

Constants

	Si	GaAs
ϵ_r	11.7	13.2
$\frac{m_n^*}{m_0}$	1.08	.06
$\frac{m_p^*}{m_0}$.56	.54
N_c	$2.8 \times 10^{19} \text{ cm}^{-3}$	$4.7 \times 10^{17} \text{ cm}^{-3}$
N_v	$1.04 \times 10^{19} \text{ cm}^{-3}$	$7.0 \times 10^{18} \text{ cm}^{-3}$
E_g	1.1 eV	1.42 eV
n_i	$1.1 \times 10^{10} \text{ cm}^{-3}$ at 300K	$9 \times 10^6 \text{ cm}^{-3}$

$$\epsilon_0 = 8.854 \times 10^{-14} \frac{\text{F}}{\text{cm}}$$

$$k = 8.6 \times 10^{-5} \frac{\text{eV}}{\text{K}}$$

$$kT (T=300\text{K}) = .026 \text{ eV}$$

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

$$m_0 = 9.1 \times 10^{-31} \text{ kg} \quad \text{or} \quad \frac{.511 \times 10^6 \text{ eV}}{9 \times 10^{20} \frac{\text{cm}^2}{\text{sec}^2}}$$