ABSTRACT: A convergence analysis is given for the Scharfetter-Gummel discretization of prototype one-dimensional continuity equations as arise in the drift-diffusion system modeling semiconductors. These are linear, second-order, boundary-value problems whose coefficient functions are $O(1)$ but can have derivatives that are $O(1/\lambda)$, for a small positive parameter λ. It is the case that the discrete approximate solutions have natural extensions off the mesh; these are introduced and are proven to be first-order accurate on general meshes uniformly in λ in a strong global sense.