Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Dually Crosslinkable SiO_2@Polysiloxane Core-Shell Nanoparticles for Flexible Gate Dielectric Insulators

Eunkyung Lee[a,c], Jiyoung Jung[a], Ajeong Choi[a], Xavier Bulliard [a], Jung-Hwa Kim[b], Youngjun Yun[a], Jooyoung Kim[a], Jeongil Park[a], Sangyoon Lee[a], Youngjong Kang*[c]

[a] Material research center, Samsung Electronics, 130, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-803, Korea.
[b] Platform Technology Lab, Samsung Electronics, 130, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-803, Korea.
[c] Department of Chemistry, Research Institute for Natural Sciences, Institute of Nano Science and Technology, Hanyang University, 222 Wangsimni-Ro, Seongdong-Gu, Seoul, 133-791, Korea
e-mail: youngjkang@hanyang.ac.kr

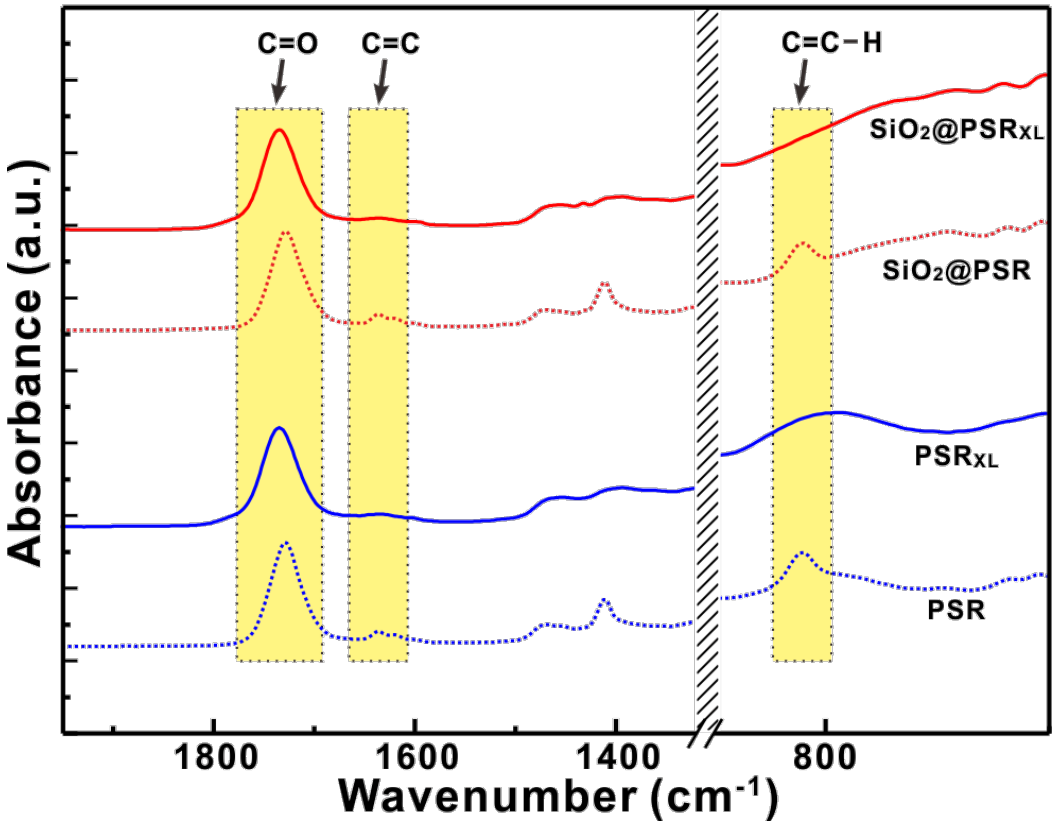

Figure S1. FT-IR spectra of PSR, PSR_{XL}, SiO_2@PSR and SiO_2@PSR_{XL}. The peaks at 1637 cm^{-1} and 810 cm^{-1} assigned to ethylene group of MPTS disappeared after photo-crosslinking process, while the carbonyl peak at 1727 cm^{-1} was slightly shifted to 1733 cm^{-1} with the same intensity.

