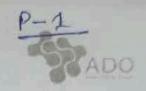
Enot No-01



Aim: Characteristics graph for PN Junction in followard beas connection

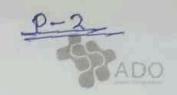
Apparatus: O Bread Board.

P-N Junction deode (Si)

(1) Registor (1 KI)

1 DC power source (5V) a connecting withes.

Theory: The P-N Junction supports uni-directional is connected to anode (P-side) and -ve terminal of the input supply is connected to cathode (N- side) then diode is side said to be forward biased . In this condition the light of the potential barrier at the function is lowered by an amount equal to given forward biasing voltage. Both the holes from p-side and electrons from n-side choss the sunction simultaxeneously and constitute a forward current (insected mirrority current - due to holes crossing the Junetice and entering N-side of the diode, due to electrons crossing the smetice and entering P-side of the didde. Assuming current flowing through the diede to be very large, the diede can be approximated as short-circuited smutch.



Procedure: - 1 Connect the circuit using silicon PN

Junction diode.

Drery vy gradually in steps of 0.1 volts up to 5 rolts and note down the corresponding reading

of IF.

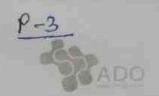
3 Step size is not street becaused of non-livear curve and vary the x-axis marriable lafton is more, decrease input step size and vice verse. Tabulate different forward currents obtained for different forward valtages.

Perult: The I-V characteristic curve of a p-n Junction diode is not a straight line, therefore, diode is not mon-ohnic in mature.

Pheaestion - O'hlile doing the experiment To not exceed the nating of the diode. This may lead to damage the diode.

Connect voltameter and Ammeter in

correct vollameter and Ammeter in correct polarities as shown in the checket diagram (ii) Do not switch "ON" the power supply unless you have checked the circuit connections as per the circuit diagram.



Aim'- Designing of a Half wave Rectifier.

Apparates: O Connecting wires.

(ii) Silicon Diode (p-n junction)

(iii) Voltage Source.

(iv) Lo ad (Resistance).

(iv) Transformer.

Theory: A half-wave heetifier is defined as a type of nectifier that only allows one -half-eyele of one Ac voltage maneform to pass, blocking other half eyele.

Half-wave rectifiers are used to convert Ac voltage to DC voltage, and only require a single diode to construct.

Northing Formula;

Van From 12 (rms rollage value (mpnt)).

Val = Vm/A (Average value of input).

Vm = peak value of output

Ripple factor (r) = Vr, pms / Vde, where Vm, Vms

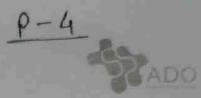
= roms value of the AC cumponent.

Vrm = Vr, rms + Vde, ripple factor.

V= (Vrms (Vde)2-1

=1.21

of the lead current for a half-wave rectifier. The world and the Al Valdage Streeting . To was work (A) was be also in the state of the state of the the of surely that talk allered by all elected of the mellows arminelesson to part the etten half meter stall -sience acceptable and and to sever sugar place to so a septime 30 of all appoints on app a transfer of about almost a the control and wolf dept males expelled with 21 mil 2 mil 2 · North Thursday notice Chinest .



· Peak Inverse Voltage (1	01V): Vm
· Percentage Regulation	PIV): Vm : (Vnoload - Vsul load) * 100, Vsulload = Vm - Ide · Rt
where Vmo load = Vm/x	, Vfulload = Von - Ide · Rt
	=Ide. RL



Aim: Designing of full wave Rectifier.

Appeatus: O Connecting wires

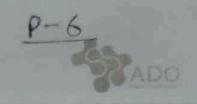
@ Power Sowiel

Theory: A full-wave neetifier is exactly the Same as the half-wave but, allony unidirectional cushent through the load during the entire singuidal cycle A full-wave rectifier converts the whole of the input woneform to one of constant polarity (positive or megative) at its output . Its output waveform is displayed in the diagram

There are two types of full-wave rectifier: as centre - Tapped full wave Rectifier. 6) Bridge Full wave Rectifier.

Working formula:

- · Im = Vm/(Rf +Re) , Re>> Rf (for every case)
- · Ide = 2 Im / 1
- · Nde = Ide · Re = 2 Im xRe = 2 Vm [Substiduting value of Im?
- · Ipms = Im = Vm/ V2 (RF + RE) [Substituting value of Im



· Vooms = Vm/ 52

· n = power in the load (input power = Pde/Pae = 8/12 (1+ PF) = 0.812/(1+ RF/RL)

· 10% 9 = 81 · 2/12 + RF/RL)

· Ripple Factor (r) = rms value of ac component / de component in the = V (Ipms /2de) 2 -1

= V (Im/2/2/2/2Pm/11)-1 = 0.48

· Peak Inverse Voltage (PIV) = 2 Vm

· 7. Regulation = (Vnoload - Vfulload/Vfull load)**too, where, Vno road = 2 Nm/TT Vfulload = 2 Nm - Ide Rf

· TUF = de power delivered to the load / a e rating of transpormer.

