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Electronic Supplementary Information

Rheological and dynamic insights into the *in situ* reactive interphase with graft copolymer in multilayered polymer systems

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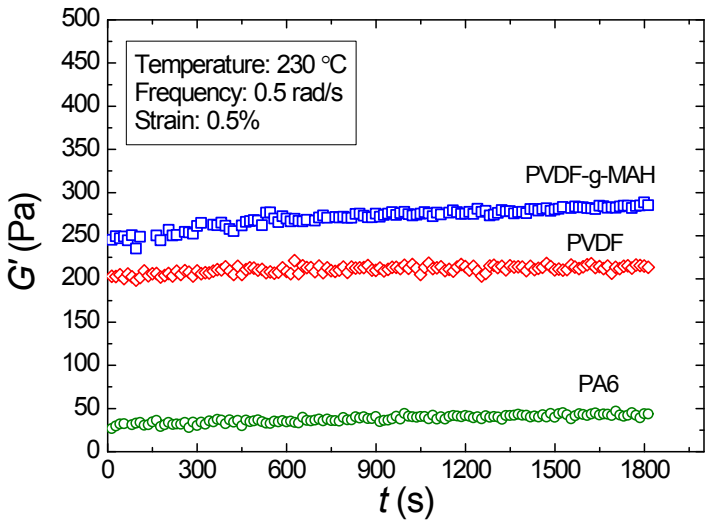

Fig. S1 Plots of storage modulus *G´* for neat polymers as a function of healing time measured at 230 °C with an angular frequency of 0.5 rad/s and strain of 0.5%.

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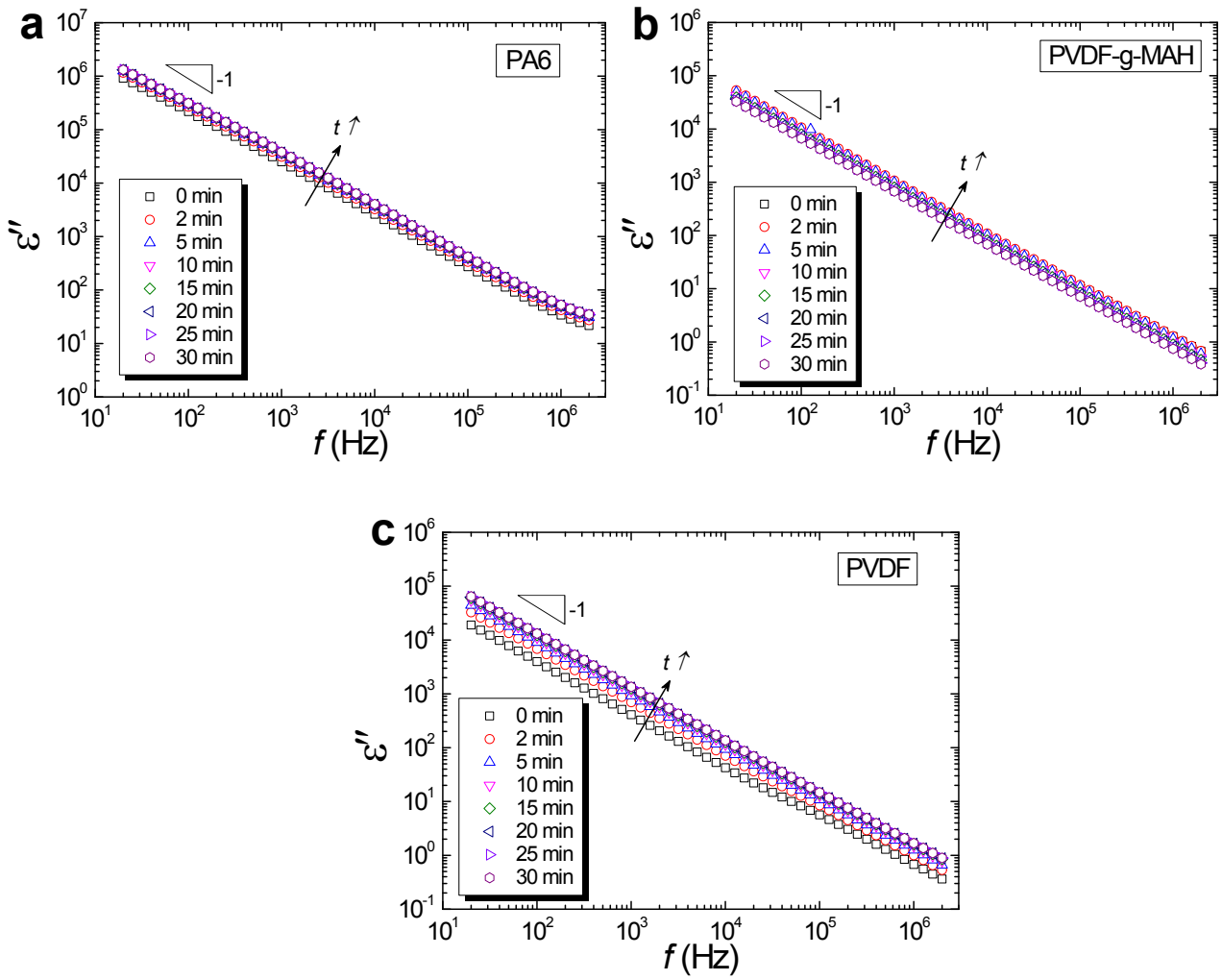

