Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information:

Novel crosslinkable high-k copolymer dielectrics for high-energy-density capacitors and organic field-effect transistors applications

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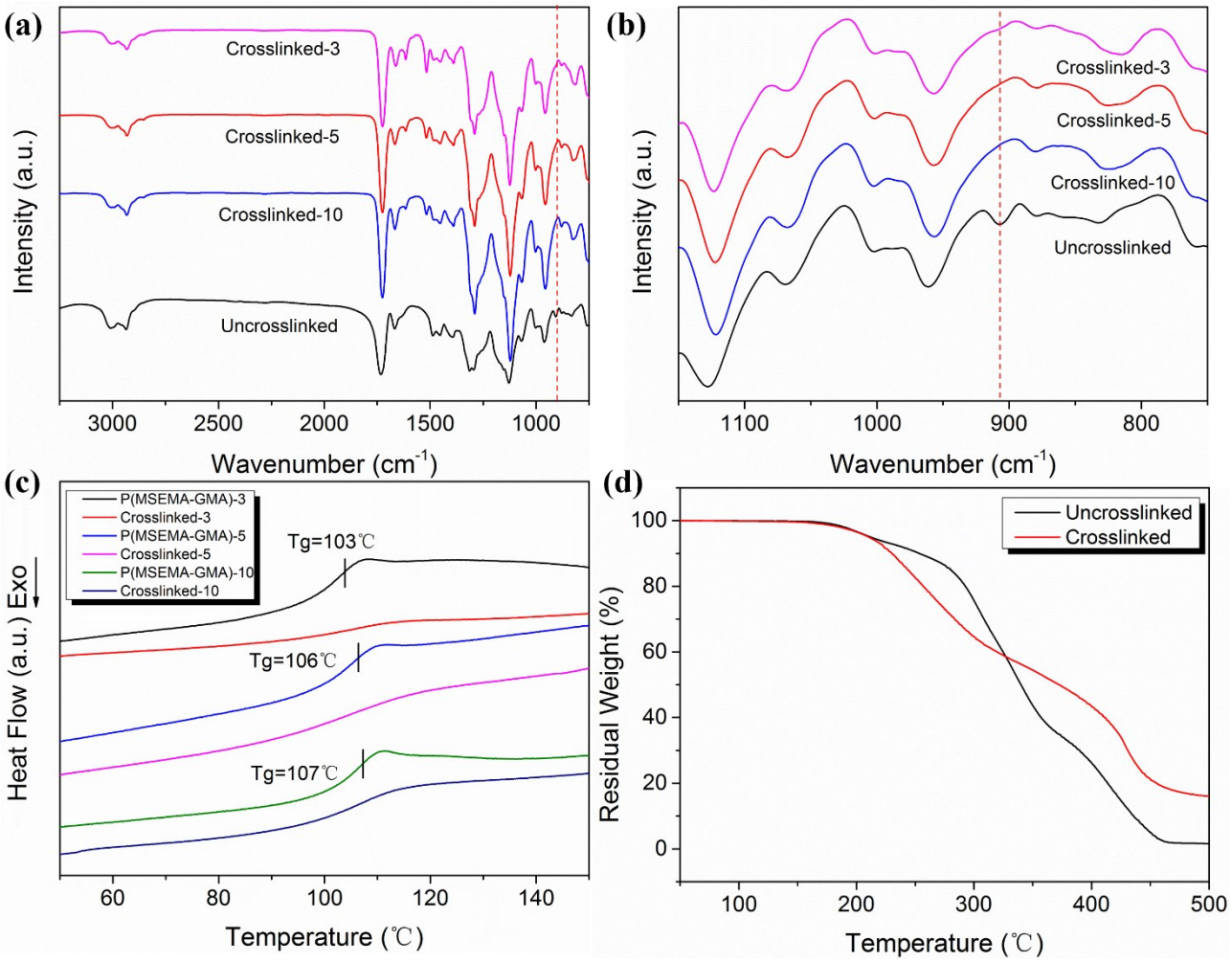

Figure S1. (a) FT-IR spectra of copolymers before and after crosslinking and (b) the amplified region of the epoxy groups. (c) DSC curves and (d) TGA curves of polymers before and after crosslinking.

