

Supporting Information

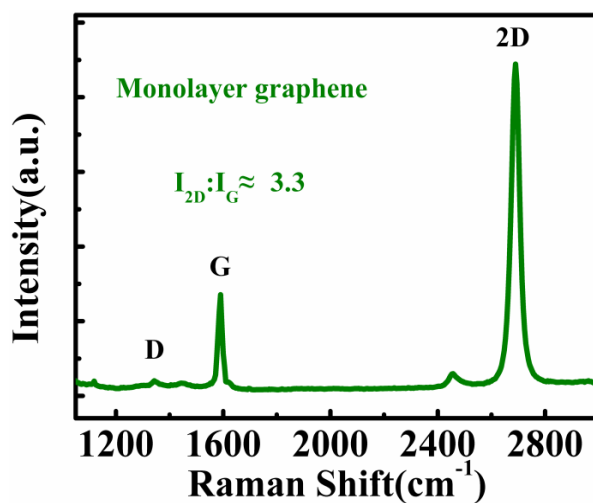


Figure S1. Raman spectrum of the MLG film.

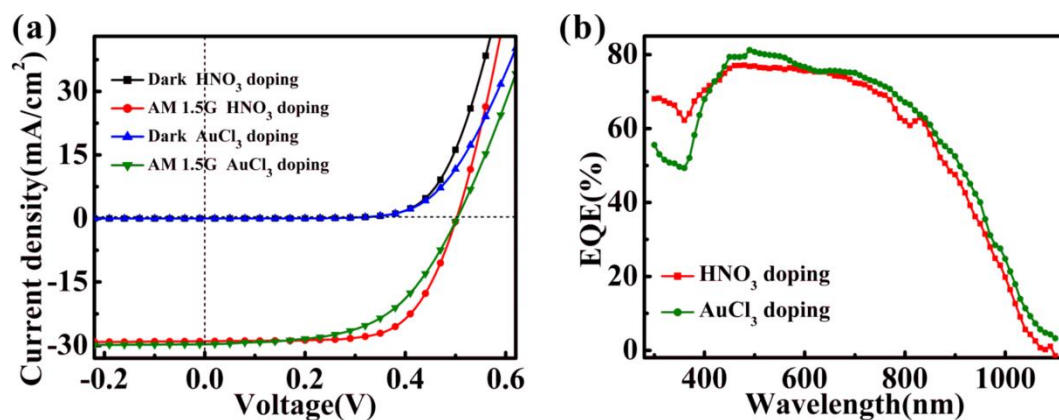


Figure S2. (a) Photovoltaic characteristics and (b) EQE values of 4-layer FLG/CH₃-Si Schottky junction solar cells with different graphene doping. Both HNO₃ and AuCl₃ were used to enhance the conductivity of graphene. The PCE slightly decreased from 9.70% for the device with HNO₃ doping to 8.23% for the device with AuCl₃ doping.

