

INDEX

A

Acceptor atoms, **64**
 A.C. equivalent circuit, **248**
 A. C. load line, **251**
 Active region, **475**
 Alpha, **148**
 Amplitude modulation, **414**
 Amplification, **146**
 Amplifier:
 Class A power, **312**
 bandwidth, **284**
 Class B power, **312**
 Class C power, **313**
 Class C tuned, **402**
 direct coupled, **299**
 distortion in, **311**
 AND gate, **740**
 Anode, **33**
 Antenna, **413**
 Astable multivibrator, **478**
 Audio amplifier, **307**
 Avalanche breakdown, **72**

B

Band:
 conduction, **51**
 valence, **51**
 Bandwidth, **284**

Barrier potential, **67**
 Base, **143**
 Bel power gain, **283**
 Bel voltage gain, **284**
 Beta, **153**
 Binary system, **730**
 Bipolar transistor, **146**
 Bi-stable multivibrator, **482**
 Boolean algebra, **748**
 Breakdown:
 Avalanche, **72**
 Zener, **108**
 Bridge rectifier, **92**
 Bypass capacitor, **242**

C

Capacitor filter, **103**
 Cathode, **33**
 Cathode ray oscilloscope, **616**
 CE amplifier, **164**
 Chassis, **24**
 Chip, semiconductor, **628**
 Choke input filter, **104**
 Clampers, **495**
 Class A operation, **312**
 Class B operation, **312**
 Class C operation, **313**

776 ■ Principles of Electronics

Clippers, **487**
Collector, **143**
Collector feedback bias, **209**
Colpitts oscillator, **372**
CB amplifier, **148**
Complementary-symmetry, **330**
Conduction band, **51**
Constant current source, **9**
Constant voltage source, **8**
Coupling capacitor, **242**
Covalent bond, **56**
Crystal oscillator, **383**
Current feedback, **347**
Current gain, **173**
Cut-off frequency, **285**

D

D. C. amplifier, **299**
D. C. equivalent circuit, **247**
Decibel, **283**
Depletion layer, **67**
Diac, **586**
Differential amplifier, **664-687**
Diffusion, **67**
Digital circuit, **730**
Diode circuits, **76-124**
Direct coupling, **299**
Discrete circuit, **627**
Distortion, **311**
Donor atom, **63**
Doping, **62**
Double based diode, **590**
Drain-source curve, **511**
Driver stage, **325**
Dynamic resistance, **79**
Dual-in-line pack, **635**

E

Efficiency:
Half-wave rectifier, **88**

Full-wave rectifier, **94**
Electromagnetic deflection, **618**
Electrons, **4**
Electron emission, **28-37**
Electron gun, **617**
Electron-hole pair, **61**
Emitter, **143**
Emitter follower, **349**
Encoder, **746**
Energy band theory, **50**
Equivalent circuit of amplifier, **272**
Equivalent circuit with signal source, **272**
Epitaxial layer, **630**
Exclusive OR gate, **744**
Extrinsic semiconductor, **62**
Expression for collector :
efficiency, **313**

F

Feedback, **335**
Feedback amplifier, **337**
JFET importance, **510**
Field effect transistor, **507**
Field emission, **34**
Filter circuit, **103**
Forward bias, **68**
Forbidden gap, **51**
Free electron, **6**
Free-running multivibrator, **478**
Frequency modulation, **426**
Frequency response, **283**

G

Gain:
power, **173**
voltage, **173**
gate, **507**
ground, **24**

H

Hartley oscillator, **374**

Holding current, **558**
 Hole current, **61**
 Heat sink, **322**
 Hybrid, **643**

I

Inductor filter, **104**
 Insulated gate, **536**
 Integrated circuit, **628**
 Interstage coupling, **281**
 Intermediate frequency, **434**
 Intrinsic semiconductor, **62**
 Intrinsic stand off ratio, **592**
 Impedance matching, **296**
 Input impedance, **172**

J

Junction, pn, **66**
 Junction diode, **77**
 Junction transistor, **142**

K

Knee voltage, **72**

L

Large signal operation, **312**
 LC oscillators, **371-376**
 Leakage current, **71**
 Light-emitting diode (LED), **126**
 Load D.C. and A.C., **248, 249**
 Load line:
 a.c., **251**
 d.c., **249**
 Local oscillator, **433**
 Logic gates, **738**

M

Max. A.C. power output, **314**
 Max. collector efficiency, **314**
 Majority carriers, **65**
 Microelectronics, **627**
 Minority carriers, **65**
 Modulation:

 AM, **414**
 FM, **426**
 Monolithic IC, **629**
 MOSFET, **535**
 Multicolour LEDs, **128**
 Multivibrators :
 astable, **478**
 bistable, **482**
 monostable, **480**

N

NAND gate, **742**
 Negative feedback, **336**
 n-p-n transistor, **142**
 n-type semiconductor, **62**
 Noise, **311**
 NOR gate, **743**
 NOT gate, **742**

O

Operational Amplifiers, **662-728**
 Block diagram, **663**
 Input/output Polarity relation, **689**
 Voltage gain, **688**
 Values of supply voltage, **690**
 Optoisolator, **133**
 OR gate, **739**
 Oscillators:
 Collpits, **372**
 Crystal, **383**
 Hartley, **374**
 L.C., **371-376**
 Phase shift, **377**
 Tuned collector, **371**
 Wein bridge, **378**
 Oscilloscope, **616**
 Output resistance, **172**
 Over voltage detector, **595**
 Oxide coated emitter, **32**

P

p-type semiconductor, **64**
 Peak inverse voltage, **73**
 Pentavalent atoms, **63**

778 ■ Principles of Electronics

Phase-shift oscillator, **377**
Photo-diode, **130**
Photo-emission, **35**
Piezo-electric effect, **380**
 π -filter, **104**
Pinch off voltage, **513**
p-n-junction, **66**
p-n-p transistor, **142**
Positive clipper, **487**
Power dissipation, **311**
Power gain, **173**
Push-pull amplifier, **326**

Q

Quartz crystal, **381**
Quiescent point, **167**

R

RC differentiator, **483**
RC integrator, **486**
RC oscillator, **377**
RC coupling, **289**
Rectifiers, **87**
Relaxation oscillator, **595**
Reverse bias, **68**
Ripple factor, **101**

S

Saturation collector current, **473**
Saturation region, **474**
Sawtooth wave, **619**
Secondary emission, **34**
SCR, **555**
Semiconductors, **56**
Shockley diode, **137**
Sideband frequencies, **418**
Stabilisation, **197**
Stand off voltage, **592**
Substrate, **629**
Superhetrodyne receiver, **433**

T

Thermal runaway, **197**
Thermionic emission, **30**
Thevenin's theorem, **15**
Thyristor, **555**
Transformer coupling, **294**

Transistor:

AM modulator, **419**
CB, **148**
CC, **162**
CE, **152**

Trivalent impurity, **64**
Tuned collector oscillator, **371**
Tunnel diode, **134**

U

Uni-junction transistor, **589**
Unipolar transistor, **510**

V

Varactor-diode, **136**
Voltage divider bias, **212**
Voltage regulator, **448**
Voltmeter, electronic, **609**

W

Wein bridge oscillator, **378**
Window, **631**

X

X-cut, **380**

Y

Y-cut, **380**

Z

Zener breakdown, **108**
Zener diode, **108**
Zener diode regulator, **110**
Zener symbol, **109**