
List of Symbols

S. No.	Symbol	Details
1.	C_o	Oxide capacitance
2.	C_d	Depletion capacitance
3.	K_o	Dielectric const. of oxide
4.	K_s	Dielectric const. of semiconductor
5.	ϵ_o	Free space permittivity
6.	x_d	Depth of depletion layer
7.	ψ_s	Surface potential
8.	q	Charge of an electron
9.	N_A	Acceptor concentration
10.	qN_A	Charge density
11.	Φ_m	Metal work function
12.	Φ_{ms}	Metal-Semiconductor work function
13.	Φ_s	Semiconductor work function
14.	E_g	Energy band gap
15.	E_s	Electric field at semiconductor surface
16.	V_G	Gate voltage
17.	V_i	Potential across insulator
18.	n_i	Intrinsic carrier concentration
19.	n	Electron concentration
20.	p	Hole concentration
21.	E_i	Intrinsic energy level
22.	E_f	Fermi energy level
23.	K	Boltzmann's constant
24.	T	Temperature
25.	V_{FB}	Flat band voltage
26.	Q_o	Effective net oxide charge per unit area
27.	C_i	Insulator capacitance
28.	Q_{it}	Interface trap charge
29.	Q_f	Fixed oxide charge
30.	Q_m	Mobile ionic charge
31.	Q_{ot}	Oxide trap charge
32.	ΔV_{it}	Voltage shift due to interface trap charge
33.	ΔV_f	Voltage shift due to fixed oxide charge
34.	ΔV_m	Voltage shift due to mobile charge charge
35.	ΔV_{ot}	Voltage shift due to oxide trap charge
36.	θ	Fractional coverage
37.	$d\theta/dt$	Change of fractional coverage with time
38.	k_a	Rate constant for adsorption
39.	k_d	Rate constant for desorption
40.	K	Equilibrium rate constant
41.	P	Pressure of gas
42.	P_s	Saturation pressure of vapour

43.	V	Total volume
44.	V_m	Total volume available for adsorption
45.	C	Average heat of adsorption
46.	θ_i	Fractional coverage sites at the interface
47.	$S\%$	Percentage sensitivity
48.	C_{air}	Capacitance in air (F)
49.	C_{gas}	Capacitance in gas (F)
50.	ΔC	Change in capacitance
51.	G_{pi}	Value conductance peak in air
52.	G_{pgas}	Value conductance peak in test gas
53.	C_{FB}	Flat band capacitance
54.	C_i	Insulator capacitance per unit area
55.	Q_{ss}	Fixed surface charge density
56.	χ	Semiconductor electron affinity

List of abbreviations

S. No.	Abbreviation	Description
1.	MOS	Metal Oxide Semiconductor
2.	MOSCAP	Metal Oxide Semiconductor Capacitor
3.	MOSFET	Metal Oxide Semiconductor Field Effect Transistor
4.	Si	Silicon
5.	PECVD	Plasma Enhanced Chemical Vapour Deposition
6.	SEM	Scanning Electron Microscopy
7.	AFM	Atomic Electron Microscopy
8.	PC	Personnel Computer
9.	C-V	Capacitance-Voltage
10.	G-V	Conductance-Voltage
11.	SiC	Silicon Carbide
12.	MISFET	Metal Insulator Semiconductor Field Effect Transistor