

**Electronic supplementary information (ESI)**

**A high-performing solution-processed small molecule : alkylselenophene-substituted benzodithiophene organic solar cell**

Yu Jin Kim<sup>a‡</sup>, Jang Yeol Baek<sup>b‡</sup>, Jong-jin Ha<sup>b</sup>, Dae Sung Chung<sup>d\*</sup>, Soon-Ki Kwon<sup>b\*</sup>, Chan Eon Park<sup>a\*</sup> and Yun-Hi Kim<sup>c\*</sup>

<sup>a</sup> POSTECH Organic Electronics Laboratory, Department of Chemical Engineering, Pohang University of Science and Technology, Pohang, 790-784, Republic of Korea

<sup>b</sup> School of Materials Science & Engineering and Research Institute for Green Energy Convergence Technology (REGET), Gyeongsang National University, Jin-ju, 660-701, Republic of Korea

<sup>c</sup> Department of Chemistry & Research Institute of Natural Science, Gyeongsang National University, Jin-ju, 660-701, Republic of Korea

<sup>d</sup> School of Chemical Engineering and Material Science Chung-Ang University, Seoul, 156-756, Republic of Korea

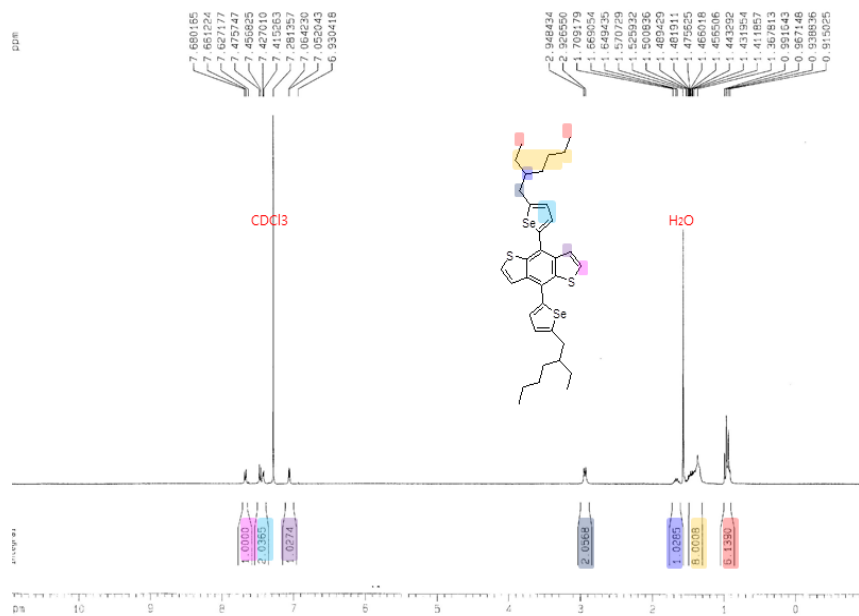


