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Supporting Information

Flexible Piezoresistive Pressure Sensor Based on Perovskite $MAPbBr_3$ Nanocrystals-Embedded Polymer Composite Films

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Table S1 TPU/PVDF composite films with different contents.

$MAPbBr_3$ solution/mL	M_{TPU}/ g	M_{PVDF}/ g	DMF/mL	M_{TPU}/M_{PVDF}
1	0	0.84	5	0%
1	0.04	0.80	5	5%
1	0.076	0.764	5	10%
1	0.11	0.73	5	15%
1	0.14	0.70	5	20%
1	0.194	0.646	5	30%
1	0.24	0.60	5	40%
1	0.315	0.525	5	60%
1	0.373	0.467	5	80%
1	0.84	0	5	∞
0	0	0.84	6	0
0	0.84	0	6	∞
0	0.076	0.764	6	10%

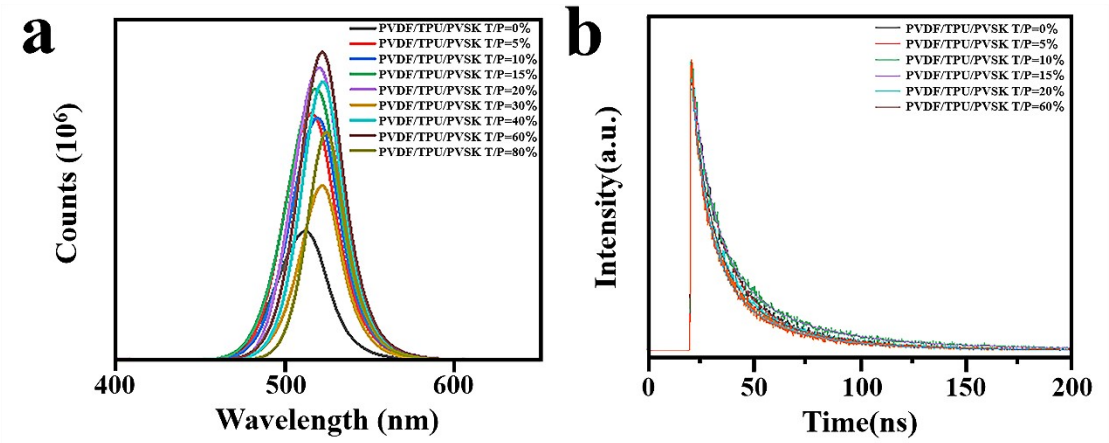

Fig. S1 (a) PL spectra, (b) Transient time-resolved PL spectra of PVSK/TPU/PVDF films.

Table S2 Fitting parameters of the TRPL Decay for the perovskite.

Sample	A_1(%)	τ_1(ns)	A_2(%)	τ_2(ns)	τ_{ave}(ns)
PVDF+PVSK	86.72	10.03	13.28	30.32	12.72
TPU/PVDF=5%	90.90	8.22	9.1	29.34	10.15
TPU/PVDF=10%	89.25	8.45	10.75	32.65	11.05
TPU/PVDF=15%	90.45	7.36	9.55	29.85	9.51
TPU/PVDF=20%	91.69	7.03	8.31	25.81	8.59

TPU/PVDF=60%	93.55	6.61	6.45	26.38	7.89

Notes：A_i stands for the amplitude of attenuation, τ_i stands for the decay time, and τ_{ave} stands the average decay lifetime.