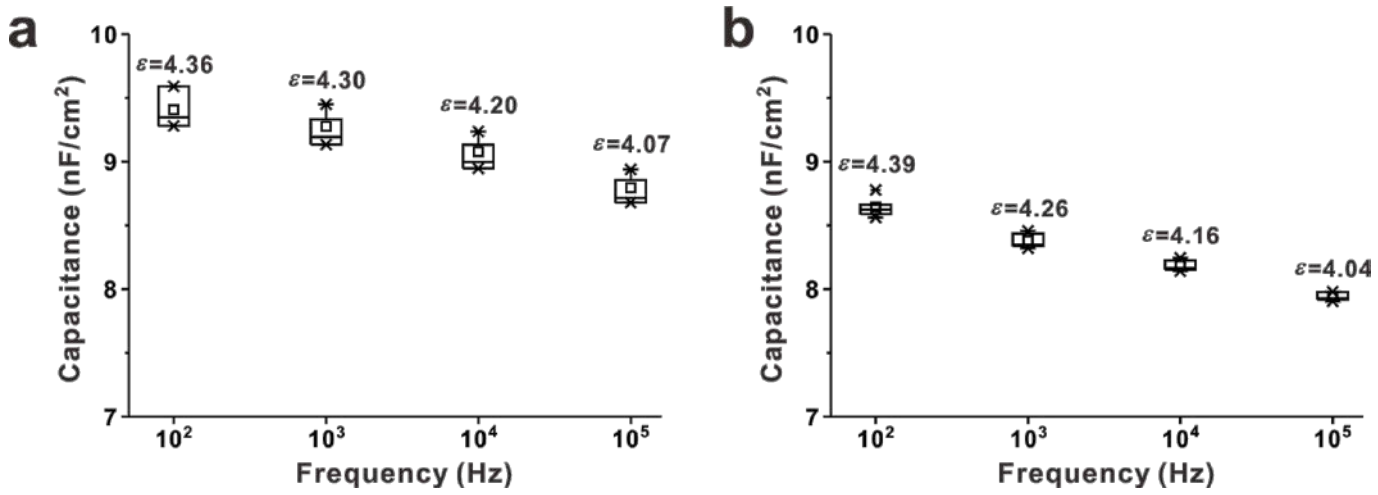

Figure S2. The changes of capacitance and dielectric constant as a function of frequency for the MIM devices based on a) PSR_{XL} and b) SiO_2@PSR_{XL}. The layer thickness of PSR_{XL} and SiO_2@PSR_{XL} was 4100 Å and 4500 Å, respectively.

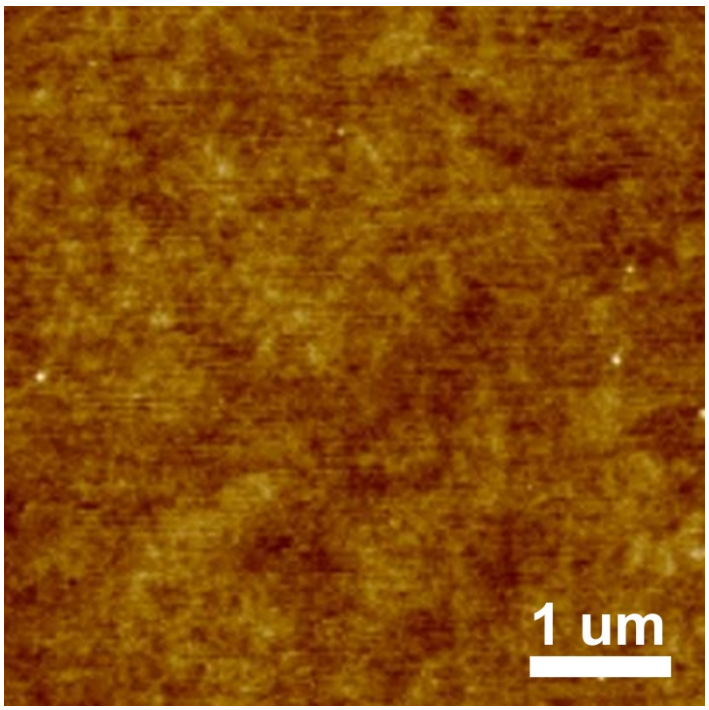

Figure S3. AFM micrograph of SiO_2@PSR_{XL} film coated on a glass substrate. The RMS roughness is 4.5 Å.