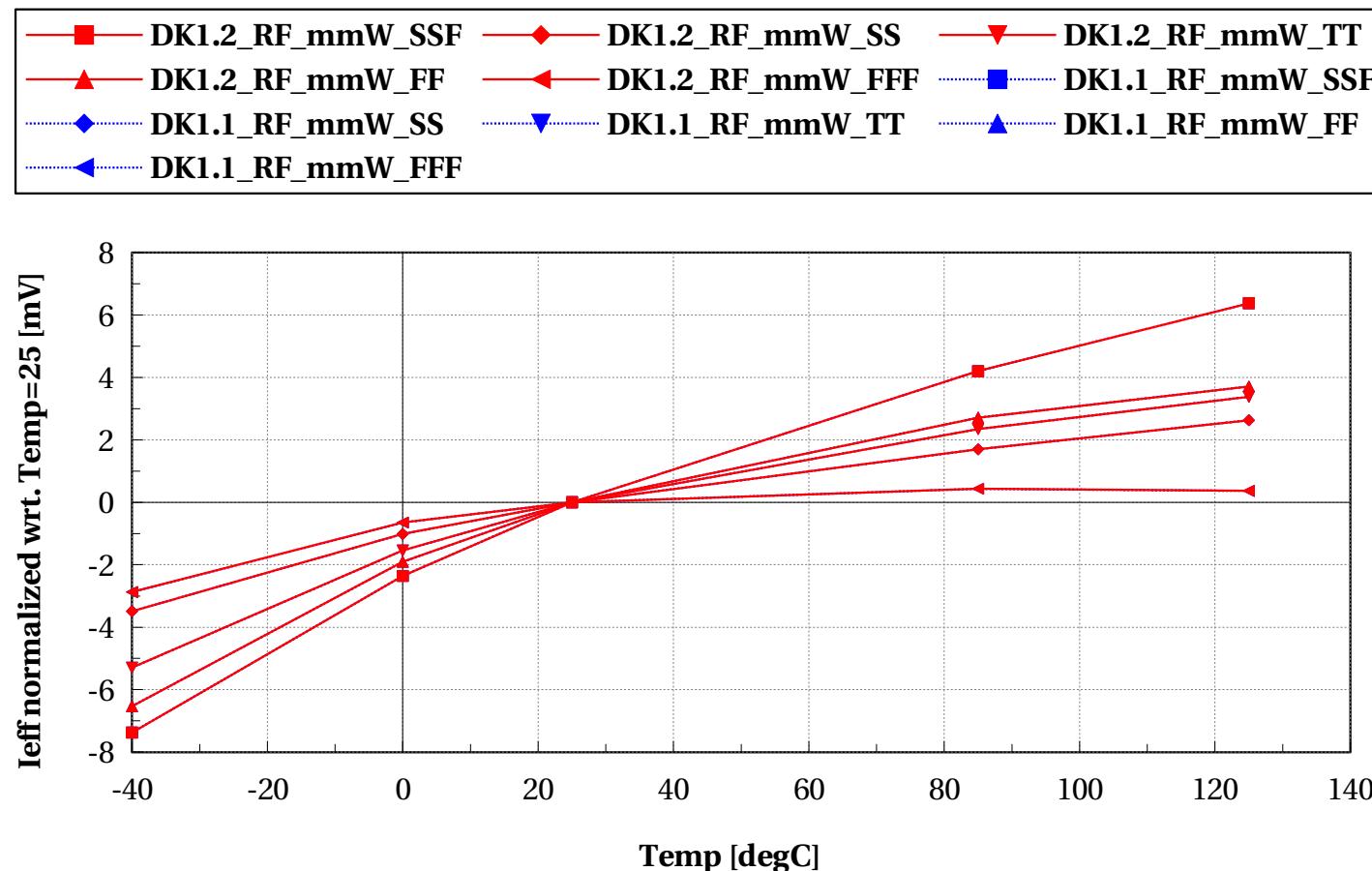
lvtpfet_acc, Isat normalized wrt. Temp=25 [%] vs Temp [degC]

w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



lvtpfet_acc, Ieff normalized wrt. Temp=25 [mV] vs Temp [degC]

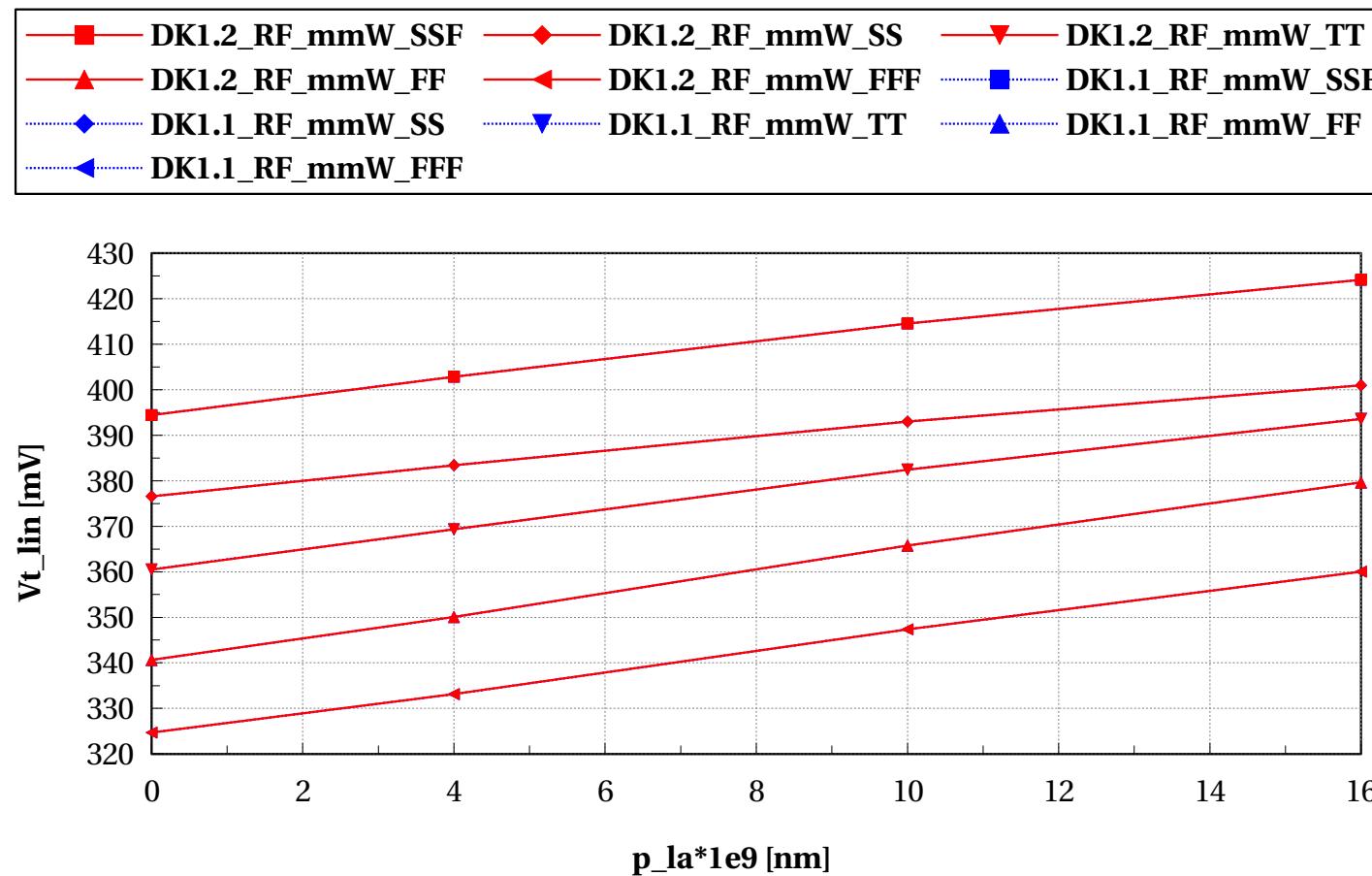
w==300e-9 and L==0.03e-6 and Vbs==1 and p_la==0 and devType=="PCELLwoWPE"