Fig. S1. <sup>1</sup>H-NMR of compound 2

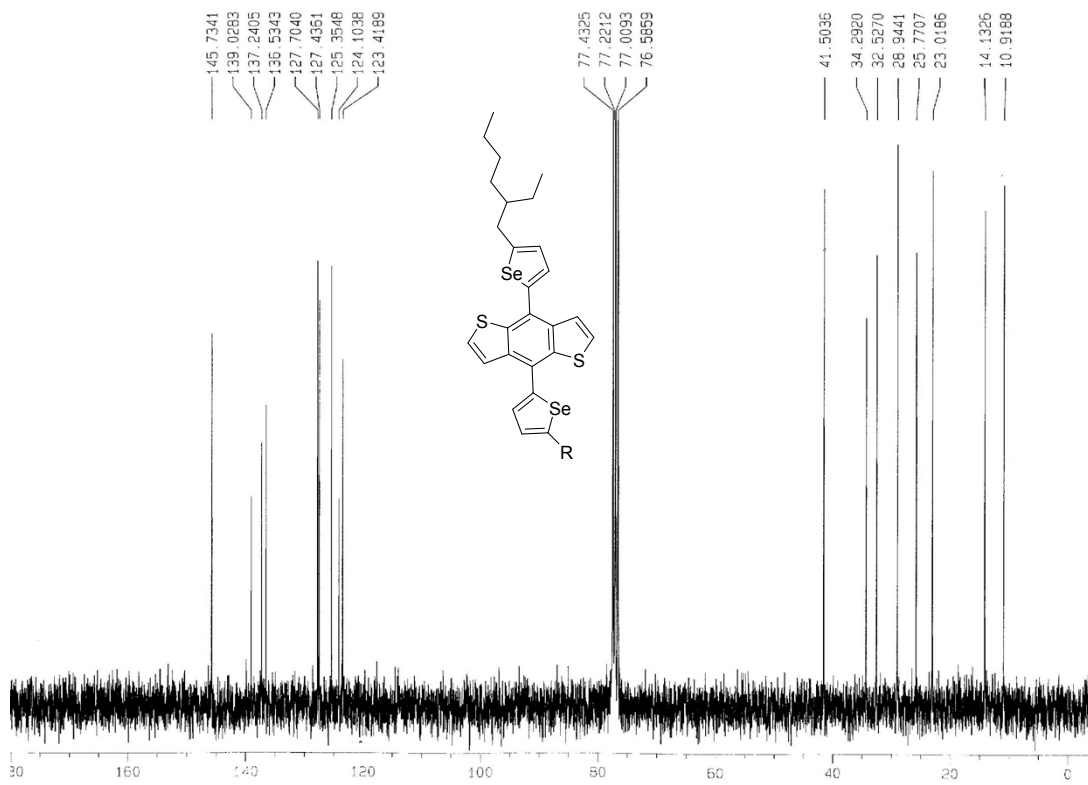


Fig. S2. <sup>13</sup>C-NMR of compound 2

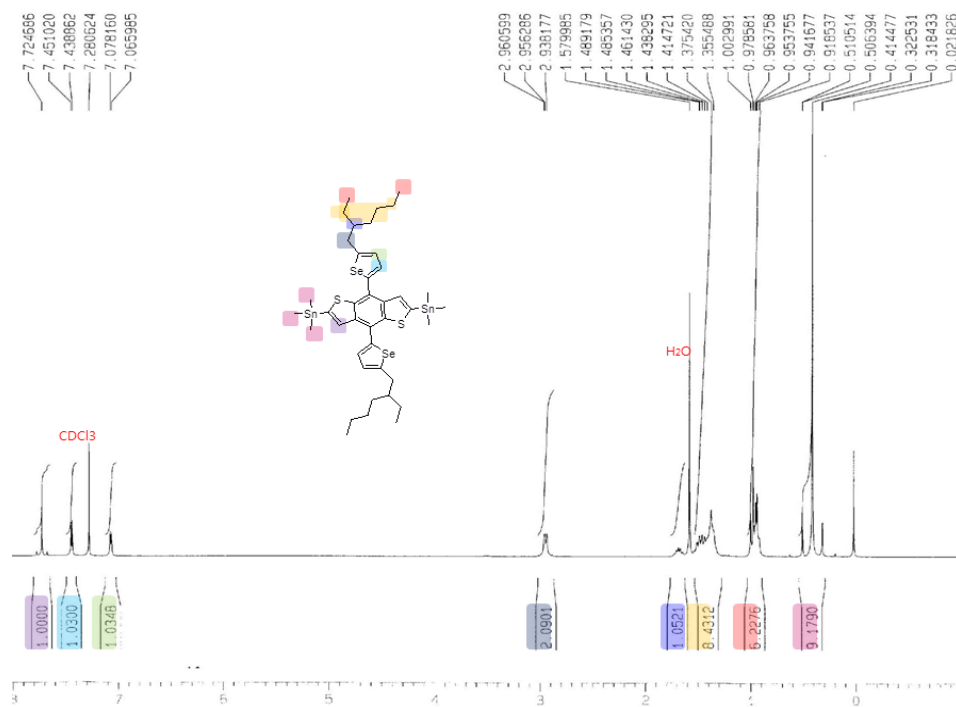


Fig. S3. <sup>1</sup>H-NMR of compound 3

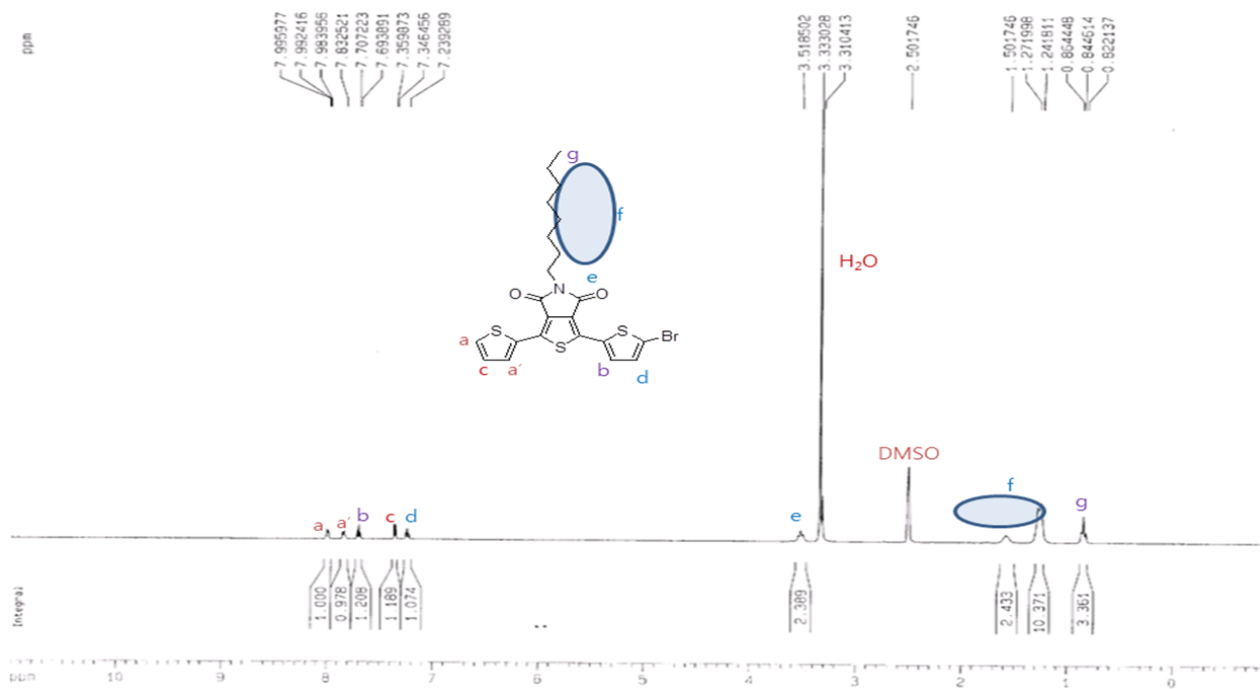
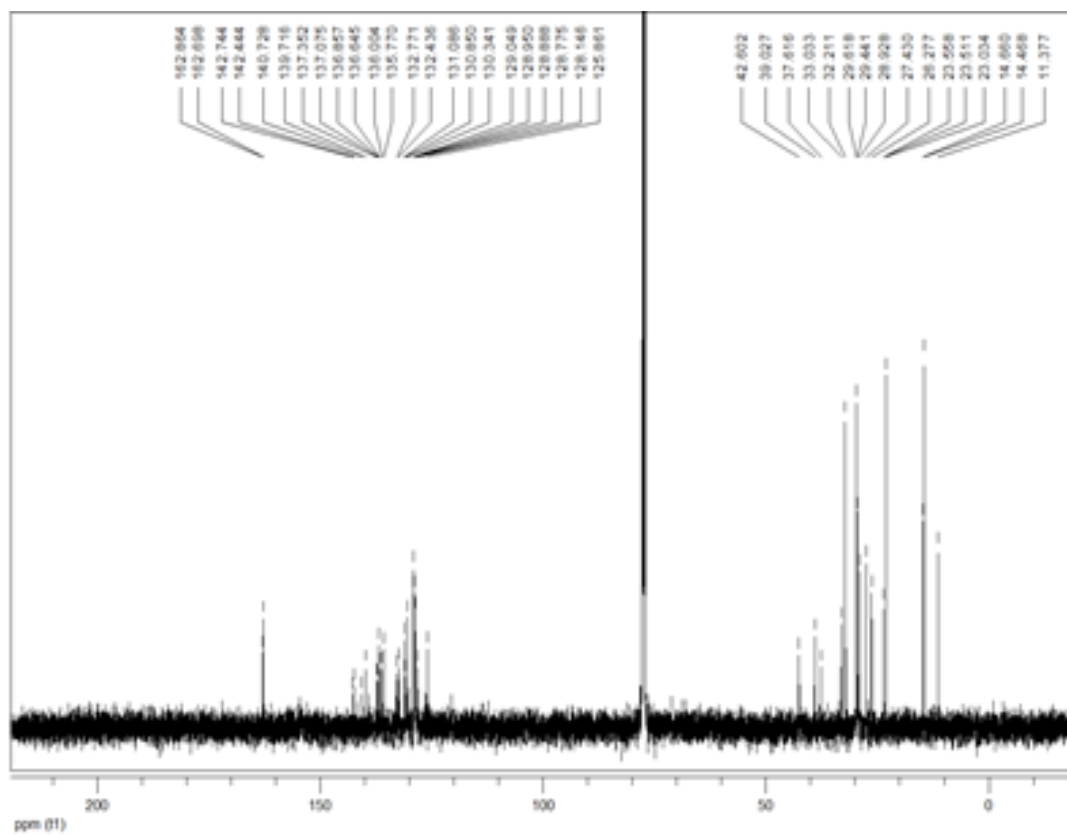
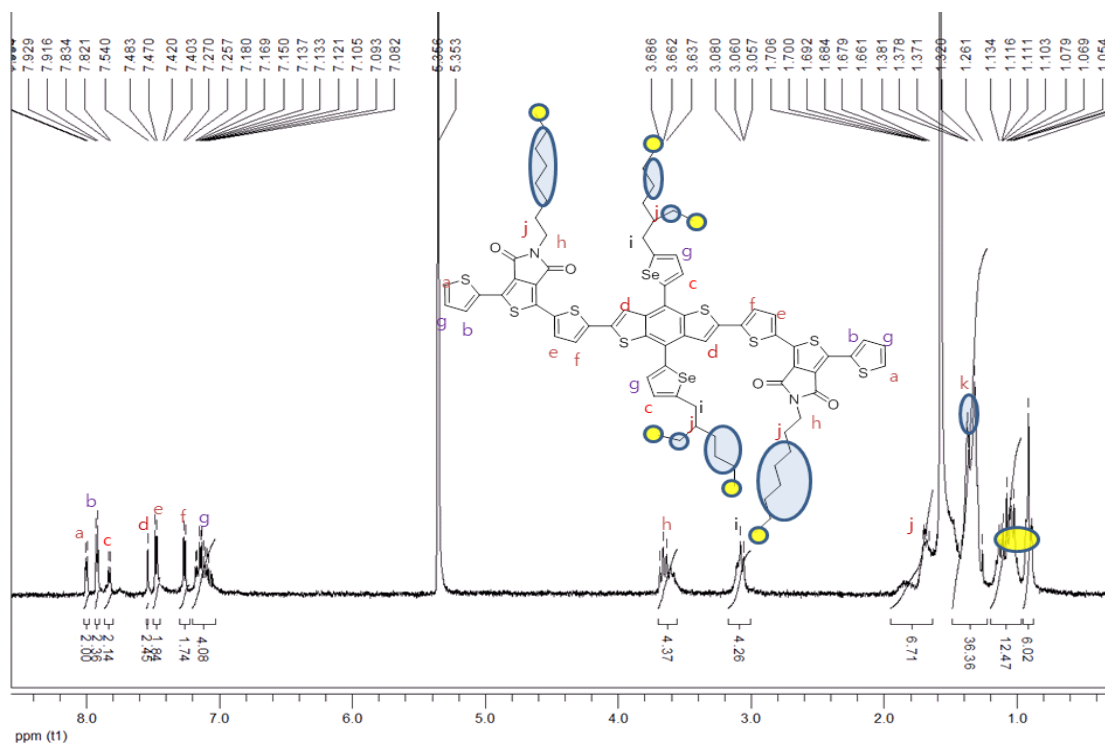


