Exercise Series 4

Exercise 1: PV installations

We want to design a PV system for a house with a suitable roof area of ca. 5 m times 6 m. We use modules X22-360-COM whose data is provided on Moodle (datasheet Sunpower).

a) What is the maximum number of modules you can install on the available surface and what is the nominal power of such a system?

b) On a sunny day in winter, reflection from surrounding snow compensates for the low position of the sun in the sky. Thus you can have irradiance of $1000\,\mathrm{W\,m^{-2}}$ at a module temperature $+5\,^{\circ}\mathrm{C}$. How much power does the system generate under such conditions?

c) How would you accommodate the limitation of the maximum system voltage?

Exercise 2: Cell processing improvements

State 3 major improvements that made possible to reduce silicon usage/EPBT over the last few decades.