

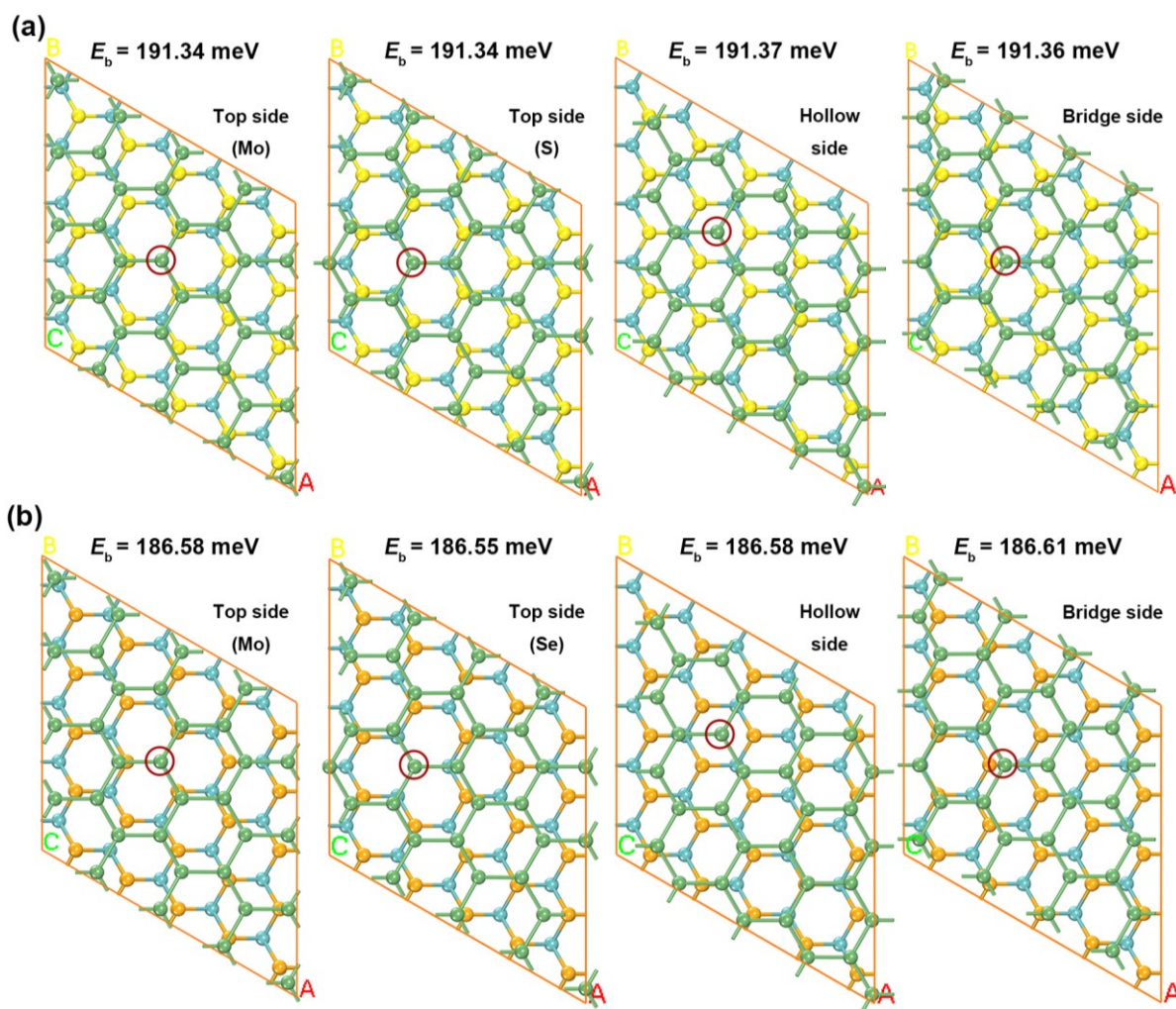
### Supplementary Information:

#### Transition from Schottky to Ohmic contacts in Janus MoSSe/germanene heterostructures

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**Fig. S1** Stacking configurations of (a) SeMoS/Ge and (b) SMOSe/Ge with lateral shifts such that one Ge atom (red circle) is located (from left to right) on top of a Mo atom, S/Se atom, hollow site, and bridge site.