Fig. S4. <sup>1</sup>H-NMR of compound 6



**Fig. S5.**  $^1\text{H-NMR}$  and  $^{13}\text{C-NMR}$  of BDTSe-TTPD

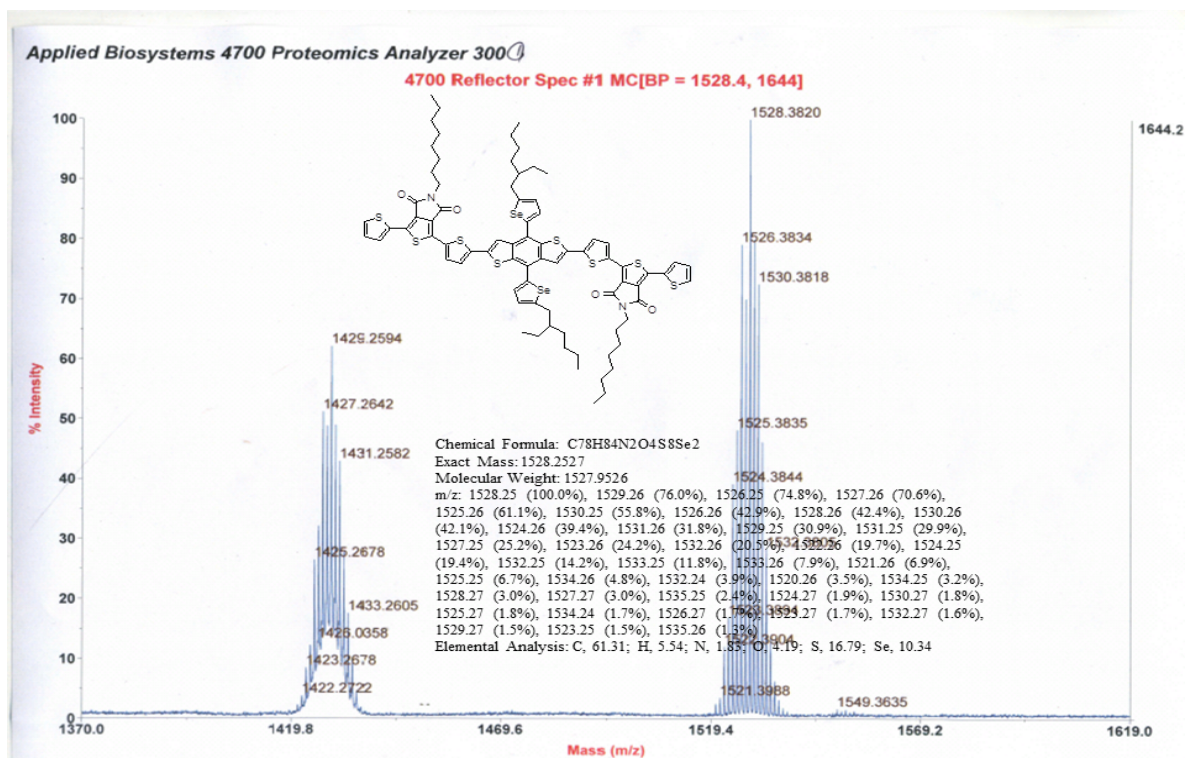


