



SNS COLLEGE OF TECHNOLOGY

Department of Electronics and Communication Engineering

**COURSE NAME : 19ECB311- OPTICAL AND MICROWAVE
ENGINEERING**

**Unit 2-MICROWAVE ACTIVE
DEVICES
Topic-GUNN DIODE**

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Guess the Topic????





CONTENTS

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



GUNN DIODE-INTRODUCTION



**Also known as
transferred electron
device**





GUNN DIODE-SYMBOL & CONSTRUCTION

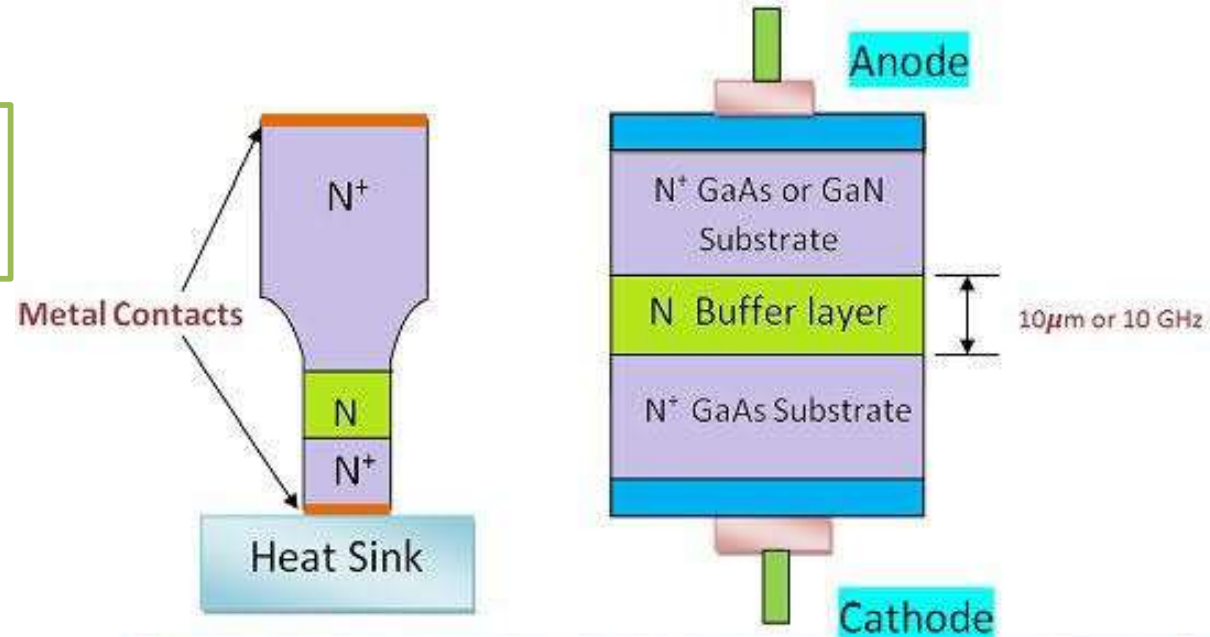


Two terminal semiconductor electronic component



Symbol of Gunn Diode

Works on the principal of Gunn Effect



Construction of Gunn Diode

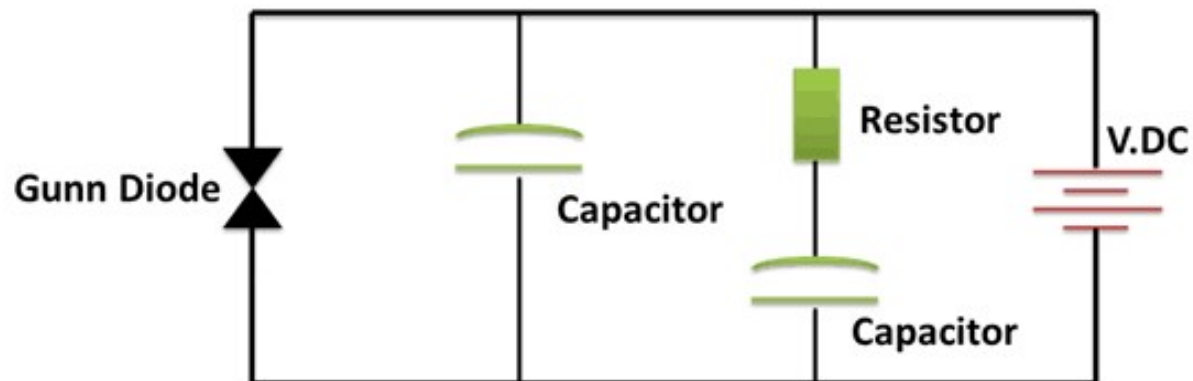
Electronics Coach



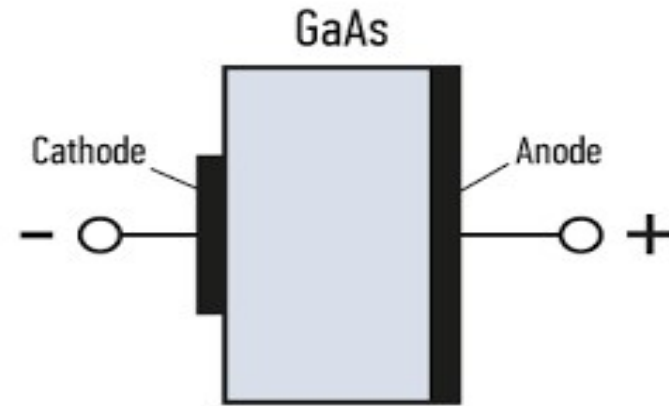
GUNN DIODE-WORKING PRINCIPLE



It consists of only N-doped semiconductor



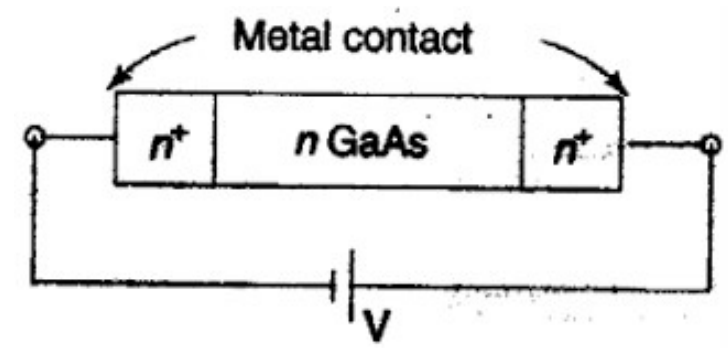
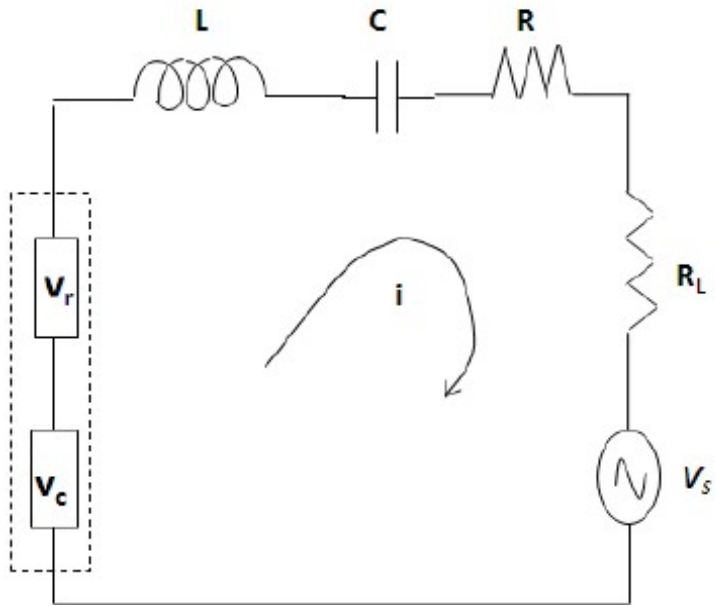
Gunn Diode Oscillator Circuit



