List of Symbols

IV. Metal Oxide Semiconductor Field Effect Transistor (MOSFET)

Symbol	Description	Unit
v_{DS}	Voltage applied between the drain and source of a MOSFET	V
v_{GS}	Voltage applied between the gate and source of a MOSFET	V
V_{TH}	Threshold voltage of a MOSFET	V
v_{DSsat}	Saturation drain voltage of a MOSFET	V
i_D	Drain current of a MOSFET	A
i_{Dsat}	Saturation drain current of a MOSFET	A
C_{ox}	Gate oxide capacitance (per unit gate area) of a MOSFET	F cm^{-2}
t_{ox}	Gate oxide thickness of a MOSFET	cm, μm or nm
ε_{ox}	Permittivity of the gate oxide of the MOSFET	F cm^{-1}
L	Channel length of a MOSFET	cm
W	Channel width of a MOSFET	cm
μ_n	Mobility of electrons in the channel of an n-MOSFET	cm^2 V^{-1} s^{-1}
μ_p	Mobility of holes in the channel of a p-MOSFET	cm^2 V^{-1} s^{-1}
K_n	Transconductance parameter of an n-MOSFET	A V^{-2}
K_p	Transconductance parameter of a p-MOSFET	A V^{-2}
R_{DS}	Drain-to-source resistance in the large signal model of a MOSFET operating in the linear region	Ω
g_m	Transconductance in the small signal model of a MOSFET	A V^{-1}
V_A	Early voltage of a MOSFET*	V
r_o	Output resistance in the small signal model of a MOSFET	Ω
λ	Channel length modulation factor in the small signal model of a MOSFET	V^{-1}
g_{mb}	Transconductance due to body effect in the small signal model of a MOSFET	A V^{-1}

* V_A is also used to denote the Early voltage of a BJT.

Notations for total (instantaneous) current (or voltages), d.c. currents (or voltages) and small signal a.c. currents (or voltages) :

e.g. i_D = I_D + i_d

i_D: total current; I_D: d.c. component of i_D; i_d: small signal (a.c.) component of i_D