Supporting Information

Equation 1 has been solved using the following boundary condition:

$$D \cdot \left.\frac{\partial n(x,t)}{\partial x}\right|_{x=0} = k_{ext} \cdot n(0,t) \qquad (1)$$

where k_{ext}.equals the potential-dependent exchange rate constant at the back contact. Taking into account that the gradient of the electron density at the surface is zero:

$$\left.\frac{\partial n(x,t)}{\partial x}\right|_{x=d} = 0 \qquad (2)$$

the following relation has been formulated:

$$\frac{\square j}{\square I_0} = C \cdot \left(\frac{A}{N} + \frac{B}{N} \square \square\right) \qquad (3)$$

with the coefficients:

$$A = \square \cdot \exp(\square\square \cdot d)(k_{ext} + \square \cdot D_{eff}) \square \square \cdot \exp(\square\square \cdot d)(k_{ext} + \square \cdot D_{eff}) \qquad (4)$$

$$B = \square \cdot \exp(\square\square \cdot d)(k_{ext} + \square \cdot D_{eff}) + \square \cdot \exp(\square \cdot d)(k_{ext} + \square \cdot D_{eff}) \qquad (5)$$

$$C = \frac{\square \cdot I_0}{\square^2 \square \square^2} \qquad (6)$$

$$\square = \sqrt{\frac{1}{D_{eff} \cdot \square} + i \cdot \frac{\square}{D_{eff}}} \qquad (7)$$