Fig. S2 Dielectric loss permittivity ε'' as a function of frequency with healing time at 230 °C for (a) PA6, (b) PVDF-*g*-MAH, (c) PVDF.

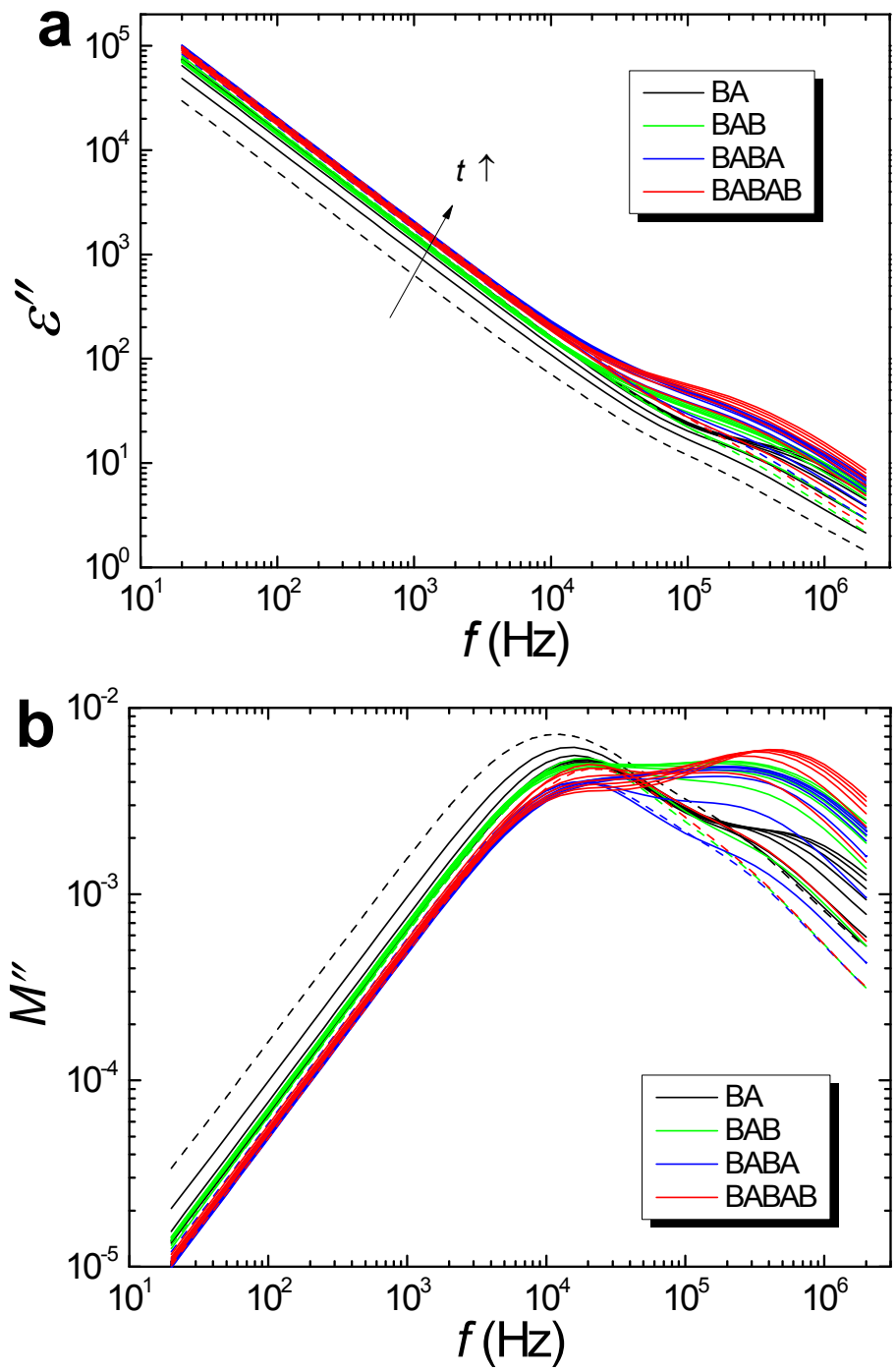

Fig. S3 Dielectric loss permittivity ε'' (a) and loss modulus M''(b) as a function of frequency with healing time from 0 to 30 min at 230 °C measured for PA6/PVDF-g-MAH bilayer and their multilayers with different number of layers ("A" stands for PA6, "B" represents PVDF-g-MAH). The dashed lines indicate the responses at time of 0 min.

