Supporting Information

# Quantification of Effective Charge Injection Barrier in Non-Fullerene-Based Organic Photodetectors

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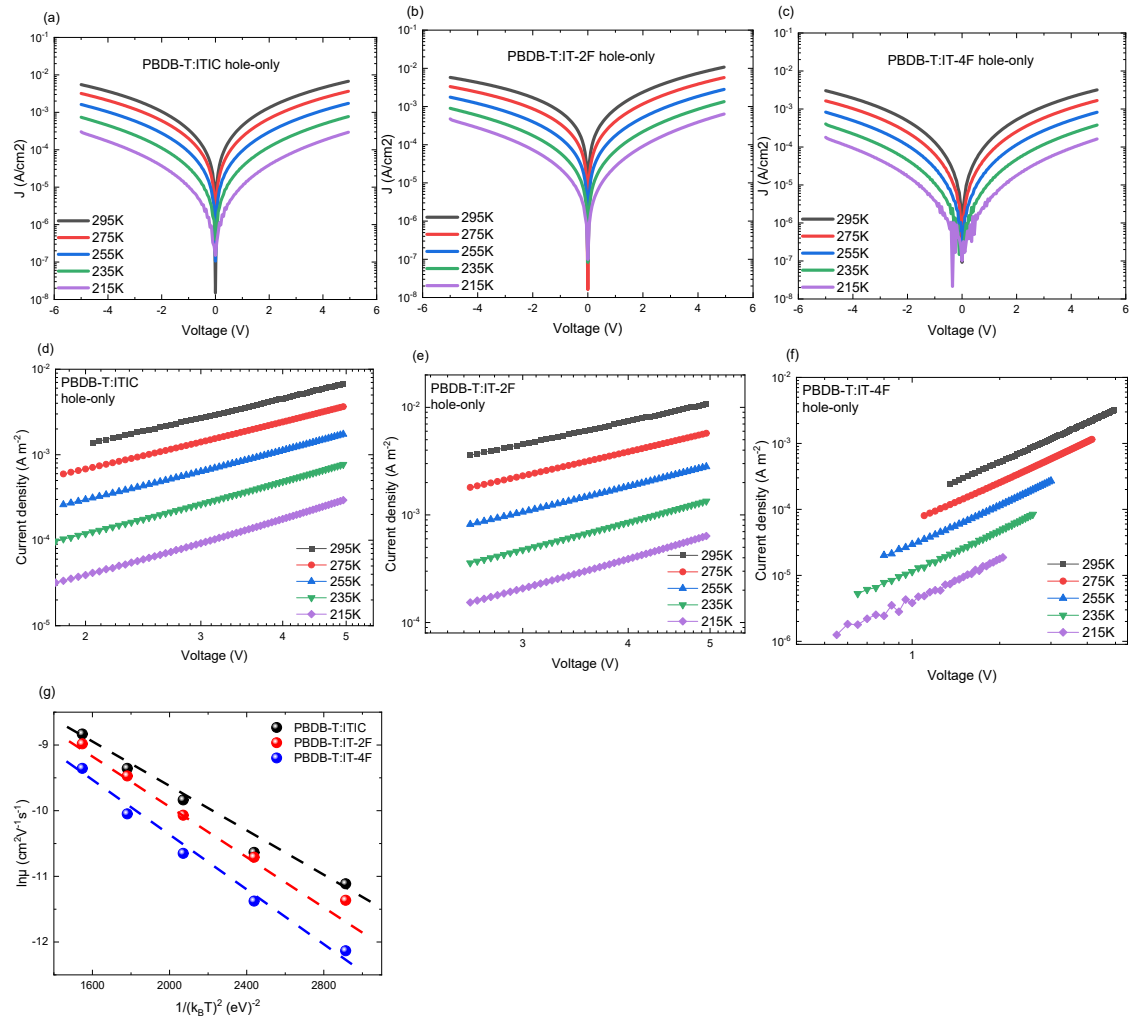
Fig. S1 EGDM analysis on PBDB-T: ITIC, PBDB-T: IT-2F, and PBDB-T: IT-4F unipolar OPDs. Measured dark J-V characteristics for (a-c) hole-only OPDs with same active thickness at different temperatures, (d-f) The quadratic dependence of the current density on voltage. (g) The temperature dependence of μ in a $ln(\mu)$ versus $1/(K_BT)^2$.