Poly bias effect (L=30nm, W=300nm)

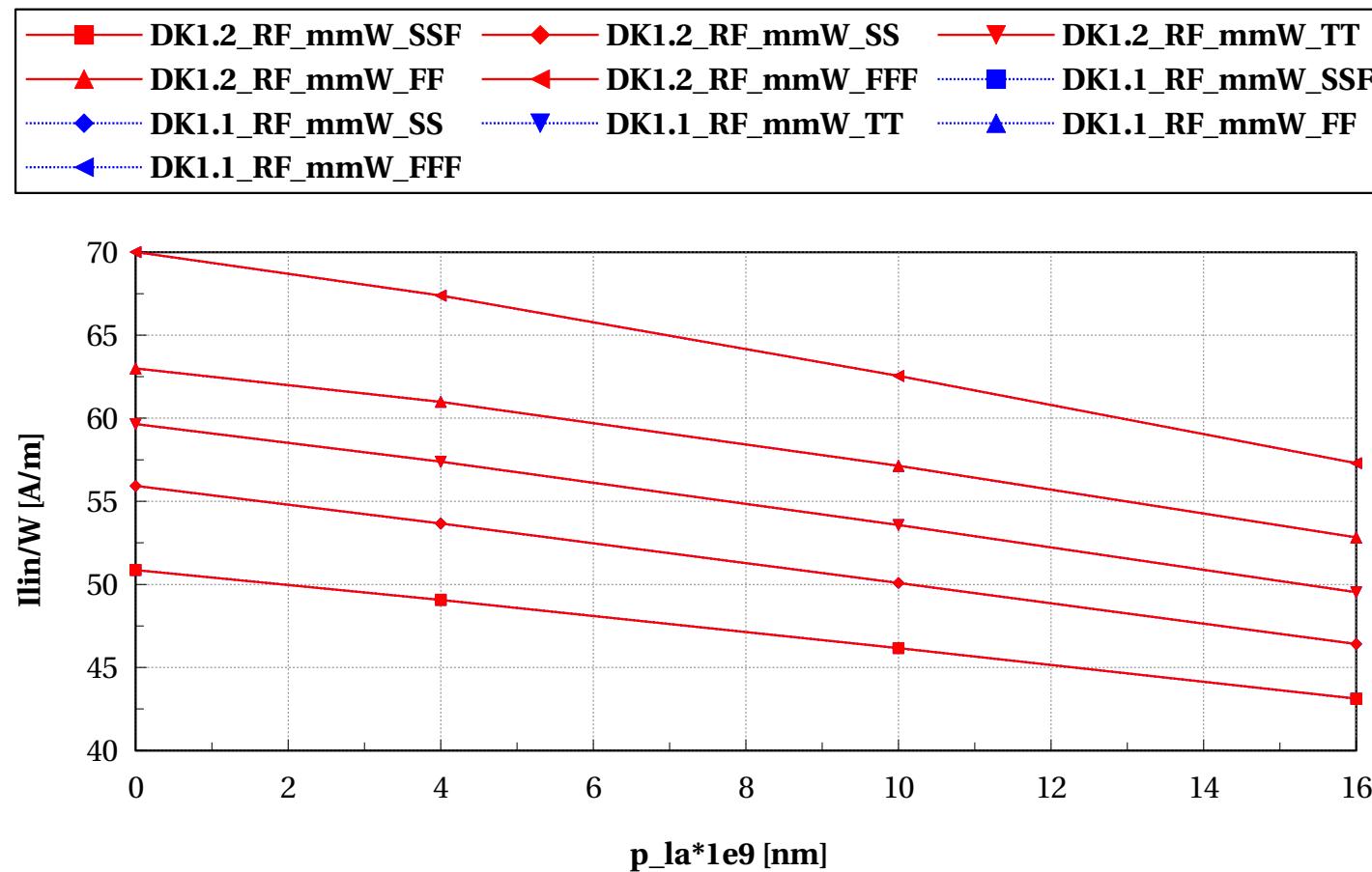
lvtpfet_acc, Vt_lin [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



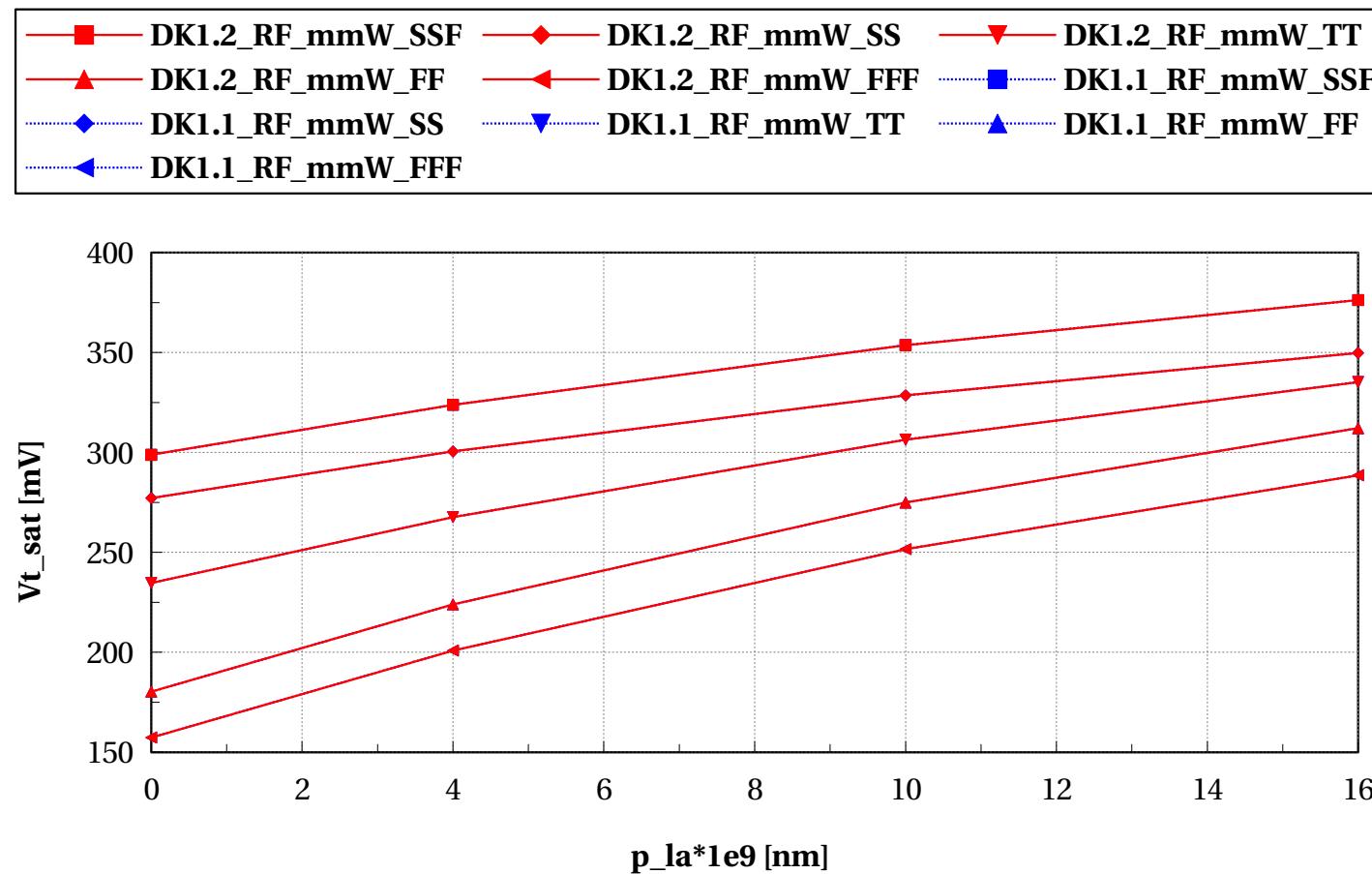
lvtpfet_acc, Ilin/W [A/m] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