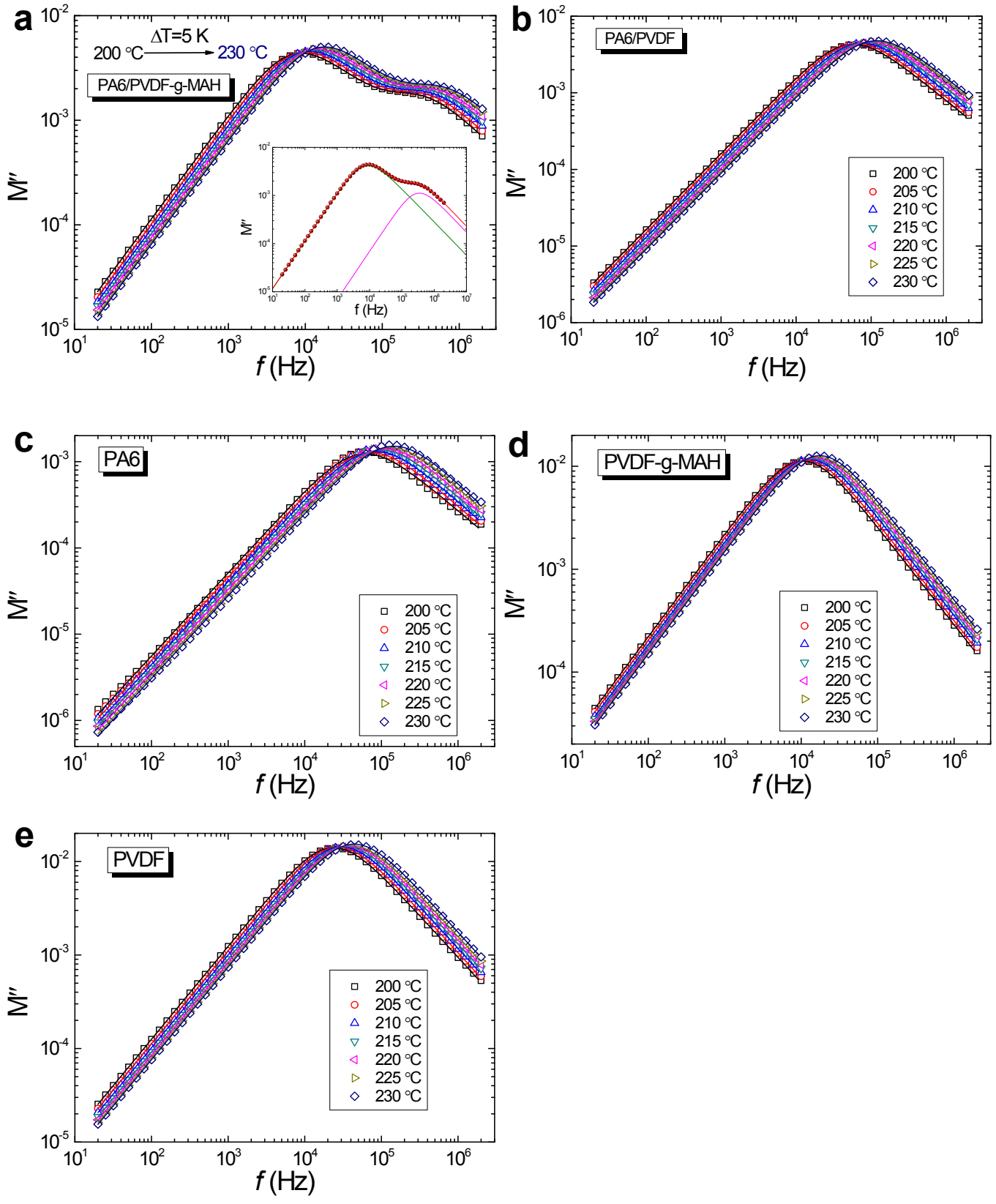

Fig. S4 Dielectric loss modulus M'' as a function of frequency with temperature ranging from 200 °C to 230 °C (5 °C step) for (a) PA6/PVDF-*g*-MAH bilayer, (b) PA6/PVDF bilayer, (c) PA6, (d) PVDF-*g*-MAH, and (e) PVDF. The solid curves are fitted lines by the Havriliak–Negami (HN) equation. Inset in (a) shows an example of HN fitting for M''.

