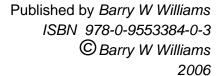


of

# **POWER ELECTRONICS**

**Devices, Drivers, Applications, and Passive Components** 

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### **Table of Contents**

## 1

## **Basic Semiconductor Physics and Technology**

1.1	Example 1.1: Resistance of homogeneously doped silicon 2 Processes Forming and involved in forming semiconductor devices 4		
	1.1.1 Alloying 1.1.2 Diffused Example 1.2: Constant Surface Concentration diffusion – predexample 1.3: Constant Total Dopant diffusion – drive in-#1 8 Example 1.4: Constant Total Dopant diffusion – drive in-#2 8 1.1.3 Epitaxy growth - deposition 1.1.4 Ion-implantation and damage annealing Example 1.5: Ion implantation	epostion	
1.2	Thin film deposition	15	
	<ul><li>1.2.1 Chemical Vapour Deposition (CVD)</li><li>1.2.2 Physical Vapour deposition (PVD)</li></ul>		
1.3	Thermal oxidation and the masking process	20	
1.4	Polysilicon Deposition	22	
1.5.	Lithography – optical and electron	24	
	1.5.1 Optical Lithography 1.5.2 Electron Lithography		
1.6	Etching	28	
	1.6.1 Wet Chemical Etching 1.6.2 Dry Chemical Etching		
1.7	Lift-off processing	34	
1.8	Resistor fabrication	35	
1.9	Isolation techniques	35	
1.10	Wafer cleaning	36	
1.11	Planarization	37	
1.12	Gettering	38	
1.13	Lifetime control	38	
1.14	Silicide formation	39	
1.15	Ohmic contact	40	
1.16	Glassivation	43	
1.17	Back side metallisation and die separation	44	
1.18	Wire bonding	44	

1.19	Types of wafer silicon	47	
	<ul> <li>1.19.1 Purifying silicon</li> <li>1.19.2 Crystallinity</li> <li>1.19.3 Single crystal silicon</li> <li>1.19.3i Czochralski process</li> <li>1.19.3ii Float-zone process</li> <li>1.19.3iii Ribbon silicon</li> </ul>		
	1.19.4 Multi-crystalline silicon 1.19.5 Amorphous silicon		
1.20	Silicon carbide and other wide band gap materials	52	
1.21	Si and wide band gap materials physical and electrica	Il properties compared 53	
2			<b>5</b> 7
The	pn Junction	•	57
	Example 2.1: Built-in potential of an abrupt junction	58	
2.1	The pn Junction under forward bias (steady-state)	59	
2.2	The pn Junction under reverse bias (steady-state)	59	
	<ul><li>2.2.1 Punch-through voltage</li><li>2.2.2 Avalanche breakdown</li><li>2.2.3 Zener breakdown</li></ul>		
2.3	Thermal effects	60	
	Example 2.2: Diode forward bias characteristics	61	
2.4	Models for the bipolar junction diode	61	
	2.4.1 Piecewise-linear junction diode model  Example 2.3: Using the pwl junction diode model  Example 2.4: Static linear diode model  2.4.2 Semiconductor physics based junction diode model  2.4.2i - Determination of zero bias junction call  2.4.2ii - One-sided pn diode equations  Example 2.5: Space charge layer parameter values		
3 Pow	er Switching Devices and their Static Electrica		71
3.1	Power diodes	71	
	<ul> <li>3.1.1 The pn fast-recovery diode</li> <li>3.1.2 The p-i-n diode</li> <li>3.1.3 The power Zener diode</li> <li>3.1.4 The Schottky barrier diode</li> <li>3.1.5 The silicon carbide Schottky barrier diode</li> </ul>		

3.2	Power	switching transistors		76
	3.2.1	The bipolar npn power switching junction transistor (BJT) 3.2.1i - BJT gain 3.2.1ii - BJT operating states 3.2.1iii - BJT maximum voltage - first and second breakdown		
	3.2.2	The metal oxide semiconductor field effect transistor (MC 3.2.2i - MOSFET structure and characteristics 3.2.2ii - MOSFET drain current 3.2.2iii - MOSFET transconductance and output conductance 3.2.2iv - MOSFET on-state resistance 3.2.2v - MOSFET p-channel device		79
	Examp	ole 3.1: Properties of an n-channel MOSFET cell	84	
		3.2.2vi - MOSFET parasitic BJT 3.2.2vii - MOSFET on-state resistance reduction 1 - Trench gate 2 - Vertical super-junction		
	3.2.3	The insulated gate bipolar transistor (IGBT) 3.2.3i - IGBT at turn-on 3.2.3ii - IGBT in the on-state 3.2.3ii - IGBT at turn-off 3.2.3iv - IGBT latch-up 1 - IGBT on-state SCR static latch-up 2 - IGBT turn-off SCR dynamic latch-up	87	
	3.2.4		90	
	3.2.5	Forward conduction characteristics	91	
	3.2.6	PT IGBT and NPT IGBT comparison	91	
	3.2.7	The junction field effect transistor (JFET)	91	
3.3	Thyri	stors		92
3.4	3.3.1 3.3.2 3.3.3 3.3.4 3.3.5 3.3.6 3.3.7 3.3.8	The silicon-controlled rectifier (SCR) 3.3.1i - SCR turn-on 3.3.1ii - SCR cathode shorts 3.3.1iii - SCR amplifying gate The asymmetrical silicon-controlled rectifier (ASCR) The reverse-conducting thyristor (RCT) The bi-directional-conducting thyristor (BCT) The gate turn-off thyristor (GTO) 3.3.5i - GTO turn-off mechanism The gate commutated thyristor (GCT) 3.3.6i - GCT turn-off 3.3.6ii - GCT turn-on The light triggered thyristor (LTT) The triac  packages and modules		104
4	Tower	packages and modules		104
•				109
Elec	trica	I Ratings and Characteristics of Power Semiconductor Sw	<b>/itch</b> i	
4.1	Genera	al maximum ratings of power switching semiconducto	or devic	es 109
		Voltage ratings Forward current ratings Temperature ratings Power ratings		

4.2	The fas	t-recovery diode	111
	4.2.1 4.2.2 4.2.3	Turn-on characteristics Turn-off characteristics Schottky diode dynamic characteristics	
4.3	The bip	oolar, high-voltage, power switching npn junction transistor	114
	4.3.1 4.3.2	Transistor ratings 4.3.1i - BJT collector voltage ratings 4.3.1ii - BJT safe operating area (SOA) Transistor switching characteristics 4.3.2i - BJT turn-on time 4.3.2ii - BJT turn-off time	
	4.3.3	BJT phenomena	
4.4	The po	wer MOSFET	119
	4.4.2	MOSFET absolute maximum ratings Dynamic characteristics 4.4.2i - MOSFET device capacitances 4.4.2ii - MOSFET switching characteristics 1 - MOSFET turn-on 2 - MOSFET turn-off	
	•	le <b>4.1</b> : MOSFET drain characteristics 124	
4.5		sulated gate bipolar transistor	125
		IGBT switching IGBT short circuit operation	
4.6	The thy	ristor	127
	4.6.2 4.6.3	SCR ratings 4.6.1i - SCR anode ratings 4.6.1ii - SCR gate ratings Static characteristics 4.6.2i - SCR gate trigger requirements 4.6.2ii - SCR holding and latching currents Dynamic characteristics	
		4.6.3i - SCR anode at turn-on 4.6.3ii - SCR anode at turn-off	
4.7	The gat	te turn-off thyristor	130
		urn-on characteristics urn-off characteristics	
4.8	Append	dix: Effects on MOSFET switching of negative gate drive	132
5			
Coo	ling c	of Power Switching Semiconductor De	evices
5.1	Therma	al resistances	138
5.2	Contac	t thermal resistance	138
	5.2.1 5.2.2	Thermal Interface Materials Phase Change Gasket Materials (solid to liquid)	
5.3	Heat-si	nking thermal resistance	142