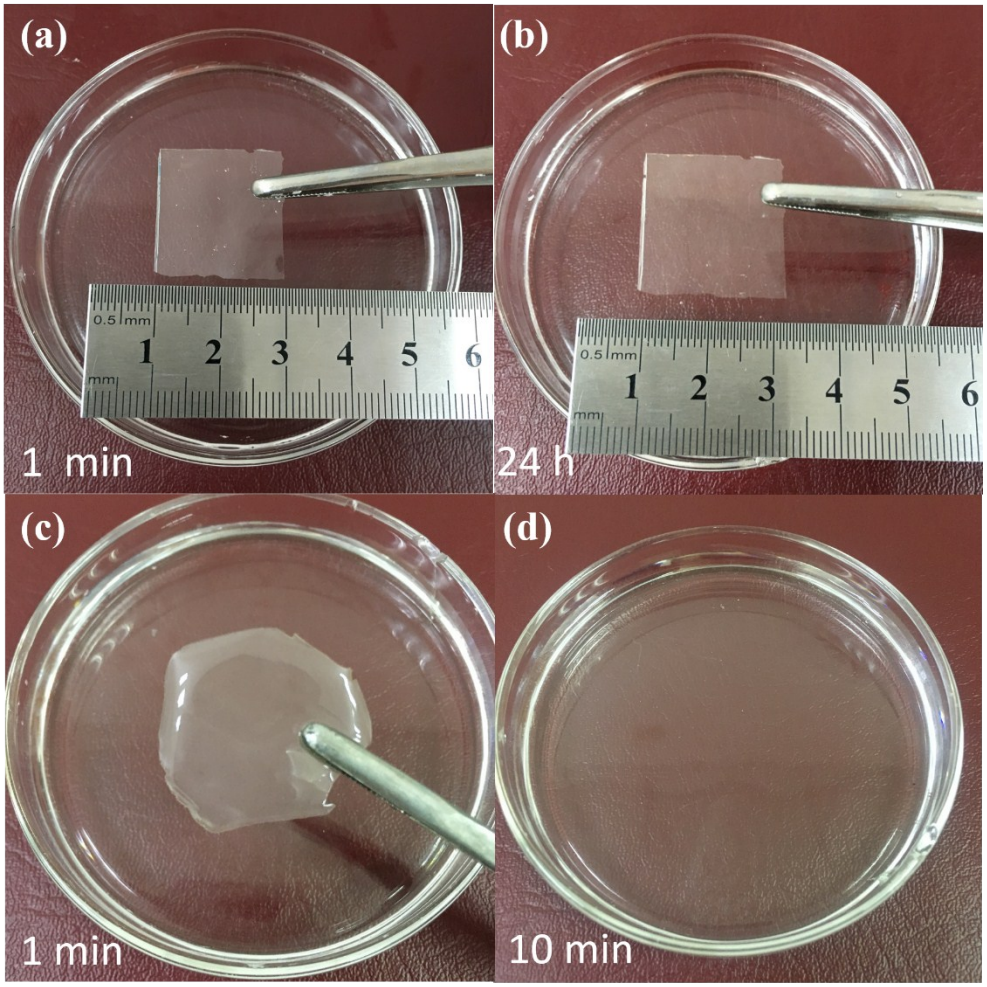

Figure S2. Optical images of crosslinked (a)-(b) and uncrosslinked (c)-(d) P(MSEMA-*co*-GMA)-3 films after soak in DMF for different time period. The crosslinked polymer showed a virtually unchanged image and slight swelling after the 24-h soak, while the uncrosslinked polymer turned white with shape-change after 1 min, and dissolved after 10 min.