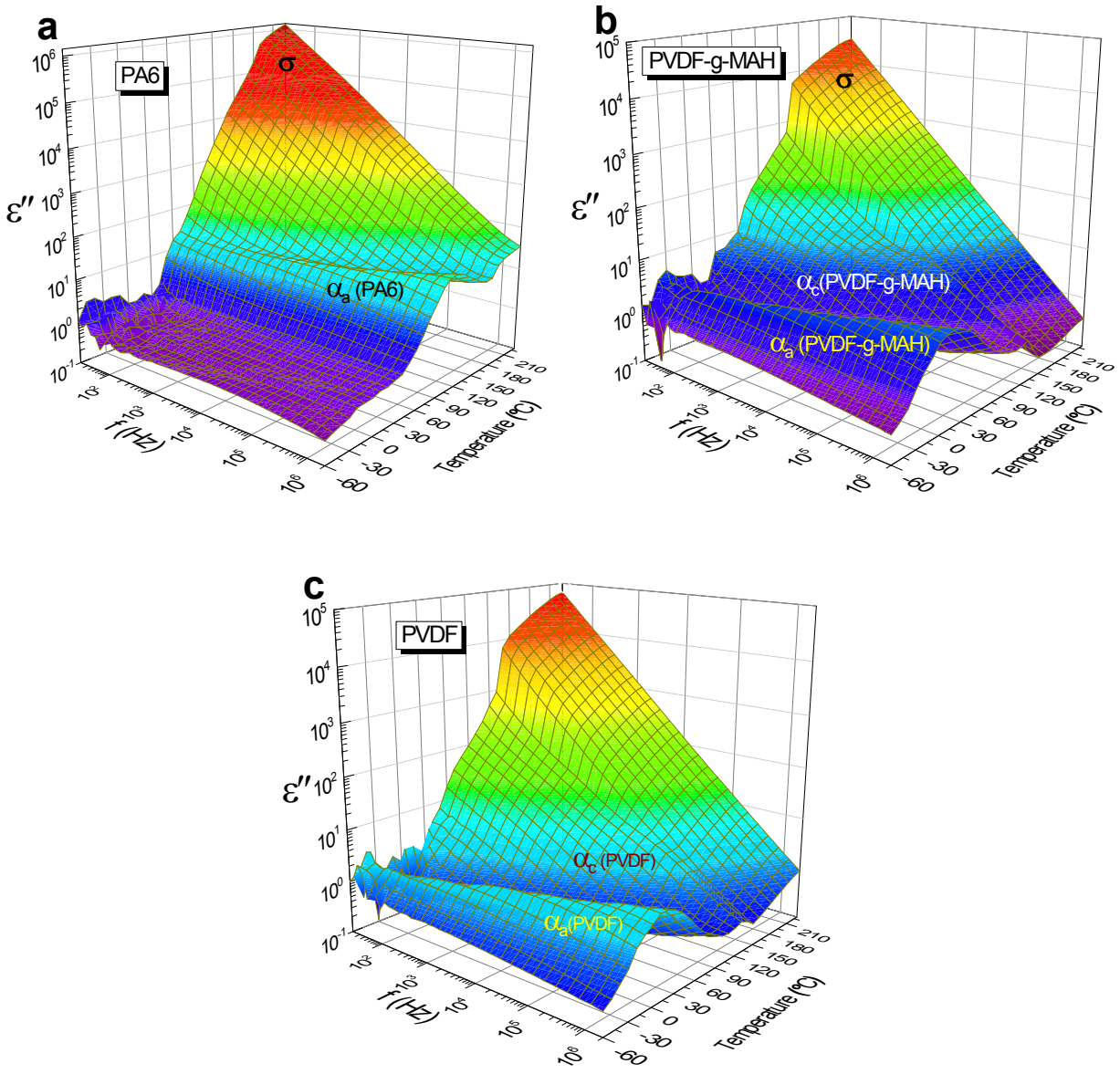

Fig. S5 3D dielectric loss spectra as a function of temperature and frequency for (a) PA6, (b) PVDF-*g*-MAH and (c) PVDF.

