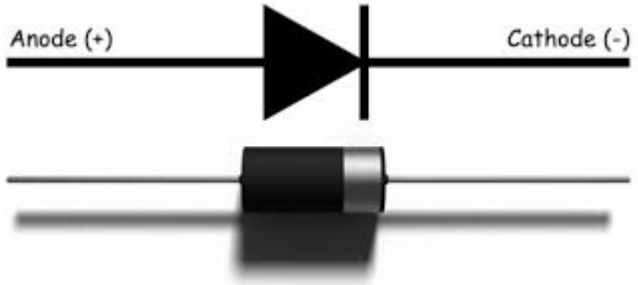
Diode Resistance(r_d)



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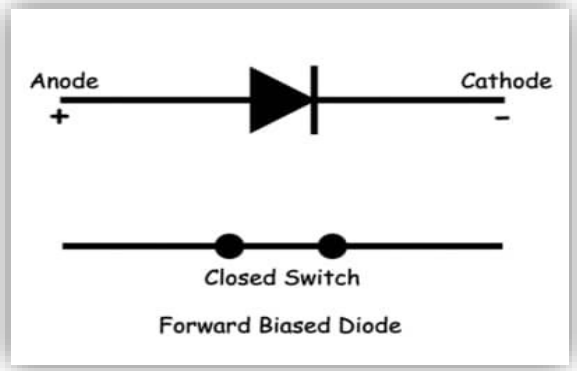
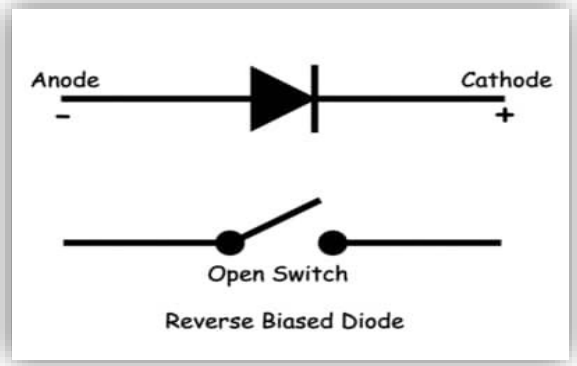
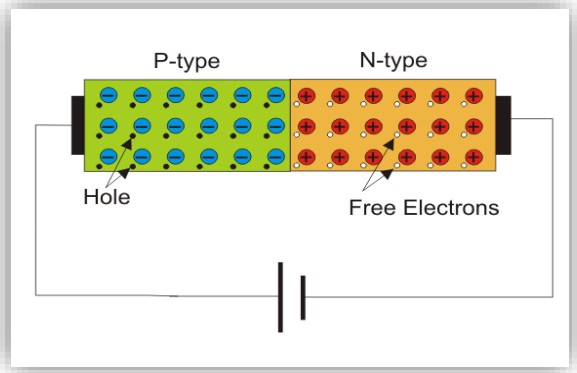
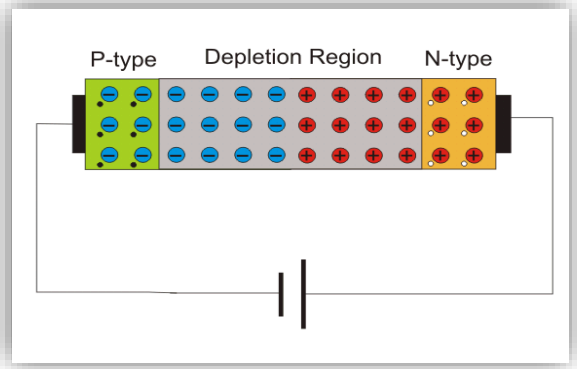
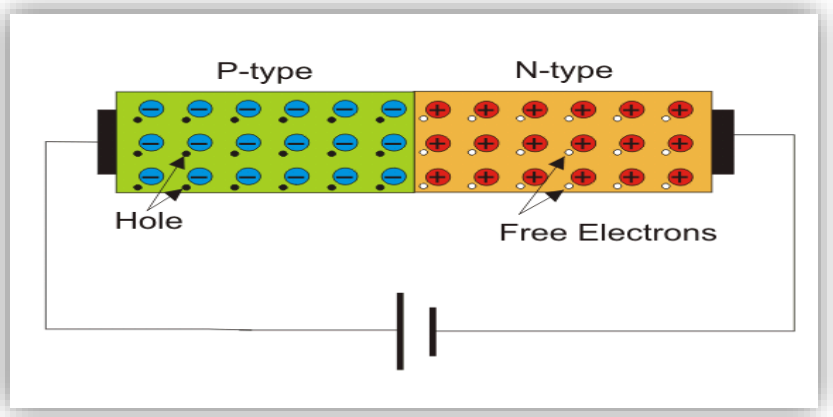
FORWARD BIASED CONDITION	REVERSE BIASED CONDITION
	
	
Ideally :	expected to offer zero resistance	infinite resistance
Practically :	small resistance	considerable resistance

Diode resistance can be defined as the effective opposition offered by the diode to the flow of current through it

Forward Resistance

Even **after forward biasing**, the **diode will not conduct until it reaches a minimum threshold voltage level**.

