

CMOS090 technology

DIODE models

DK_MIKRON



SPICE Models Benchmarks

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TR&D / STD / T2D /

Modeling / CM2A

General information on DIODE models

Supply voltage (V_{dd}) is 1.2 V.

Validity domain is defined as follows:

Device temperature varies from $-40\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$.

V_{gs} , V_{ds} and V_{bs} vary from 0 V to 1.32 V (i.e. $V_{dd} + 10\%$).

Conditions of simulation

Simulations were done with Bench v3.6.3sram using Eldo simulator v6.7_1.2.

If not explicitly mentioned elsewhere, temperature is set to temp ° C and Vbs to 0 V.

Output parameters definition

In what follows, M, W and L (all default to 1) designate the number of devices in parallel (i.e. multiplication factor), the total drawn gate width and the drawn gate length, respectively.

- **Cj**: Junction diode capacitance at $V_r = 0$ V, $f = 100$ kHz.
- **Ij**: Junction diode leakage current at $V_r = 1.2$ V.

DNHVT

Electrical characteristics per geometry

dnhvt area=3 pj=10 @ temp=25

	DIODE_SLOW	DIODE_TYP	DIODE_FAST
Cj [fF]	4.395	3.95	3.505
Ij [aA]	9.9463	99.463	994.63

DNSVT

Electrical characteristics per geometry

dnsvt area=3 pj=10 @ temp=25

	DIODE_SLOW	DIODE_TYP	DIODE_FAST
Cj [fF]	4.3192	3.8444	3.3695
Ij [aA]	123.3	1233	12330

DPHVT

Electrical characteristics per geometry

dphvt area=3 pj=10 @ temp=25