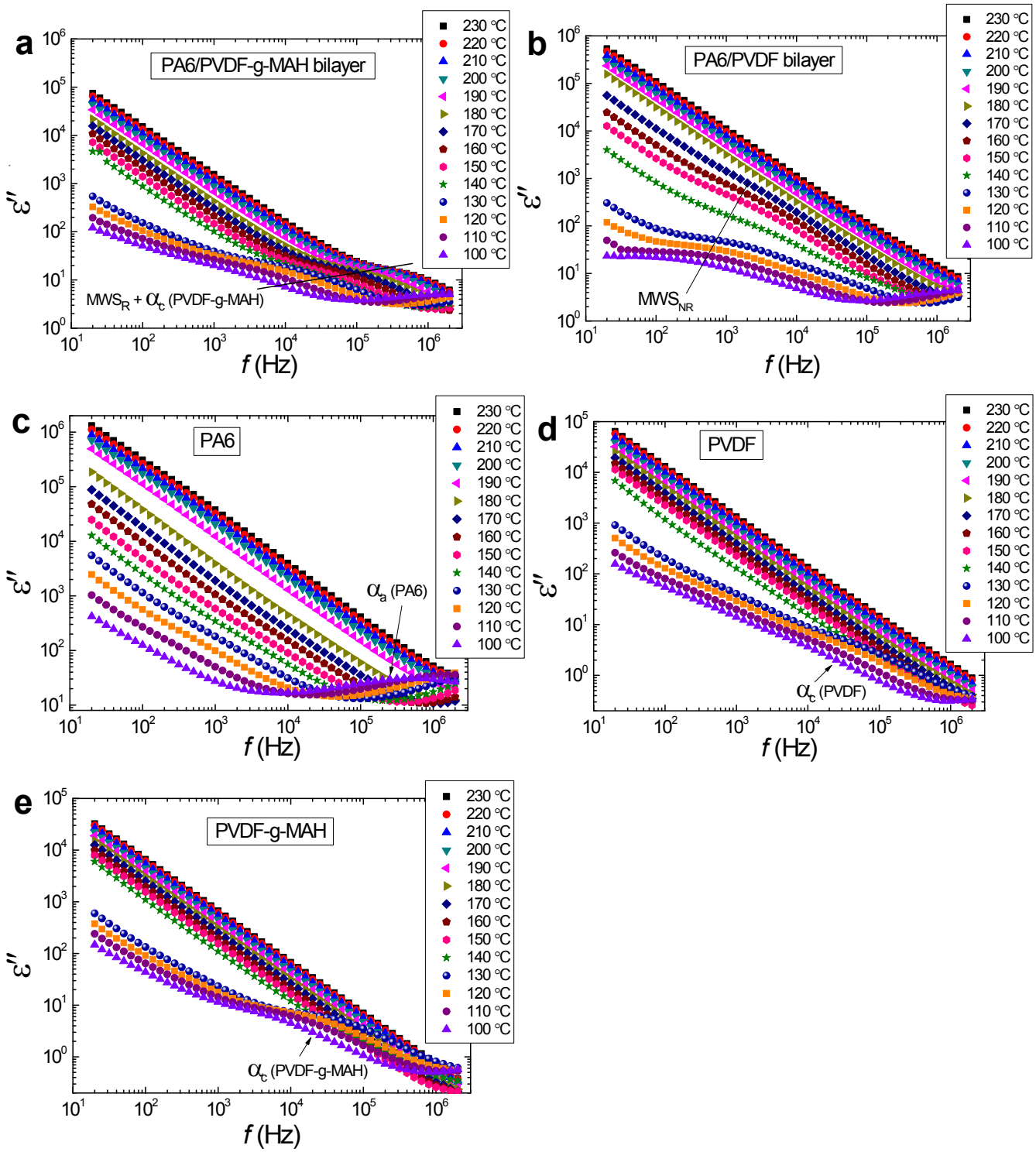

Fig. S6 Dielectric loss permittivity ε'' as a function of frequency with recorded by a cooling process at a rate of 5 °C/min after the 30 min healing for (a) PA6/PVDF-*g*-MAH bilayer, (b) PA6/PVDF bilayer, (c) PA6, (d) PVDF and (e) PVDF-*g*-MAH.