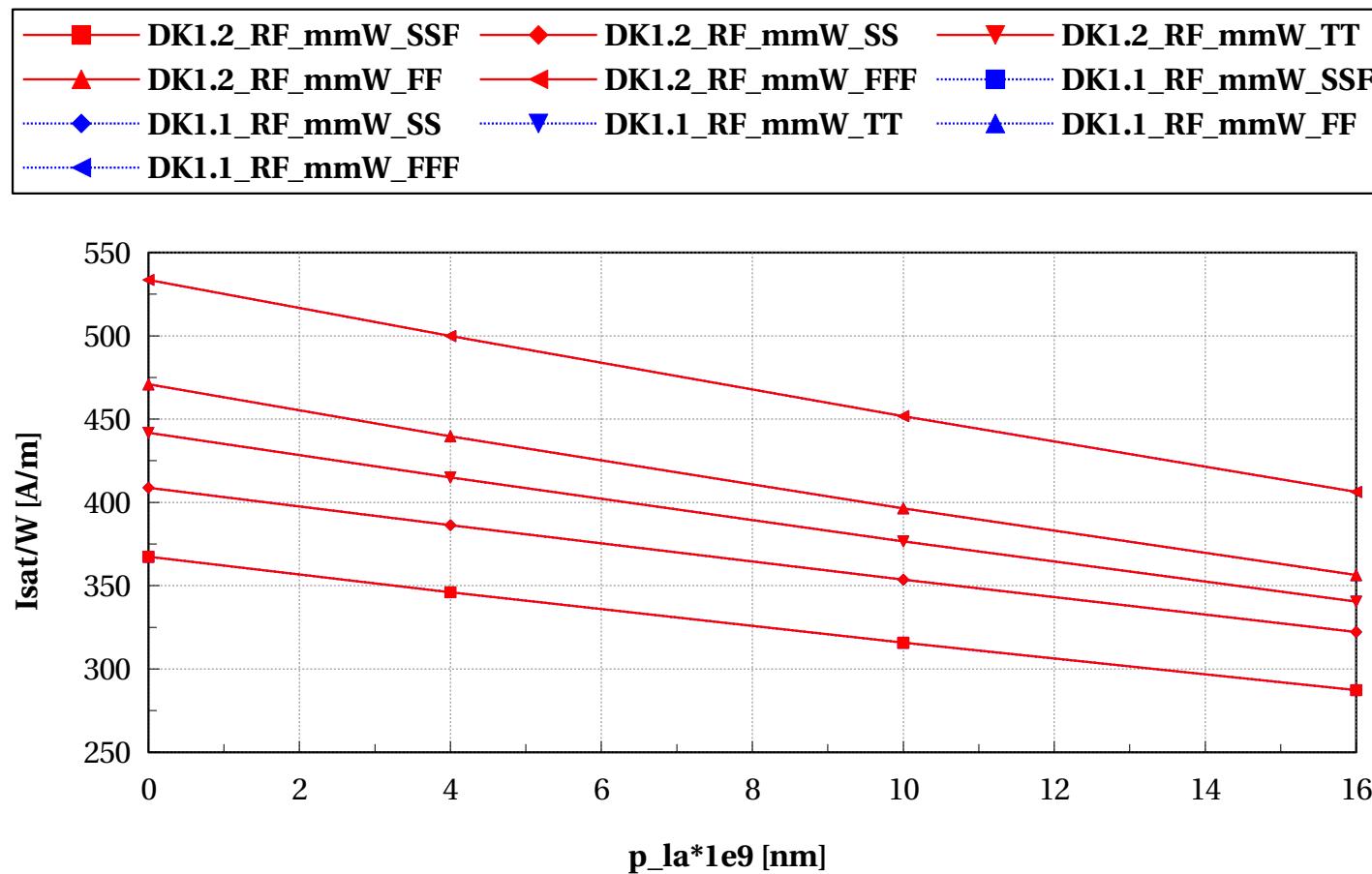
lvtpfet_acc, Vt_sat [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