5.4	Modes of power dissipation	146
	<ul> <li>5.4.1 Steady-state response</li> <li>5.4.2 Pulse response</li> <li>Example 5.1: Semiconductor single power pulse capability 149</li> <li>Example 5.2: A single rectangular power pulse</li> <li>5.4.3 Repetitive transient response</li> <li>Example 5.3: Semiconductor transient repetitive power capability</li> </ul>	152
	<b>Example 5.4:</b> Composite rectangular power pulses  153 <b>Example 5.5:</b> Non-rectangular power pulses  155	
5.5	Average power dissipation	158
	5.5.1 Graphical integration 5.5.2 Practical superposition	
5.6	Power losses from manufacturers' data sheets	158
	5.6.1 Switching transition power loss, $P_s$ 5.6.2 Off-state leakage power loss, $P_\ell$ 5.6.3 Conduction power loss, $P_c$ 5.6.4 Drive input device power loss, $P_G$	
5.7	Heat-sinking design cases	160
	5.7.1 Heat-sinking for diodes and thyristors 5.7.1i - Low-frequency switching 5.7.1ii - High-frequency switching  Example 5.6: Heat-sink design for a diode  162	
	5.7.2 Heat-sinking for IGBTs  Example 5.7: Heat-sink design for an IGBT - repetitive operation at a 5.7.3 Heat-sinking for power MOSFETs  Example 5.8: Heat-sink for a MOSFET - repetitive operation at high peak cur Example 5.9: Heat-sink design for a mosfet - repetitive operation a Example 5.10: Two thermal elements on a common heatsink 165  Example 5.11: Six thermal elements in a common package 166	rent, low duty cycle 164
5.8	Appendix: Comparison between aluminium oxide and aluminium nit	ride 167
5.9	Appendix: Properties of substrate and module materials	169
5.10	Appendix: Emissivity and heat transfer coefficient	171
5.11	Appendix: Ampacities and mechanical properties of rectangular cop	oper busbars 173
5.12	Appendix: Isolated substrates for power modules	173
6		179
High	-performance Cooling for Power Electronic	
6.1	Conduction and heat spreading	182
6.2	Heat-sinks	183
	<ul> <li>6.2.1 Required heat-sink thermal resistance</li> <li>6.2.2 Heat-sink selection</li> <li>6.2.3 Heat sink types</li> <li>6.2.4 Heatsink fin geometry</li> <li>6.2.5 Thermal performance graph</li> </ul>	
6.3	Heatsink cooling enhancements	190

7.2

**Switch characteristics** 

6.4	Heatsink fan and blower cooling		190
	6.4.1 Fan selection 6.4.2 The fan (affinity) Laws Example 6.1: Fan laws 6.4.3 Estimating fan life Example 6.2: Fan lifetime Example 6.3: Fan testing	202 207 207	
6.5	Enhanced air cooling		209
6.6	Liquid coolants for power electronics cooling		209
	<ul> <li>6.6.1 Requirements for a liquid coolant</li> <li>6.6.2 Dielectric liquid coolants</li> <li>6.6.3 Non-dielectric liquid coolants</li> </ul>		
6.7	Direct and indirect liquid cooling		213
6.8	Indirect liquid cooling		214
	6.8.1 Heat pipes – indirect cooling  Example 6.4: Heat-pipe 6.8.2 Cold plates – indirect cooling  Example 6.5: Cold plate design	221 229	
6.9	Direct liquid cooling		230
	<ul> <li>6.9.1 Immersion cooling – direct cooling</li> <li>6.9.2 Liquid jet impingement – direct cooling</li> <li>6.9.3 Spray cooling – direct cooling</li> </ul>		
6.10	Microchannels and minichannels		235
6.11	Electrohydrodynamic and electrowetting cooling		237
6.12	Liquid metal cooling		237
6.13	Solid state cooling		238
	6.13.1 Thermoelectric coolers  Example 6.6: Thermoelectric cooler design  Example 6.7: Thermoelectrically enhanced heat sink  6.13.2 Superlattice and heterostructure cooling  6.13.3 Thermionic and thermotunnelling cooling	240 241	
6.14	Cooling by phase change		245
6.15	Appendix: Properties of substrate and module materials		247
7			25.
Load	d, Switch, and Commutation Consider	ation	25 <sup>-</sup>
7.1	Load types		251
	7.1.1 The resistive load  Example 7.1: Resistive load switching losses  Example 7.2: Transistor switching loss for non-linear electrical The inductive load  Example 7.3: Zener diode, switch voltage clamping  Example 7.4: Inductive load switching losses  7.1.3 Diode reverse recovery with an inductive load  Example 7.5: Inductive load switching losses with device	257 261	

264

7.3	Switching classification	264	
	<ul><li>7.3.1 Hard switching</li><li>7.3.2 Soft switching</li></ul>		
	<ul><li>7.3.3 Resonant switching</li><li>7.3.4 Naturally-commutated switching</li></ul>		
7.4	Switch configurations	266	
7.5	Power converter configuration classification	267	
8			274
Driv	ing Transistors and Thyristors		271
8.1	Application of the power MOSFET and IGBT	271	
	8.1.1 Gate drive circuits 8.1.1i - Negative gate drive 8.1.1ii - Floating power supplies		
	8.1.2 Gate drive design procedure  Example 8.1: MOSFET input capacitance and switching to	<b>imes</b> 279	
8.2	Application of the thyristor	279	
	8.2.1 Thyristor gate drive circuits  i. Vacuum cleaner suction control circuit  ii. Lamp dimmer circuit  iii. Back EMF feedback circuits		
	8.2.2 Thyristor gate drive design		
	Example 8.2: A light dimmer	288	
8.3	Drive design for GCT and GTO thyristors	288	
9			
Prot	ecting Diodes, Transistors, and Thyri	stors	293
9.1	The non-polarised <i>R-C</i> snubber	394	
	9.1.1 R-C switching aid circuit for the GCT, the MOSFET, an Example 9.1: R-C snubber design for MOSFETs 9.1.2 Non-polarised R-C snubber circuit for a converter grade Example 9.2: Non-polarised R-C snubber design for a converted to the sign for a converte	295 e thyristor and a triac	
9.2	The soft voltage clamp	298	
	Example 9.3: Soft voltage clamp design	299	
9.3	Polarised switching-aid circuits	301	
	9.3.1 The polarised turn-off snubber circuit - assuming a linear graduate gradual form. The turn-off snubber circuit - assuming a cosinusoidal of the turn-off snubber circuit - assuming a cosinusoidal of the turn-off snubber design gradual form. The polarised turn-on snubber circuit - with air core (not to turn-on air-core inductor snubber design gradual form.)  9.3.4 The polarised turn-on snubber circuit - with saturable for the turn-on ferrite-core saturable inductor snubgradual form.  9.3.5 The unified turn-on and turn-off snubber circuit	current fall 308 on-saturable) inductance 314 errite inductance	
9.4	Snubbers for bridge legs	320	

9.5	Appendix: Non-polarised turn-off R-C snubber circuit analysis	323	
9.6	Appendix: Polarised turn-off <i>R-C-D</i> switching aid circuit analysis	324	
10			329
Swit	tching-aid Circuits with Energy Recovery		
10.1	Energy recovery for inductive turn-on snubber circuits-single ended	329	
	10.1.1 Passive recovery 10.1.2 Active recovery		
10.2	Energy recovery for capacitive turn-off snubber circuits-single ended	333	
	10.2.1 Passive recovery 10.2.2 Active recovery		
10.3	Unified turn-on and turn-off snubber circuit energy recovery	340	
	10.3.1 Passive recovery 10.3.2 Active recovery		
10.4	Inverter bridge legs	346	
	10.4.1 Turn-on snubbers 10.4.2 Turn-on and turn-off snubbers		
10.5	Snubbers for multi-level inverters	349	
	10.5.1 Snubbers for the cascaded H-bridge multi-level inverter 10.5.2 Snubbers for the diode-clamped multi-level inverter 10.5.3 Snubbers for the flying-capacitor clamped multi-level inverter		
10.6	Snubbers for series connected devices	350	
	<ul> <li>10.6.1 Turn-off snubber circuit active energy recovery</li> <li>10.6.2 Turn-on snubber circuit active energy recovery</li> <li>10.6.3 Turn-on and turn-off snubber circuit active energy recovery</li> <li>10.6.4 General active recovery concepts</li> <li>10.6.5 Soft clamping turn-off snubbers for series connected devices</li> </ul>		
10.7	Snubber energy recovery for magnetically coupled based switching		
	10.7.1 Passive recovery 10.7.2 Active recovery 10.7.3 Transformer leakage passive recovery	358	
10.8	General passive snubber energy recovery concepts	360	
10.9	Snubbers for rectified outputs	362	
11			
• •	ice Series and Parallel Operation, Interferer and	nce, Grounding	367
11.1	Series connection and operation of power semiconductor devices	367	
	<ul> <li>11.1.1 Series semiconductor device operation         <ul> <li>11.1.1i - Steady-state voltage sharing</li> </ul> </li> <li>Example 11.1: Series device connection – static voltage balancing         <ul> <li>11.1.1ii - Transient voltage sharing</li> </ul> </li> <li>Example 11.2: Series device connection – dynamic voltage balanci</li> </ul>		

