

Supporting Information

Nonvolatile Transistor Memory Devices Based on High-k Electrets of Polyimide/TiO₂ Hybrids

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Table S1. Inherent Viscosity and Molecular Weights of the Polyimides

Polymer	η_{inh}^a (dL/g)	M_w^b	M_n^b	PDI ^c
PI(F-ODPA)	0.72	115900	60300	1.92
PI(3S-ODPA)	0.45	98300	48200	2.03

^a Measured at a polymer concentration of 0.5 g/dL in DMAc at 30 °C.

^b Calibrated with polystyrene standards, using NMP as the eluent at a constant flow rate of 0.5 mL/min at 40 °C.

^c Polydispersity index (M_w/M_n).

Table S2. Solubility^a of the Polyimides

Polymer	Solvents						
	NMP	DMAc	DMF	DMSO	<i>m</i> -cresol	THF	CHCl ₃
PI(F-ODPA)	++	++	++	++	++	++	—
PI(3S-ODPA)	++	++	++	++	++	++	—

^a The qualitative solubility was tested with 10 mg of a sample in 1 mL of stirred solvent. (++) soluble at room temperature, (+) soluble on heating, (+—) partial soluble on heating, (—) insoluble even on heating.

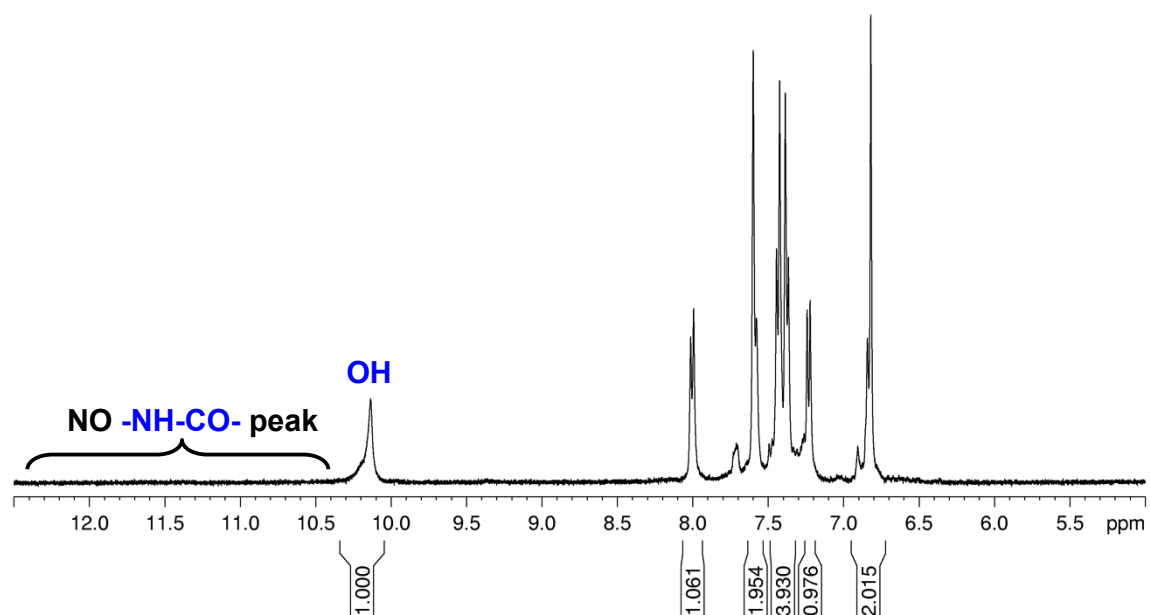


Figure S1. ^1H NMR spectrum of the polyimide **PI(3S-ODPA)**.

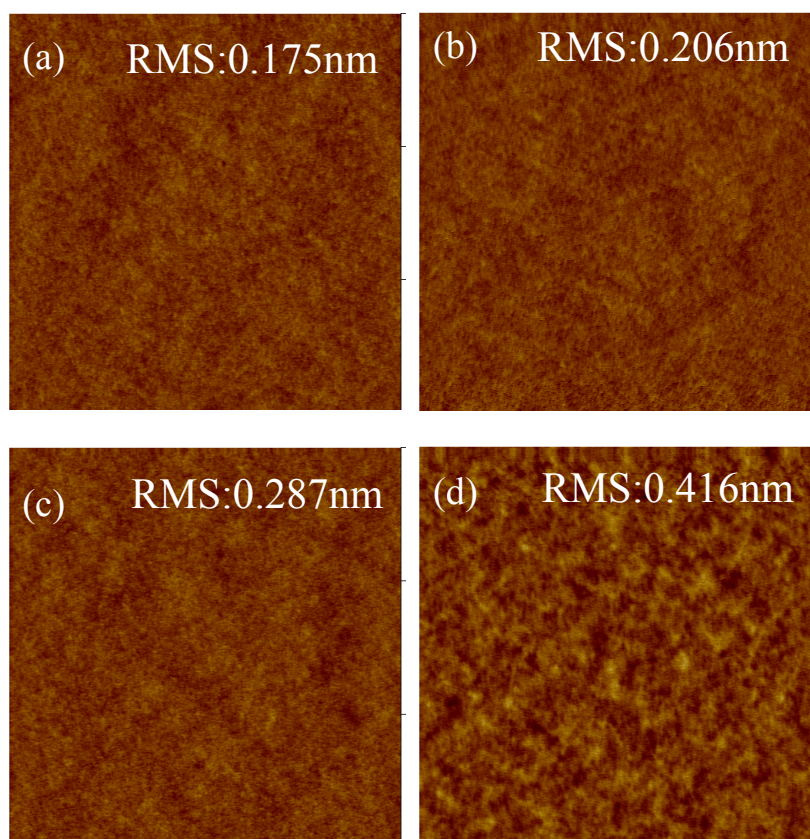


Figure S2. Atomic force microscopy (AFM) topographies of **PI(F-ODPA)** spin-coated on Si substrates ($1\ \mu\text{m} \times 1\ \mu\text{m}$ areas) with (a) 0wt%, (b) 5wt%, (c) 10wt%, and (d) 20wt% TiO_2 contents.

