SUPPLEMENTARY INFORMATION

High voltage vacuum-processed perovskite solar cells with organic semiconducting interlayers

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Figure S1. IV curves in the dark for solar cells with different top contacts. The region highlights the transition between the diffusion and drift regimes. No substantial differences in built-in potential can be found.
| Top contact | FF (%) | $V_{oc}$ (V) | $J_{sc}$ (mA cm$^{-2}$) | PCE (%) |
|------------|--------|--------------|---------------------|--------|
| BCP        | 79.7   | 1.135        | 21.8                | 18.9   |
| Liq        | 79.2   | 1.136        | 21.8                | 19.1   |
| BCP/Ba     | 75.3   | 1.116        | 21.3                | 17.8   |
| BCP/Liq    | 80.1   | 1.130        | 21.7                | 18.8   |
| Ba         | 79.7   | 1.155        | 21.8                | 18.9   |

**Table S1** Maximum photovoltaic parameters extracted from J-V curves for different top contacts.