



SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution
Coimbatore-35



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECB311- MICROWAVE AND OPTICAL ENGINEERING

III YEAR/ VI SEMESTER

UNIT II-MICROWAVE PASSIVE DEVICES

TOPIC 1-GUNN DIODE



Gunn Diode



- ❖ **Introduction of Gunn Diode**
- ❖ **Symbol and construction of Gunn Diode**
- ❖ **Working of Gunn diode.**
- ❖ **Equivalent circuit of Gunn diode**
- ❖ **Characteristics of Gunn diode**
- ❖ **Applications**



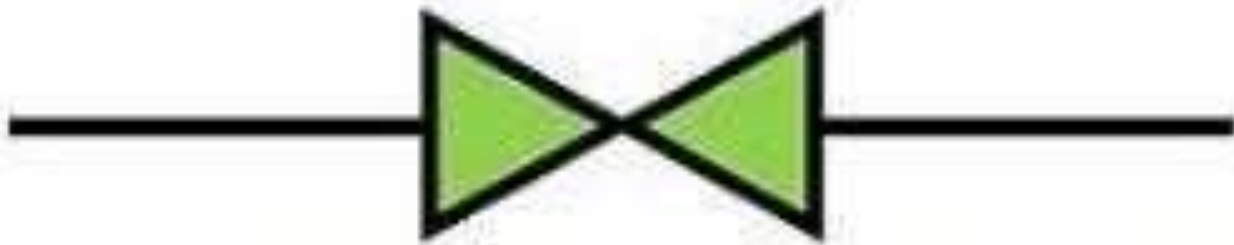
GUNN DIODE-INTRODUCTION



Also known as transferred electron device



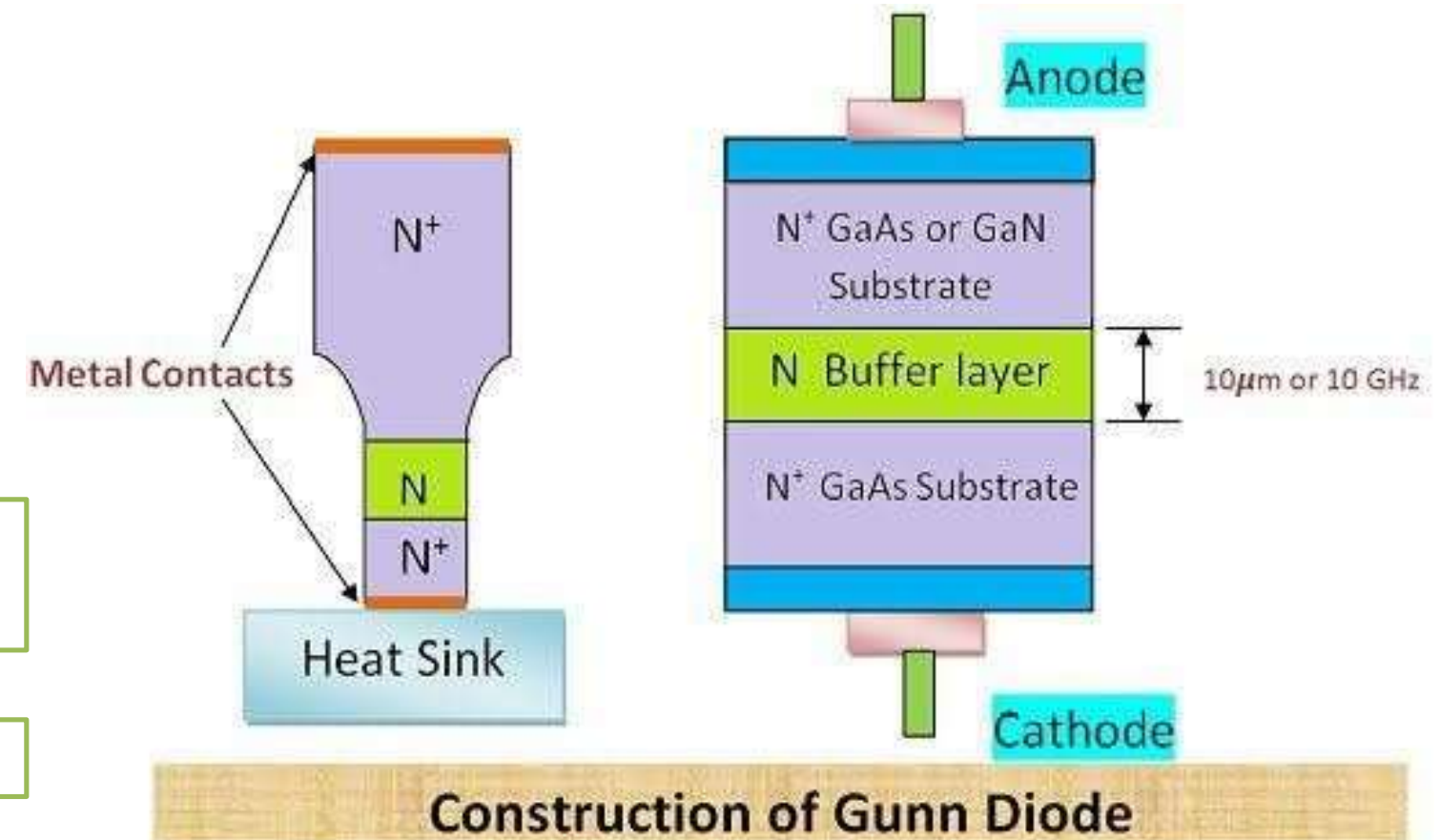
GUNN DIODE-SYMBOL & CONSTRUCTION



Symbol of Gunn Diode

Two terminal semiconductor electronic component

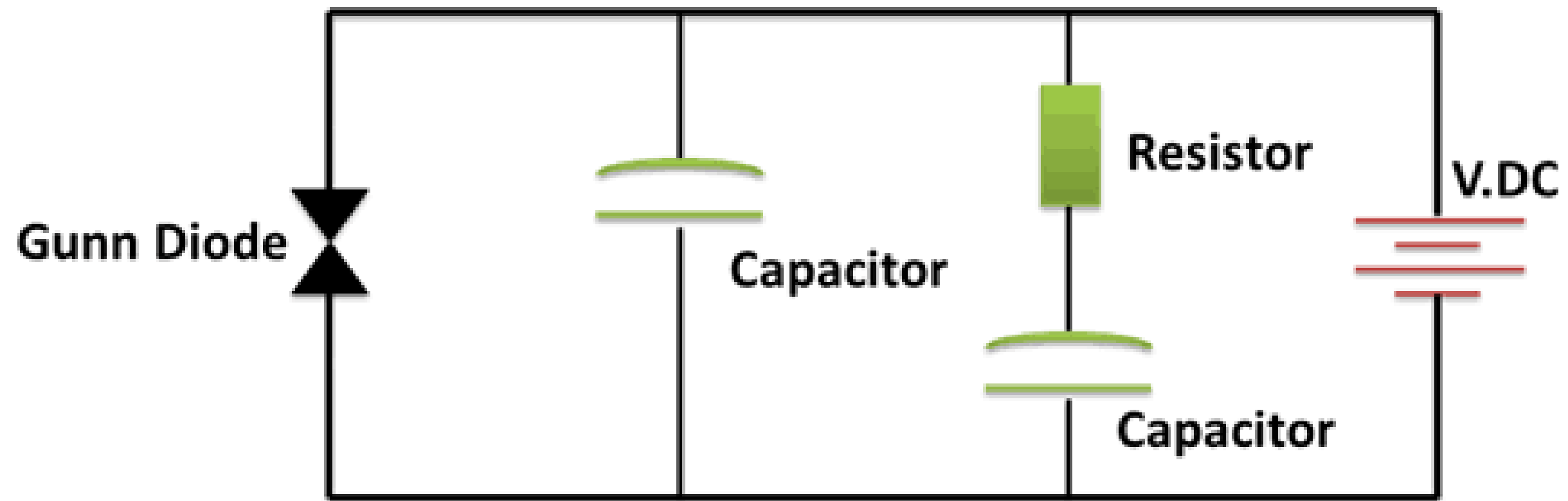
Works on the principal of Gunn Effect





GUNN DIODE-WORKING PRINCIPLE

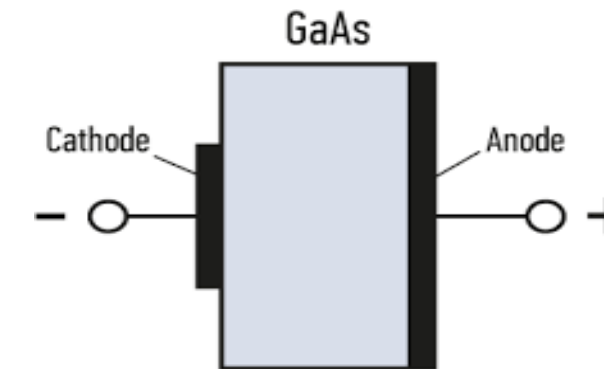
It consists of only N-doped semiconductor