That is, the *forward resistance is nothing but the resistance offered by the diode when the diode is working in its forward biased condition*.



Forward resistance is classified into two types viz., static or dynamic depending on whether the current flowing through the device is DC (Direct Current) or C (Alternating Current), respectively

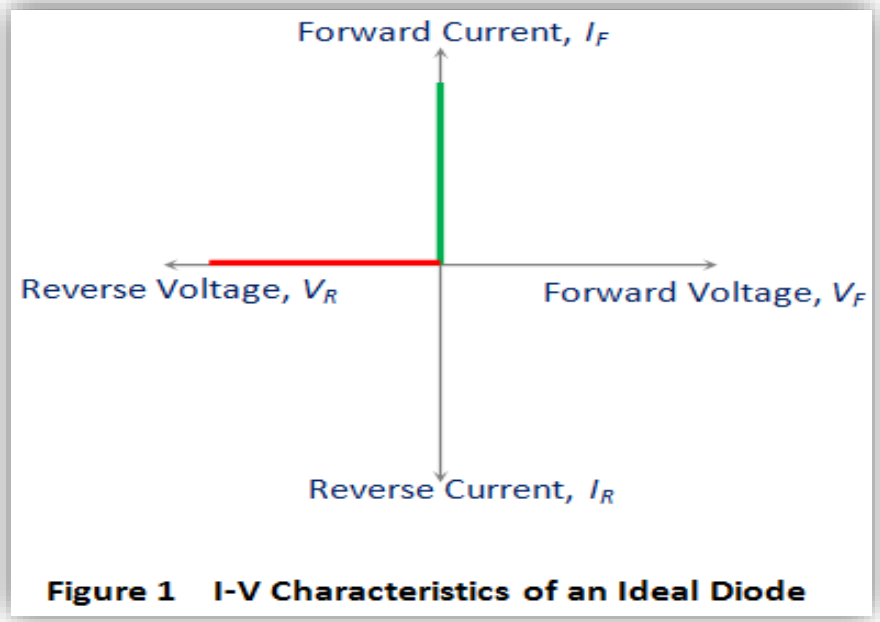