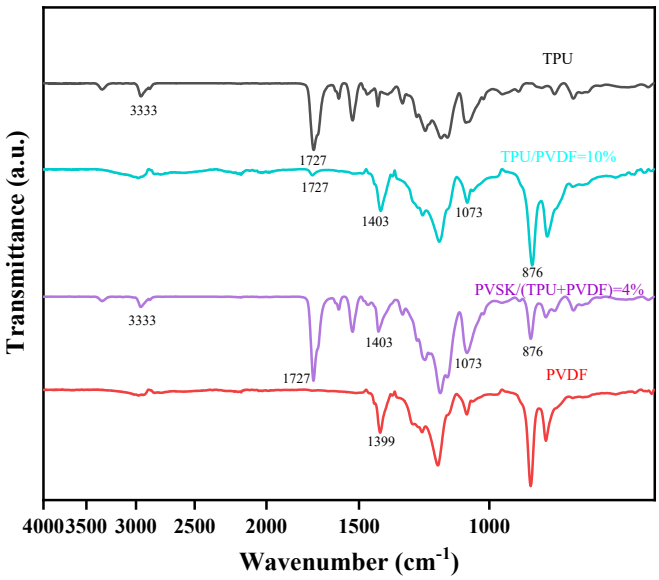

Fig. S2 FTIR spectra of pure TPU, TPU/PVDF=10%, pure PVDF and PVSK/TPU/PVDF films.

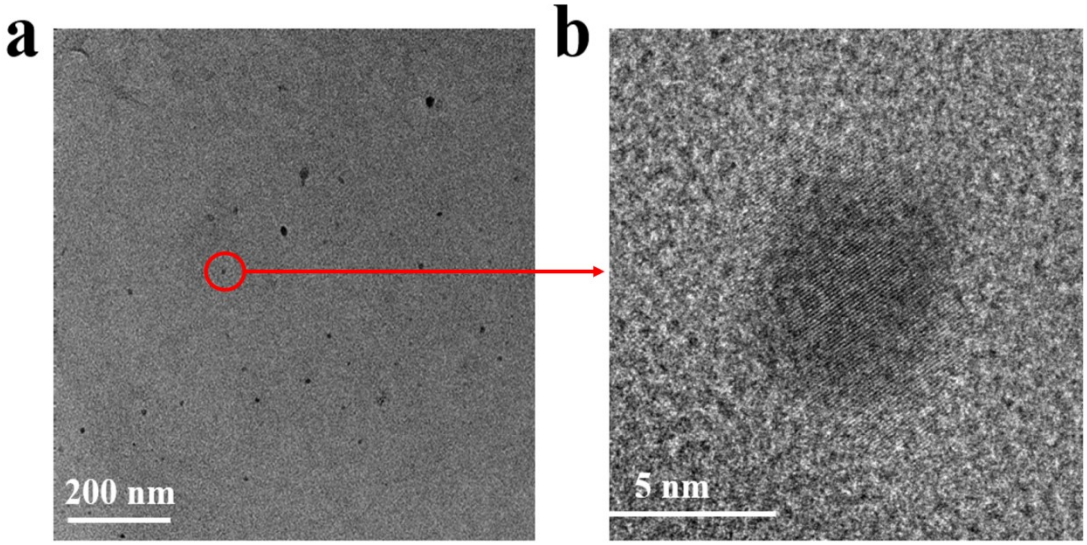

Fig. S3 (a) TEM and (b) HRTEM images of PVSK QDs dispersed into an organic solvent.

