

AMET-8: ANALOG ELECTRONIC CIRCUITS

1. BIASING OF BJT

Introduction, Types Of Bjt's, Transistor Terminals, Transistor Action, Transistor Configurations Or Connections, Common-Base (Cb) Configuration, Characteristics Of Cb Configuration, Transistor Configurations Or Connections, Common-Base (Cb) , Configuration, Characteristics Of Cb Configuration, Common-Emitter (Ce) Configuration, Common Collector (Cc) , Configuration, Comparison Of Three Configurations, Ce (Common Emitter) Configuration, Operating Point (Quiescent, Q Or Silent Point), Different Points On The Characteristic, Different Operating Conditions Of A Transistor, Transistor Biasing , Need For Biasing A Transistor, What Happens If A Transistor Is Not Biased , Faithful Amplification, Transistor Biasing, Inherent Variations Of Transistor Parameters, Stabilization, Biasing Circuits, Base Resistor/Fixed Bias Circuit, Biasing With A Feedback Resistor, Emitter Resistance Biasing (Or Self Bias), Voltage (Or Potential) Divider Biasing , Two Battery Bias Stabilization, Thermal Resistance, Determine Of Operating Point In Presence Of Self Heating, Thermal Stability, Bias Compensation, Design Of biasing Circuits,

2. BIASING OF FET

Introduction, comparison between BJT and FET, field effect transistors (FET), construction of a JEFT (or simply FET), biasing of FET, working principle of an n FET, working of a p FET, static characteristic of FET, FET parameters, FET as an amplifier, FET applications, description of important applications, Biasing the FET basic FET amplifier

3. SMALL SIGNAL BJT AMPLIFIER

Introduction, Single Stage Small Signal Amplifiers, A Practical (Single Stage) Transistor Amplifier Phase Relationship Between Input And Output Of A Transistor Amplifier (Phase Reversal), Analysis Of Transistor Amplifier, Equivalent Circuits Of Transistor Amplifier, Alternative Ac Equivalent Circuits For The Amplifier, Graphical Method (By Drawing Load Lines), Current, Voltage And Power Gains, Hybrid Parameters, Advantages Of Hybrid Parameters, Two-Port Network, Determination Of H-Parameters, Nomenclature Of H-Parameters, Hybrid Model, Performance Of A Transistor In H-Parameters, Limitations Of H-Parameters, Grounded Emitter Circuit, Common Base Amplifier, Grounded Collector Circuit , Comparative Study Of Three Types Of Amplifier Circuits, The Common Emitter Amplifier With Emitter Resistor, Simplified Common Emitter Hybrid Model, Effect Of An Emitter Bypass Capacitor In Low Frequency Response, The Physical Model Of Cb Transistor, Resistor As A Switch

4. SMALL SINGLE FET AMPLIFIER

FET Parameters, JFET As An Amplifier, FET Small Signal Model, Common Source A.C. Amplifier, The Common Drain Or Source Follower, Common Gate Amplifier, General Treatment Of Low Frequency Common Source And Common Drain Amplifier, Common Source Amplifier At High Frequencies, Common Drain Amplifier (Source Follower) At High Frequencies

5. POWER CIRCUITS (RECTIFIER & FILTERS & REGULATORS)

Introduction Semiconductor Diode Rectifiers (Single Phase), Half-Wave (H.W) Rectifiers, Full-Wave (F.W.) Rectifiers, F.W. Bridge Rectifier, Efficiency Of An F.W. Rectifier, Selection Of A Circuit For F.W. Rectification, Ripple Factor, Types Of Filter Circuits, Power Supply Filters; Capacitor Filter, L-Section Filter (Lc Filter), Clc Or π Filter, Zener Diode Voltage Regulator

6. POWER SWITCHING & CONTROL DEVICE

Introduction, Thyristor, Thyristor Family, Working Of An SCR, Two-Transistor Analogy For An SCR, Regeneration, An SCR As A Latch, Vi Characteristics Of An SCR, SCR Terms, Applications Of SCR, SCR Packages (Packages), Variations Of SCR (Family Of SCR Or Thyristors), Silicon Controlled Switch (SCS), Gate Turn-Off (GTO) Switch, Light Activated SCR (Lascr), Triac, Application Of Triac, Diac, Diac Characteristic, Operation Of Diac, Application Of Diac, UJT (Uni-Junction Transistor), Equivalent Circuit Of UJT, Operating Characteristic, Latching (Switching) Operation Of UJT, Application Of UJT-Relaxation Oscillator, Frequency Of Sawtooth Waves Generated By Relaxation Oscillator