11.2	Parallel connection and operation of power semiconductor	or devices 373	
	<ul> <li>11.2.1 Parallel semiconductor device operation <ul> <li>11.2.2i - Matched devices</li> <li>11.2.2ii - External forced current sharing</li> </ul> </li> <li>Example 11.3: Resistive parallel current sharing – static (a) current sharing analysis for two devices:- r₀ = 0 <ul> <li>(b) current sharing analysis for two devices:- r₀ ≠ 0</li> <li>(c) current sharing analysis for n devices:- r₀ = 0</li> </ul> </li> <li>Example 11.4: Transformer current sharing-static and dyname</li> </ul>		
11.3	Interference	381	
	11.3.1 Noise  11.3.1i - Conducted noise  11.3.1ii - Radiated electromagnetic field coupling  11.3.1iii - Electric field coupling  11.3.1iv - Magnetic field coupling  11.3.2 Mains filters  11.3.3 Noise filtering precautions		
11.4	Earthing	384	
	11.4.1 Earth and neutral		
11.5	Isolation (galvanic)	387	
	11.5.1 Isolation problem and related measurements 11.5.2 Isolation mechanisms		
12 Devi	ce Protection		393
12.1	Protection overview - over-voltage and over-current	393	
	<ul><li>12.1.1 Ideal secondary level protection</li><li>12.1.2 Overvoltage protection devices</li><li>12.1.3 Over-current protection devices</li></ul>		
12.2	Over-current protection	396	
	12.2.1 Protection with fuses 12.2.1i - Pre-arcing let 12.2.1ii - Total let let-through 12.2.1iii - Fuse link and semiconductor let co-ordination 12.2.1iv - Fuse link derating and losses		
	Example 12.1: AC circuit fuse link design  12.2.1v – Pulse derating	404	
	Example 12.2: AC circuit fuse link design for let surges	405	
	12.2.1vi - Other fuse link derating factors <b>Example 12.3:</b> AC circuit fuse link derating	407	
	12.2.1vii - Fuse link dc operation <b>Example 12.4: DC circuit fuse link design</b>	409	
	12.2.1viii - Alternatives to dc fuse operation 12.2.2 Protection with resettable fuses 12.2.2i Polymeric PTC devices 12.2.2ii Ceramic PTC devices		
	Example 12.5: Resettable ceramic fuse design 12.3.3 Summary of over-current limiting devices	419	

12.3	Overvoltage protection	421
	12.3.1 Transient voltage suppression clamping devices 12.3.1i - Comparison between Zener diodes and varistors  Example 12.6: Non-linear voltage clamp 428 12.3.2 Transient voltage fold-back devices 12.3.2i The surge arrester 12.3.2ii Thyristor voltage fold-back devices 12.3.2iii Polymeric voltage variable material technologies 12.3.2iv The crowbar 12.3.3 Protection coordination 12.3.4 Summary of voltage protection devices	
12.4	DC Circuit Breakers	437
	12.4.1 Purely semiconductor DCCB  Example 12.7: IGBT DC circuit breaker 437  12.4.2 Hybrid DCCB: semiconductors shunted by a circuit breaker 12.4.3 Functionality unification	
13		
Nat	turally Commutating AC to DC Converters - Uncontrolled F	
13.1	Single-phase uncontrolled converter circuits - ac rectifiers	447
	13.1.1 Half-wave circuit with a resistive load, R 13.1.2 Half-wave circuit with a resistive and back emf R-E load Example 13.1: Half-wave rectifier with resistive and back emf load 13.1.3 Single-phase half-wave circuit with an R-L load 13.1.3i - Inductor equal voltage area criterion 13.1.4 Single-phase half-wave rectifier circuit with an R-L load and and and and and and and and and a	ad 449  a back emf  el diode
13.2	Three-phase uncontrolled rectifier converter circuits	473
	13.2.1 Three-phase half-wave rectifier circuit with an inductive R-L II 13.2.2 Three-phase full-wave rectifier circuit with an inductive R-L II 13.2.2i - Three-phase full-wave bridge rectifier circuit with continuo 13.2.2ii - Three-phase full-wave bridge rectifier circuit with highly ind 13.2.2iii Three-phase full-wave bridge circuit with highly inductive Io 13.2.2iv Three-phase full-wave bridge circuit with capacitively filtere  Example 13.7: Three-phase full-wave rectifier	oad us load current ductive load ad with an EMF source

Example 13.8: Rectifier average load voltage

13.3	Uncontrolled rectifier input current harmonics and power factor compensation 482			
13.4	DC MMFs in converter transformers	484		
13.5	Transformer rectifier combinations  13.5.1 Six-phase half wave rectified converters 13.5.1i Six-phase with neutral connection 13.4.1ii Three-phase double wye with a centre tapped inter-phas 13.5.2 Three-phase full-wave rectified converters 13.5.3 Multi-phase full-wave rectified converters			
13.6	Voltage multipliers	489		
	13.6.1 Half-wave series multipliers 13.6.2 Half-wave parallel multipliers 13.6.3 Full-wave series multipliers Example 13.9: Half-wave voltage multiplier Example 13.10: Full-wave voltage multiplier 49 13.6.4 Three-phase voltage multipliers 13.6.5 Series versus parallel voltage multipliers			
13.7	Marx voltage generator	495		
13.8	Definitions	498		
13.9	Output pulse number	499		
13.10	AC-dc converter generalised equations	500		
Natu	urally Commutating AC to DC Converters - Controlled	s d Rectifiers	509	
14.1	Single-phase full-wave half-controlled converter	510		
	<ul> <li>14.1.1 Single-phase, full-wave half-controlled circuit with an R-L lo 14.1.1i - Discontinuous load current</li> <li>14.1.1ii - Continuous load current</li> <li>14.1.2 Single-phase, full-wave, half-controlled circuit with R-L and Example 14.1: Single-phase, full-wave half-controlled rectifier</li> </ul>			
14.2	Single-phase controlled thyristor converter circuits	517		
	14.2.1 Single-phase half-wave circuit with an R-L load 14.2.1i - Case 1: Purely resistive load 14.2.1ii - Case 2: Purely inductive load 14.2.1iii - Case 3: Back emf E and R-L load			
	Example 14.2: Single-phase, half-wave controlled rectifier	521		
	14.2.2 Single-phase half-wave half-controlled 14.2.2i - discontinuous conduction 14.2.2ii - continuous conduction			
	14.2.3 Single-phase full-wave controlled rectifier circuit with an R-L 14.2.3i discontinuous load current 14.2.3ii verge of continuous load current 14.2.3iii continuous load current (and also purely inductive load)	. load		
	14.2.3iv Resistive load	- در <u>ب</u>	.00	
	Example 14.3: Controlled full-wave converter – continuous and dis 14.2.4 Single-phase full-wave, fully-controlled circuit with R-L and		∠ၓ	

14.2.4i - Discontinuous load current 14.2.4ii - Continuous load current

	Example 14.4: Controlled converter - continuous conduction are Example 14.5: Controlled converter - constant load current, ba		<b>37</b>
14.3	Three-phase half-controlled converter	537	
14.4	Three-phase fully-controlled thyristor converter circuits	540	
	14.4.1 Three-phase half-wave, fully controlled circuit with an indexample 14.6: Three-phase half-wave converter with freewheel diode Example 14.6: Three-phase half-wave rectifier with freewheel diode Example 14.6: Three-phase half-wave rectifier with freewheel 14.4.3 Three-phase full-wave fully-controlled circuit with an industry 14.4.3i - Resistive load 14.4.3ii - Highly inductive load - constant load current 14.4.3iii - R-L load with load EMF  Example 14.7: Three-phase full-wave controlled rectifier with 14.4.4 Three-phase full-wave converter with freewheel diode Example 14.8: Converter average load voltage	th resistive load 542 I diode 544 ctive load	551
14.7	Overlap	556	
14.6	Overlap – inversion	560	
	Example 14.9: Converter overlap	561	
14.7	Summary	562	
	<ul> <li>(i) Half-wave and full-wave, fully-controlled converter</li> <li>(ii) Full-wave, half-controlled converter</li> <li>(iii) Half-wave and full-wave controlled converter with load freewheel dio</li> </ul>	de	
14.8	Definitions	564	
14.9	Output pulse number	564	
14.10	AC-dc converter generalised equations	567	
15	Voltago Pogulatoro		577
AC	Voltage Regulators		
15.1	Single-phase ac regulator	577	
	15.1.1 Single-phase ac regulator – phase control with line comme 15.1.1i - Resistive Load 15.1.1ii - Pure inductive Load 15.1.1iii - Load sinusoidal back emf 15.1.1iv - Semi-controlled single-phase ac regulator Example 15.1a: Single-phase ac regulator – #1 Example 15.1b: Single-phase ac regulator – #2 Example 15.1c: Single-phase ac regulator – pure inductive le Example 15.1d: Single-phase ac regulator – #1 with ac back e 15.1.2 Single-phase ac regulator – integral cycle control – line co Example 15.2: Integral cycle control 15.1.3 The solid-state relay (SSR) 15.1.3ii Frinciple of operation 15.1.3iii Key power elements in solid-state relays 15.1.3iii Solid-state relay overvoltage fault modes 15.1.3iv Transient voltage protection devices for an SSR 15.1.3v Solid-state relay internal protection methods	588 589 <b>oad</b> 590 <b>mf composite load</b> 591	
	15.1.3vi Application considerations  Example 15.3: Solid-state relay turn-on	603	

