LECTURE-4

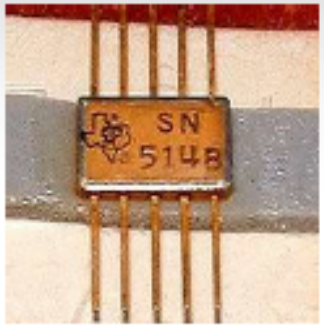
CLASSIFICATION OF IC'S

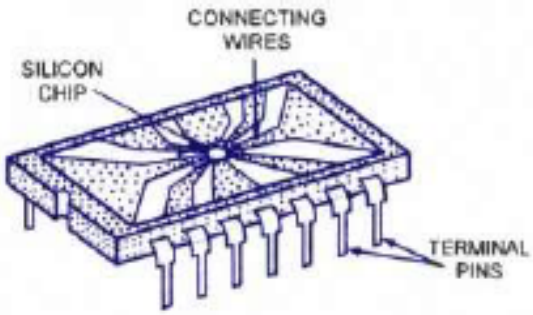
- *On the basis of fabrication techniques used*
- *On the basis of the chip size*
- *On the basis of applications*

ON BASIS OF FABRICATION

- Monolithic IC's
- Hybrid or Multi-chip ICs.
  - Thin and Thick Film IC's.

MONOLITHIC IC'S

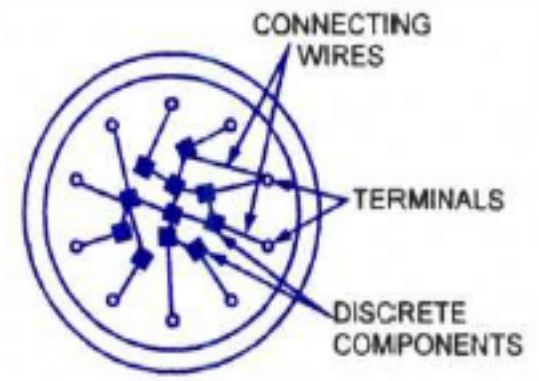




Monolithic IC in Plastic Package

Monolithic circuit is built into a single stone or single crystal i.e. in monolithic ICs, all circuit components, and their interconnections are formed into or on the top of a single chip of silicon. Monolithic ICs are by far the most common type of ICs used in practice, because of **mass production** , **lower cost** and **higher reliability**.

HYBRID IC'S



Hybird or Multichip IC

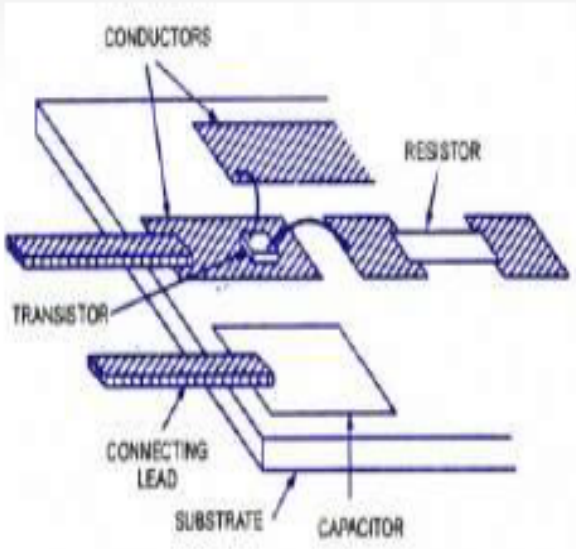
The circuit is fabricated by interconnecting a number of individual chips.

Hybrids ICs are widely used for high power **audio amplifier** applications .

Have better performance than monolithic ICs

Process is too expensive for mass production

THIN AND THICK FILM IC'S



Enlarged Portion of Thick-Film IC

These devices are larger than monolithic ICs but smaller than discrete circuits. These ICs can be used when power requirement is comparatively higher.

With a thin-or thick-film IC, the passive components like resistors and capacitors are integrated, but the transistors and diodes are connected as discrete components to form a complete circuit.

THIN AND THICK FILM IC'S

- The essential difference between the thin- and thick-film ICs is not their relative thickness but the method of deposition of film.
- In thick film type the resistors and interconnection patterns are printed on a ceramic substrate.
- In thin film type the resistors and interconnection patterns are deposited by vacuum evaporation technique on a glass or glazed ceramic substrate.
- Both have similar appearance, properties and general characteristics.