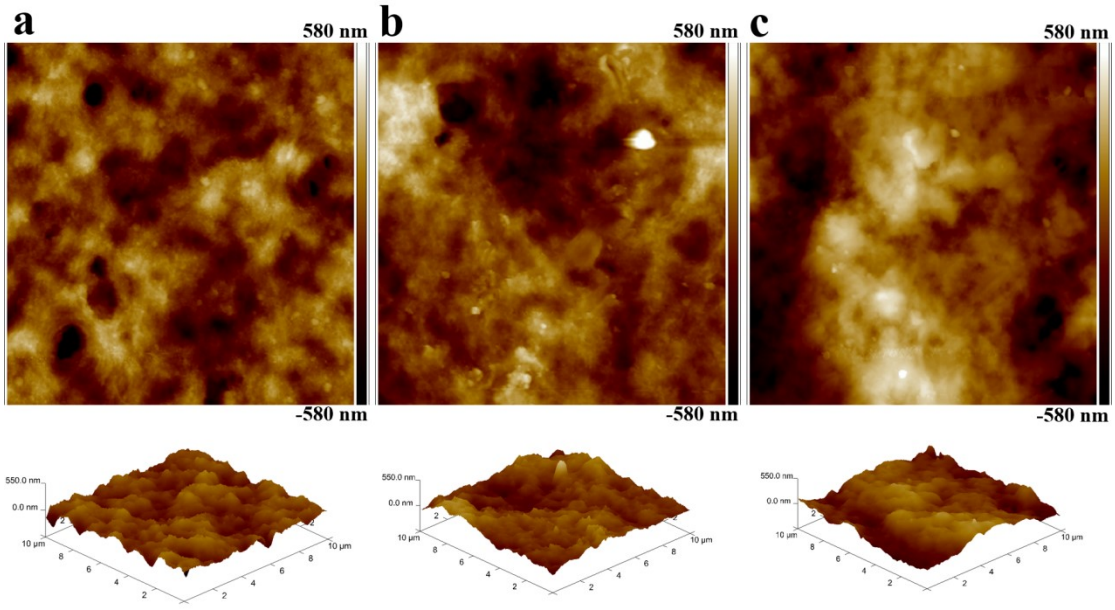

Fig. S4 AFM images of PVSK/TPU/PVDF composite films with different TPU/PVDF ratios of (a) 5%, (b) 10% and (c) 15%.

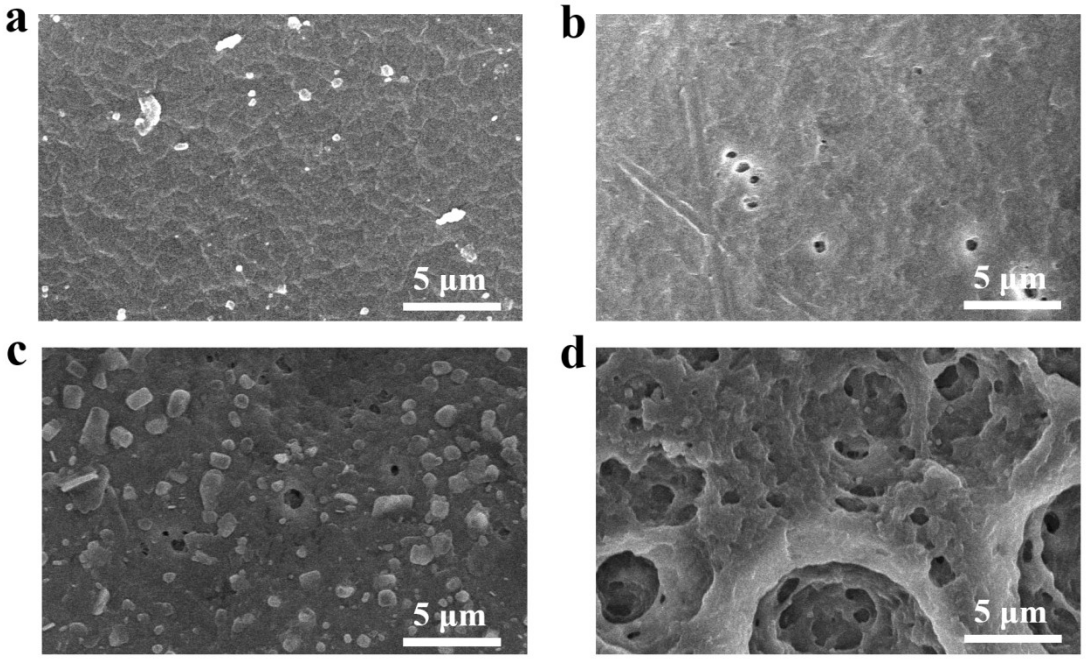

Fig. S5 SEM images of (a) pure TPU, (b) pure PVDF, (c) TPU/PVDF films and (d) PVSK/TPU/PVDF films.