	Example 15.4: Solid-state relay heatsink requirements 15.1.3vii DC output solid-state relays	604
15.2	Single-phase transformer tap-changer – line commutated	606
	Example 15.5: Tap changing converter 608	3
15.3	Single-phase ac chopper regulator – commutable switches	609
	<ul><li>15.3.1 Single-phase ac chopper regulator – version #1</li><li>15.3.2 Single-phase ac chopper regulator – version #2</li></ul>	
15.4	Three-phase ac regulator	613
	15.4.1 Fully-controlled three-phase ac regulator with wye load and 15.4.2 Fully-controlled three-phase ac regulator with wye load and 15.4.3 Fully-controlled three-phase ac regulator with delta load 15.4.4 Half-controlled three-phase ac regulator 15.4.5 Other thyristor three-phase ac regulators  Example 15.6: Star-load three-phase ac regulator – untapped in 15.4.6 Solid-state soft starters  15.4.6 The induction motor 15.4.6 Solid-state soft-starter 15.4.6 Solid-state soft-starter	neutral connected
15.5	Cycloconverter	643
15.6	Three phase fixed frequency hexagonal ac to ac converter	645
15.7	The matrix converter	646
	15.7.1 High frequency resonant dc to ac matrix converter	
15.8	ac to ac conversion with a dc link	654
15.9	Power quality: load efficiency and supply current power factor	655
	15.9.1 Load waveforms 15.9.2 Supply waveforms Example 15.7: Power quality - load efficiency 65 Example 15.8: Power quality - squarewave distortion 65 Example 15.9: Power quality - sinusoidal source and constant curl Example 15.10: Power quality - sinusoidal source and non-linear	7 r <b>ent load</b> 658
16		663
DC (	Choppers	300
16.1	DC chopper variations	663
16.2	First quadrant dc chopper	664
	16.2.1 Continuous load current 16.2.2 Discontinuous load current Example 16.1: DC chopper (first quadrant) with load back emf Example 16.2: DC chopper with load back emf - verge of discontinuous Example 16.3: DC chopper with load back emf - discontinuous	
16.3	Second quadrant dc chopper	680
	<ul><li>16.3.1 Continuous load inductor current</li><li>16.3.2 Discontinuous load inductor current</li></ul>	

	Example 16.4: Second quadrant DC chopper - continuous	inductor current 685	
16.4	Two quadrant dc chopper - Q I and Q II	687	
	Example 16.5: Two quadrant DC chopper with load back e	e <b>mf</b> 690	
16.5	Two quadrant dc chopper – Q I and Q IV	693	
	16.5.1 dc chopper: – Q I and Q IV – multilevel output voltage s 16.5.2 dc chopper: – Q I and Q IV – bipolar voltage switching 16.5.3 Multilevel output voltage states, dc chopper	(two level)	
	Example 16.6: Asymmetrical, half H-bridge, dc chopper	699	
16.6	Four quadrant dc chopper	701	
	16.6.1 Unified four quadrant dc chopper - bipolar voltage output 16.6.2 Unified four quadrant dc chopper - multilevel voltage output Example 16.7: Four quadrant dc chopper		
17			
1 /			711
DC 1	to AC Inverters - Switched Mode		
17.1	dc-to-ac voltage-source inverter bridge topologies	711	
	17.1.1 Single-phase voltage-source inverter bridge		
	17.1.1i - Square-wave (bipolar) output		
	17.1.1ii - Quasi-square-wave (multilevel) output  Example 17.1: Single-phase H-bridge with an L-R load	117	
	Example 17.2: H-bridge inverter ac output factors	718	
	Example 17.3: Harmonic analysis of H-bridge with an L-R I Example 17.4: Single-phase half-bridge with an L-R load	<b>load</b> 720 721	
	17.1.1iii - PWM-wave output	121	
	17.1.2 Three-phase voltage-source inverter bridge 17.1.2i - 180° (π) conduction		
	17.1.2ii - 120° (⅔π) conduction		
	17.1.3 Inverter ac output voltage and frequency control technic 17.1.3i - Variable voltage dc link	ques	
	17.1.3ii - Single-pulse width modulation		
	Example 17.5: Single-pulse width modulation 17.1.3iii - Multi-pulse width modulation	732	
	17.1.3iv - Multi-pulse, selected notching modulation – selecte 17.1.3v - Sinusoidal pulse-width modulation (SPWM) 17.1.3vi - Phase dead-banding	əd harmonic elimination	
	17.1.3vii - Triplen Injection modulation		
	17.1.4 Assessment of PWM modulation techniques 17.1.5 Common mode voltage		
	17.1.6 DC link voltage boosting		
17.2	dc-to-ac controlled current-source inverters	751	
	17.2.1 Single-phase current source inverter		
	17.2.2 Three-phase current source inverter		
17.3	Multi-level voltage-source inverters	755	
	17.3.1 Diode clamped multilevel inverter		
	17.3.2 Flying capacitor multilevel inverter 17.3.3 Cascaded H-bridge multilevel inverter		
	17.3.4 Capacitor clamped modular multilevel M2C inverter		
	17.3.5 PWM for multilevel inverters		
	17.3.4i - Multiple offset triangular carriers 17.3.4ii - Multilevel rotating voltage space vector		

17.4	Reversible dc link converters	766
	<ul><li>17.4.1 Independent control</li><li>17.4.2 Simultaneous control</li><li>17.4.3 Inverter regeneration</li></ul>	
17.5	Standby inverters and uninterruptible power supplies	770
	17.5.1 Single-phase UPS 17.5.2 Three-phase UPS	
17.6	Power filters	772
	Example 17.6: L-C filter design 772	
18		
DC	to AC Inverters - Resonant Mode	775
18.1	Resonant dc-ac inverters	775
18.2	L-C resonant circuits	776
	18.2.1 - Series resonant L-C-R circuit 18.2.2 - Parallel resonant L-C-R circuit	
18.3	Series-load, series resonant voltage-source inverters	780
	18.3.1 - Series resonant inverter – single inverter leg 18.3.2 - Series resonant inverter – H-bridge voltage-source inverter 18.3.3 – Series circuit variations	
18.4	Parallel-load, series-resonant voltage-source inverter – single inverte	er leg 784
18.5	Series-parallel-resonant voltage-source inverter – single inverter leg	785
	Summary of voltage source resonant inverters	
18.6	Parallel resonant current-source inverters	787
	18.6.1 - Parallel resonant inverter – single inverter leg 18.6.2 - Parallel resonant inverter – H-bridge current-source inverter Example 18.1: Half-bridge with a series L-C-R load 789	
18.7	Single-switch, current source, series resonant inverter	792
19		
		795
DC	to DC Converters - Switched Mode	
19.1	The forward converter	796
	<ul> <li>19.1.1 Continuous inductor current</li> <li>19.1.2 Discontinuous inductor current</li> <li>19.1.3 Load conditions for discontinuous inductor current</li> <li>19.1.4 Control methods for discontinuous inductor current</li> <li>19.1.4i - fixed on-time, variable switching frequency</li> <li>19.1.4ii - fixed quitabing frequency</li> </ul>	
	19.1.4ii - fixed switching frequency, variable on-time 19.1.5 Output ripple voltage 19.1.6 Apparent load resistance	