Gunn Diode Oscillator Circuit



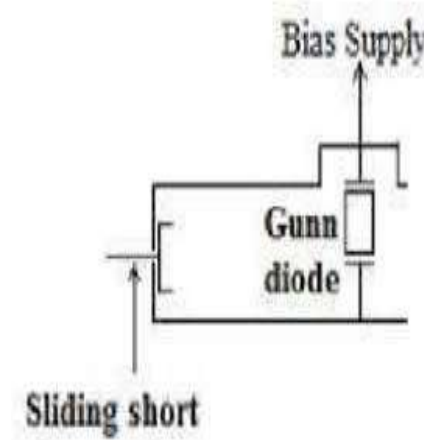
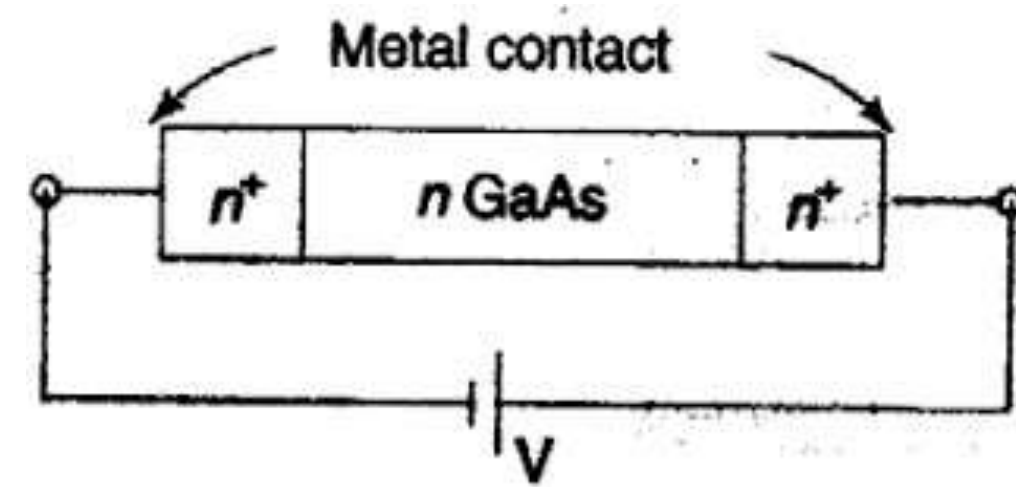
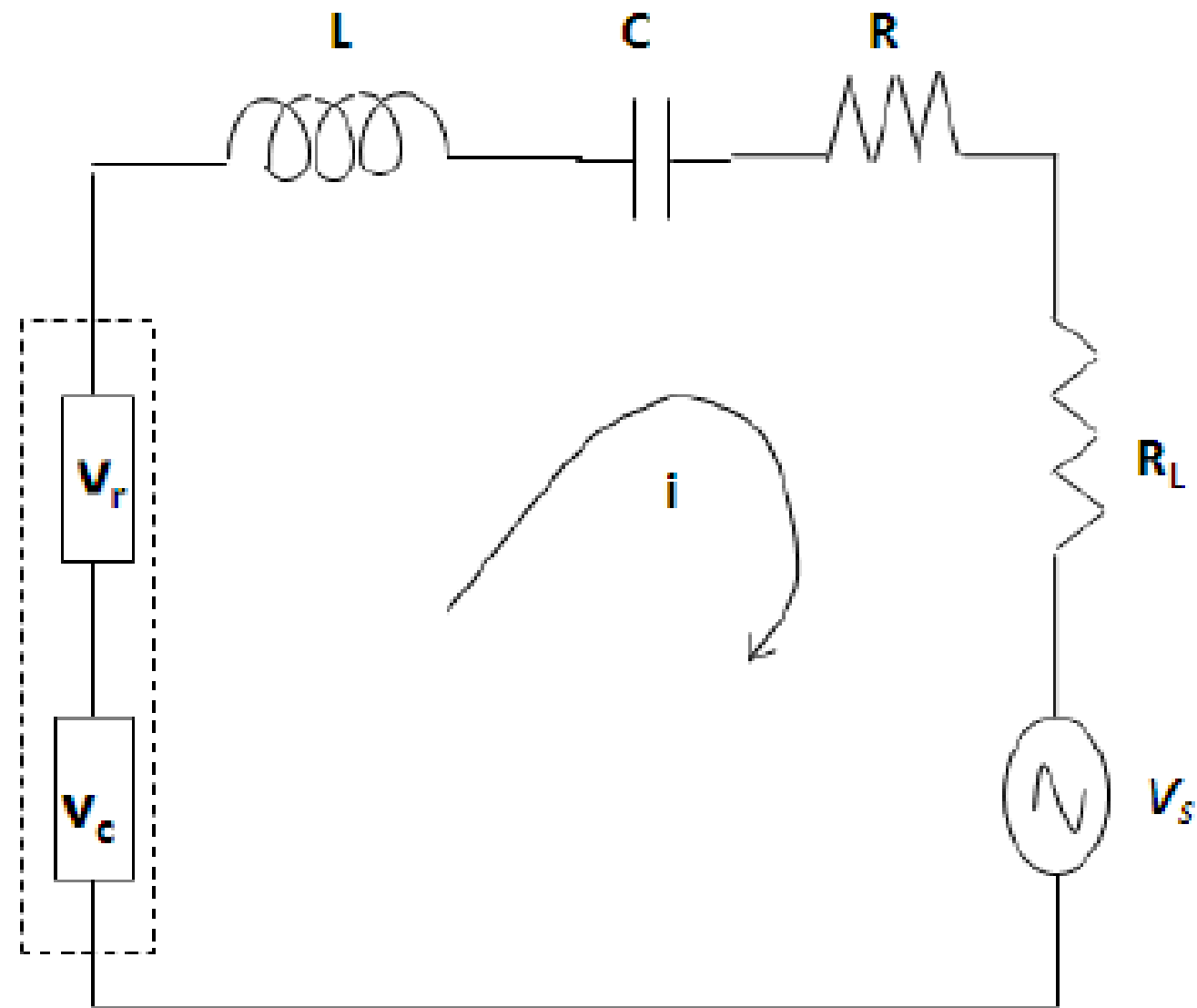
THREE REGIONS