Figure 1 I-V Characteristics of an Ideal Diode

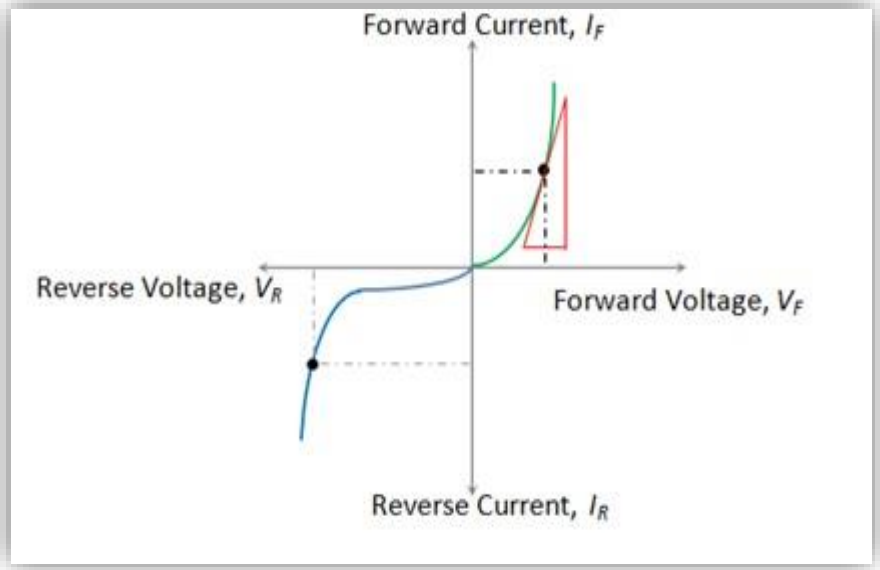


Figure 2 I-V Characteristics of a practical diode

Forward Resistance

Static or DC Resistance

$$R_{dc} = \frac{V_{dc}}{I_{dc}}$$

Dynamic or AC Resistance

$$r_{ac} = \frac{v_{ac}}{i_{ac}}$$

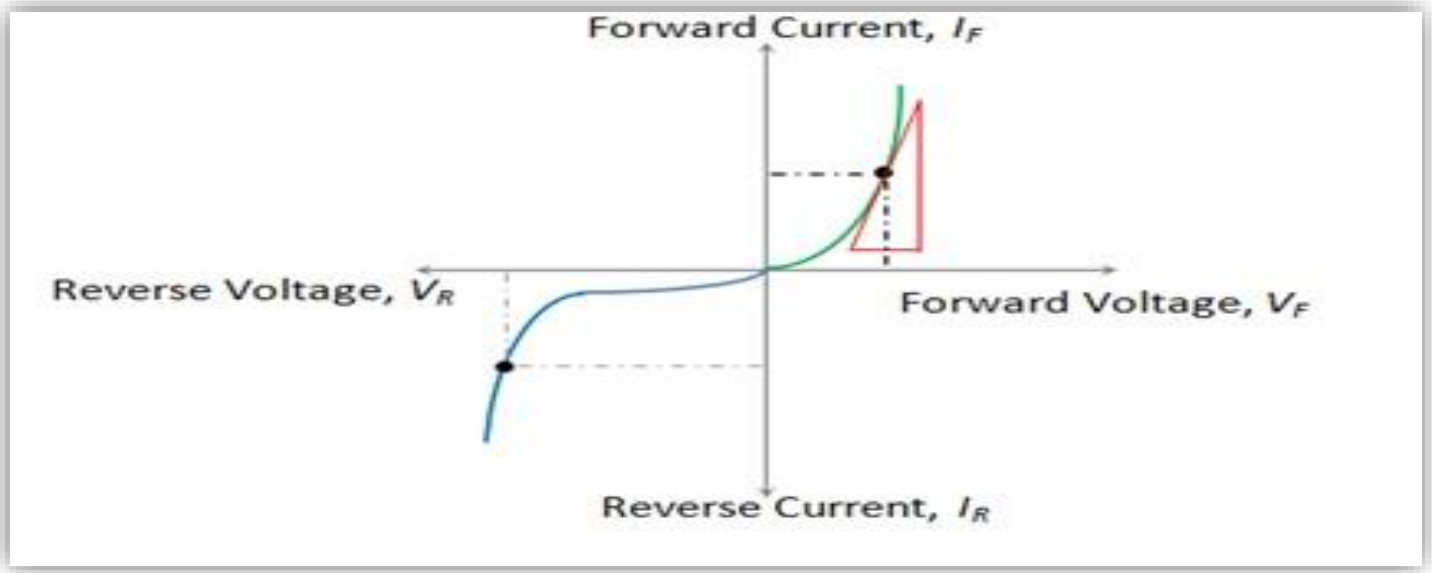
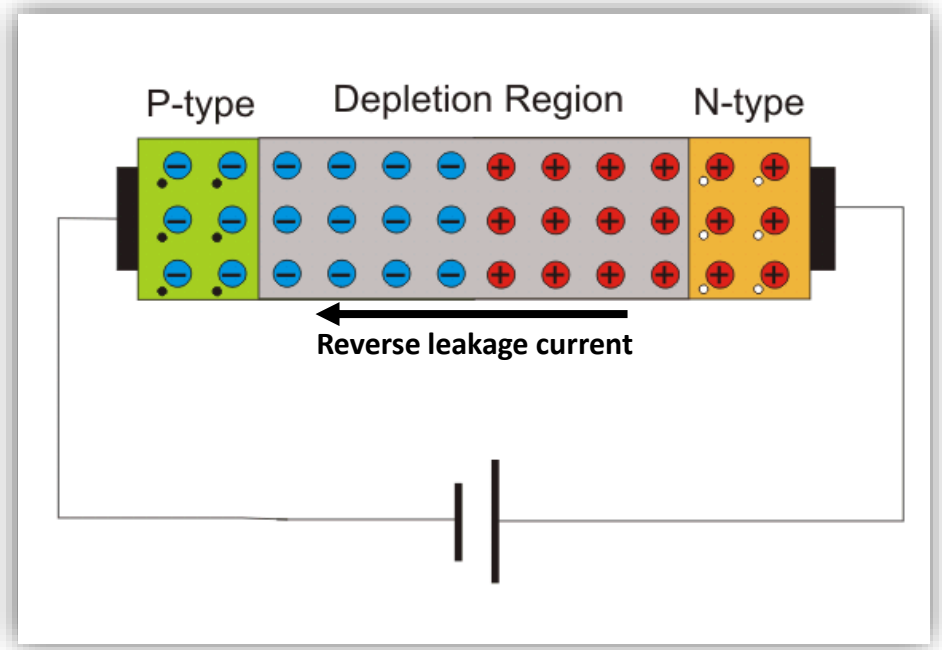