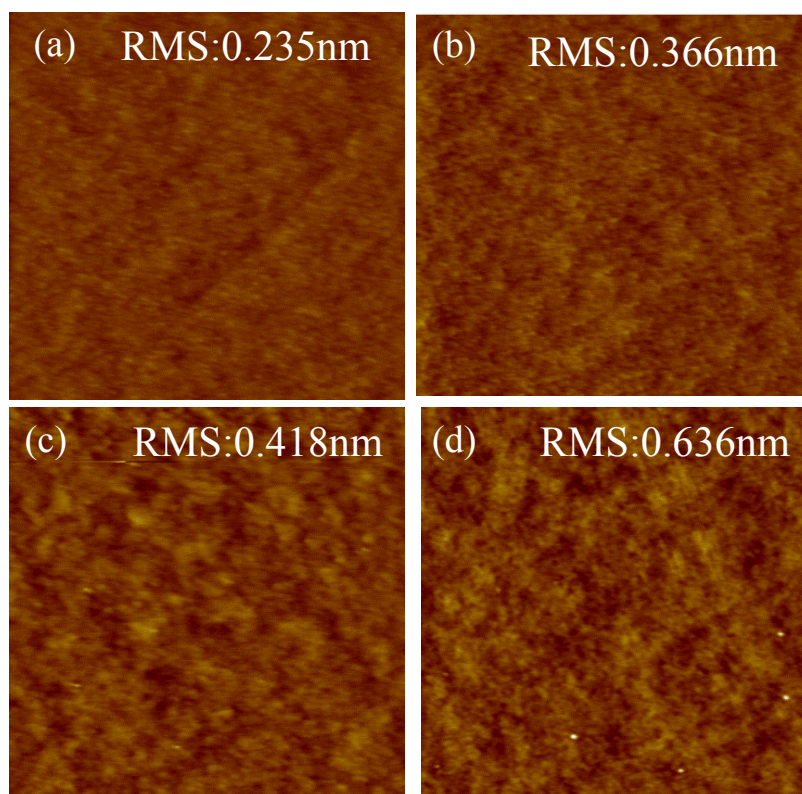


Figure S3. Atomic force microscopy (AFM) topographies of **PI(3S-ODPA)** spin-coated on Si substrates (1 μm x 1 μm areas) with (a) 0wt%, (b) 5wt%, (c) 10wt%, and (d) 20wt% TiO₂ contents.

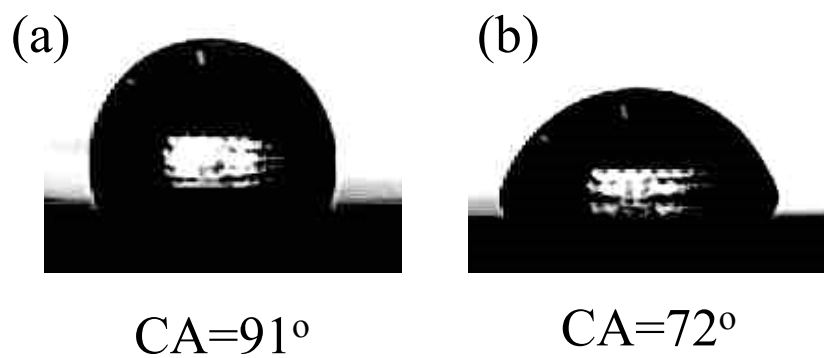


Figure S4. Contact angles of the PI electrets: (a) **PI(F-ODPA)** and (b) **PI(3S-ODPA)**.

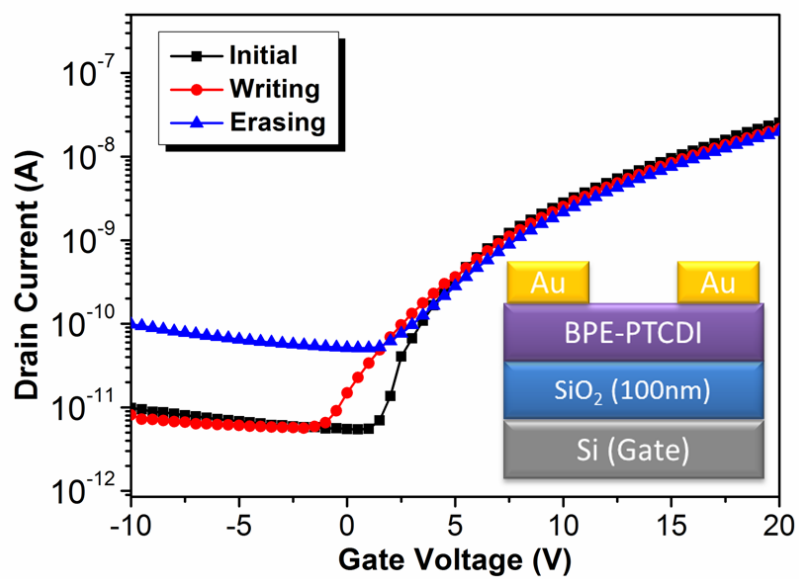


Figure S5. Shifts in transfer curves of BPE-PTCDI OFET memory device with bare SiO₂ (100nm) as electrets at ± 10 V applied gate bias.