Exercise for PCPBT Tool:
Triangular Potential Barrier

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It is well known that in HEMT devices there can be large amount of leakage through the Schottky contact. One way of estimating the gate leakage is to use the WKB approximation to calculate the energy-dependent tunneling coefficient. It is well known that the WKB approximation does not take into account the quantum-mechanical reflections above the barrier. Better way to approach this problem is to approximate the triangular barrier with piece-wise constant segments. In the limit of zero segment width we get the triangular potential. Using the PCPBT tool and the 5, 7, 9 and 11 segment option approximate the linear potential with a step-wise equivalent. Determine the critical width of the segments that gives almost the exact result for the transmission coefficient. Assume that the barrier height is 0.8 eV and the barrier width is 0.8 nm. Compare your almost exact answer with the WKB approximation result.