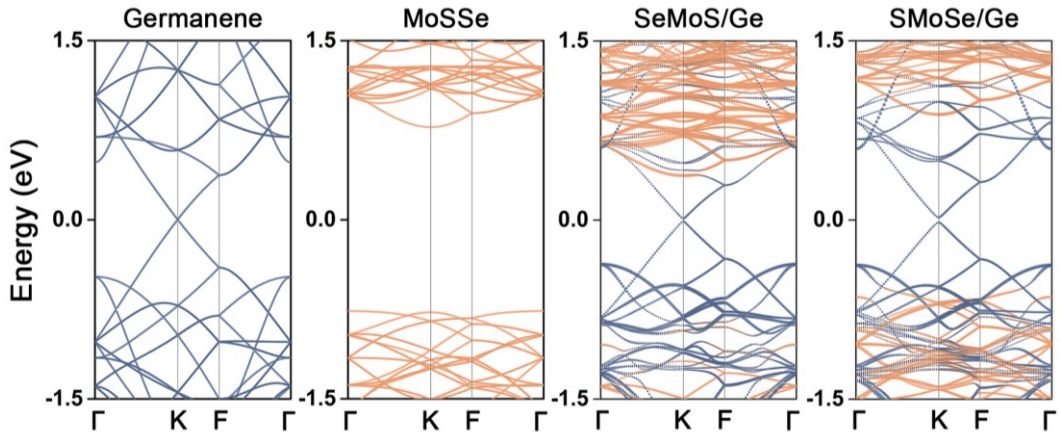


Fig. S2 Band structures of Ge, monolayer MoSSe, and the heterostructures.

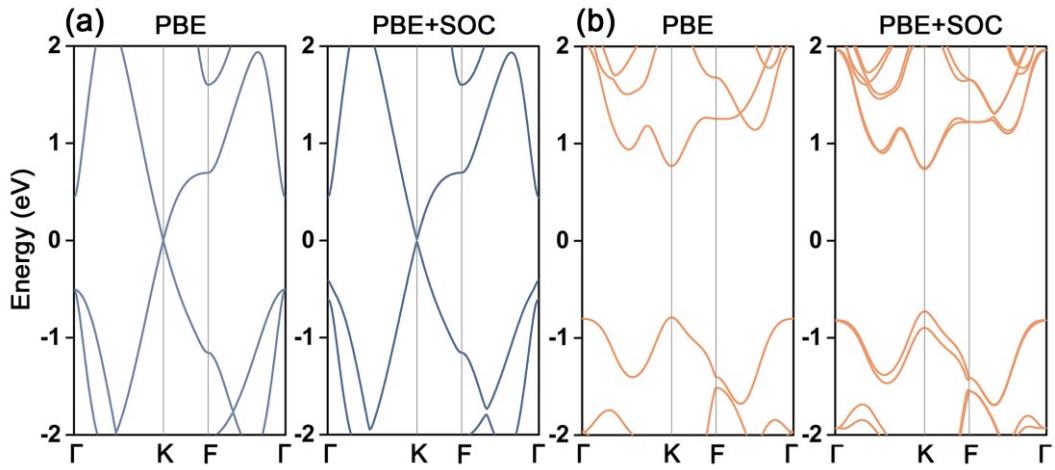


Fig. S3 Band structures of (a) Ge and (b) monolayer MoSSe with and without spin orbital coupling.

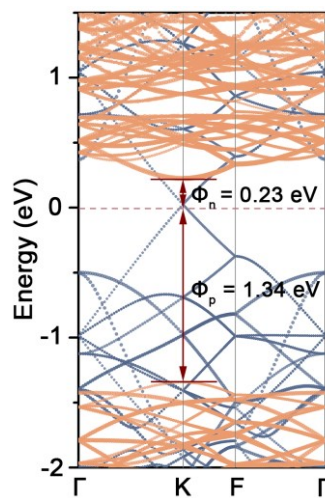
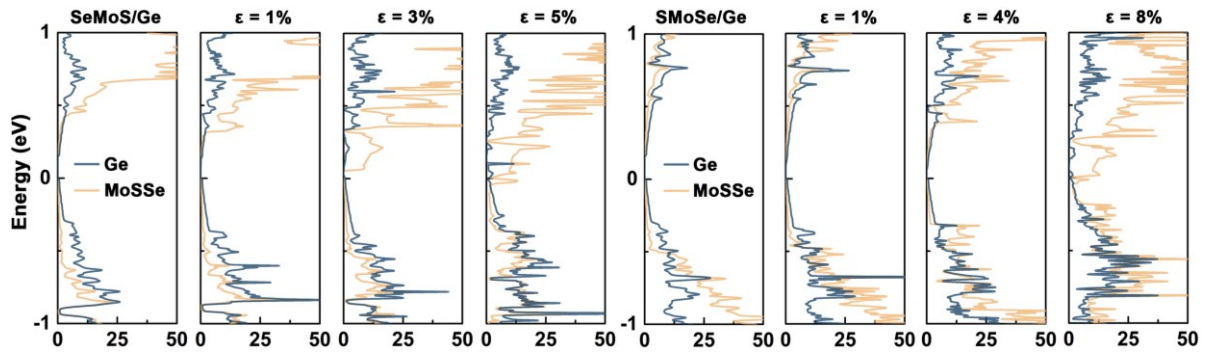


Fig. S4 Weighted band structure of SeMoS/Ge at an interlayer distance of 7 Å. Orange and blue colors indicate the contributions of Ge and MoSSe.



**Fig. S5** Densities of states (1/eV) of SeMoS/Ge and SMoSe/Ge.