General:

$q = 1.6 \times 10^{-19}$ C

$1\,\text{eV} \equiv 1.6 \times 10^{-19}\,\text{J}$

$k = 8.62 \times 10^{-5}\,\text{eV/K}$

$h = 4.14 \times 10^{-15}\,\text{eV s}$

$\epsilon_0 = 8.85 \times 10^{-12}\,\text{F/m}$

$m_0 = 9.1 \times 10^{-31}\,\text{kg}$

$kT = 0.0259\,\text{eV}$ at 300K

$kT/q = 0.0259\,\text{V}$ at 300K

Silicon:

$a = 0.543\,\text{nm}$

$E_g = 1.12\,\text{eV}$

$N_C = 3.22 \times 10^{19}\,\text{cm}^{-3}$

$N_V = 1.83 \times 10^{19}\,\text{cm}^{-3}$

$\epsilon_r = 11.9$

$\chi = 4.1\,\text{eV}$

Silicon Dioxide:

$\epsilon_r = 3.9$

$\chi = 0.9\,\text{eV}$

Hafnium Dioxide:

$\epsilon_r \approx 4 \times 3.9$

$\chi = 2.9\,\text{eV}$

GaAs:

$E_g = 1.42\,\text{eV}$

$N_C = 4.21 \times 10^{17}\,\text{cm}^{-3}$

$N_V = 9.51 \times 10^{18}\,\text{cm}^{-3}$

$\epsilon_r = 13.1$

$\chi = 4.07\,\text{eV}$

InGaP:

$E_g = 1.9\,\text{eV}$

$\chi = 4.07\,\text{eV}$