	Example 19.1: Buck (step-down forward) converter  19.1.6 Underlying operational mechanisms of the forward converter 19.1.7 Hysteresis voltage feedback control of the forward converter Example 19.2: Hysteresis controlled buck converter  808	
19.2	Flyback converters	810
19.3	The boost converter	810
	<ul> <li>19.3.1 Continuous inductor current</li> <li>19.3.2 Discontinuous capacitor charging current in the switch off-state</li> <li>19.3.3 Discontinuous inductor current</li> <li>19.3.4 Load conditions for discontinuous inductor current</li> <li>19.3.5 Control methods for discontinuous inductor current</li> <li>19.3.5i - fixed on-time, variable switching frequency</li> <li>19.3.5ii - fixed switching frequency, variable on-time</li> <li>19.3.6 Output ripple voltage</li> <li>Example 19.3: Boost (step-up flyback) converter</li> <li>815</li> <li>Example 19.4: Alternative boost (step-up flyback) converter</li> </ul>	
19.4	The buck-boost converter	818
	19.4.1 Continuous choke (inductor) current 19.4.2 Discontinuous capacitor charging current in the switch off-state 19.4.3 Discontinuous choke current 19.4.4 Load conditions for discontinuous inductor current 19.4.5 Control methods for discontinuous inductor current 19.4.5 i- fixed on-time, variable switching frequency 19.4.5ii - fixed switching frequency, variable on-time 19.4.6 Output ripple voltage 19.4.7 Buck-boost, flyback converter design procedure Example 19.5: Buck-boost flyback converter	
19.5	Flyback converters – a conceptual assessment	826
19.6	The output reversible converter	829
	19.6.1 Continuous inductor current 19.6.2 Discontinuous inductor current 19.6.3 Load conditions for discontinuous inductor current 19.6.4 Control methods for discontinuous inductor current 19.6.4i - fixed on-time, variable switching frequency 19.6.4ii - fixed switching frequency, variable on-time  Example 19.6: Reversible forward converter  832 19.6.5 Comparison of the reversible converter with alternative converter	rs
19.7	The boost-buck (Ćuk) converter	834
	19.7.1 Continuous inductor current 19.7.2 Discontinuous inductor current 19.7.3 Optimal inductance relationship 19.7.4 Output voltage ripple Example 19.7: Cuk converter 836	
19.8	Comparison of basic converters	837
	19.8.1 Critical load current 19.8.2 Bidirectional converters 19.8.3 Isolation 19.8.3i - The isolated output, forward converter 19.8.3ii - The isolated output, flyback converter Example 19.8: Transformer coupled flyback converter 843 Example 19.9: Transformer coupled forward converter	
19.9	Multiple-switch, balanced, isolated converters	847
	19.9.1 The push-pull converter 19.9.2 Bridge converters	

Adv	anced DC to DC Converters - Switched Mo	de	855
20.1	Basic generic smps transfer function mapping	855	
20.2	Basic generic current sourced smps	856	
20.3 20.4	Generic current sourced converters, converted to voltage sourced Thirty-three dc-to-dc voltage source converters	converters 839 859	
	ole 20.1: C5 (Cuk) converter topological conversion to G3 and G4 topole 20.2: C1 and C2 converter topological conversion to G5 and G6 to		
20.5	Converters with zero average capacitor voltage	864	
20.6	Converters with continuous input and output current (continuous p 20.6.1 Converter component ratings	ower) 867	
20.7	Transformer isolated buck-boost dc-dc converters	872	
20.8	Capacitor ripple voltage	874	
20.9	Current-Doubler Rectifier	875	
20.10	Tapped inductor operation	877	
	<ul><li>20.10i Reversible tapped inductor smps</li><li>20.10ii Coupled circuit leakage inductance</li></ul>		
20.11	HV referenced dc to dc converter	883	
20.12	Current sourced dc to dc converters	883	
20.13	Appendix: Analysis of non-continuous inductor current operation	885	
	Operation with constant input voltage, $E_i$ Operation with constant output voltage, $v_o$		
21			
DC 1	to DC Converters - Resonant Mode		903
21.1	Series loaded resonant dc to dc converters	904	
	21.1.1 Modes of operation - series resonant circuit 21.1.2 Circuit variations		
21.2	Parallel loaded resonant dc to dc converters	909	
	21.2.1 Modes of operation- parallel resonant circuit 21.2.2 Circuit variations		
21.3	Series-parallel load resonant dc to dc converters	912	
	21.3.1 LCC resonant tank circuit 21.3.2 LLC resonant tank circuit		
21.4	Resonant coupled-load configurations	915	

Example 21.1: Transformer-coupled, series-resonant, dc-to-dc converter 917

21.5	Resonant switch, dc to dc step-down voltage converters	919	
	21.5.1 Zero-current, resonant-switch, dc-to-dc converter $-\frac{1}{2}$ wave, $C_R$ parallel with load ver	rsion	
	21.5.1i - Zero-current, full-wave resonant switch converter 21.5.2 Zero-current, resonant-switch, dc-to-dc converter -½ wave, C <sub>R</sub> parallel with switch ver	rsion	
	21.5.3 Zero-voltage, resonant-switch, dc-to-dc converter -½ wave, C <sub>R</sub> parallel with switch ver		
	21.5.3i - Zero-voltage, full-wave resonant switch converter 21.5.4 Zero-voltage, resonant-switch, dc-to-dc converter -½ wave, C <sub>R</sub> parallel with load ver	rsion	
	Example 21.2: Zero-current, resonant-switch, dc-to-dc converter - Example 21.3: Zero-current, resonant-switch, dc-to-dc converter - Example 21.4: Zero-voltage, resonant-switch, dc-to-dc converter -	<b>½ wave</b> 932 <b>full-wave</b> 934	
21.6	Resonant switch, dc to dc step-up voltage converters	936	
	21.6.1 ZCS resonant-switch, dc-to-dc step-up voltage converters 21.6.2 ZVS resonant-switch, dc-to-dc step-up voltage converters		
	Summary and comparison of ZCS and ZVS Converters		
21.7	Appendix: Matrices of resonant switch buck, boost, and buck/boos	t converters 942	
22			
			947
50/6	60Hz Transformers: Single and Three Phase	•	
22.1	DC MMFs in converter transformers	947	
	22.1.1 Effect of multiple coils on multiple limb transformers 22.1.2 Single-phase toroidal core mmf imbalance cancellation – zig-zag 22.1.3 Single-phase transformer connection, with full-wave rectification 22.1.4 Three-phase transformer connections 22.1.5 Three-phase transformer, half-wave rectifiers - core mmf imbalag 22.1.6 Three-phase transformer with hexa-phase rectification, mmf imb 22.1.7 Three-phase transformer mmf imbalance cancellation – zig-zag 22.1.8 Three-phase transformer full-wave rectifiers – zero core mmf	nnce palance	
22.2	Auto-transformers	972	
22.3	Types of Transformers	977	
<b>23</b>			070
HV	Direct-Current Transmission		979
23.1	HVDC electrical power transmission	980	
23.2	HVDC configurations	980	
	23.2i - Monopole and earth return 23.2ii - Bipolar 23.2iii - Tripole 23.2iv - Back-to-back 23.2v - Multi-terminal		
23.3	Typical HVDC transmission system	983	

23.4	Twelve-pulse ac line frequency converters	984	
	23.4.1 Rectifier mode 23.4.2 Inverter mode		
23.5	Twelve-pulse ac line frequency converter operation control	992	
	23.5.1 Control and protection 23.5.2 HVDC Control objectives		
23.6	Delta/Delta/Double polygon 18 pulse converter	996	
	23.6.1 Analysis of Double-Wound Polygon		
23.7	Filtering and power factor correction	999	
	Example 23.1: Basic six-pulse converter based hvdc transmission Example 23.2: 12-pulse hvdc transmission 1001	999	
23.8	VSC-based HVDC	1002	
	23.8.1 VSC-Based HVDC control 23.8.2 Power control concept		
23.9	HVDC Components	1006	
	Example 23.3: HVDC transmission with voltage source controlled of Example 23.4: HVDC transmission with voltage source controlled of Example 23.5: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage source controlled of Example 23.6: HVDC transmission with voltage 23.6: HVDC transmission with voltage 23.6: HVDC transmission with voltage 23.6: HVDC tr	lc-link #2 1013 lc-link #3 10153	
23.10	Twelve-pulse transformer based HVDC	1018	
23.11	VSC-HVDC transmission systems - modular multilevel converter, M	1 <sup>2</sup> C 1018	
23.12	Multi-terminal VSC HVDC	1021	
23.13	HVDC Earth Electrodes	1022	
23.14	HVDC VSC features	1023	
23.15	HVDC LCC features	1024	
23.16	Features of conventional HVDC and HVAC transmission	1025	
23.17	Appendix: HVDC topology classification	1026	
24			
HVD	C Transmission Modelling		1029
24.1	Main system components	1029	
	<ul> <li>24.1.1 AC circuit breaker</li> <li>24.1.2 Power converter</li> <li>24.1.3 Power filter</li> <li>24.1.4 Power transformer</li> <li>24.1.5 Converter PWM modelling</li> </ul>		
24.2	VSC HVDC ac power flow control - HVDC PQ operating diagrams	1000	