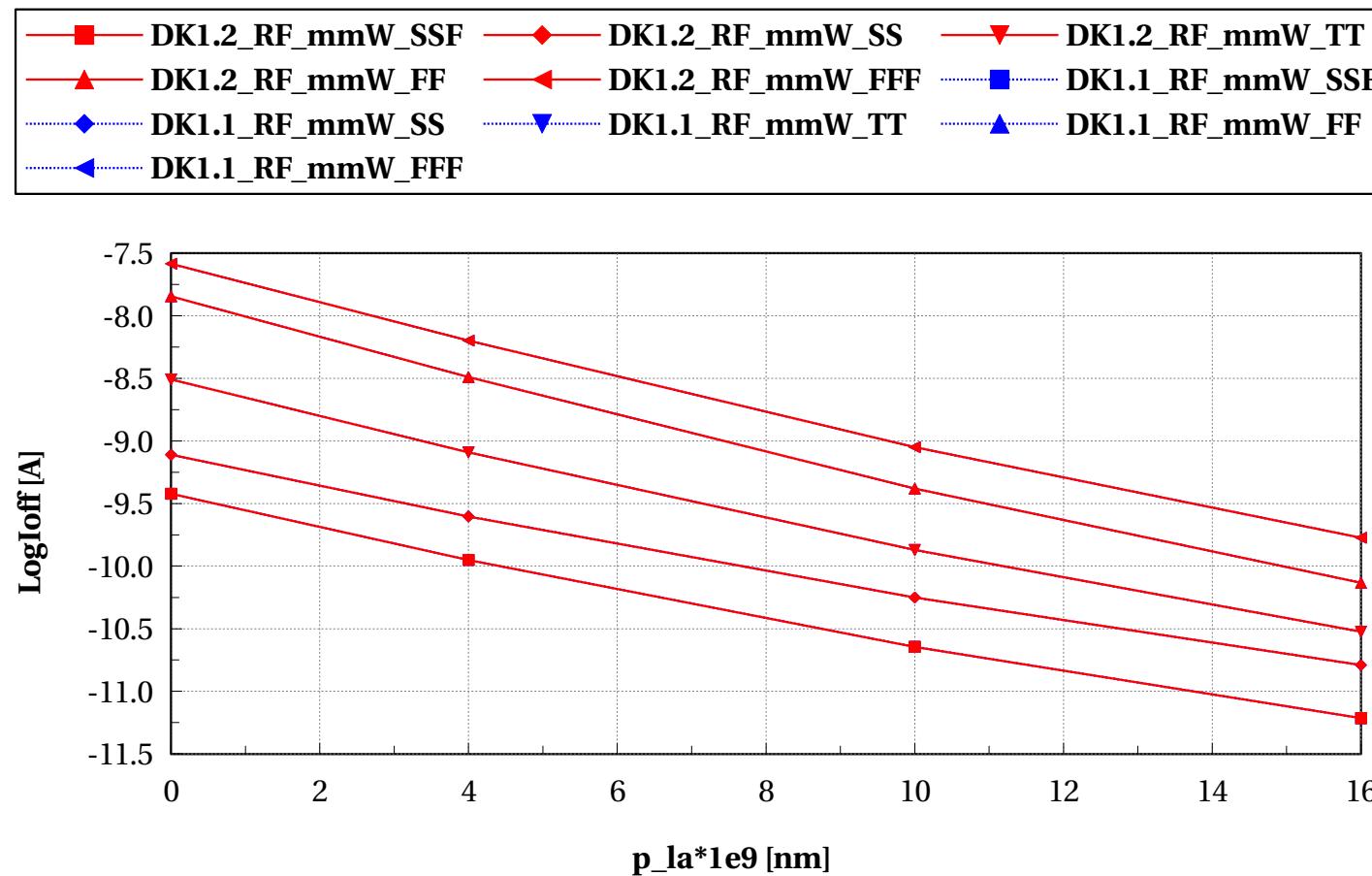
lvtpfet_acc, Isat/W [A/m] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



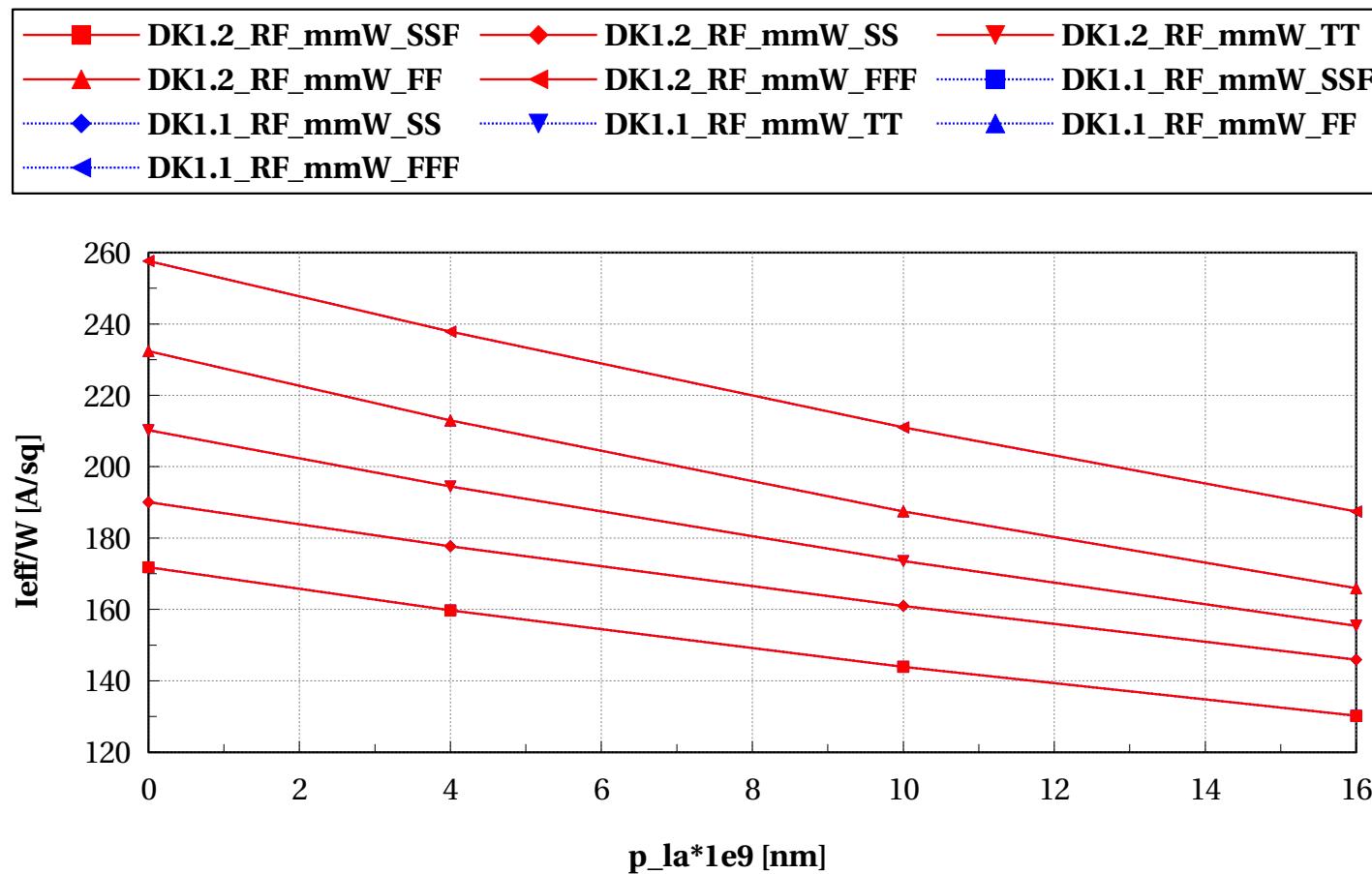
lvtpfet_acc, LogIoff [A] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



lvtpfet_acc, Ieff/W [A/sq] vs p_la*1e9 [nm]

