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

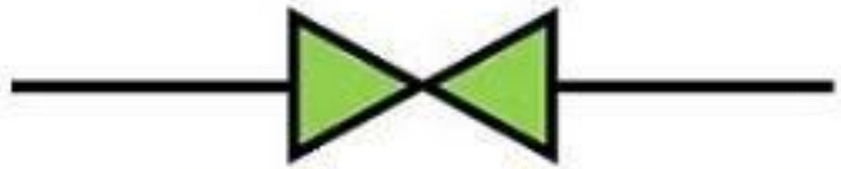
Gunn Diode

- 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

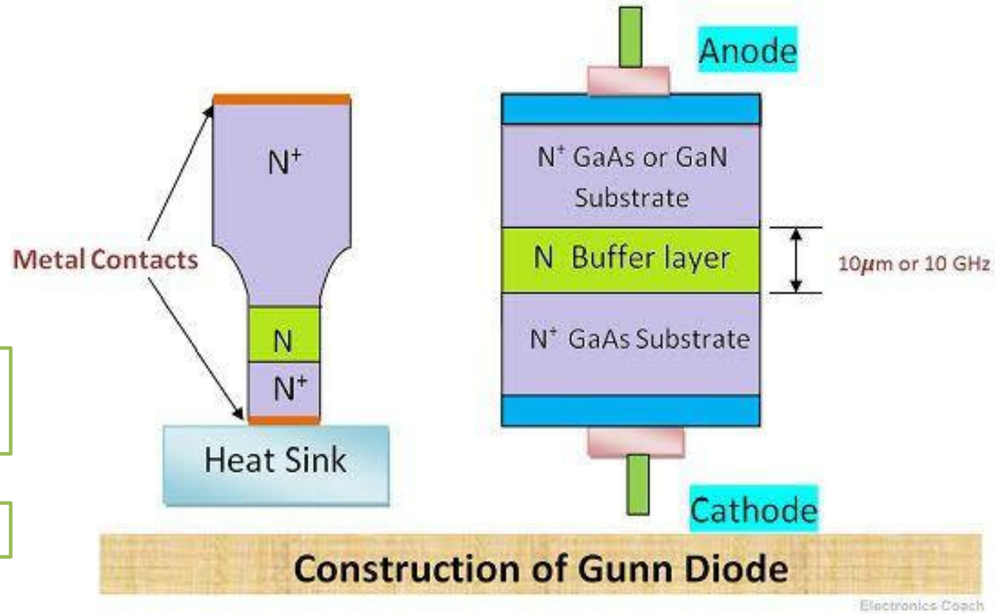
GUNN DIODE-SYMBOL & CONSTRUCTION



Symbol of Gunn Diode

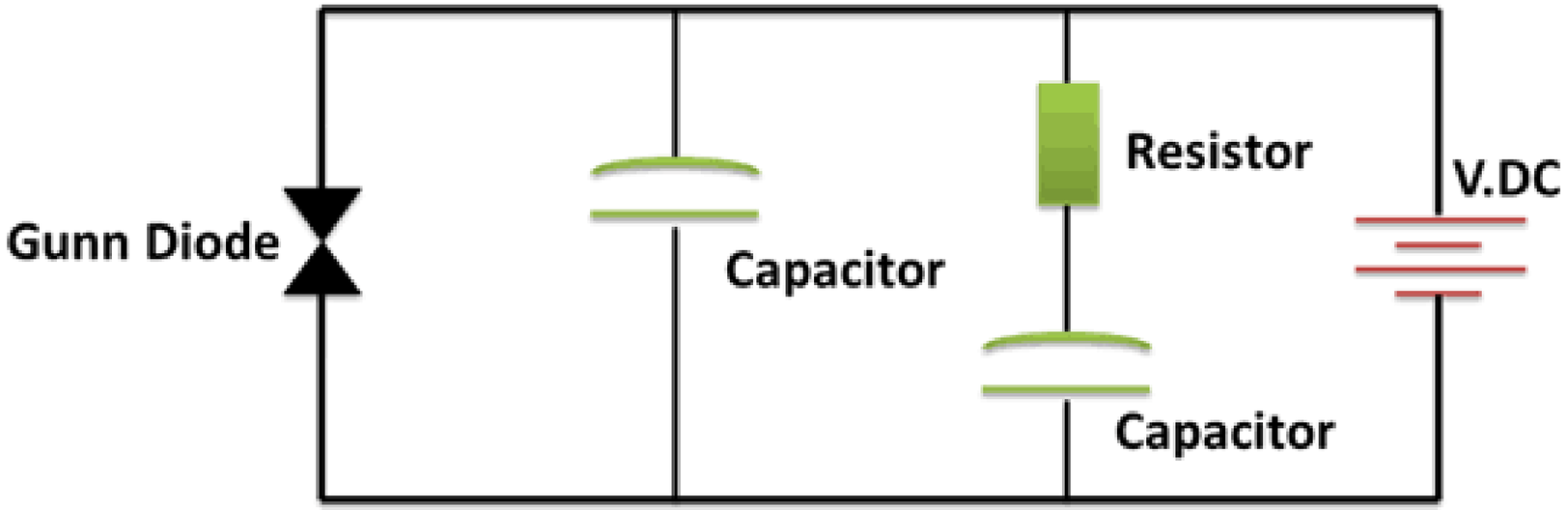
Two terminal semiconductor electronic component