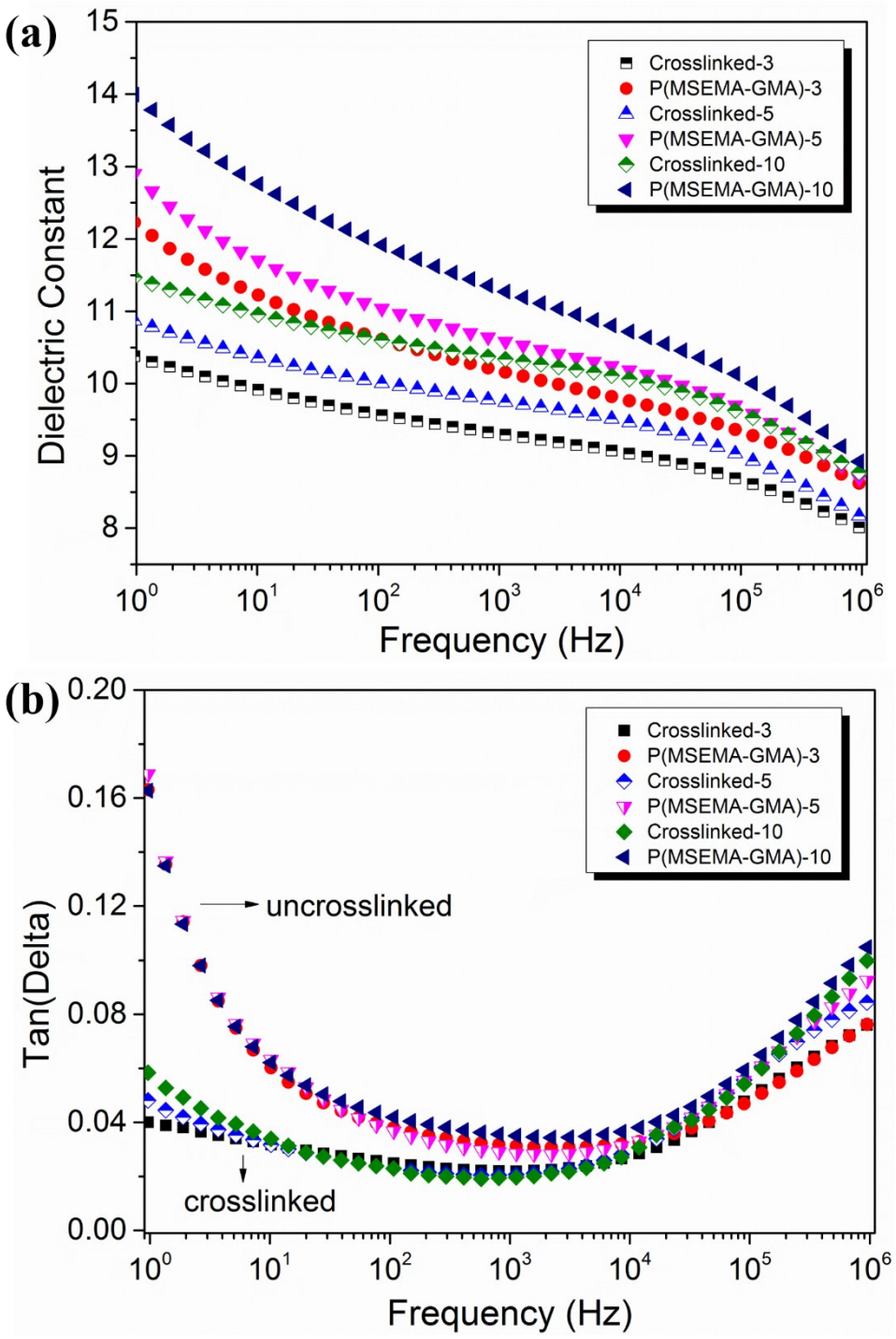

Figure S3. (a) Frequency-dependence of dielectric constant and (b) Frequency-dependence of dielectric loss of the three copolymers before and after crosslinking at room temperature.

