

(An Autonomous Institution)

19EET202 / ANALOG ELECTRONICS

II YEAR / III SEMESTER

**UNIT-3: IC FABRICATION AND OPTO
ELECTRONIC DEVICES**

**INTRODUCTION-MONOLITHIC IC
TECHNOLOGY**

We'll Discuss

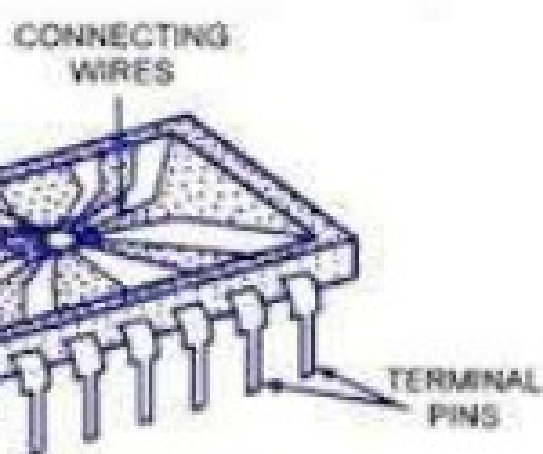
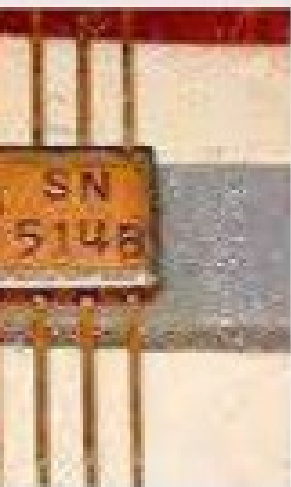
LINE

Structure

Integrated circuit (linear IC) is a solid-state analog circuit realized by a theoretically infinite number of operating states. It operates over a continuous range of input

Op-amps are employed in audio amplifiers,
(analog-to-digital) converters,
instrument amplifiers,
oscillators,
voltage (and current) amplifiers,
comparators,
integrators,
differentiators,
and active filters.
They are also used as
square wave generators.

MSI	LSI	VLSI	U
100-1000 active devices	1000- 100000 active devices	>100000 active devices	Over millio active devic
BJT's and Enhanced MOSFETS	MOSFETS	8bit, 16bit Microproces sors	Penti Micro sors



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.**

Integrated circuit (IC) is a miniature ,low cost electronic circuit consisting of many active components fabricated together on a single crystal of silicon.

Active components are transistors and diodes and passive components are resistors and capacitors.