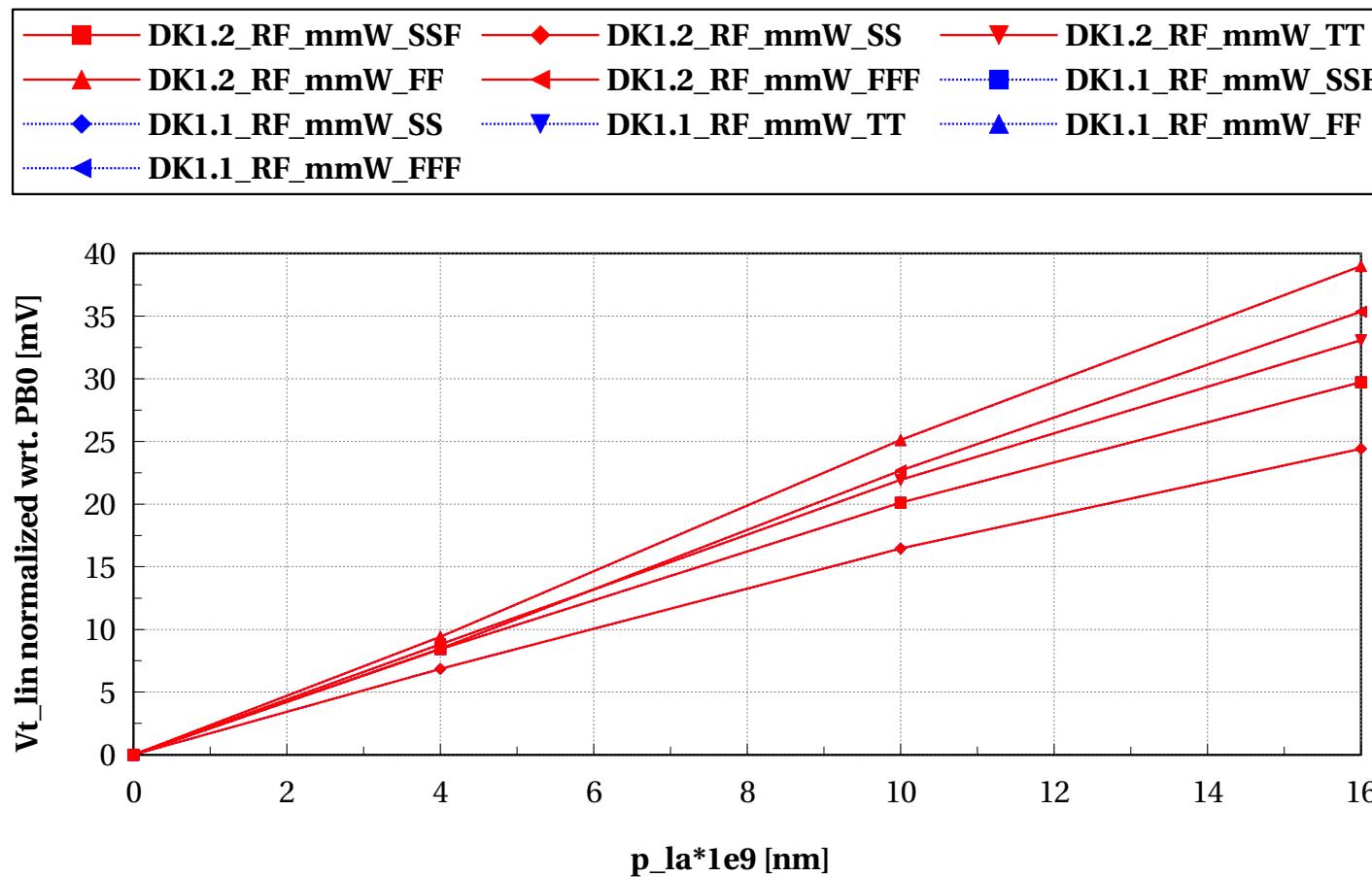
$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



Poly bias effect normalized (L=30nm,W=300nm)

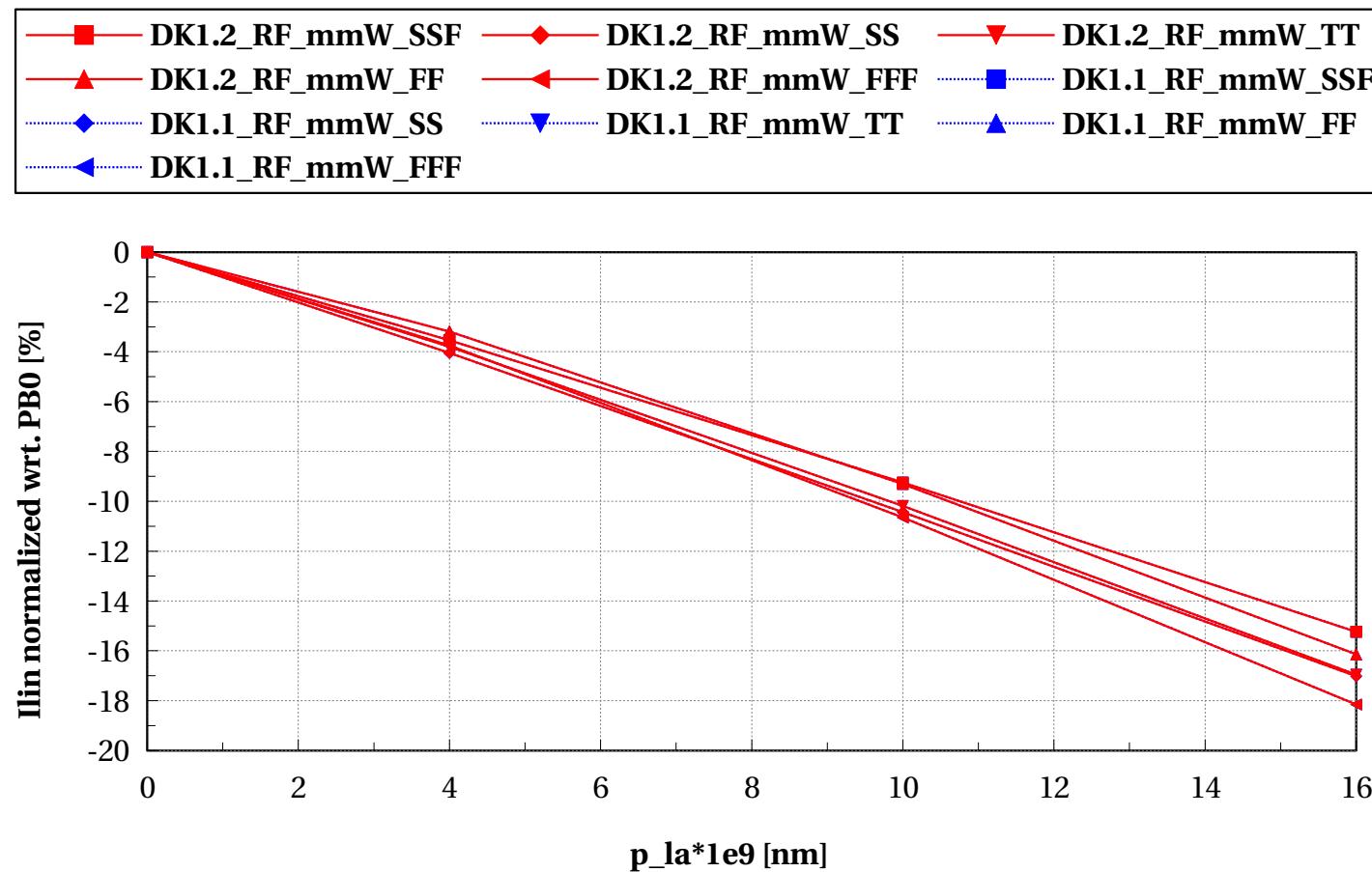
lvtpfet_acc, Vt_lin normalized wrt. PB0 [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