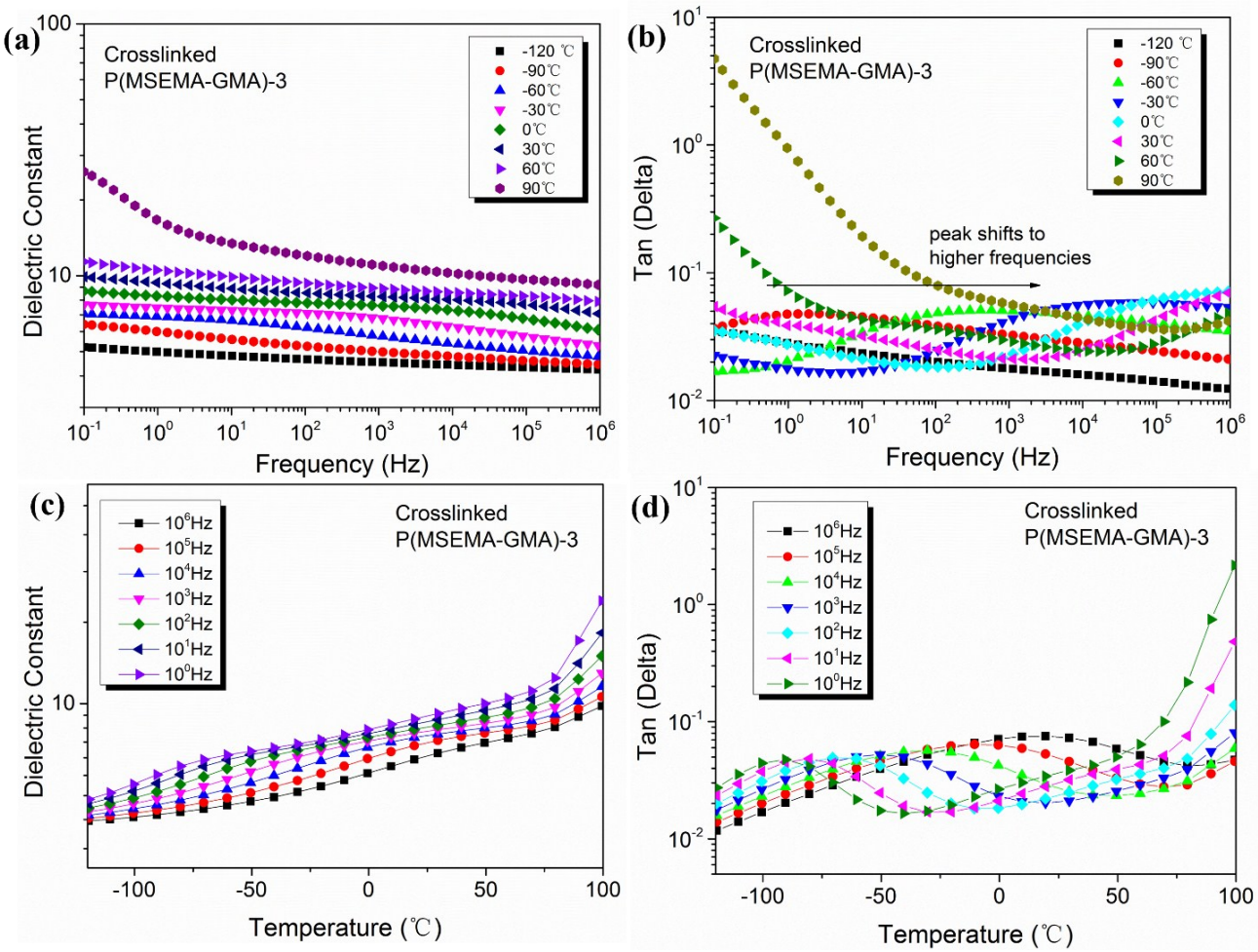

Figure S4. (a) Frequency dependence of dielectric constant and (b) Frequency dependence of dielectric loss under different temperatures for crosslinked P(MSEMA-GMA)-3. (c) Temperature dependence of dielectric constant and (d) Temperature dependence of dielectric loss of crosslinked P(MSEMA-GMA)-3 under selected frequencies.