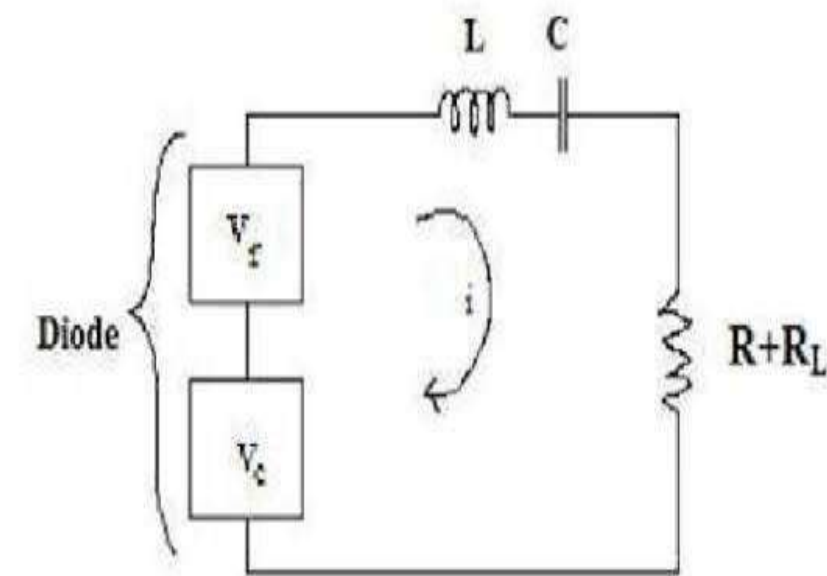
There exist three regions, two of those are heavily N doped on each terminal with a thin layer of lightly n doped material