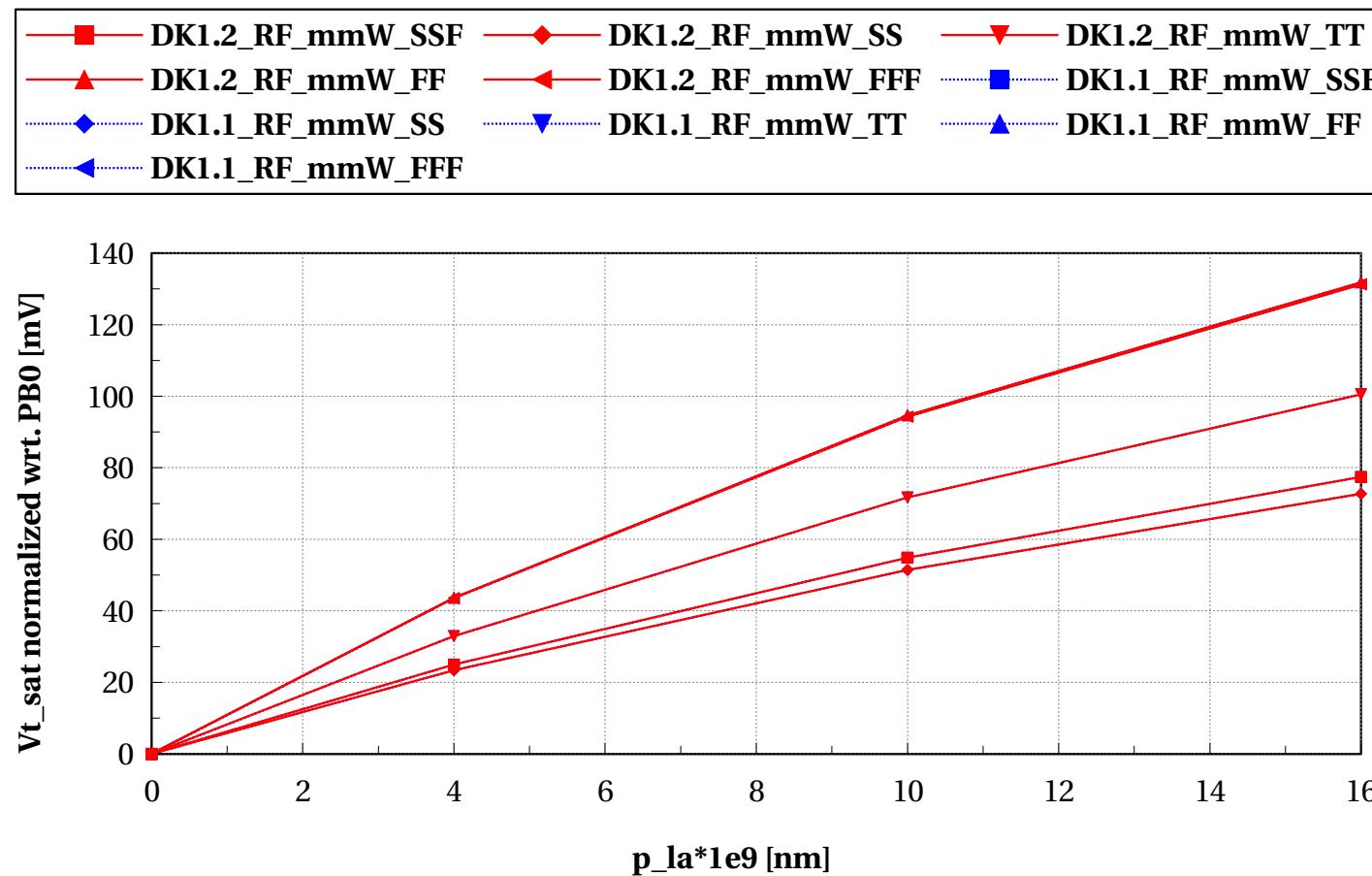
lvtpfet_acc, Ilin normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



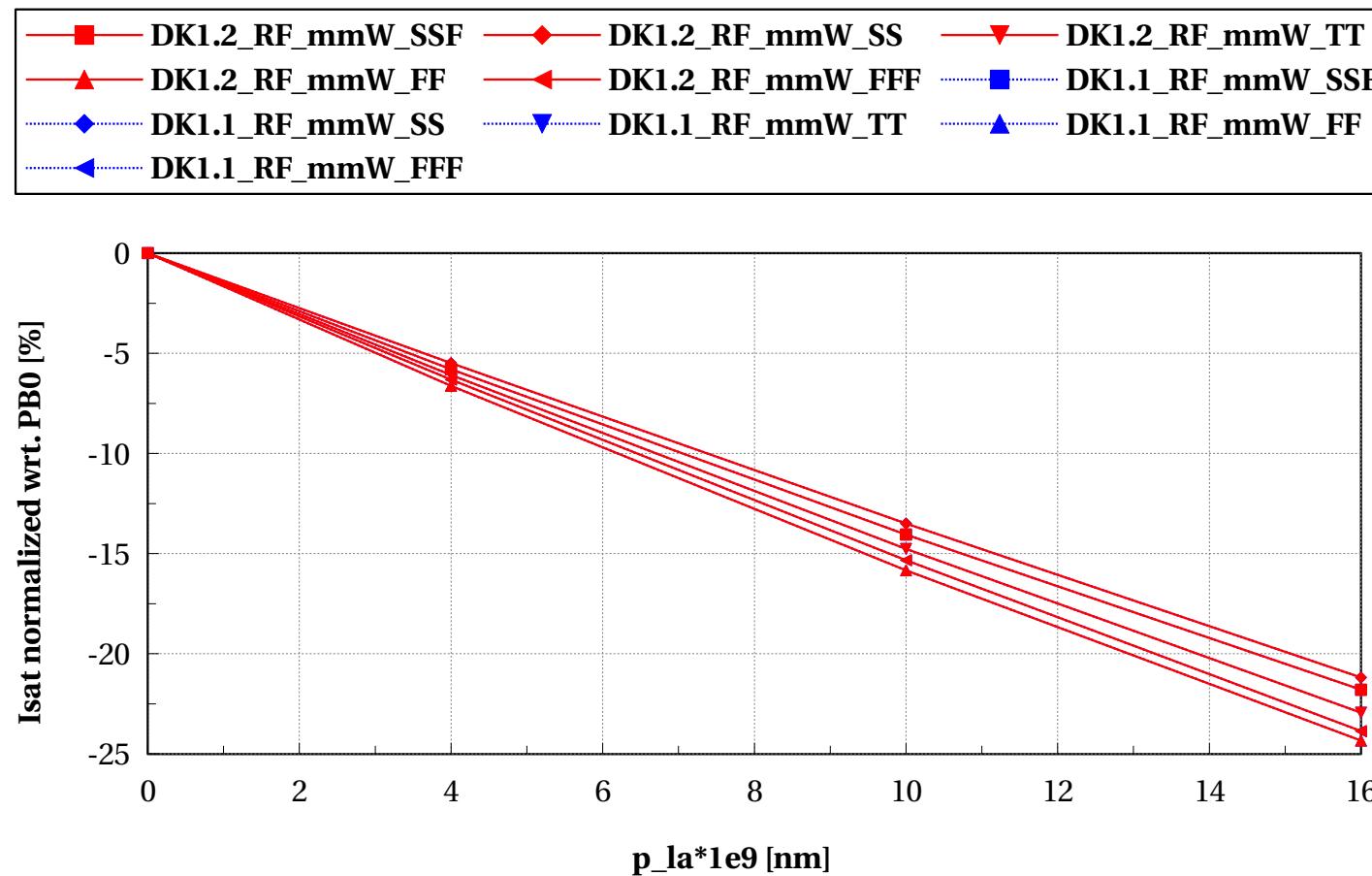
lvtpfet_acc, Vt_sat normalized wrt. PB0 [mV] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