24.3	VSC: vector control, coordinate frame transformation, inner decou	pled current control 1002
	24.3.1 Converter and ac grid model in static frame	
	24.3.2 Converter and ac grid models in a rotating coordinate frame	
	24.3.3 Inner current controller design	
	24.3.4 Outer controller design	
	24.3.5 AC voltage control 24.3.6 Power control	
	24.3.7 DC voltage control	
	24.3.8 AC grid support	
	24.3.9 The complete VSC controller	
24.4	VSC HVDC SIMULINK controller steady-state simulation	1007
24.5	VSC HVDC SIMULINK simulation of fault conditions	1011
	24.5.1 AC faults on $V_g$	
	24.5.2 DC fault - on the dc link	
	24.5.3 Converter modelling for reduced dc voltage 24.5.4 Influence of the dc link capacitors	
24.6	VSC HVDC interaction with ac systems	1017
	<ul><li>24.6.1 Power flow between ac systems</li><li>24.6.2 Operation with a passive ac system</li></ul>	
24.7	HVDC VSC harmonics and filtering	1019
	24.7.1 Converter modulation	
	24.7.2 Multi-pulse and multilevel converters	
	24.7.3 Comparison of harmonic content at the ac terminals	
25		
<b>Z</b> 3		105
FAC	TS Devices and Custom Controllers	100
25.1	Flexible AC transmission systems - FACTS	1055
25.2	Power quality	1056
25.3	Principles of power transmission	1056
_0.0		
	Example 25.1: AC transmission line VAr	
25.4	The theory of instantaneous power (p-q) in three-phase	1059
25.5	FACTS devices	1063
25.6	Static reactive power compensation	1064
25.7	Static shunt reactive power compensation	1065
	25.7.1 - Thyristor controlled reactor TCR 25.7.2 - Thyristor switched capacitor TSC	
	25.7.3 - Shunt Static VAr compensator SVC (TCR//TSC)	
	Example 25.2: Shunt thyristor controlled reactor specification	1070
25.8	Static series reactive power compensation	1071
	25.8.1 - Thyristor switched series capacitor TSSC	
	25.8.2 - Thyristor controlled series capacitor TCSC 25.8.3 - Series Static VAr compensator SVC (TCR//C)-TCSC	

	Example 25.3: Series thyristor controlled reactor specification Example 25.4: Series thyristor controlled reactor specification 25.8.4 Static series phase angle reactive power compensation/s	on – Vernier control 10	
25.9	Self commutating FACTS devices - custom power	1083	
	25.9.1 - Static synchronous series compensator or Dynamic Volta 25.9.2 - Static synchronous shunt compensator – STATCOM 25.9.3 - Unified power flow controller - UPFC	nge Restorer - DVR	
25.10	Combined active and passive filters	1099	
	25.10.1 - Current compensation – shunt filtering 25.10.2 - Voltage compensation – series filtering 25.10.3 – Hybrid Arrangements 25.10.4 - Active and passive combination filtering		
25.11	Summary of compensator comparison and features	1102	
25.12	Summary of general advantages of AC transmission over DC	transmission 1104	
26			
20			1105
Inve	erter Grid Connection for Embedded Ge	neration	
26.1	Distributed generation	1105	
	26.1.1 DG Possibilities 26.1.2 Integration and Interconnection Requirements 26.1.3 Grid ride through 26.1.4 Conventional protection		
26.2	Interfacing conversion methods for dc energy sources	1110	
26.3	Interfacing conversion methods for ac energy sources	1116	
	26.3.1 Unity Power Factor Current Control of a Sinusoidal Curre	nt Active Boost Rectifie	r
26.4	Back to grid (B2G) electric vehicle charging	1118	
27			
<b>27</b>			1119
Ene	rgy Sources and Storage - Primary Sou	irces	1113
27.1	Hydrocarbon attributes	1119	
27.2	The fuel cell	1121	
27.3	Materials and cell design	1123	
	27.3.1 Electrodes 27.3.2 Catalyst 27.3.3 Electrolyte 27.3.4 Interconnect 27.3.5 Stack design		
27.4	Fuel cell chemistries	1126	
	27.4.1 Proton H <sup>+</sup> Cation Conducting Electrolyte 27.4.2 Anion (OH <sup>-</sup> , CO <sub>3</sub> <sup>2-</sup> , O <sup>2-</sup> ) Conducting Electrolyte		

27.5	Six main fuel cells	1129
27.6	Low-temperature fuel cell types	1129
	<ul><li>27.6.1 Polymer exchange membrane fuel cell</li><li>27.6.2 Alkaline fuel cell</li><li>27.6.3 Direct-methanol fuel cell</li></ul>	
27.7	High-temperature fuel cell types	1132
	27.7.1 Phosphoric-acid fuel cell 27.7.2 Molten-carbonate fuel cell 27.7.3 Solid oxide fuel cell	
27.8	Fuel cell summary	1136
27.9	Fuels	1137
27.10	Fuel reformers	1138
	27.10.1 Natural gas reforming	
27.11	Hydrogen storage and generation from hydrides	1141
27.12	Fuel cell emissions	1143
27.13	Fuel cell electrical characteristics	1143
27.14	Thermodynamics	1144
	Example 27.1: Formation of water vapour1145Example 27.2: Derivation of Ideal Fuel Cell Voltage1146Example 27.3: Carbon fuel cell1148	
27.15	Fuel cell features	1149
27.16	Fuel cell challenges	1150
	27.16.1 Chemical Technology Challenges 27.16.2 System Technology Challenges	
27.17	Fuel cell summary	1151
27.18	Photovoltaic cells: converting photons to electrons	1154
27.19	Silicon structural physics	1154
	Example 27.4: Photons to create hole-electron pairs in silicon 1123	
27.20	Semiconductor materials and structures	1156
	27.20.1 Silicon 27.20.2 Polycrystalline thin films 27.20.3 Single-Crystalline Thin Film 27.20.4 Nanocrystalline	
27.21	PV cell structures	1165
	27.21.1 Homojunction Device 27.21.2 Heterojunction Device 27.21.3 p-i-n and n-i-p Devices 27.21.4 Multi-junction Devices	
27.22	Equivalent circuit of a PV cell	1168
	27.22.1 Ideal PV cell model 27.22.2 Practical PV cell model 27.22.3 Maximum-power point	

27.23	Photovoltaic cell efficiency factors		1171	
	Example 27.5: Solar cell characteristics Example 27.6: PV cell and module characteristics 27.23.1 Impact of temperature and insolation on I-V characterist Example 27.7: PV module temperature characteristics	1172 1173 <i>ics</i> 1175		
27.24	Module (or array) series and parallel PV cell connection		1176	
27.25	Battery storage		1178	
27.26	The organic photovoltaic cell		1179	
27.27	Summary of PV cell technology		1180	
E) E) E) E)	cample 27.8: PV cell open circuit voltage and short circuit current cample 27.9: PV cell maximum power and efficiency cample 27.10: PV cell electron excitation cample 27.11: Fuel cell voltage cample 27.12: PV cell efficiency factors cample 27.13: PV cell efficiency factors cample 27.14: PV cell efficiency factors	1182 1182 1183 1183 1184 1184 1185		
<b>28</b>	way Caynaga and Changa Cagandany	<b>0</b>		1189
⊏ne	rgy Sources and Storage - Secondary	<b>Sou</b> i	ces	
28.1	Batteries		1189	
28.2	The secondary electro-chemical cell		1190	
	28.2.1 REDOX galvanic action 28.2.2 Intercalation action			
28.3	Characteristics of secondary batteries		1194	
28.4	The lead-acid battery		1197	
	28.4.1 Basic lead-acid cell theory 28.4.2 Cell/battery construction 28.4.3 Characteristics of the flooded lead-acid cell 28.4.4 Different lead-acid cell and battery arrangements 28.4.5 Lead acid battery charging and storage regimes 28.4.6 Valve-regulated battery discharge characteristics Example 28.1: Lead-acid battery discharge characteristics Example 28.2: Lead acid battery life 28.4.7 Gassing and internal recombination 28.4.8 User properties and cell type comparisons	1213 1216		
28.5	The nickel-cadmium battery		1224	
	Example 28.3: NiCd battery electrolyte life Example 28.4: NiCd battery requirement 28.5.1 Nickel-Cadmium battery properties	1229 1232		
28.6	The nickel-metal-hydride battery		1233	
	The moter metal hydriae battery			

