

Quiz

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Instruction: Do your work neatly. TAs have the complete liberty NOT to evaluate messy work.

Sketch electron and hole concentration in forward biased $p^+ - n$ diode (assume low level injection) as a function of the position. Mark important quantities/positions very clearly, and you are free to exaggerate to highlight important points. [6 points]

Standard Silicon parameters are

Region	Material Parameter	Value	Units
n -side	Elec. Mobility	1600	$cm^2/V - s$
n -side	Hole Mobility	400	$cm^2/V - s$
p -side	Elec. Mobility	1600	$cm^2/V - s$
p -side	Hole Mobility	400	$cm^2/V - s$
–	$\tau_n = \tau_p$	10^{-6}	s
–	Temperature	300	K

Write one sentence justification. Note that extra long sentences with multiple formulae and multiple sentences will not be evaluated.