GUNN DIODE-EQUIVALENT CIRCUIT



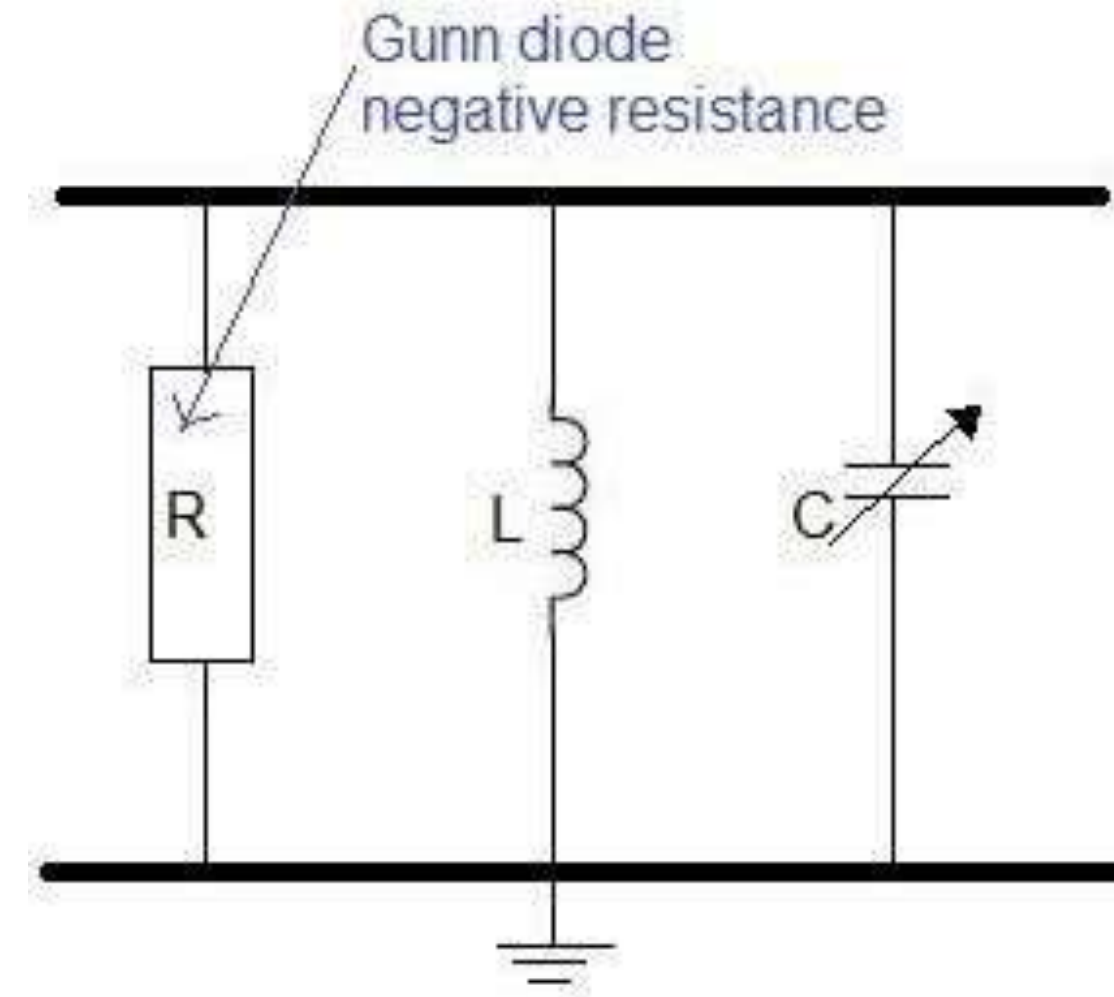
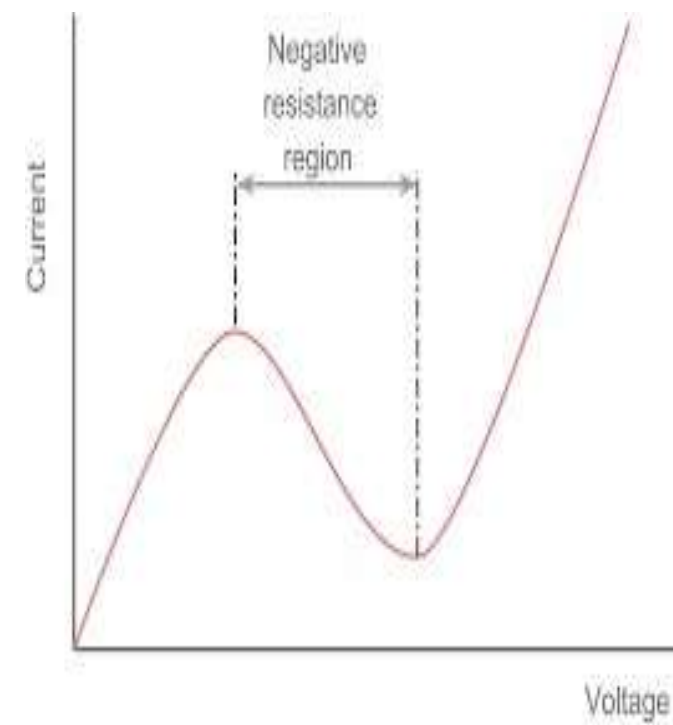
(a)



