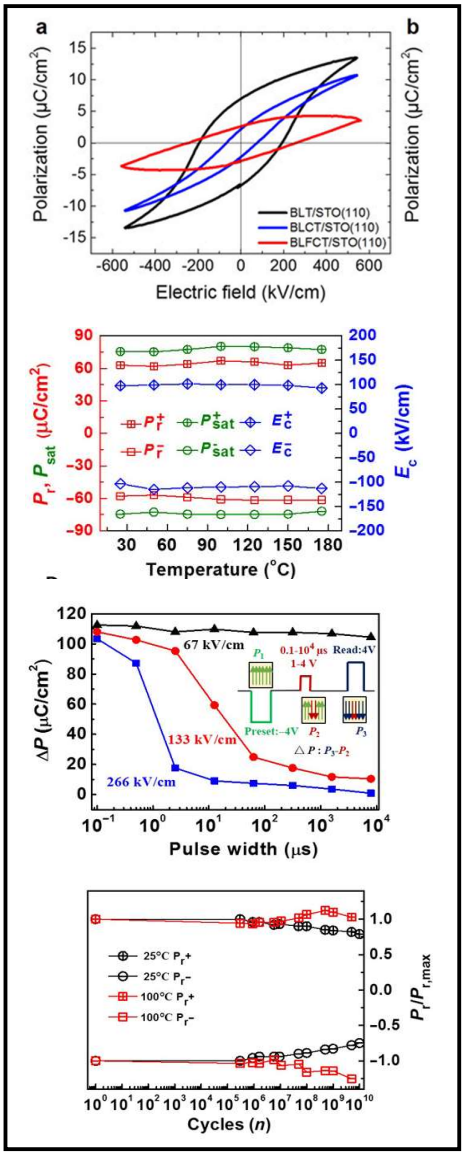
PE LOOP FERROELECTRIC TEST SYSTEM



ABOUT THE SYSTEM

Ferroelectricity is a characteristic of certain materials that have continuous electric polarization that can be reversed by the application of an external electric field. All ferroelectrics are pyroelectric, with the additional property that their natural electrical polarization is reversible. The term is used in analogy to ferromagnetism, in which a material exhibits a permanent magnetic moment. When most materials are polarized, the polarization induced, *P*, is almost exactly proportional to the applied external electric field *E*; so, the polarization is a linear function. This is called dielectric polarization. Some materials, known as paraelectric materials, show a more enhanced nonlinear polarization. The electric permittivity, corresponding to the slope of the polarization curve, is not constant as in dielectrics but is a function of the external electric field. PE Loop Ferroelectric Test systems designed by our company are most advanced in its specifications and can undertake various tests needed by researchers. The accuracy and the resolution of the system is precise as low as femto coulomb. Details to various models available with us is described in following page.

PRODUCT SELECTION GUIDE

MODEL	STANDARD 20PE 1KHZ 0.01M	HIGH END 20PE 1KHZ 1N	MULTIFERROIC 1PE 250KHZ 0.1N	ADVANCED 0.1PE 1MHZ 1F
Field	5KV	5KV/10KV	10KV	10KV
Frequency	20 Hz – 1 KHz	20 Hz – 1 KHz	1 Hz – 250 KHz	0.1 Hz – 1 MHz
Fatigue	20^{th} order of cycle	20^{th} order of cycle	20^{th} order of cycle	20^{th} order of cycle
Resolution	16 Bit (0.01uC)	18 Bit (1nC)	18 Bit (0.1nC)	20 Bit (1fC)
Temperature	RT-250.C	RT-250.C	RT-250.C	RT-400.C
Furnace	√	√	√	√
Sample holder	√	√	√	√
Data	ASCI	ASCI	ASCI	ASCI
Interface	RS232	USB	USB	USB/GPIB

MARINE INDIA

Off. Works : 7/23, Kirti Nagar Industrial Area, New Delhi- 110015
Regd. Off : A3/25b Green Apartment, Near Jwala Heri Market, Paschim Vihar, New Delhi – 110063
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SYSTEM TEST SPECIFICATIONS				
MODEL	**STANDARD**	**HIGH END**	**MULTIFERROIC**	**ADVANCED**
Field	50KV/cm	50-100KV/cm	100KV/cm	100KV/cm
Wave form generator	14 Bit	16 Bit	16 Bit	18 Bit
ADC Resolution	16 Bit	18 Bit	18 Bit	20 Bit
Min charge sensitivity	0.01uC	1nC	0.1nC	1fC
Max charge measurement	100uC	100uC	100uC	100uC
Min sample area	1sq.mm	1sq.mm	1sq.mm	1sq.mm
Max sample diameter	10-15mm	10-15mm	10-15mm	10-15mm
Max sample thickness	3mm	3mm	3mm	3mm
Hysteresis frequency bulk s	1KHz	1KHz	10KHz	10KHz
Hysteresis frequency thin film	x	x	250KHz	1MHz
Max hysteresis frequency	1KHz	1KHz	250KHz	1MHz
Min hysteresis frequency	20Hz	20Hz	1Hz	0.1Hz
Min leakage current	0.01uA	1nA	0.1nA	1fA
Input capacitance	1pF	1pF	1pF	1pF
Magnetic field DC	X	X	0.8T/1.4/1.8T	0.8T/1.4/1.8T

VARIOUS TESTS PERFORMED BY DIFFERENT MODELS				
MODEL	STANDARD	HIGHEND	MULTIFERROIC	ADVANCED
Ferroelectric Charge at Diff Frequency	√	√	√	√
Fatigue Measurement	√	√	√	√
Ferroelectric Charge at Different Temp	√	√	√	√
Remnant Hysteresis	Optional	√	√	√
Curve Energy	Optional	√	√	√
Leakage Current	Optional	√	√	√
Ferroelectric Charge at Diff Magnetic Field	Optional	Optional	√	√
Single Point C/V	Optional	Optional	Optional	√
PUND Measurement	Optional	Optional	Optional	√
General Pulse & Sample Pulse	Optional	Optional	Optional	√
Electrical Strain vs Field	X	Optional	Optional	Optional

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