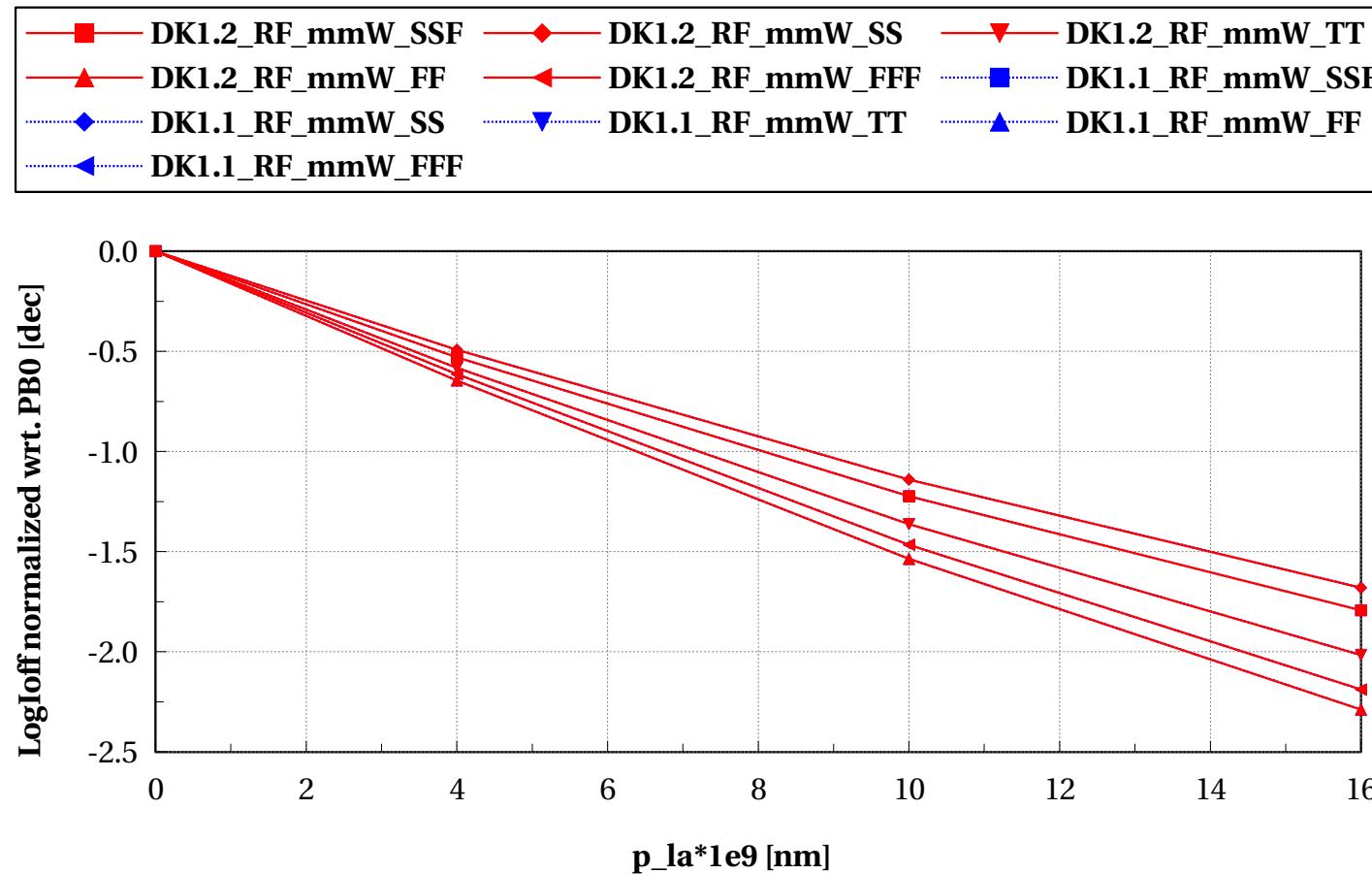
lvtpfet_acc, Isat normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



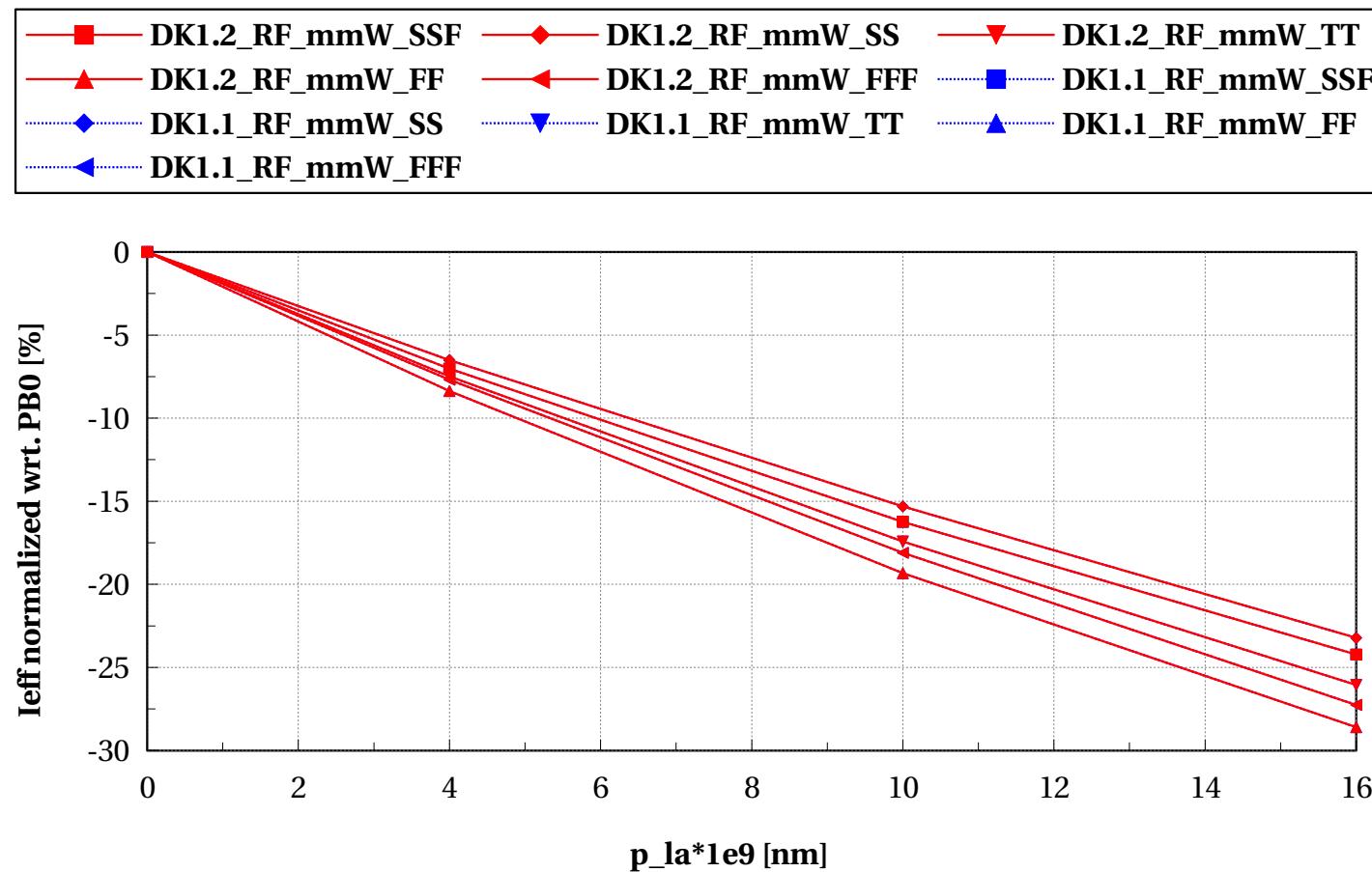
lvtpfet_acc, LogIoff normalized wrt. PB0 [dec] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



lvtpfet_acc, Ieff normalized wrt. PB0 [%] vs p_la*1e9 [nm]