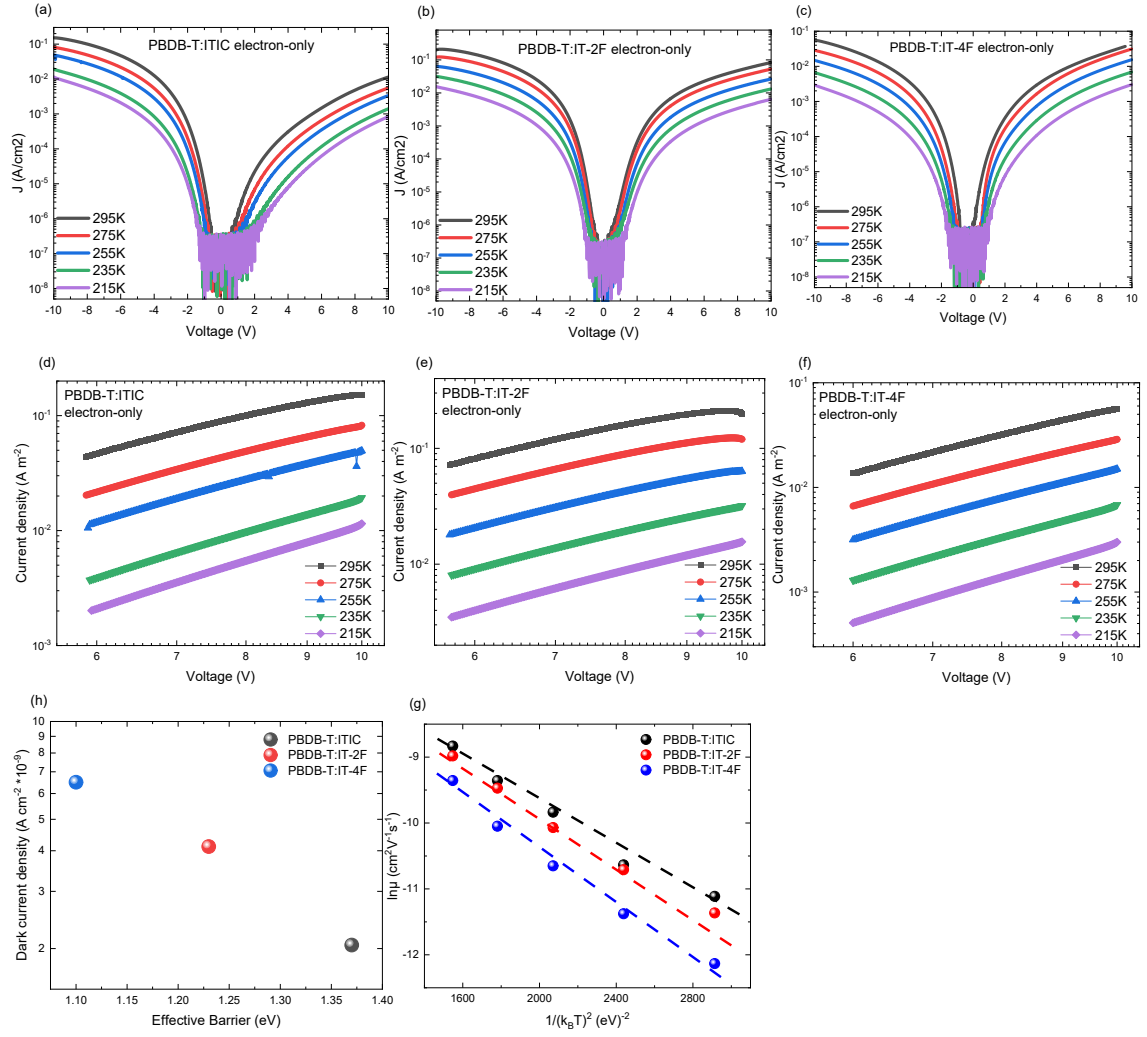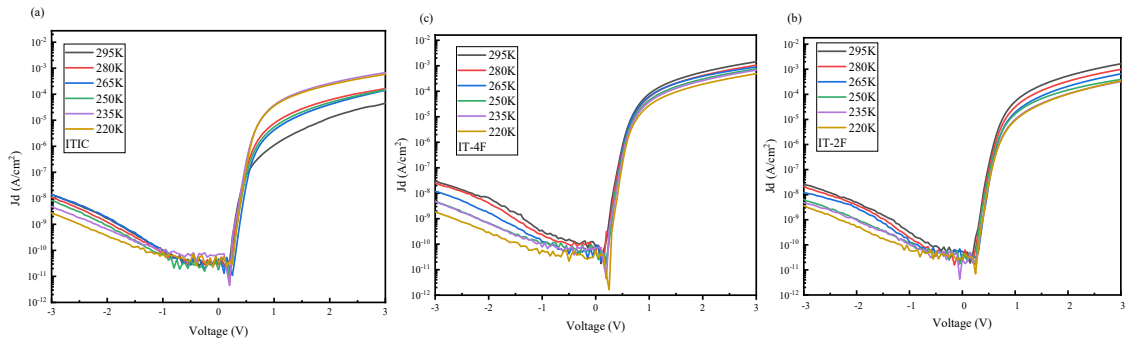
Fig. S2 EGDM analysis on PBDB-T: ITIC, PBDB-T: IT-2F, and PBDB-T: IT-4F single-carrier devices. (a-c) The dark *J-V* characteristics for the electron-only device. (d-f) The quadratic dependence of the current density on voltage. (g) The temperature dependence of μ in a $ln(\mu)$ versus $1/(K_B T)^2$.(h) The dependence of dark current on the effective injection barrier.

Fig. S3 The dark *J-V* characteristics as a function of temperature for the PBDB-T:ITIC, PBDB-T:IT-2F, and PBDB-T:IT-4F devices.