Works on the principal of Gunn Effect



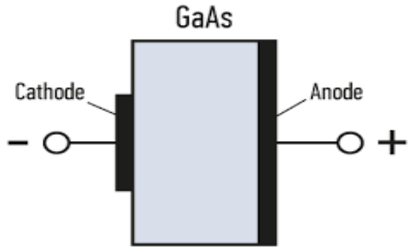
GUNN DIODE-WORKING PRINCIPLE

It consists of only N-doped semiconductor



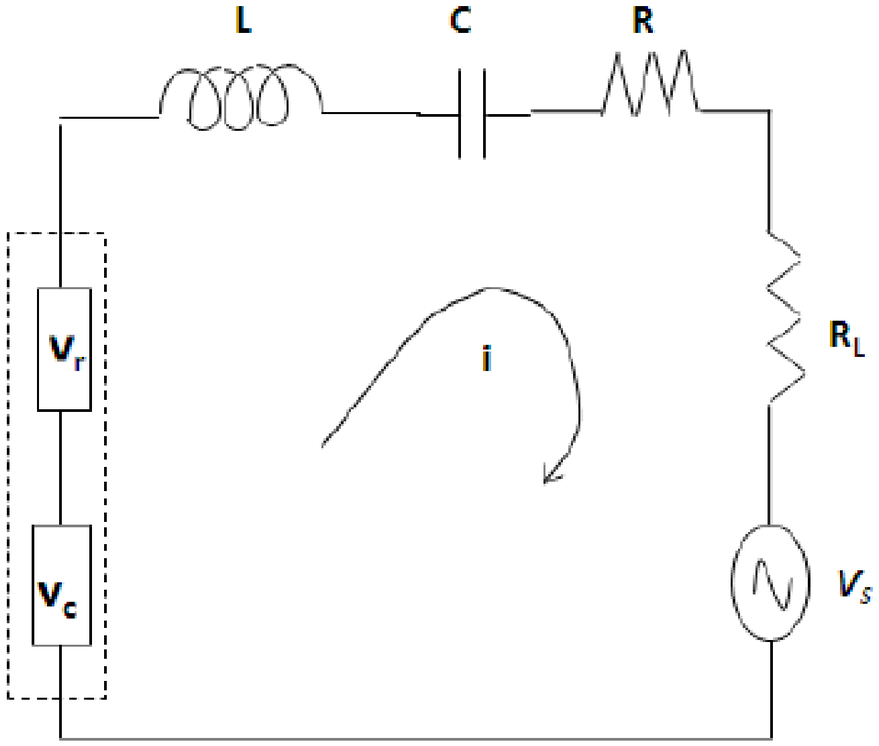
Gunn Diode Oscillator Circuit

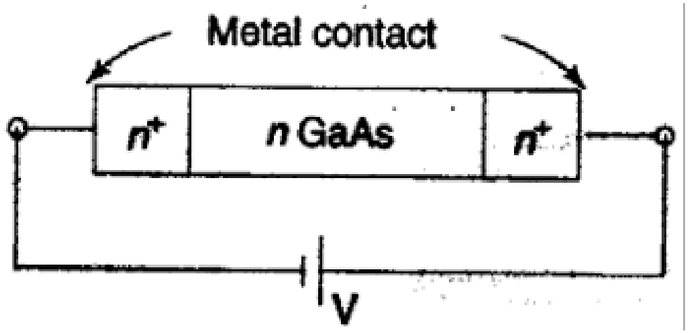
THREE REGIONS

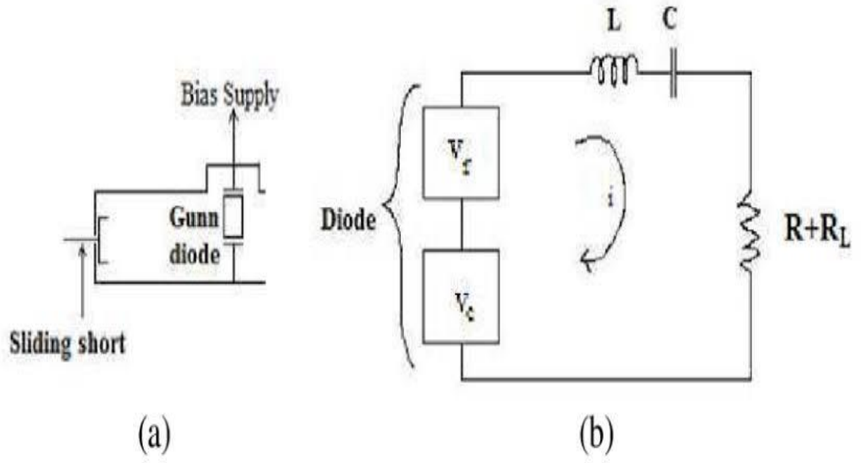


There exist three regions, two of those are heavily N doped on each terminal with a thin layer of lightly n doped material