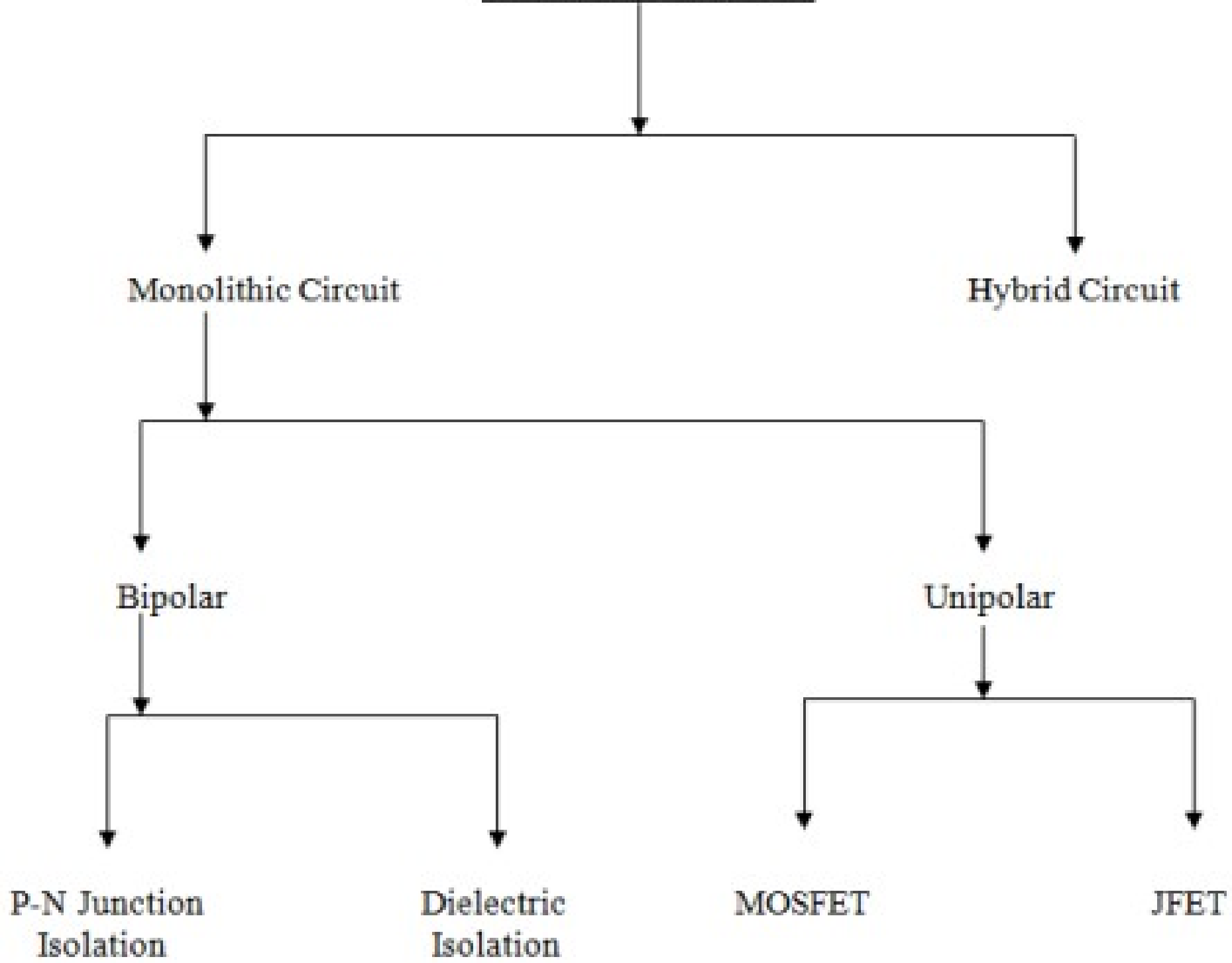
CLASSIFICATION OF ICs

er a wide range of applications and could be broadly

requirements. Two distinctly different IC Technology namely
ology and

ology-Based on the active devices used

Integrated Circuits



Monolithic is derived from Greek words monos (one) and lithos (meaning stone).

Monolithic circuit is built into a single or single stone on.

Integrated refers to the fact that all the circuit components, registers, capacitor and their interconnections of inductance cannot be realized.

Monolithic ICs

Processes of monolithic IC using silicon planar technology can

be divided into the following steps:

1. Wafer preparation

•

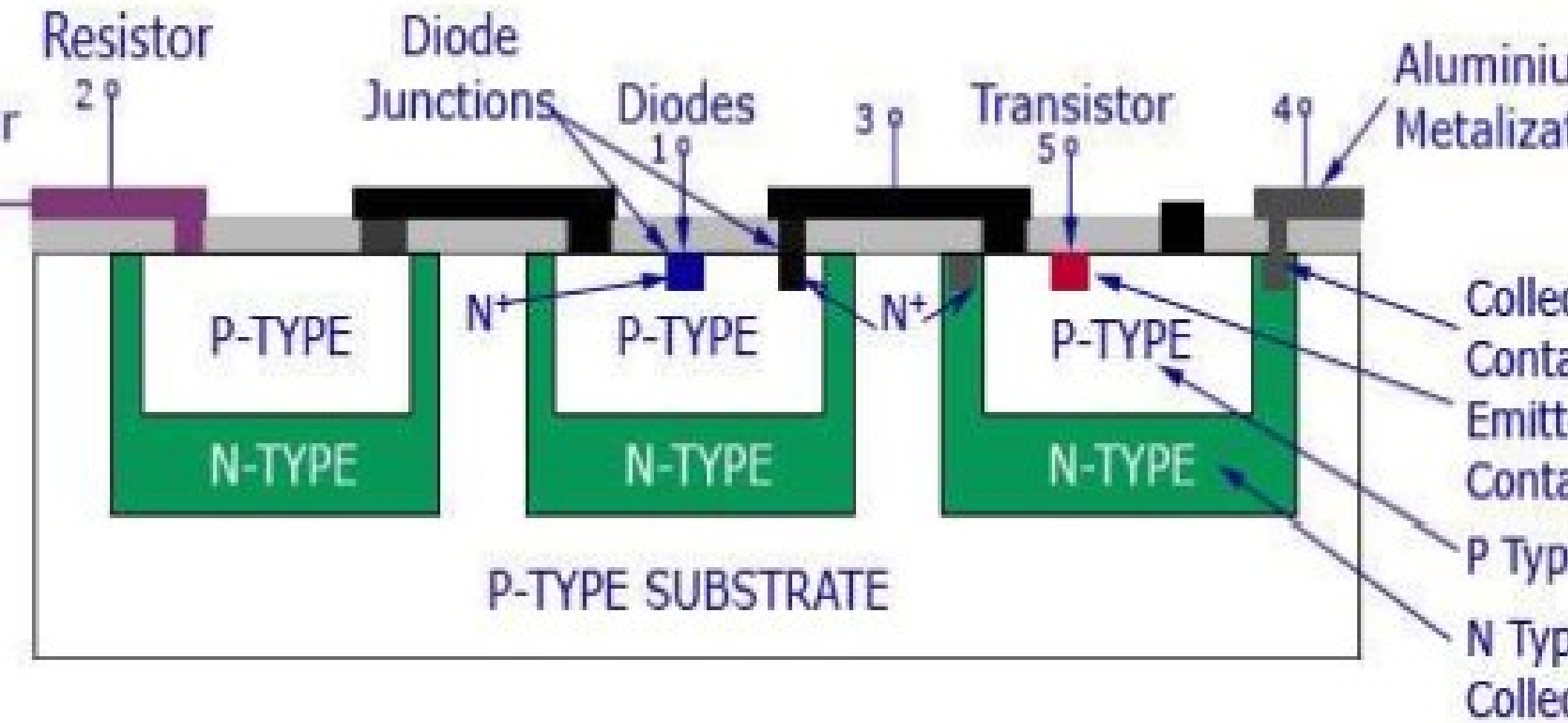
•

•

2. Wafer processing

3. Packaging process

Basic Monolithic IC Cross-Sectional View



THANK