Contents

List of abbreviations

IC	:	Integrated Circuits
VLSI	:	Very Large-scale Integration
ULSI	:	Ultra-large scale integration
BT	:	$BaTiO_3$
PMN	:	$PbMg_{1/3}Nb_{2/3}O_{3-x}$
PZN	:	$PbZn_{1/3}Nb_{2/3}O_{3-x}$
PLZT	:	$Pb_{1-x}La_x(Zr_{1-y}Ti_y)O_3$
CCTO	:	Calcium Cooper Titanate ($CaCu_3Ti_4O_{12}$)
YCYO	:	Yttrium Copper Titanate ($Y_{2/3}Cu_3Ti_4O_{12}$)
YLCTO	:	Yttrium Lanthanum Copper Titanate ($Y_{1/3}La_{1/3}Cu_3Ti_4O_{12}$)
YCZTO	:	Yttrium Copper Titanate ($Y_{2/3}Cu_{3-x}Zn_xTi_4O_{12}$)
YCTFO	:	Yttrium Copper Titanate ($Y_{2/3}Cu_3Ti_{4-x}Fe_xO_{12}$)
ε	:	permittivity or dielectric constant
ε^*	:	Complex Quantity of dielectric constant
ε'	:	real components of dielectric constant
ε''	:	imaginary components of dielectric constant
i	:	an imaginary number such that $i=\sqrt{-1}$
ε_o	:	permittivity or dielectric constant of free space ($\varepsilon_o = 8.854 \times 10^{-12}$ F/m)
ε_r	:	relative permittivity or dielectric constant of the material.
C	:	capacitance
F	:	Farad, a unit of capacitance.
tan δ	:	dissipation factor or tangent loss
σ	:	electrical conductivity of a materials
f	:	frequency
DC	:	Direct Current
AC	:	Alternating Current
P	:	Net polarization
$P_{electronic}$	:	Electronic Polarization
P_{ionic}	:	Ionic Polarization
$P_{molecular}$	:	Molecular Polarization

$P_{interfacial}$	:	Interfacial Polarization
Hz	:	hertz, a unit of frequency
f	:	frequency
ω	:	angular frequency, $\omega = 2\pi f$
τ	:	Relaxation time
t	:	tolerance factor,
Å	:	angstrom, a unit of smallest length
R	:	Resistance
C	:	Capacitance
R_b	:	Resistance of bulk
C_b	:	Capacitance of bulk
R_{gb}	:	Resistance of grain boundary
C_{gb}	:	Capacitance of grain boundary
eV	:	electron Volt
TG A	:	Thermo-gravimetric Analysis
DTA	:	Differential Thermal Analysis
DTG	:	Differential Thermo-gravimetry
XRD	:	X-Ray Diffreaction
SEM	:	Scanning Electron Microscopy
EDX	:	Energy Dispersive X-Ray
TEM	:	Transmission Electron Microscopy
AFM	:	Atomic Force Microscopy

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