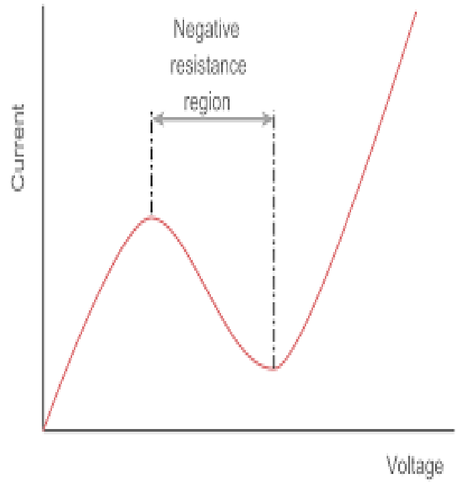
GUNN DIODE-EQUIVALENT CIRCUIT

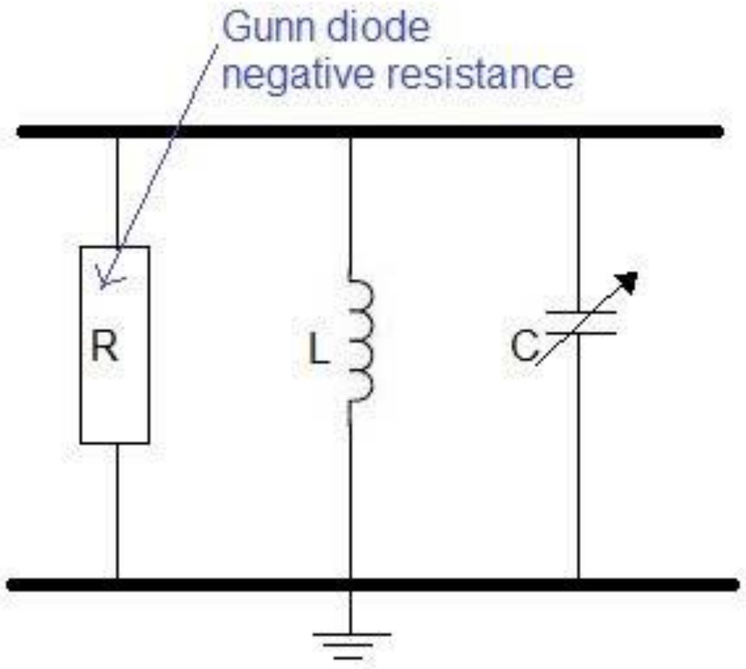






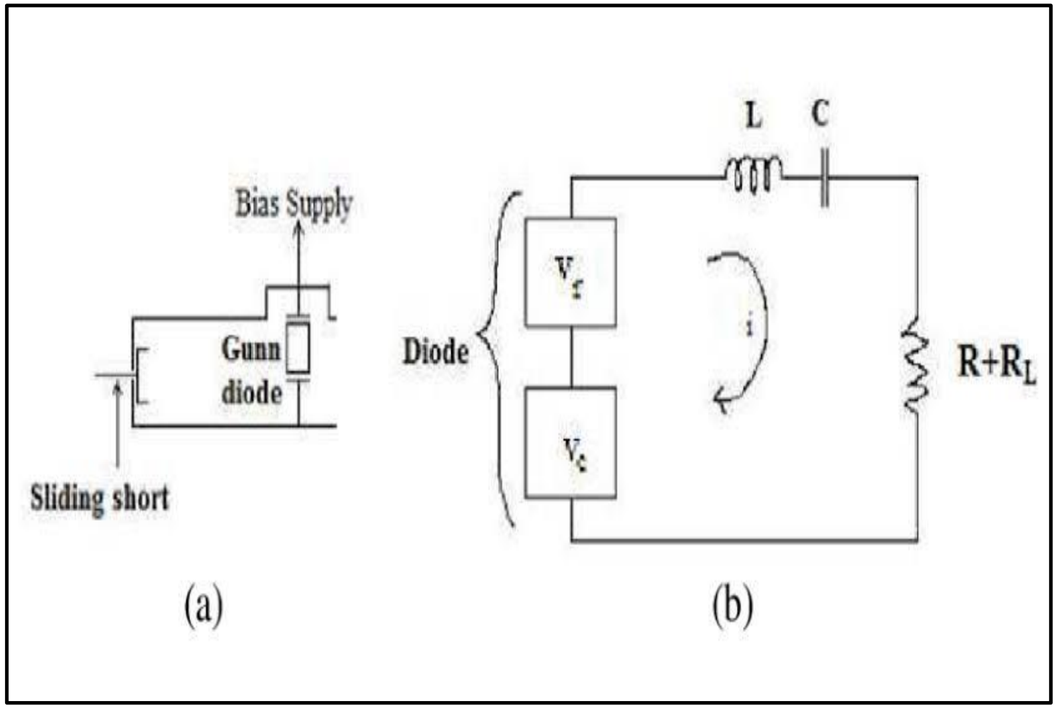