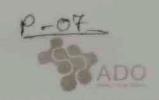
= Pde/ Rac rated, where.

Pae = I'de Re Paenated = Vae (rms). Irms

= (Vm/v2) * (Im/v2)

1. TUF = [(270m)2 PL)

=0.212.



Aimir Design Posetine and Negative clipper Circuit (Series & Parallel) and draw the graph for that.

Apparatus: O Commecting Wires

Rejistor.

Diode.

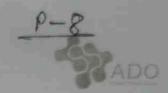
@ AR Voltage Source (for hower).

Theory: A elipping circuit on a elipper is a device. used to clip the input voltage to prevent it from. attaining a value danger than predefined value. The basic component required for a clippling circuit are - an ideal diade and a neglistor.

Positive Diode clippex ?

In a positive clipper, the positive half eyeles of the input valtage will be hemoved. The circuit arrangement are illustrated in the diagram

Negative Diode Clippers - The negative clipping circuit is almost the same as the positive clipping circuit, wish only one difference. If the diede is reconnected much reversed polarity, the circuits will become for a negative series clibber and is illustrated in the diagram.



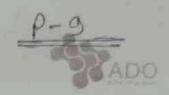
In this emperiment, both the positive elipher circuit and negative elipher circuit are illustrated in Series and parallel circuit form.

Regelt: The regult of all the circuits, either in series connection or parallel is illustrated with diagram.

Precautions: 1 Properly connect the devices to prevent an accidental loss.

10 Do not keep the power on when

building the circuit



Aim: Design Positive and Negative clarked execut Cooth ideal and practical case.

Apparatus: O Capacitor.

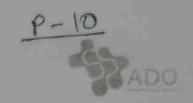
De battery (power supply) (if needed). Of AC Power supply.

@ Rejector.

Theory: A Clamper einevit can be defined as the curenit that consists of a diode, a resistor and a copacitor that glifts the waveform to a defined De level mithout changing the actual appearance of the applied signal. It is also called level glitter.

Positive Clamber: A clambing circust histories the De Level. When a negative peak of the segmal is haised above to the zero level, then the signal is said to be positivity clarked. It consists of a diode, a resistor and a capacitor and that shifts the output signal to be positivity clamped

It consists of a diode, a register and and a capacitor and that shifts the outbut segmal to the positive partion of the imput signal.



that consists of a diode, a resistor and a capacitor and that shifts the output signal to the megative portion of the input signal.

Regalt: During Possitive Half cycle.

During the internal of 0-T/2, the metwork will appear with the diode in the ON state offerbirdy "shorting out" the effect of the ressistor R.

During Negative Half eyele:

The diode will now be in the open state condination - Applying KVL around the imbut loop to get the regult.



Aim: Degign Half wave Ropacitor Alter

Applicat us:

OAC Voltage supply.

@ Diode .

(iii) capocitor.

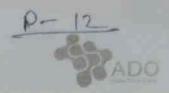
@ Resigtor.

@ connecting wires.

Theory: The main function of half wave rectifier is to change the AC (Alternating Current) into DC. However, the acquired output DC. This DC is not constant and varies with time. Whenever this changing DC is given to any type of electronics device, then it may not Swetton correctly. and that may get damaged. Due to this reason, it will go be applicable in most of the applications.

Precautions to The primary and secondary side of the transfer should be carefully industried. O Polarities of all diodes should be carefully industried.

(iii) All commeettors should be proper and clean.



Am: Implementation of School & Shunt Regulator.

Apparatus: 1 connecting nies.

Resistors.

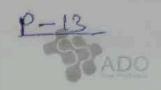
(Zener Diode

1 Transiglar

Theory: - Regulator is a circuit used to produces. a constant de output votage by tratucing the supple to negligible amount. One part of power supply.

fundamently there are two basic types of linear negulator are the ferries regulator and shout regulator.

- · Control element in series with load between imput and output.
- · Output sample circuit senses a charges in output voltage.



Shant Regulator circuit or The unregulated input voltage provides. current to the load.

control element.

Procautions

- · All the Commections should be proper, neat and clean.
 - · Polarity of divices should be shecked.
 - · Power should be turned off while earstruction of circuit is in progress.

Empt Not 08



Aim L To And the bias beint of a SiBJT with

Appratust Prizistor.

@ Capacitor.

@ Teransistor

@ Analog voltage source.

@ Connecting where.

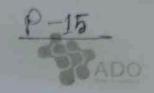
@ multistan softwares.

@ Mindows and labs.

Theory: O point or the operating point of a deutee also known as a bias point or awyent boint is the stedy state De voltage or europet at a specified named terminal of an active dence such as diod or trasiston. with no input signal applied

Regult The bias boint of a Si Pit with B B=200 is & Point = (Ver Ie) 9 Point = (4.75V13.81 mA)

Conclusions. The bias point on & point of a si BJt has been when B= 200 and & Point has been studied.



Precautions

· All connection must be meat adtight . Whires must be cleaned with sandboper before making connections.