(b)



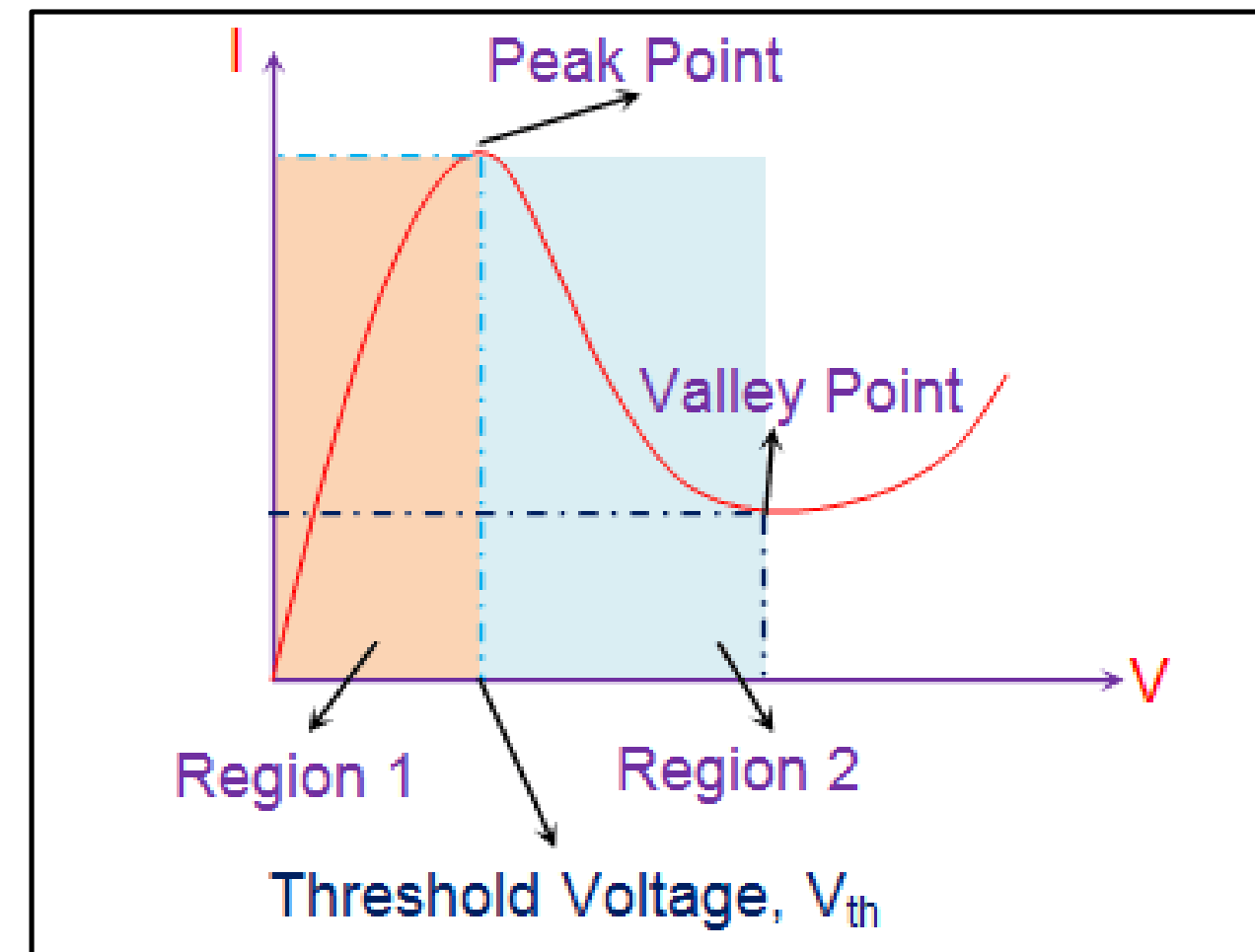
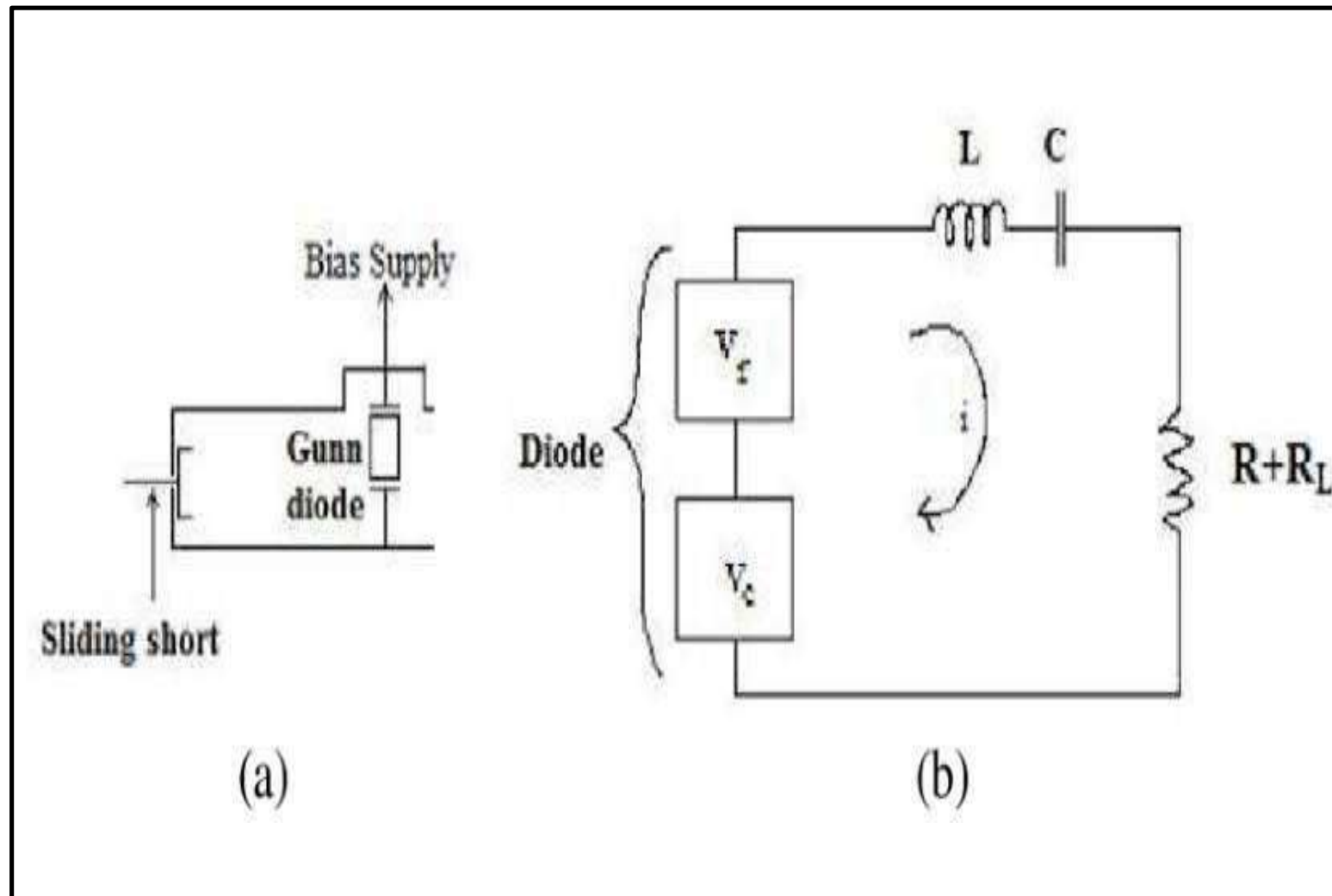
GUNN DIODE-CHARACTERISTICS



Gunn Diode exhibits negative resistance



Used to build oscillators for generating microwaves with frequency ranging from 10GHz to THz





APPLICATIONS



- Gunn's are used for amplification and oscillation.
- These are used as a sensor in the Collision avoidance radar systems in electronic communication.
- These are used in Vehicle ABS system.
- They are used as Traffic analyzer sensors



THANK YOU