GUNN DIODE-CHARACTERISTICS

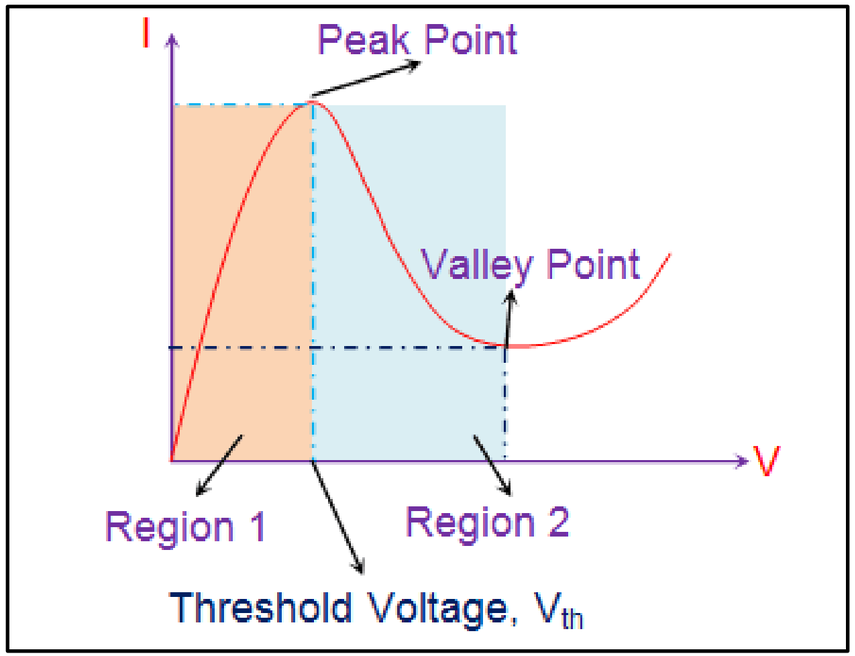




Gunn Diode exhibits negative resistance

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