

Electronic Supplementary Information

Sandwich Structured Dielectrics for Air-Stable and Flexible Low-Voltage Organic Transistors in Ultrasensitive Pressure Sensing

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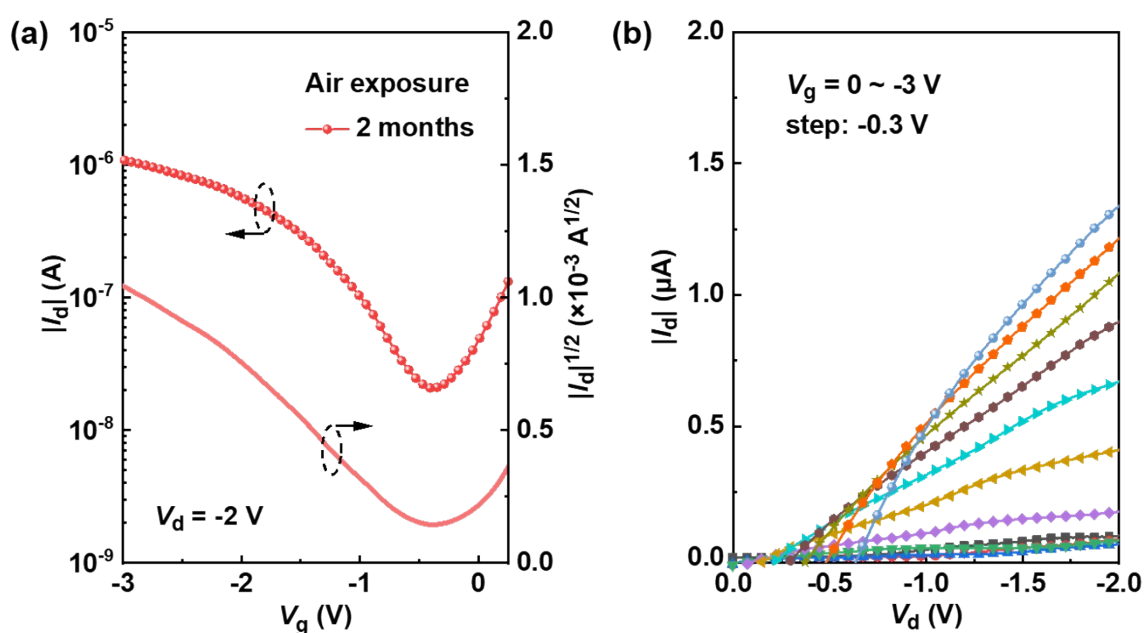


Fig. S1 (a) Transfer and (b) output characteristics of the flexible OTFT with the Sandwiched-2 dielectric after continuous air exposure for two months.