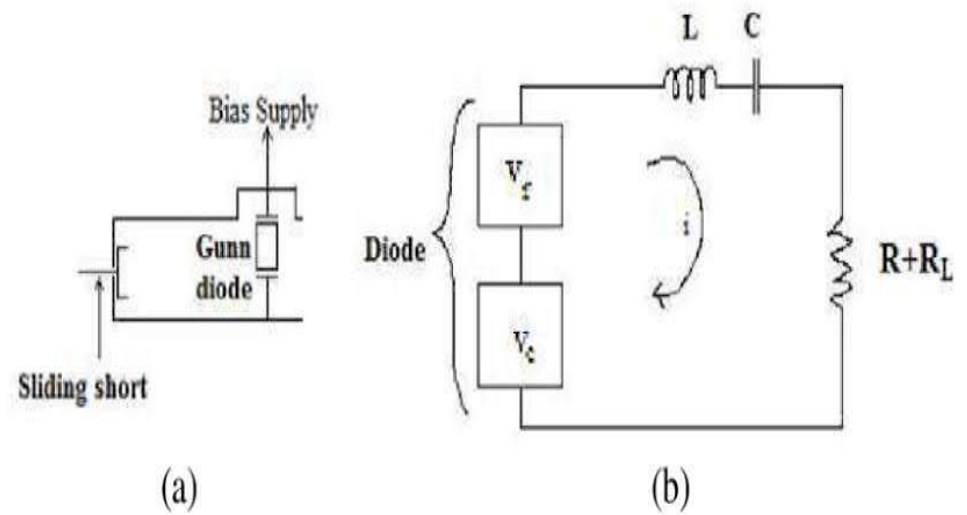
There exist three regions, two of those are heavily N doped on each terminal with a thin layer of lightly n doped material



GUNN DIODE-EQUIVALENT CIRCUIT

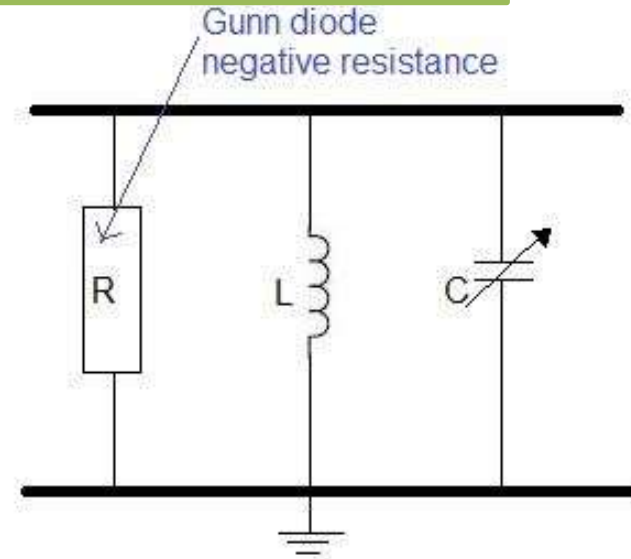
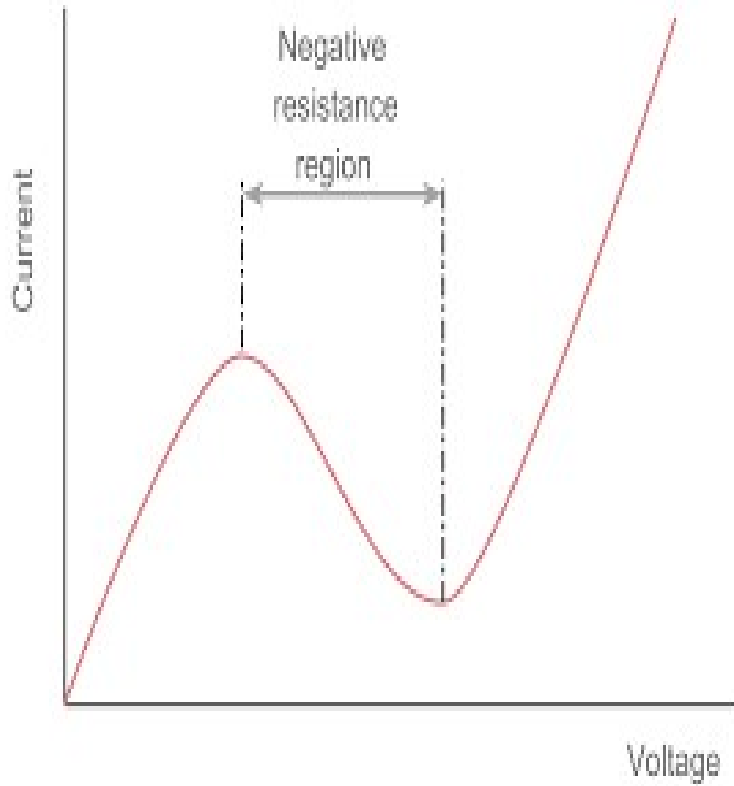