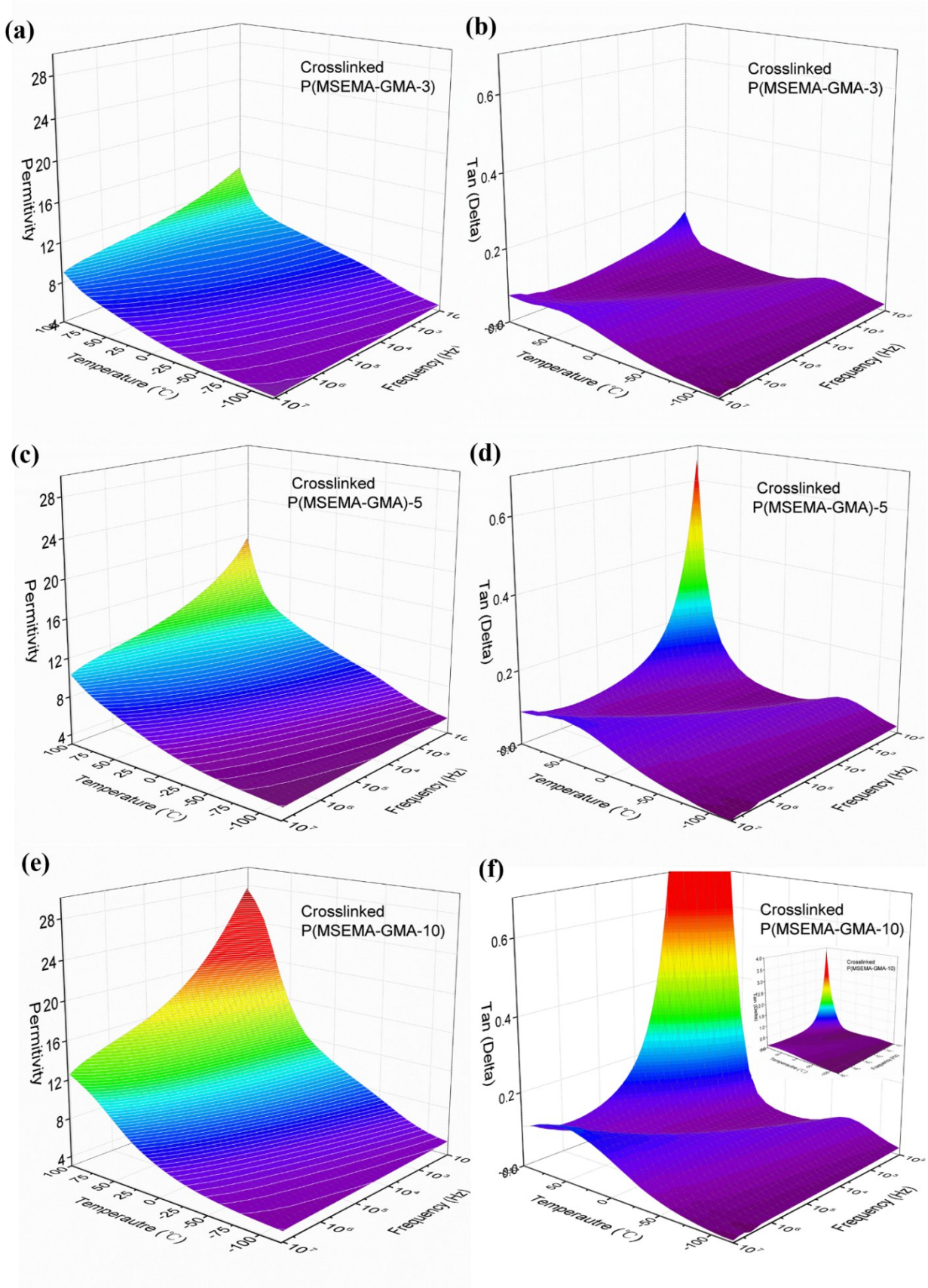

Figure S5. (a)-(f) Frequency and temperature dependent dielectric spectra of the three crosslinked copolymers.

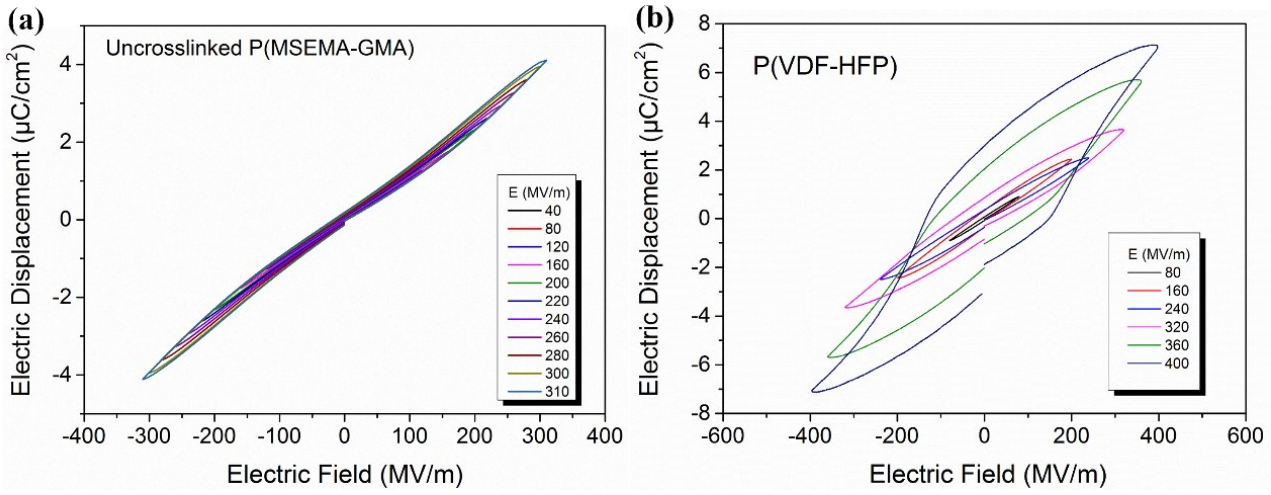

Figure S6. *D-E* loops of (a) uncrosslinked P(MSEMA-GMA) and (b) P(VDF-HFP) at 100 Hz, 25℃。