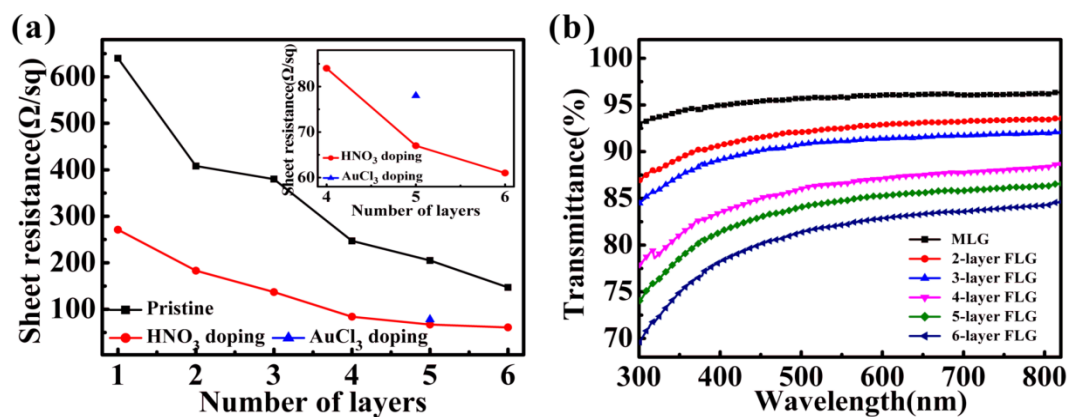


Figure S3. (a) Plots of sheet resistance as a function of layer number of the FLG films before and after HNO_3 doping. The value after AuCl_3 doping was also detected for comparison. (b) Transmittance of FLG films with varied layer number.

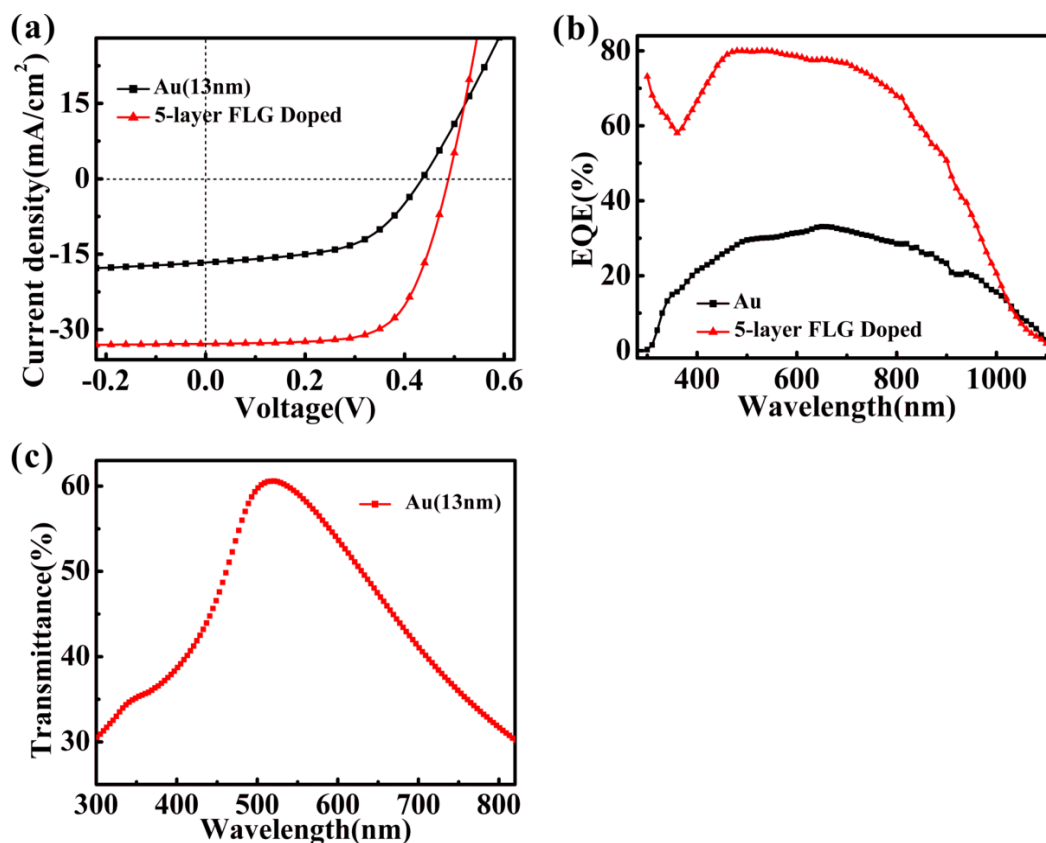


Figure S4. (a) Photovoltaic characteristics and (b) EQE values of 5-layer FLG/P3HT (10 nm)/ $\text{CH}_3\text{-Si}$ and Au/P3HT (10 nm)/ $\text{CH}_3\text{-Si}$ solar cells. (c) Transmittance spectrum of 13 nm Au thin film.