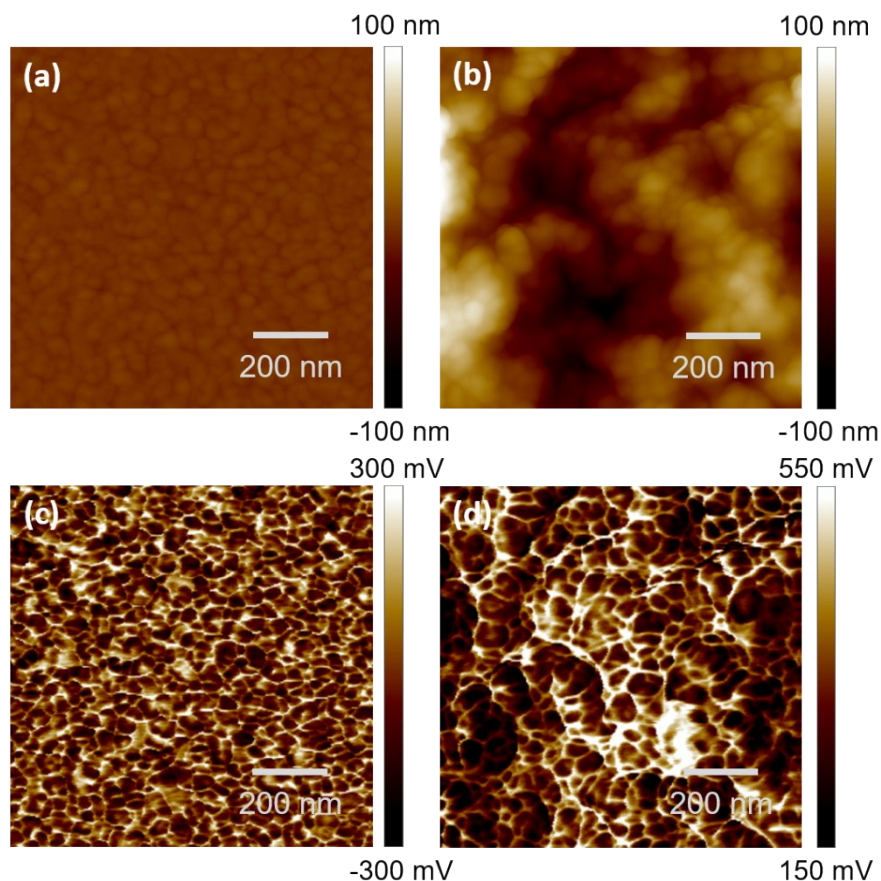


Fig. S2 Tapping-mode AFM analysis of (a, c) the Au source/drain electrode film (RMS roughness = 2.24 nm) and (b, d) the Au gate electrode film (RMS roughness = 29.9 nm): (a, b) height and (c, d) adhesion images ($1 \times 1 \mu\text{m}$).

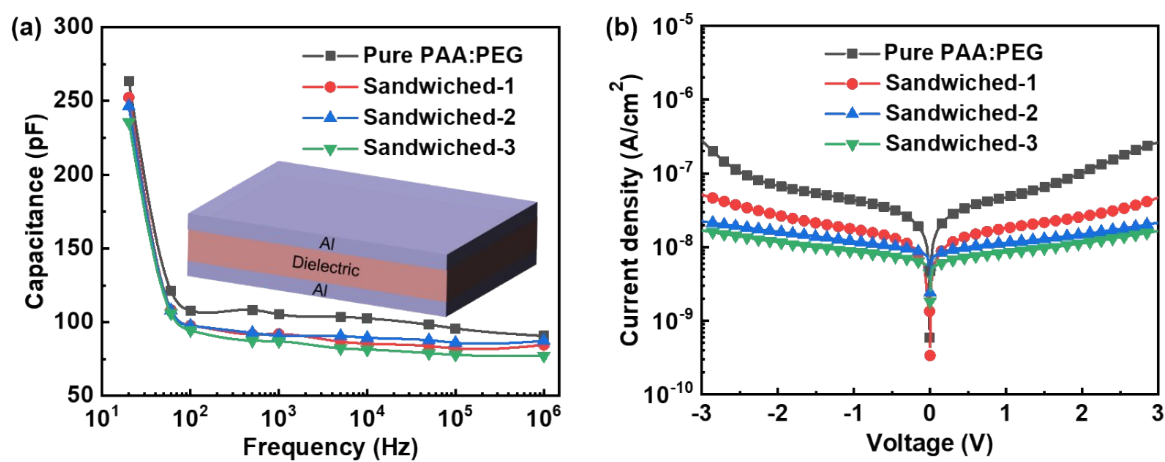


Fig. S3 (a) Capacitance-frequency characteristics and (b) leakage current density-voltage curves of various polymer dielectric layers in MIM capacitors.

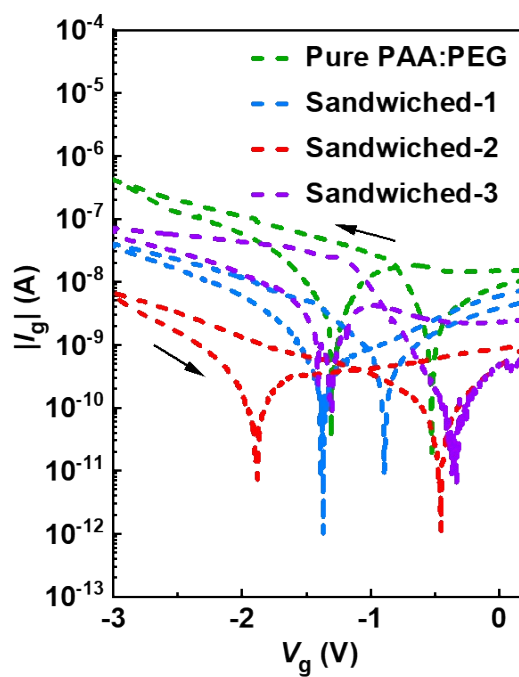


Fig. S4 Leakage current curves of flexible OTFTs based on various polymer dielectric layers.