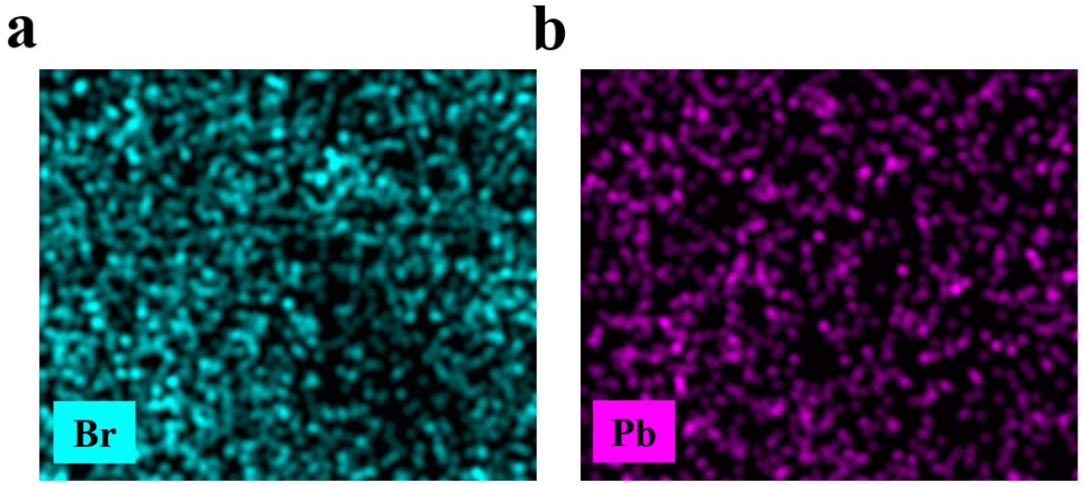

Fig. S6 EDS mappings of (a) Br and (b) Pb elements in a PVSK/TPU/PVDF film.