	DIODE_SLOW	DIODE_TYP	DIODE_FAST
Cj [fF]	4.065	3.65	3.235
Ij [aA]	36.96	369.6	3696

DPSVT

Electrical characteristics per geometry

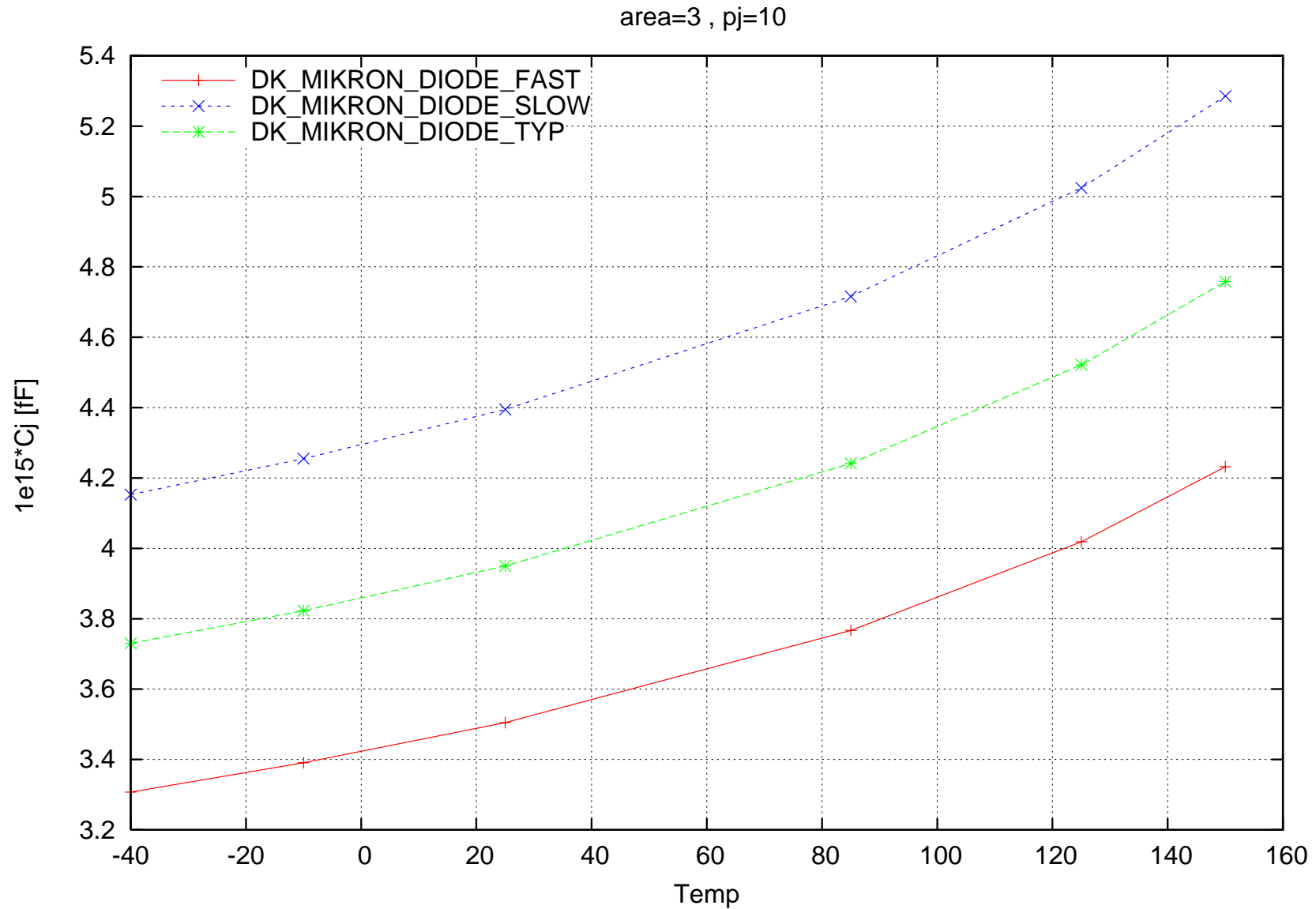
dpsvt area=3 pj=10 @ temp=25

	DIODE_SLOW	DIODE_TYP	DIODE_FAST
Cj [fF]	3.9381	3.5192	3.1004
Ij [aA]	99.189	991.89	9918.9

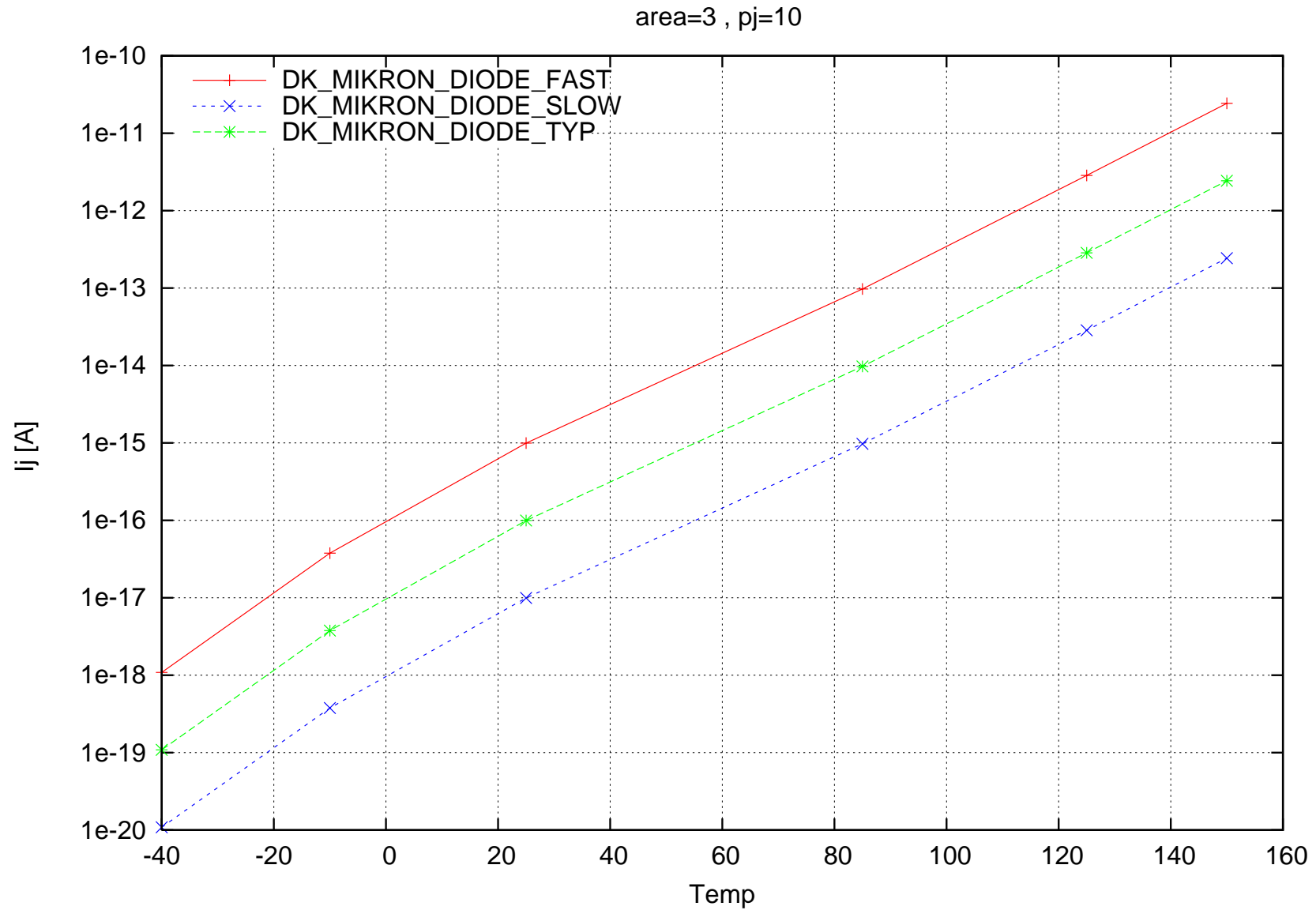
DNHVT

Electrical characteristics scaling