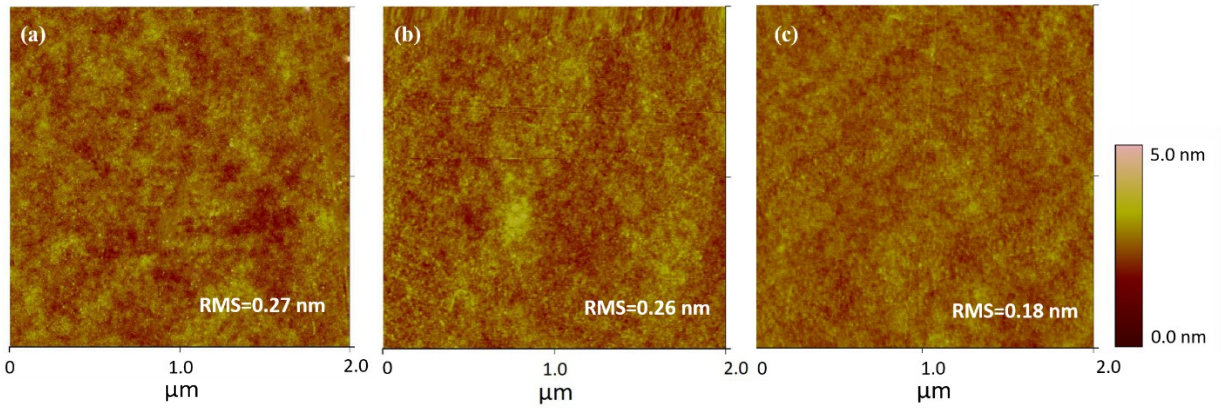

Figure S7. The atomic force microscopy (AFM) images (2 μm× 2 μm scan area) of the (a) P(MSEMA-GMA)-3, (b) P(MSEMA-GMA)-5 and (c) P(MSEMA-GMA)-10.

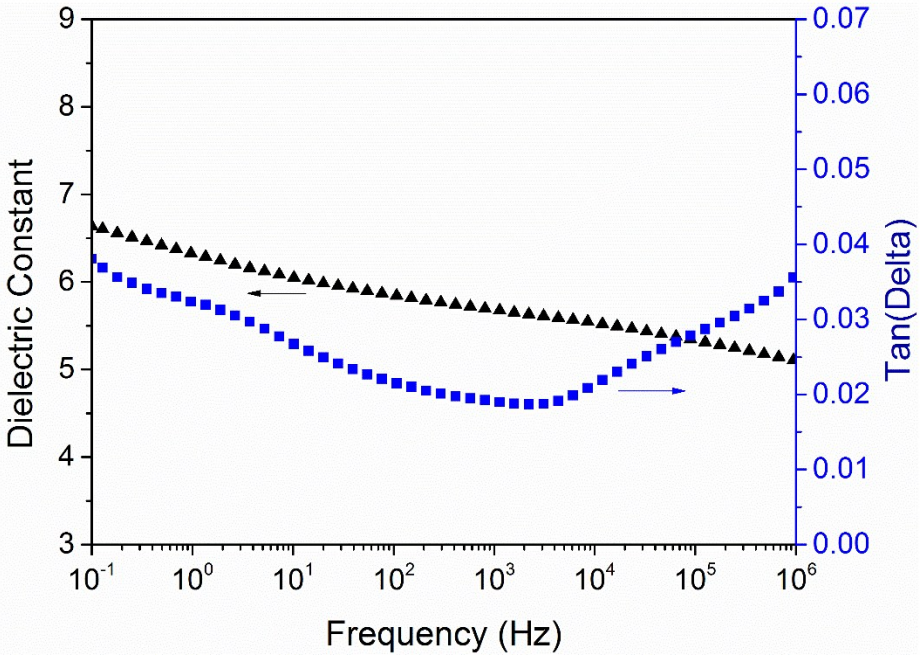

Figure S8. Frequency-dependence of dielectric constant and dielectric loss of poly(glycidyl methacrylate) (PGMA).