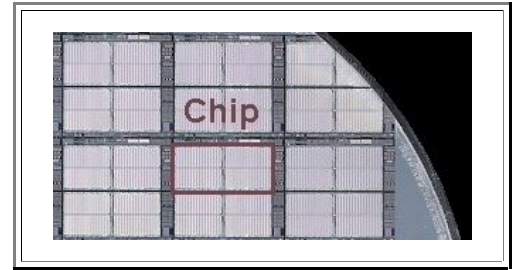


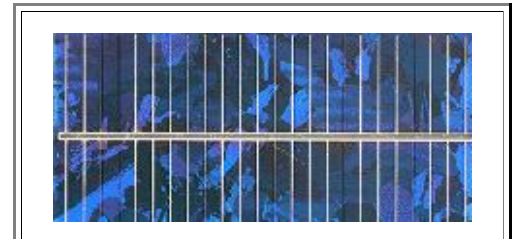
2.2.3 Summary to: 2.2. Silicon

- ▶ Silicon, and *only* **Si**, enables integrated circuits of amazing complexity, with billions of transistor on one chip
 - Two kinds of integrated transistors exist.
 - **MOS** - the absolute majority
 - bipolar - if speed counts
 - Wafers diameter are up to **300 mm** (2007), smallest (lateral) structures on a wafer are in or below the **100 nm** range.
 - Integrated circuits are packaged chips with some connections to the outside world



- ▶ Besides integrated circuits, Si is increasingly used for other semiconductor products:

- Solar cells based on **Si** consume more Si than IC's, and demand rapidly increasing Si production. The key point of Si solar cell technology is to have high efficiencies η at low prices.
- Microelectronic and micro-mechanic (and micro-optics and micro-fluidic and...) = **MEMS** systems find increasing uses for many tasks.



Exercise 2.2-1

All Class Exercises to 2.2