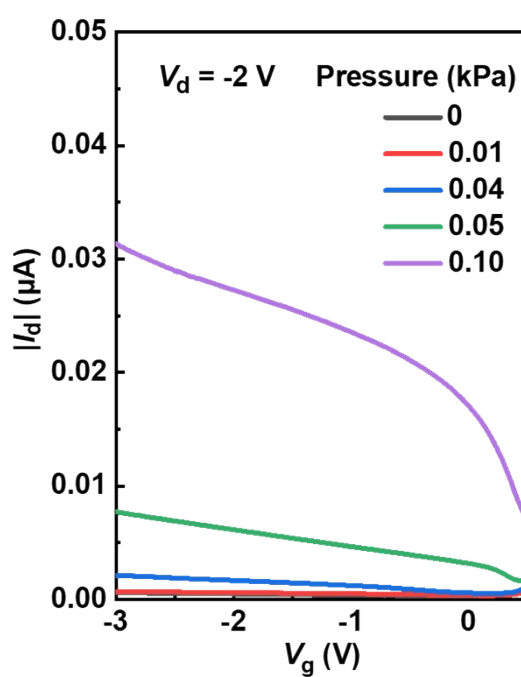


Fig. S5 Transfer characteristics of the OTFT pressure sensor in the low-pressure region.

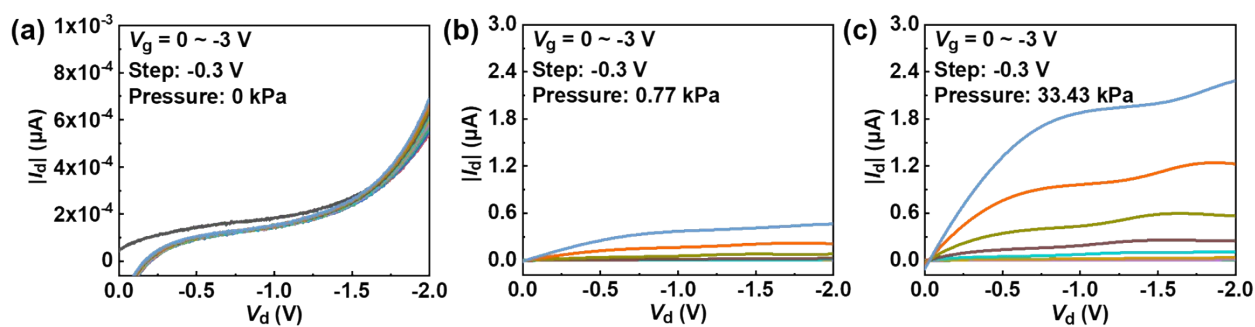


Fig. S6 Output characteristics of the OTFT pressure sensor under the representative external pressures of (a) 0, (b) 0.77, and (c) 33.43 kPa, respectively.

Table S1 Contact angle and surface energy data of the semiconductor film and various polymer dielectric films.

Sample	Contact angle ($^{\circ}$)		Energy (mJ m^{-2})		
	DI water	Diiodomethane	Dispersive (γ_d^{sg})	Polar (γ_p^{sg})	Surface (γ_{sg})
PIDT-BT:TCNQ	100.0	53.5	32.6	0.2	32.8
PIDT-BT:TCNQ/PAA:PEG	84.0	45.0	34.0	3.3	37.3
PIDT-BT:TCNQ/PS/PAA:PEG/PS	94.0	35.0	42.7	0.2	42.9
PIDT-BT:TCNQ/PS	94.5	37.5	41.4	0.2	41.6