Fig. S6. Maldi-Tof of BDTSe-TTPD

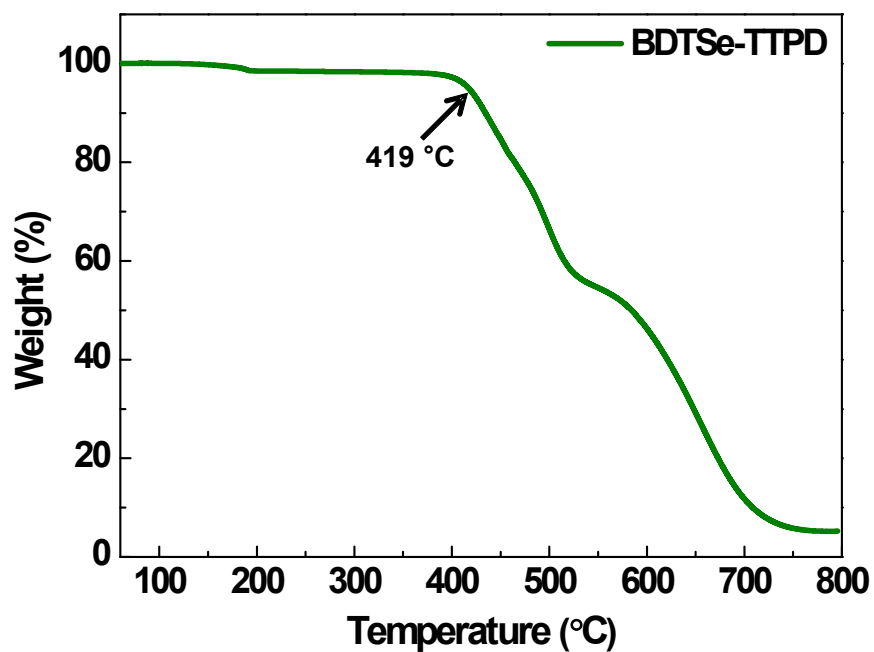


Fig. S7. TGA curve of BDTSe-TTPD

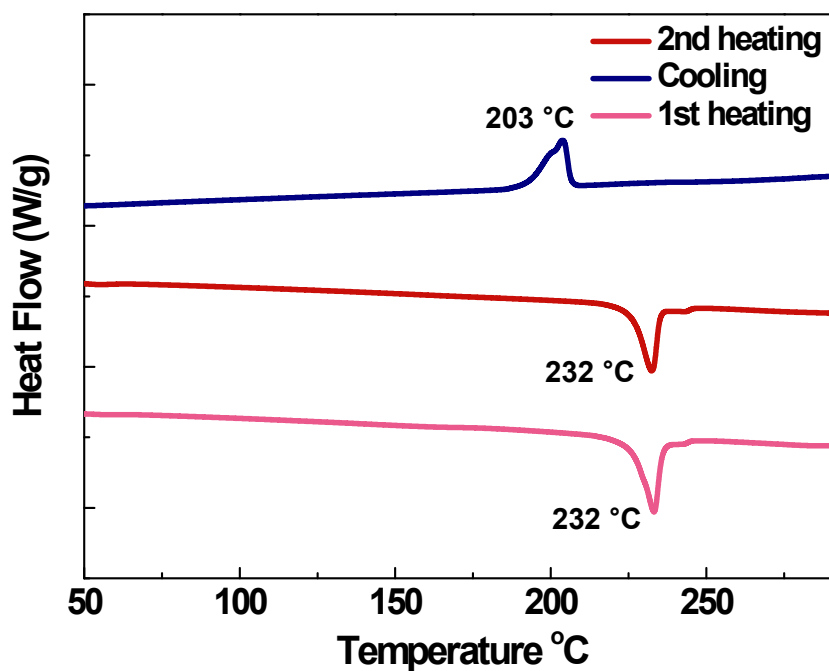


Fig. S8. DSC curves of BDTSe-TTPD