Correction to "Universal Dielectric Breakdown Modeling Under Off-State TDDB for Ultra-Scaled Device From 130 nm to 28 nm Nodes and Beyond"

IN [1], (4) should appear as

$$I_{DS,off} = \underbrace{\mu_0 C_{ox} \frac{W_G}{L_G} \left(\frac{k_B T}{q}\right)^2 e^{\left(q \frac{V_{GS}-V_{TH}}{nk_B T}\right)}}_{Junction\ current} \underbrace{e^{\left(\frac{q\lambda_h}{k_B T} \frac{V_{DS}}{L_G} + b(T)\right)}}_{BTBT} \underbrace{e^{\left(\frac{q\lambda_h}{\varphi_{ii}} \frac{V_{DS} - V_{D\ avalanche}}{L_G} + 1\right)}}_{Impact\ ionization} e^{\left(\frac{E_a}{k_B T}\right)} \tag{4}$$

With one equal sign, instead of

$$I_{DS,off} = \underbrace{\mu_0 C_{ox} \frac{W_G}{L_G} \left(\frac{k_B T}{q}\right)^2 e^{\left(q \frac{V_{GS}-V_{TH})}{nxBT}\right)}}_{Junction\ current}$$

$$= \underbrace{e^{\left(\frac{q\lambda_h}{k_B T} \frac{V_{DS}}{L_G} + b(T)\right)}}_{BTBT} \underbrace{e^{\left(\frac{q\lambda_h}{\varphi_{ii}} \frac{V_{DS} - V_{D\ avalanche}}{L_G} + 1\right)}}_{Impact\ ionization} e^{\left(\frac{E_a}{k_B T}\right)} \tag{4}$$

REFERENCE

[1] T. Garba-Seybou, A. Bravaix, X. Federspiel, J. Hai, C. Diouf, and F. Cacho, "Universal dielectric breakdown modeling under off-state TDDB for ultra-scaled device from 130nm to 28nm nodes and beyond," *IEEE Trans. Device Mater. Rel.*, vol. 24, no. 2, pp. 174–183, Jun. 2024, doi: 10.1109/TDMR.2024.3387271.

Manuscript received 15 July 2024; accepted 15 July 2024. Date of current version 6 September 2024. *(Corresponding author: Tidjani Garba-Seybou.)*

Tidjani Garba-Seybou, Xavier Federspiel, Joycelyn Hai, Cheikh Diouf, and Florian Cacho are with the TSP - SIREL, STMicroelectronics, 38926 Crolles, France (e-mail: mahamadoutidjani.garbaseybou@st.com).

Alain Bravaix is with the Microelectronics, ISEN, 83000 Toulon, France.

Color versions of one or more figures in this article are available at https://doi.org/10.1109/TDMR.2024.3429780.

Digital Object Identifier 10.1109/TDMR.2024.3429780

1530-4388 © 2024 IEEE. Personal use is permitted, but republication/redistribution requires IEEE permission.
See https://www.ieee.org/publications/rights/index.html for more information.