28.7	The lithium-ion battery		1240
	28.7.1 Cathode variants cells		
	28.7.2 General Lithium-ion cell characteristics		
	28.7.3 General Lithium-ion cell properties 28.7.4 Cell protection circuits		
28.8	Battery thermodynamics		1253
	Example 28.5: Electrochemistry – battery thermodynamics	1254	
		0.	
28.9	Summary of key primary and secondary cell technologies		1255
28.10	The Electrochemical double layer capacitor - supercapacitor	ſ	1257
	28.10.1 Double layer capacitor model  Example 28.6: Ultracapacitor module design using a given of 28.10.2 Cell parameter specification and measurement method 28.10.3 Cell characteristics 28.10.4 Thermal properties 28.10.5 Estimated life duration 28.10.6 Cell voltage equalization in a series stack of ultracapaci 28.10.7 Supercapacitor general properties 28.10.8 Pseudocapacitors  Example 28.7: Ultracapacitor constant current characteristics	itors	I
28.11	Thermoelectric modules		1272
	28.11.1 Theoretical background		
	28.11.2 Thermoelectric materials		
	28.11.3 Mathematical equations for a thermoelectric module		
	28.11.4 Features of thermoelectric cooling - Peltier elements		
	28.11.5 TE cooling design <b>Example 28.8:</b> Thermoelectric cooler design	1284	
	28.11.6 Thermoelectric power generation	1204	
	Example 28.9: Thermoelectric generator design 28.11.7 Thermoelectric performance	1288	
28.12	Appendix: Primary cells		1292
28.13	Appendix: Empirical battery model		1294
00			
<b>29</b>			4000
Capa	acitors		1299
29.1	Capacitor general properties		1300
23.1			1300
	29.1.1 Capacitance		
	29.1.2 Volumetric efficiency 29.1.3 Equivalent circuit		
	29.1.4 Lifetime and failure rate		
	Example 29.1: Failure rate	1304	
	Example 29.2: Capacitor reliability	13057	
	29.1.5 Self-healing		
	29.1.6 Temperature range and capacitance dependence		
29.2	29.1.7 Dielectric absorption		1207
<b>4</b> 3. <b>4</b>	Liquid (organic) and solid, metal oxide dielectric capacitors		1307
	29.2.1 Construction		
	29.2.2 Voltage ratings 29.2.3 Leakage current		
	29.2.4 Ripple current		

	<b>Example 29.3:</b> Capacitor ripple current rating 29.2.5 Service lifetime and reliability	
	29.2.5i - Liquid, oxide capacitors <b>Example 29.4:</b> A1 <sub>2</sub> 0 <sub>3</sub> capacitor service life  1314	
	29.2.5ii - Solid, oxide capacitors <b>Example 29.5:</b> Lifetime of tantalum capacitors  1315	
29.3	Plastic film dielectric capacitors	1316
_0.0	29.3.1 Construction	
	29.3.1i - Metallised plastic film dielectric capacitors 29.3.1ii - Foil and plastic film capacitors 29.3.1iii - Mixed dielectric capacitors	
	29.3.2 Insulation 29.3.3 Electrical characteristics	
	29.3.3i - Temperature dependence 29.3.3ii - Humidity dependence 29.3.3iii - Time dependence 29.3.3iv - Dissipation factor and impedance 29.3.3v - Voltage derating with temperature 29.3.3vi – Voltage and current derating with frequency	
	<b>Example 29.6:</b> Power dissipation limits - ac voltage 1326 $29.3.3vii$ - Pulse $dV_R/dt$ rating	
	29.3.4 Non-sinusoidal repetitive voltages  Example 29.7: Capacitor non-sinusoidal voltage rating  1328  Example 29.8: Capacitor power rating for non-sinusoidal voltages  29.3.5 DC plastic capacitors	1328
29.4	Emi suppression capacitors	1331
	29.4.1 Class X capacitors 29.4.2 Class Y capacitors 29.4.3 Feed-through capacitors	
29.5	Ceramic dielectric capacitors	1333
	29.5.1 Class I dielectrics 29.5.2 Class II dielectrics 29.5.3 Applications	
29.6	Mica dielectric capacitors	1336
	29.6.1 Properties and applications	
29.7	Capacitor type comparison based on key properties	1338
29.8	Appendix: Minimisation of stray capacitance	1338
29.9	Appendix: Capacitor lifetime derating	1340
30		
	istors	134
30.1	Resistor types	1342
30.2	Resistor construction	1342
	30.2.1 Film resistor construction 30.2.2 Carbon composition film resistor construction  Example 30.1: Carbon film resistor 30.2.3 Solid Carbon ceramic resistor construction 30.2.4 Wire-wound resistor construction	

30.3	Electrical properties		1345
	30.3.1 Resistor/Resistance coefficients		
	30.3.1i - Temperature coefficient of resistance <b>Example 30.2:</b> Temperature coefficient of resistance to 30.3.1ii - Voltage coefficient of resistance	or a thick film	resistor 1348
	30.3.2 Maximum working voltage 30.3.3 Residual capacitance and residual inductance		
	Example 30.3: Coefficients of resistance for a solid ca	arbon ceramic	resistor 1351
30.4	Thermal properties		1351
	30.4.1 Resistors with heatsinking <b>Example 30.4:</b> Derating of a resistor mounted on a he 30.4.2 Short time or overload ratings	<b>atsink</b> 1354	
	Example 30.5: Non-repetitive pulse rating	1355	
30.5	Repetitive pulsed power resistor behaviour		1355
	Example 30.6: Pulsed power resistor design 30.5.1 Empirical pulse power	1356	
	30.5.2 Mathematical pulse power models  Example 30.7: Solid carbon ceramic resistor power ra	<b>nting</b> 1357	
30.6	Stability and endurance		1359
	Example 30.8: Power resistor stability	13602	
30.7	Special function power resistors		1360
	30.7.1 Fusible resistors 30.7.2 Circuit breaker resistors 30.7.3 Temperature sensing resistors 30.7.4 Current sense resistors 30.7.5 Thermistors 30.7.6 Light dependent resistors 30.7.7 Potentiometer (Rhéostat) 30.7.8 Other specialised resistors		
30.8	Appendix: Carbon ceramic electrical and mechanical data and formula 1373		
30.9	Appendix: Characteristics of resistance wire		1373
30.10	Appendix: Preferred resistance values of resistors (a	nd capacitors	) 1373
31			
Soft	Magnetic Materials - Inductors and	d Transfo	ormers
31.1	Inductor and transformer electrical characteristics		1376
	31.1.1 Inductors 31.1.2 Transformers or magnetically coupled circuits		
31.2	Magnetic material types		1378
	31.2.1 Ferromagnetic materials 31.2.1i - Steel 31.2.1ii - Iron powders 31.2.1iii - Alloy powders 31.2.1iv - Nanocrystalline		

31.2.2 Ferrimagnetic materials- soft ferrites

31.3	Comparison of material types	1379
31.4	Ferrite characteristics	1380
	31.4.1 Dimensions and parameters 31.4.2 Permeability 31.4.2i - Initial or intrinsic permeability 31.4.2ii - Amplitude permeability and maximum permeability 31.4.2iii - Reversible or incremental permeability 31.4.2iv - Effective permeability 31.4.2v - Complex permeability	
	31.4.3 Coercive force and remanence 31.4.4 Core losses 31.4.4i - Core losses at low H 31.4.4ii - Core losses at high H	
	31.4.5 Temperature effects on core characteristics 31.4.6 Inductance stability 31.4.6i - Parameter effects	
	31.4.6ii - Time effects  Example 31.1: Inductance variation with time  31.4.6iii - Temperature effects	)
	Example 31.2: Temperature effect on inductance 31.4.7 Stored energy in inductors	)
31.5	Ferrite inductor and choke design, when carrying dc current	1392
	31.5.1 Linear inductors and chokes <b>Example 31.3:</b> Inductor design with Hanna curves  31.5.1i - Core temperature and size considerations	1
	Example 31.4: Inductor design including copper loss 31.5.2 Saturable inductors 31.5.3 Saturable inductor design	
24.6	Example 31.5: Saturable inductor design 140	1402
31.6	Power ferrite transformer design  31.6.1 Ferrite voltage transformer design  Example 31.6: Ferrite voltage transformer design  31.6.2 Ferrite current transformer  31.6.3 Current transformer design requirements  31.6.4 Current transformer design procedure  Example 31.7: Ferrite current transformer design	5
31.7	Appendix: Soft ferrite general technical data	1414
31.8	Appendix: Technical data for a ferrite applicable to power applications	1414
31.9	Appendix: Technical data for iron, nickel, and cobalt applicable to pow	er applications 1415
31.10	Appendix: Eddy currents, skin effect and proximity effect	1416
31.11	Appendix: Cylindrical inductor design	1417
	Example 31.8: Wound strip air core inductor  Example 31.9: Multi-layer air core inductor  1419	
31.12	Appendix: Copper wire design data	1419
31.13	Appendix: Minimisation of stray inductance	1420
	31.13.1 Reduction in wiring residual inductance 31.13.2 Reduction in component residual inductance 31.13.2i - Capacitors 31.13.2ii - Capacitors - parallel connected 31.13.2iii - Transformers	