Equivalent circuit





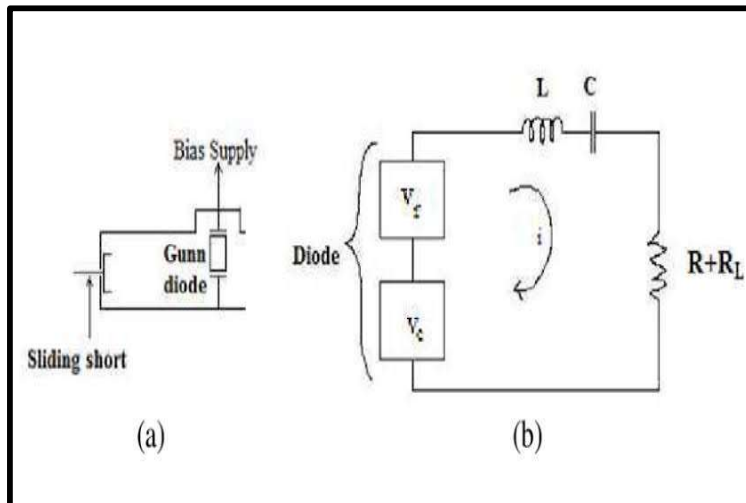
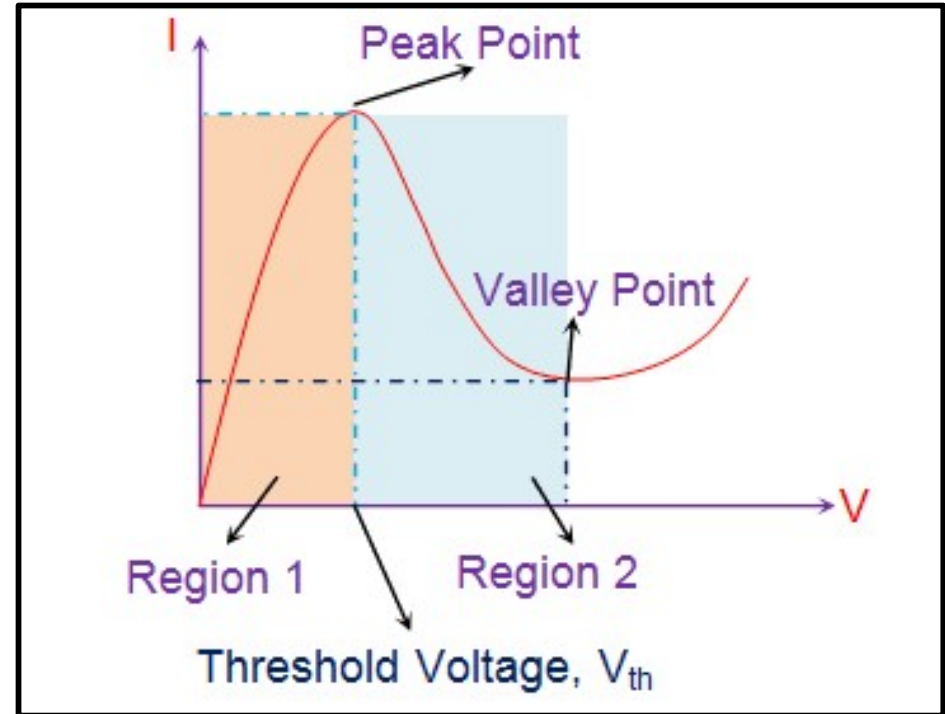
GUNN DIODE-CHARACTERISTICS



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



ASSESSMENT TIME



Is Gunn Diode a PN junction Diode?

Ans: A Gunn diode does not contain a pn junction yet it is termed as diode due to the two terminals of the externally applied dc voltage.

It possesses negative resistance characteristic due to which these are widely used in high-frequency applications.



REFERENCES

1. www.electrical4u.com/gunn-diode/
2. <https://www.electrical4u.com/gunn-diode>
3. <https://electronicsdesk.com/gunn-diode.html>

THANK YOU