List of Symbols

Symbol	*Description*
$A_{contact}$	Area of the metal contact
$A_{channel}$	Area of the semiconductor channel
A_G	Gain of differential amplifier
A_T	Area of the target
C	Proportionality constant
$C_{contact}$	Capacitance formed between the metal contact and the gate electrode
C_d	Dielectric capacitance
C_{diel}	Gate-dielectric capacitance per unit area
C_S	Storage capacitor
D	Diffusion coefficient
d_{ab}	Spatial separation between two localized states
E	Electric field
E_A	Thermal activation energy
E_a	Energy of source state
E_b	Energy of destination state
E_C	Conduction band energy level
E_{FM}	Fermi level of the metal
E_{FS}	Fermi level in the bulk of semiconductor
E_G	Energy gap
E_h	Energy required to cross the barrier between two neighboring states
E_I	Intrinsic Fermi energy level
E_R	Rate at which target evaporates
E_T	Energy difference between the trap level and the mobility edge
E_V	Valence band energy level
e	Evaporation constant
e^-	Electron
$I_{above\text{-}Vth}$	Displacement current measured above the threshold voltage after formation of channel
$I_{below\text{-}Vth}$	Displacement current measured below the threshold voltage in the absence of an accumulation channel
I_{DS}	Drain source current
$I_{DS,normal}$	Normalized drain-source current
$I_{DS}(t)$	Time dependent change in the drain-source current
$I_{DS}(t = 0)$	Drain source current at t = 0
$I_{forward}$	Displacement currents measured during forward sweep
I_{OFF}	Current flowing through the transistor during OFF state
I_{ON}	Current flowing through transistor during ON state
$I_{reverse}$	Displacement currents measured during reverse sweep
h	Thickness of the film
K	Flow constant
k	Boltzmann constant
L	Channel length
$L_{channel}$	Length of the organic semiconductor in LCC devices
m	Gram molecular mass
N_A	Acceptor doping concentration
N_A^-	Acceptor ions
$N(E_F)$	Density of states at Fermi energy
$N_{extracted}$	Number of extracted charge-carriers
$N_{injected}$	Number of injected charge-carriers

N_{trap}	Interfacial trapped density of states
$N_{trapped}$	Number of trapped charge-carriers
n	Charge-carrier density
n_{band}	Charge-carrier density in unoccupied energy level (valence band)
n_i	Intrinsic carrier concentration
P_{ab}	Probability of an electron to jump between two localized states
P_T	Vapor pressure of the target
$Q_{channel}$	Charges associated with semiconductor contact
$Q_{contact}$	Charges associated with metal contact
q	Elementary charge
R_F	Feedback resistance
S	Subthreshold swing
T	Absolute temperature
T_T	Temperature at which target evaporates
t	Time
t_0	Characteristic time required for conversion of weak bonds into dangling bonds
V_{DD}	Highest amount of drain source voltage
V_{DS}	Drain source voltage
V_{end}	Voltages at the end of the forward and reverse sweeps
V_F	Feedback voltage
V_G	Gate voltage
V_{GS}	Gate-source voltage
V_{IN}	Input voltage
V_{start}	Voltages at the start of the forward and reverse sweeps
V_{th}	Threshold voltage
V_{th0}	Initial threshold voltage value
$V_{th,\ DCM}$	Threshold voltage extracted using displacement current measurement
$V_{th,\ TFT}$	Threshold voltage extracted using device characteristics
V_{SS}	Substrate voltage
v	Attempt-to-escape frequency
v_{drift}	Velocity at which charge-carriers drift
v_o	Frequency with which hopping occurs between two states
W	Channel width
x	Effective solid contents of the solution
μ	Charge-carrier mobility in organic semiconductor
μ_{DCM}	Field-effect mobility extracted using displacement current measurement
μ_{eff}	Effective charge-carrier mobility
μ_n	Charge-carrier mobility of electrons
μ_o	Charge-carrier mobility in the delocalized band
μ_{TFT}	Field-effect mobility extracted using device characteristics
$\Delta\mu$	Change in field-effect mobility
σ	Conductivity of crystalline semiconductor
$\sigma_{disordered}$	Conductivity in disordered semiconductor
σ_{org}	Conductivity due to hopping between two nearest neighboring states
σ_o	Conductivity between two states without any barrier
α	Length between two localized states
ω	Rotation rate
ρ	Density of the solution
η	Viscosity of the solution
ϕ_F	Silicon bulk energy
ϕ_M	Work function of the metal
ϕ_{MS}	Metal-semiconductor work function
ϕ_S	Work function of the semiconductor
ΔV_{th}	Shift in threshold voltage

$\Delta V_{th}(t)$	Shift in the threshold voltage with time
$\Delta V_{th,m}$	Difference between V_{GS} and V_{tho}
β	Ratio of the thermal energy and characteristic energy