dnhvt 1e15*Cj [fF] vs. Temp , area=3 , pj=10



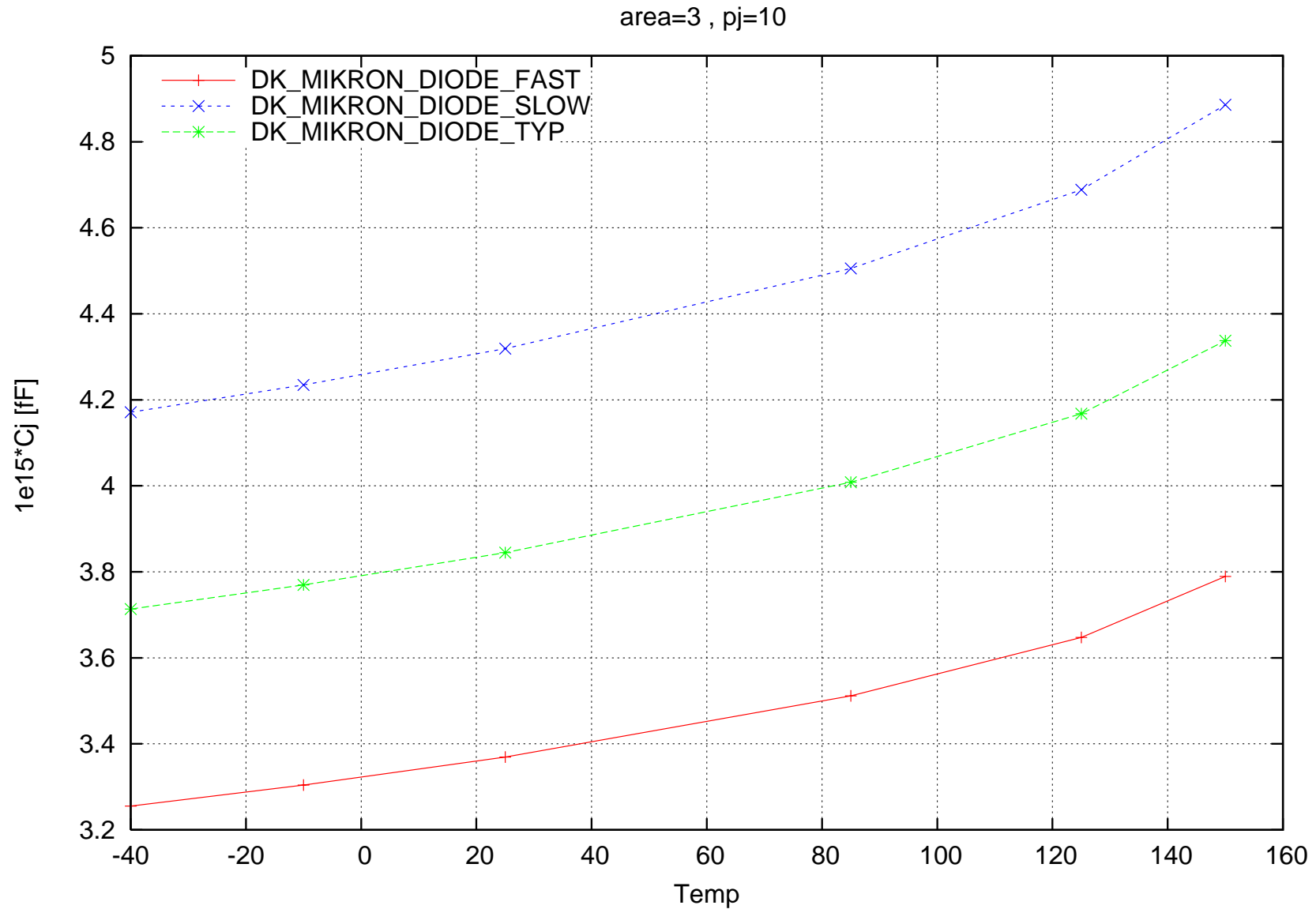
dnhvt Ij [A] vs. Temp , area=3 , pj=10



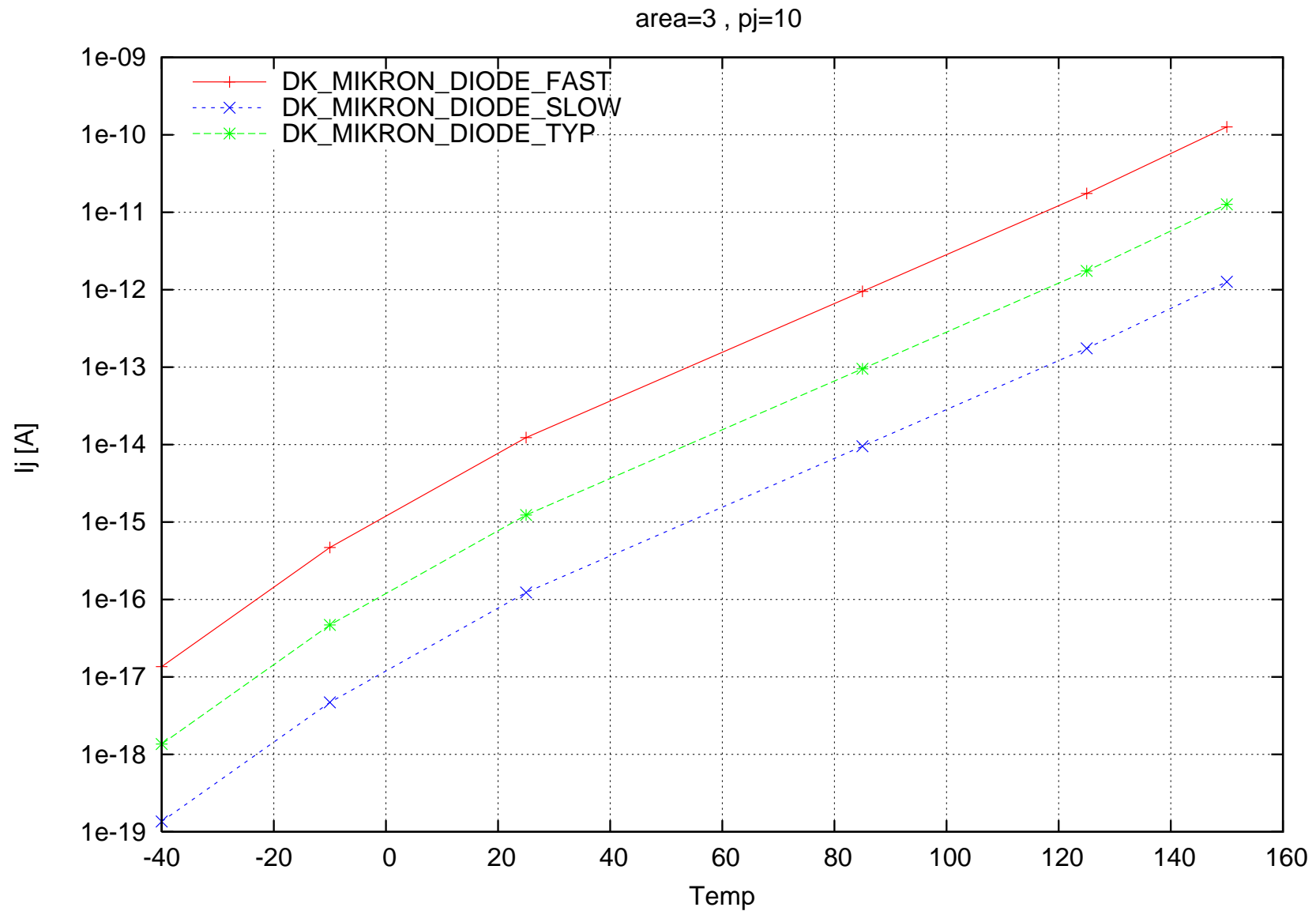
DNSVT

Electrical characteristics scaling

dnsvt 1e15*Cj [fF] vs. Temp , area=3 , pj=10



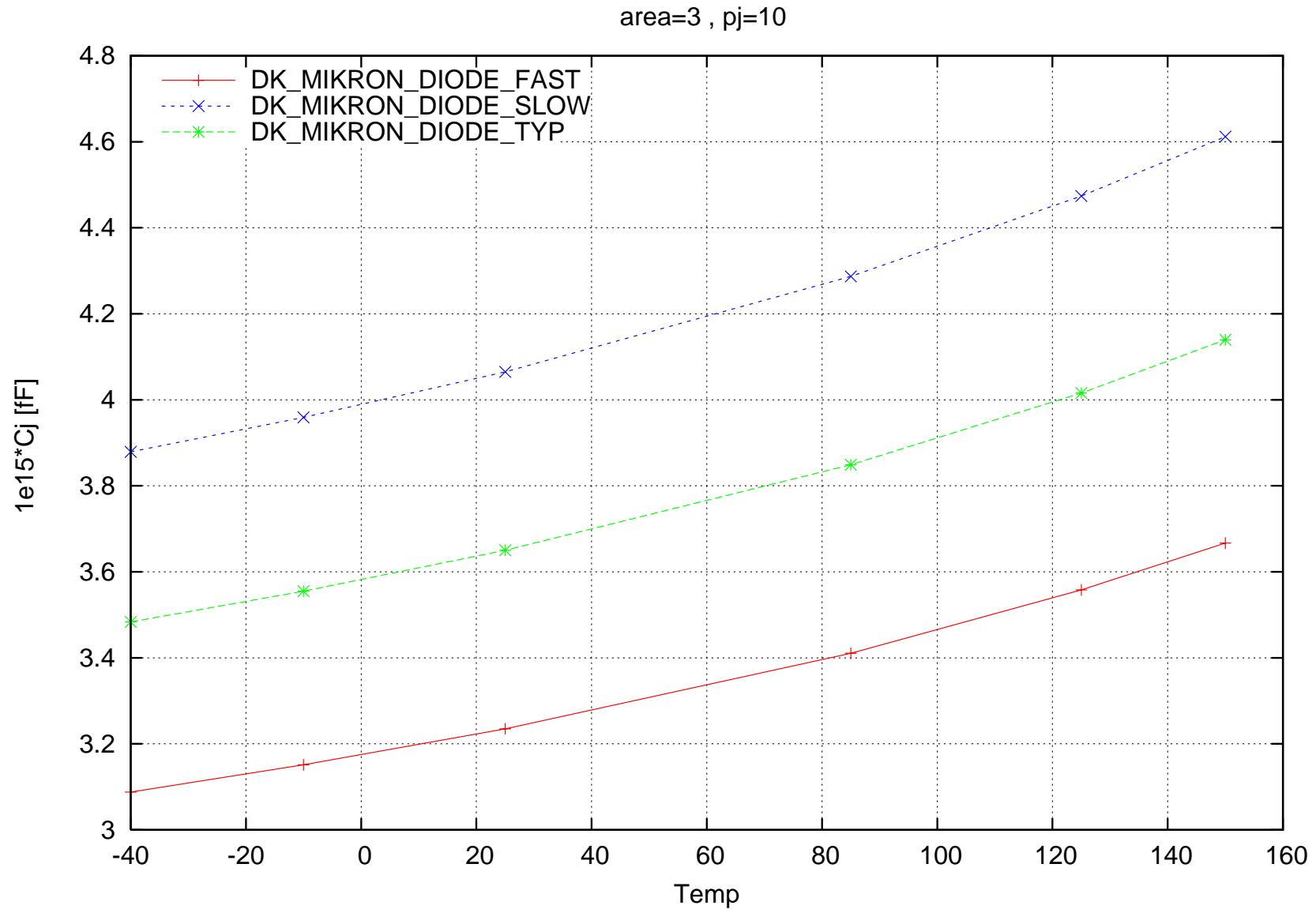
dnsvt Ij [A] vs. Temp , area=3 , pj=10



