

2.1. Introduction*

2.1a. The density of states $D(E)$ and the number of modes $M(E)$ are related by

(within a numerical factor that depends on the number of dimensions)

(a) $M \sim h \left(\frac{D}{L} \right) n^2$

(b) $M \sim h \left(\frac{D}{L} \right) \frac{1}{n}$

(c) $M \sim \left(\frac{D}{L} \right) n$

(d) $M \sim h \left(\frac{D}{L} \right) n$

(e) None of the above

2.1b. A transistor can be viewed as a resistor with

(a) a third terminal to control the resistance

(b) a nonlinear current-voltage relation

(c) both (a) and (b)

(d) with all dissipation in the contacts

(e) none of the above