MBE growth of topological insulator Bi$_2$Se$_3$ on epitaxial graphene on 6H-SiC(0001) Y. LIU, University of Wisconsin-Milwaukee, M. WEINERT, L. LI — In this work, we report results on the MBE growth of Bi$_2$Se$_3$, a prototypical topological insulator, on epitaxial graphene on 6H-SiC(0001). Step flow growth is observed, characterized by atomically smooth terraces that are 10 to 50 nm in width and separated by steps of 1-2 quintuple-layer in height. Two characteristic peaks at 130.21 and 171.48 cm$^{-1}$ are observed by Raman spectroscopy, corresponding to the in-plane E$_{2g}^1$ and out-of-plane A$_{1g}^1$ vibrational modes, respectively. The close resemblance of the positions and line shapes of both peaks to that of bulk Bi$_2$Se$_3$ demonstrates the very high quality of the film. Oscillations are also observed near the steps in dI/dV imaging, attesting to the metallic nature of the surface states of the topological insulator Bi$_2$Se$_3$.