$I = 30e-9$ and $w = 0.3e-6$ and $V_{BS} = 1$ and $Temp = 25$ and $devType = "PCELLwoWPE"$



Annex

Conditions of simulations

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

- Model lvtnfet_acc (DK1.2_RF_mmW)

- ✓ Input Parameters

- ✗ vds_off = vds_sat V
 - ✗ vds_cgd = 0 V
 - ✗ vds_cgg = 0 V
 - ✗ mc_sens = 0
 - ✗ vds_lin = 0.05 V
 - ✗ ivt = 300e-9 A
 - ✗ model_version = 1.3.e
 - ✗ ams_release = 2018.3
 - ✗ vgs_stop = vdd V
 - ✗ dlshrink_ivt = 0
 - ✗ sbenchlsf_release = Alpha
 - ✗ vds_sat = Vdd V
 - ✗ mc_nsigma = 3
 - ✗ shrink_ivt = 1

- ✗ dlshrink_tinv = 3e-9
- ✗ vgs_start = -0.5 V
- ✗ plashrink_ivt = 1
- ✗ ithslwi = 10e-9 A
- ✗ vds_cbd = 0 V
- ✗ vddmax = vdd
- ✗ voffset = 0.2 V
- ✗ mc_runs = 1000
- ✗ vstep_ivt = 0.005 V
- ✗ vgs_off = 0 V
- ✗ temp = 25 °C
- ✗ f_ext = 100k Hz
- ✗ vbs = 0 V
- ✗ vdd = 1 V
- ✗ shrink_tinv = 0.9
- ✗ vds_gmfd = Vdd/2 V
- ✓ Sweep Parameters
 - ✗ temp = -40.0, 0.0, 25.0, 85.0, 125.0
- ✓ Extra parameters
 - ✗ lvt_dev = 0
 - ✗ gflag_noisedev_lvt_cmos028fdsoi = 0
- Model lvtpfet_acc (DK1.2_RF_mmW)
 - ✓ Input Parameters
 - ✗ vds_off = vds_sat V
 - ✗ vds_cgd = 0 V

~~x~~ vds_cgg = 0 V
~~x~~ mc_sens = 0
~~x~~ vds_lin = 0.05 V
~~x~~ ivt = 70e-9 A
~~x~~ model_version = 1.3.e
~~x~~ ams_release = 2018.3
~~x~~ vgs_stop = vdd V
~~x~~ dlshrink_ivt = 0
~~x~~ sbenchlsf_release = Alpha
~~x~~ vds_sat = Vdd V
~~x~~ mc_nsigma = 3
~~x~~ shrink_ivt = 1
~~x~~ dlshrink_tinv = 3e-9
~~x~~ vgs_start = -0.5 V
~~x~~ plashrink_ivt = 1
~~x~~ ithslwi = 10e-9 A
~~x~~ vds_cbd = 0 V
~~x~~ vddmax = vdd
~~x~~ voffset = 0.2 V
~~x~~ mc_runs = 1000
~~x~~ vstep_ivt = 0.005 V
~~x~~ vgs_off = 0 V
~~x~~ temp = 25 °C
~~x~~ f_ext = 100k Hz
~~x~~ vbs = 1 V

- vdd = 1 V
- shrink_tinv = 0.9
- vds_gmgd = Vdd/2 V
- Sweep Parameters
 - temp = -40.0, 0.0, 25.0, 85.0, 125.0
- Extra parameters
 - lvt_dev = 0
 - gflag_noisedev_lvt_cmos028fdsoi = 0

● Model lvtnfet_acc (DK1.1_RF_mmW)

- Input Parameters
 - vds_off = vds_sat V
 - vds_cgd = 0 V
 - vds_cgg = 0 V
 - mc_sens = 0
 - vds_lin = 0.05 V
 - ivt = 300e-9 A
 - model_version = 1.3.d
 - ams_release = 2018.3
 - vgs_stop = vdd V
 - dlshrink_ivt = 0
 - sbenchlsf_release = Alpha
 - vds_sat = Vdd V
 - mc_nsigma = 3
 - shrink_ivt = 1
 - dlshrink_tinv = 3e-9

- ✗ vgs_start = -0.5 V
- ✗ plashrink_ivt = 1
- ✗ ithslwi = 10e-9 A
- ✗ vds_cbd = 0 V
- ✗ vddmax = vdd
- ✗ voffset = 0.2 V
- ✗ mc_runs = 1000
- ✗ vstep_ivt = 0.005 V
- ✗ vgs_off = 0 V
- ✗ temp = 25 °C
- ✗ f_ext = 100k Hz
- ✗ vbs = 0 V
- ✗ vdd = 1 V
- ✗ shrink_tinv = 0.9
- ✗ vds_gmgd = Vdd/2 V
- ✓ Sweep Parameters
 - ✗ temp = -40.0, 0.0, 25.0, 85.0, 125.0
- ✓ Extra parameters
 - ✗ lvt_dev = 0
 - ✗ gflag_noisedev_lvt_cmos028fdsoi = 0
- Model lvtpfet_acc (DK1.1_RF_mmW)
 - ✓ Input Parameters
 - ✗ vds_off = vds_sat V
 - ✗ vds_cgd = 0 V
 - ✗ vds_cgg = 0 V

x mc_sens = 0
x vds_lin = 0.05 V
x ivt = 70e-9 A
x model_version = 1.3.d
x ams_release = 2018.3
x vgs_stop = vdd V
x dlshrink_ivt = 0
x sbenchlsf_release = Alpha
x vds_sat = Vdd V
x mc_nsigma = 3
x shrink_ivt = 1
x dlshrink_tinv = 3e-9
x vgs_start = -0.5 V
x plashrink_ivt = 1
x ithslwi = 10e-9 A
x vds_cbd = 0 V
x vddmax = vdd
x voffset = 0.2 V
x mc_runs = 1000
x vstep_ivt = 0.005 V
x vgs_off = 0 V
x temp = 25 °C
x f_ext = 100k Hz
x vbs = 1 V
x vdd = 1 V

- ✗ shrink_tinv = 0.9
- ✗ vds_gmgd = Vdd/2 V
- ✓ Sweep Parameters
 - ✗ temp = -40.0, 0.0, 25.0, 85.0, 125.0
- ✓ Extra parameters
 - ✗ lvt_dev = 0
 - ✗ gflag_noisedev_lvt_cmos028fdsoi = 0