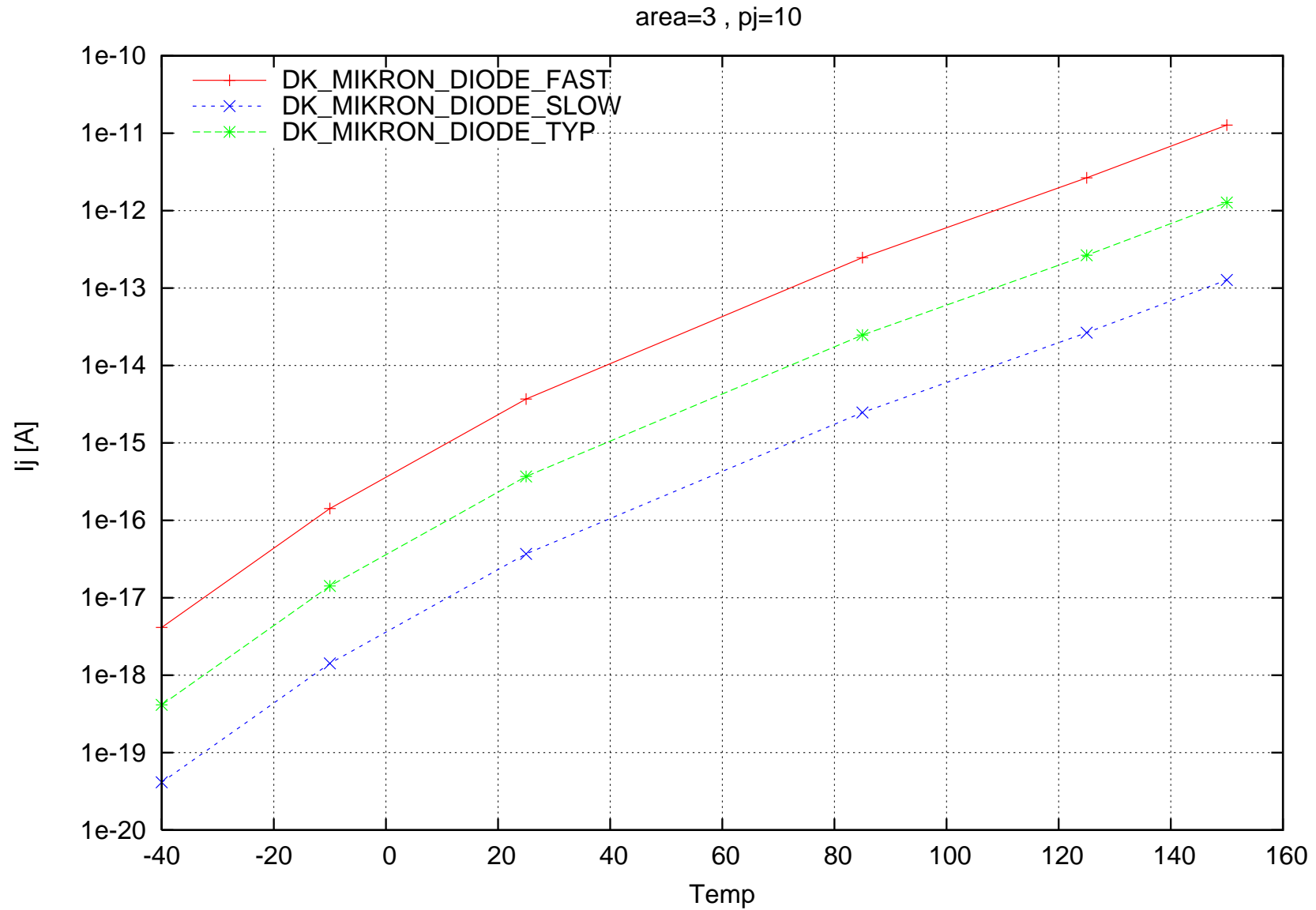
DPHVT

Electrical characteristics scaling

dphvt 1e15*Cj [fF] vs. Temp , area=3 , pj=10



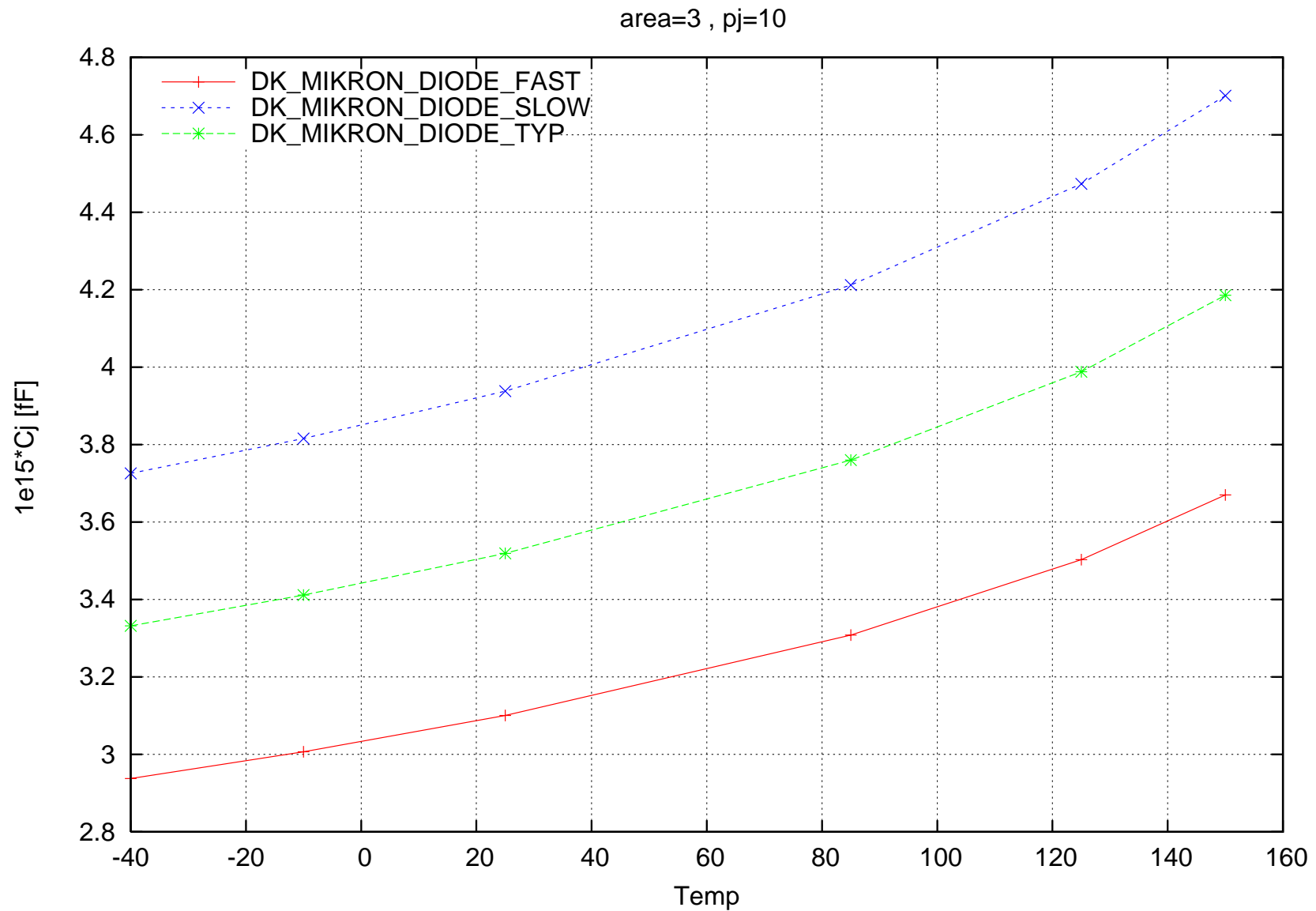
dphvt Ij [A] vs. Temp , area=3 , pj=10



DPSVT

Electrical characteristics scaling

dpsvt 1e15*Cj [fF] vs. Temp , area=3 , pj=10



dpsvt Ij [A] vs. Temp , area=3 , pj=10