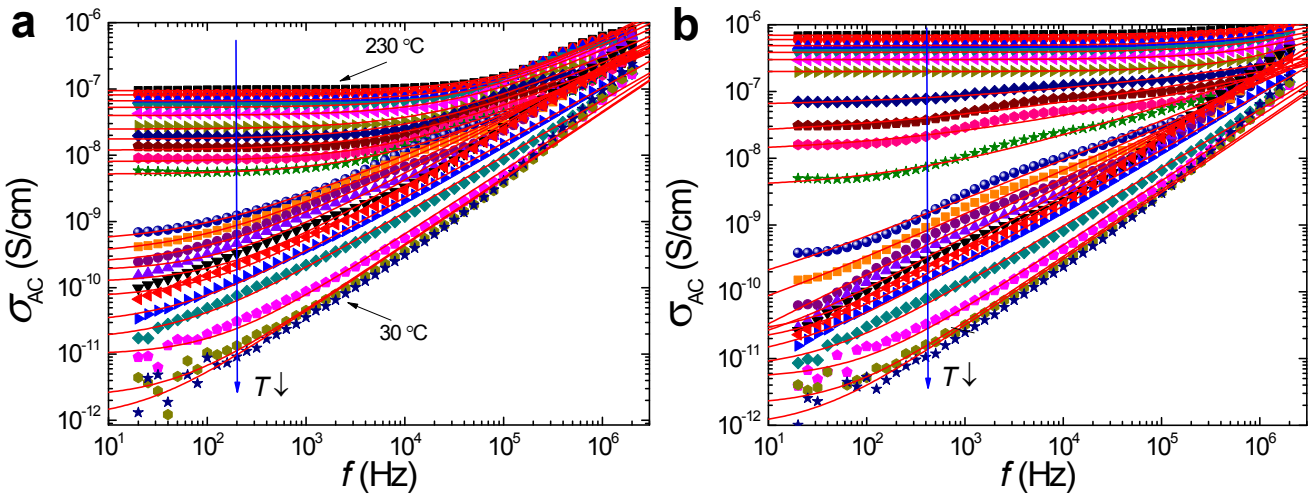

Fig. S7 AC conductivity (σ_{AC}) as a function of temperature (10 °C decrement) recorded by a cooling process at a rate of 5 °C/min after the 30 min healing for (a) PA6/PVDF-*g*-MAH bilayer, and (b) PA6/PVDF bilayer. Solid lines are fitted plots by the power law.