1487

31.14	Appendix: Laminated bus bar design	1423	
31.15	Appendix: Insulating material for between bus bar conductors	1426	
31.16	Appendix: Materials by types of magnetization	1426	
31.17	Appendix: Magnetic behaviour of stainless steels	1428	
22			
32		14	131
Hard	d Magnetic Materials - Permanent Magnets	·	
32.1	Magnetic properties	1435	
32.2	Classification of magnetic materials	1437	
	32.2.1 Alloys 32.2.2 Ceramics		
	32.2.3 Bonded 32.2.4 Flexible (rubber)		
32.3	Properties of hard magnetic materials	1449	
32.4	Permanent magnet magnetization curve (hysteresis loop) and recoil	I 1454	
32.5	Permanent magnet model	1456	
32.6	Load lines	1459	
	32.6.1 Magnetic Circuit Equations		
	32.6.2 Intrinsic permeance coefficient <b>Example 32.1: Magnet load dependant operating point</b> 32.6.3 Demagnetizing field		
32.7	Generalising equivalent magnetic circuits	1469	
32.8	Permanent magnet stability - Loss of magnetism	1471	
32.9	Recoil operation and associated losses	1474	
	32.9.1 Losses due to reverse magnetic fields 32.9.2 Demagnetisation due to temperature increase Example 32.2: Magnet load and temperature dependant operating p	ooint 1477	
32.10	Energy transfer	1479	
32.11	Force of attraction within an air gap	1483	
32.12	Appendix: Magnet processing and properties	1483	
32.13	Appendix: Magnetic basics	1485	
32.14	Appendix: Magnetic properties for sintered NdFeB and SmCo magn	nets 1485	

32.15 Appendix: Magnetic axioms

33

Con	tactors and Rrelays		
33.1	Mechanical requirements for relay operation	1489	
33.2	Relay Contacts	1490	
	<ul> <li>33.2.1 Contact characteristics</li> <li>33.2.2 Contact materials</li> <li>33.2.3 Contact life – material loss and transfer</li> </ul>		
33.3	Defining relay performance	1495	
33.4	AC and DC relay coils	1497	
33.5	Temperature consideration of the coils in dc relays	1496	
	Example 33.1: Relay coil thermal properties 1	499	
33.6	Relay voltage transient suppression	150	
	33.6.1 Types of transient suppression utilized with dc relay coils 33.6.2 Relay contact arc suppression protection with dc power sv	vitching relays	
33.7	DC power switching	1605	
33.8	Miniature Circuit Breakers	1509	
	33.8.1 AC MCBs  Example 33.2: MCB properties  33.8.3 Residual Current Circuit Breaker	1	
33.9	The physics of vacuum high-voltage relays	1522	
33.10	Gas filled relays	1523	
	33.10.1 SF6 as a dielectric 33.10.2 Hydrogen as a dielectric		
33.11	High voltage relay designs	1524	
33.12	Contact ratings	1529	
33.13	High voltage relay grounding	1530	
33.14	A LV voltage, 750V dc, high-current, 350A dc, make and break relay 1531		
33.15	X-ray emissions in vacuum relays	1533	
33.16	Power reconstitution conservation method	1453	
33.17	MV AC vacuum Interrupts for contactor, switch, and circuit-breaker application 1535		
	33.17.1 Basic interruption principle 33.17.2 Medium-Voltage AC Vacuum circuit breaker characteristic 33.17.3 Medium-Voltage AC Vacuum circuit breaker Transient Rec 33.17.4 Altitude derating Example 33.3: Vacuum circuit breaker altitude properties 1		
33.18	Corona	1544	
33.19	Appendix: Contact metals	1546	

1568

## 34

34.5

Other sensors

Fransducers and Sensors			
34.1	General transducer properties		1548
34.2	Current measurement 34.2.1 Current measurement: closed loop ferrite transformer 34.2.2 Current measurement: Rogowski Coil 34.2.3 Flux-gate Transformer 34.2.4 Resistive Sensor 34.2.5 Magneto-optic Sensor 34.2.6 Integrated ac/dc current sensors		1549
34.3	Voltage measurement 34.3.1 Differential Isolation (galvanic) Amplifier		1563
34.4	Acceleration measurement Example 34.1: accelerometer sensitivity and linearity	1567	1565

Nomenclature and symbols			1573
Degrees of protection IP codes according to IEC 60529 standard			1589
IEC 947 and IEC 947-3 Standards Selecting contactors according to IEC 947-3 standa	rd		1590
Glossary of terms			1591
Glossary of Wafer Processing terminology Glossary of Fan Cooling and other Heating and Coo Glossary of Thermoelectric terminology Glossary of Fuselink terminology (Fuseology) Glossary of Varistor terminology Glossary of PTC and NTC Thermistor terminology Glossary of FACTS Terminology Glossary of Fuel Cell terminology Glossary of Solar Electric terminology Glossary of Electrochemical Battery terminology Glossary of Capacitor terminology Glossary of Resistor Terminology Glossary of Magnetic terminology Glossary of Relay terminology Glossary of solenoid terminology [Chapter 33] Glossary of resolver and synchro terminology	[Chapter 1] sling terminology [Chapters 5, 6] [Chapter 12] [Chapter 12] [Chapter 12] [Chapter 25] [Chapter 27] [Chapter 27] [Chapter 28] [Chapter 29] [Chapter 30] [Chapter 31, 32] [Chapter 33] [Chapter 33] [Chapter 34]	1591 1595 1601 1604 1610 1611 1614 1615 1619 1625 1632 1636 1637 1649 1662 1665	
Bibliography			1667
Physical constants			1679
INDEX			1680

#### **PREFACE**

The book is in five parts.

Part 1 covers power semiconductor switching devices, their static and dynamic electrical and thermal characteristics and properties. Part 2 describes device driving and protection, while Part 3 presents a number of generic applications. Part 4 covers systems and energy sources. The final part, Part 5, introduces capacitors, magnetic components, resistors, and dc relays and their characteristics relevant to power electronic applications.

- 1 Basic Semiconductor Physics and Technology
- 2 The pn Junction
- 3 Power Switching Devices and their Static Electrical Characteristics
- 4 Electrical Ratings and Characteristics of Power Semiconductor Switching Devices
- 5 Cooling of Power Switching Semiconductor Devices
- 6 High-Performance Cooling for Power Electronics
- 7 Load, Switch, and Commutation Considerations
- 8 Driving Transistors and Thyristors
- 9 Protecting Diodes, Transistors, and Thyristors
- 10 Switching-aid Circuits with Energy Recovery
- 11 Series and Parallel Device Operation, Interference, and Grounding
- 12 Device Protection
- 13 Naturally Commutating AC to DC Converters Uncontrolled Rectifiers
- 14 Naturally Commutating AC to DC Converters Controlled Rectifiers
- 15 AC Voltage Regulators
- 16 DC Choppers
- 17 DC to AC Inverters Switched Mode
- 18 DC to AC Inverters Resonant Mode
- 19 DC to DC Converters Switched-mode
- 20 Advanced DC to DC Converters Switched-mode
- 21 DC to DC Converters Resonant-mode
- 22 50/60Hz Transformers: Single and Three Phase
- 23 HV Direct-Current Transmission
- 24 HVDC Transmission Modelling
- 25 FACTS Devices and Custom Controllers
- 26 Inverter Grid Connection for Embedded Generation
- 27 Energy Sources and Storage: Primary Sources
- 28 Energy Sources and Storage: Secondary Sources
- 29 Capacitors
- 30 Resistors
- 31 Soft Magnetic Materials: Inductors and Transformers
- 32 Hard Magnetic Materials: Permanent Magnets
- 33 Contactors and Relays
- 34 Transducers and Sensors

The 174 non-trivial worked examples cover the key issues in power electronics.

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