Figure 3 Diode Resistance shown as a part of diode characteristics

Reverse Resistance



*V_r and I_r are the **reverse voltage** and the reverse current respectively*

The mathematical expression for the same is similar to that for the forward resistance and is given by

$$R_r = \frac{V_r}{I_r}$$

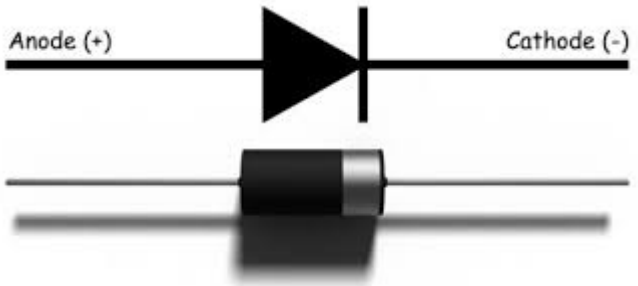
SUMMARY

Diode Resistance

Forward Resistance

Static or DC Resistance

Dynamic or AC Resistance



Reverse Resistance

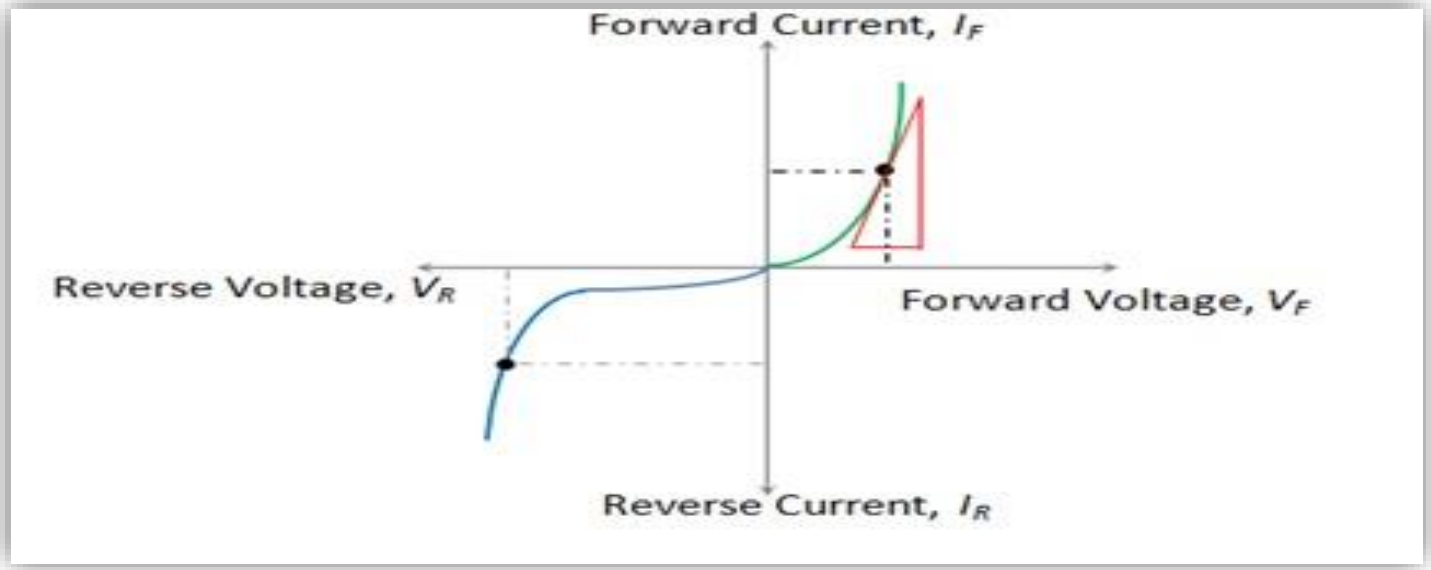


Figure 3 Diode Resistance shown as a part of diode characteristics

To access notes for this session on Diode Resistance