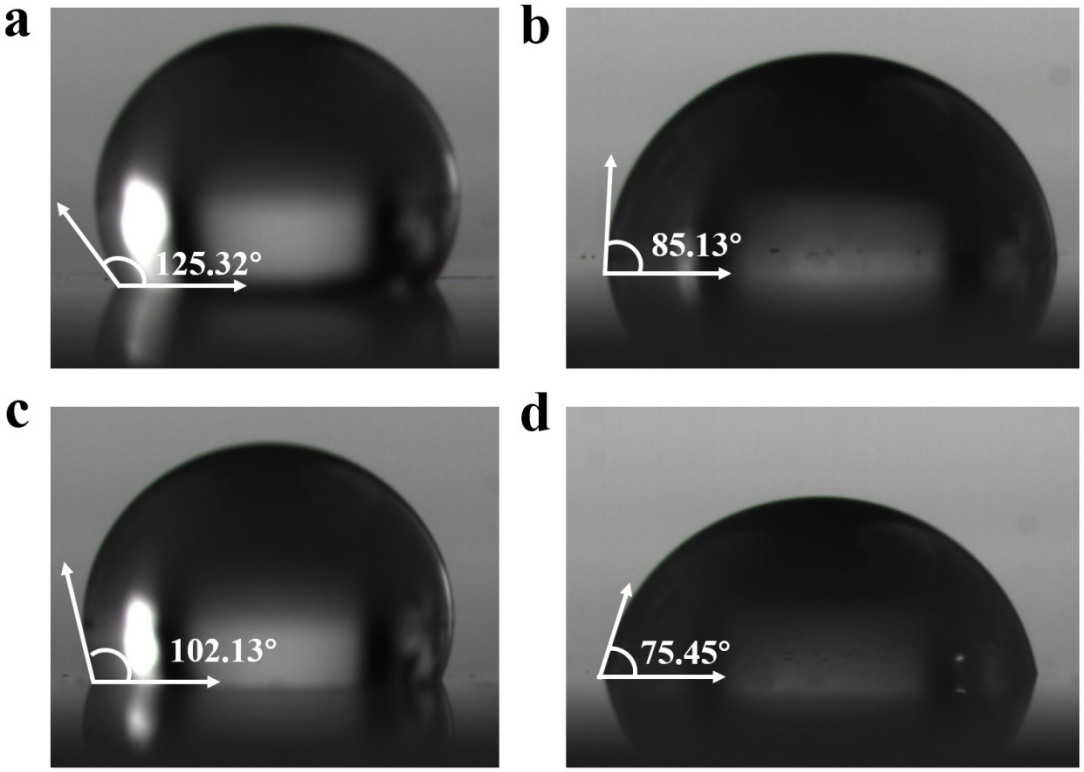

Fig. S7 Water contact angle images of (a) PVSK/TPU/PVDF film, (b) pure TPU film, (c) pure PVDF film and (d) TPU/PVDF film.

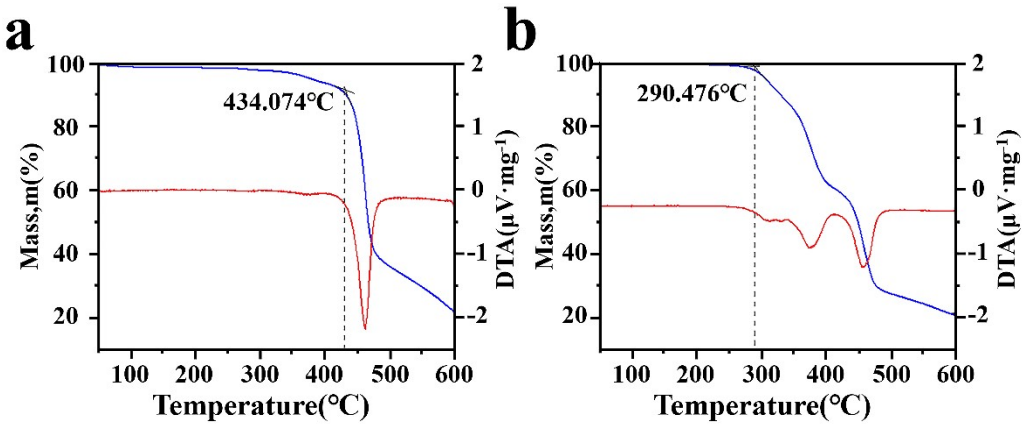

Fig. S8 TGA and DTG curves of PVSK/TPU/PVDF films with TPU/PVDF ratios of (a) 10% and (b) 80%.

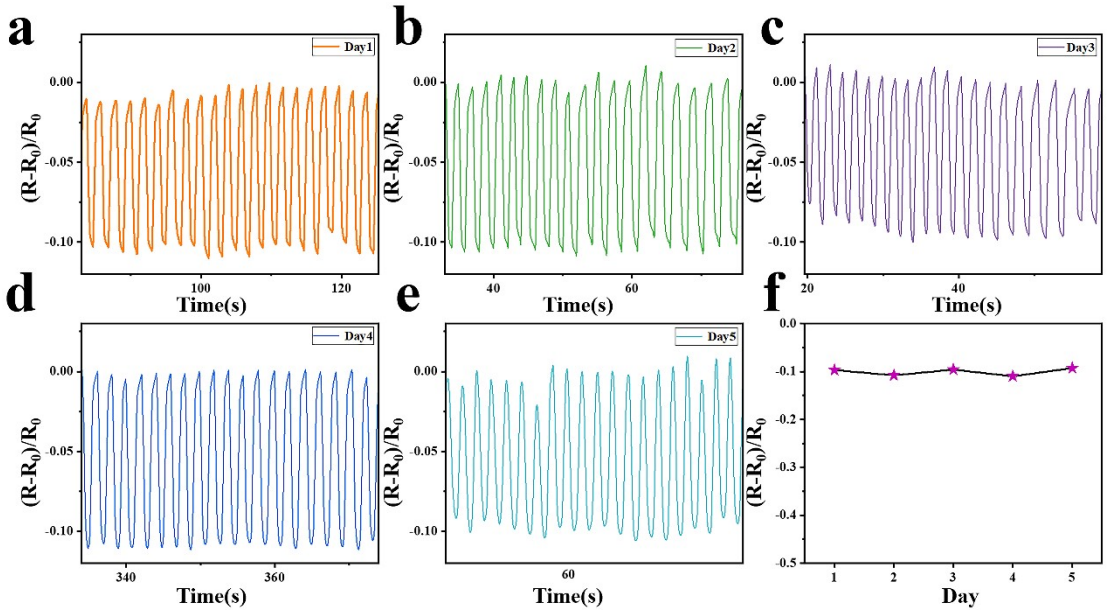

Fig. S9 Cyclic performance plots of the pressure sensor for (a) day one, (b) day two, (c) day three, (d) day four, (e) day five, and (f) stability over five days.

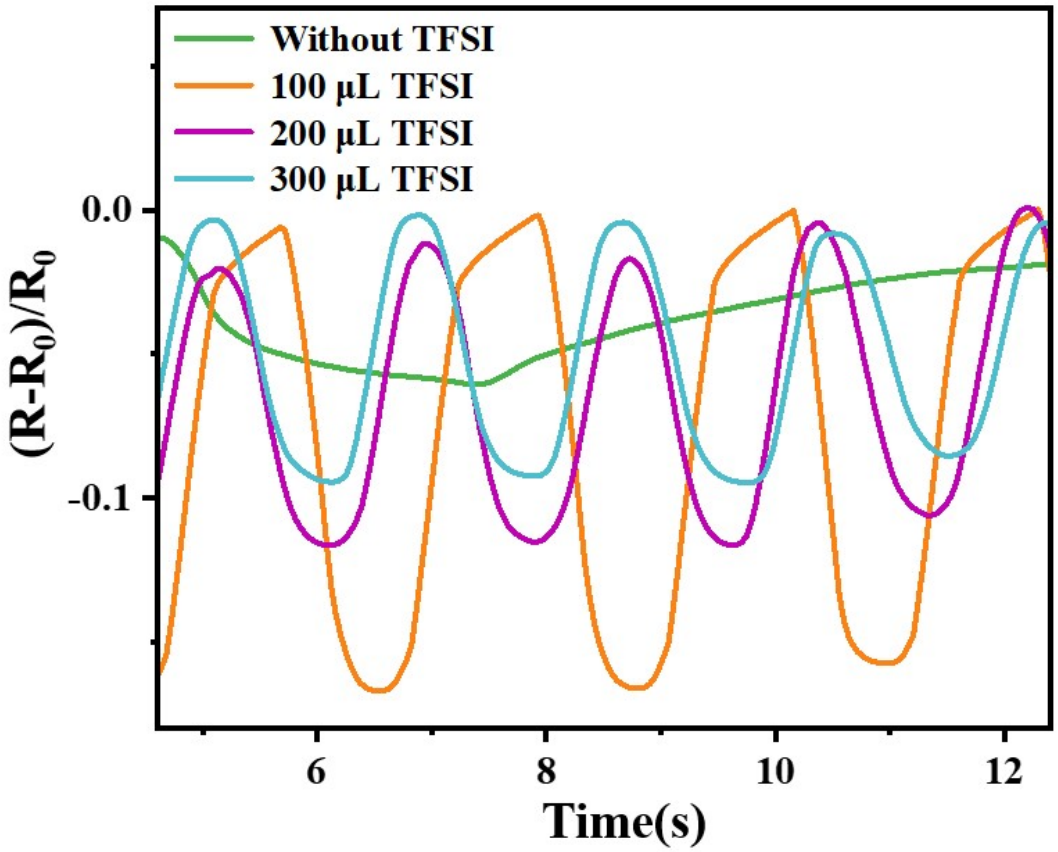

Fig. S10 Plot of the properties of pressure-sensitive materials with different amounts of TFSI.