

Special Feature

Effective utilization of simple and convenient natural energy

How to use of solar light & wind power in eco-era

Introduction Why solar cell and wind power generator? How these can be utilized?
60 Challenge to utilize the natural energy with sunlight and wind power

1st part Basics

Chapter 1 Semiconductor element to generate the energy by the sunlight
68 Experiment to check the characteristic of solar cell

Appendix 1 Large capacity and low cost
74 Lead battery to go with solar cell

Chapter 2 How to handle the minimum unit cell to constitute a panel
76 Common sense of solar panel

Appendix 2 Many technical terms regarding solar cell
87 Glossary for solar cell

Chapter 3 Simple design by using 12V output, 90% efficiency and standard IC
93 High-efficient charging circuit for storage battery to go with solar cell

Appendix 3 To meet output variations due to environmental changes
99 "MPPT" - Technology to draw 100% of power energy from solar cell

Chapter 4 Realize more than 85% efficiency by operating the electric generator under optimum conditions
103 High-efficient charging circuit for lead battery to go with wind power generator

Appendix 4 Take advantage of wind power energy
110 Various ingenuities for structure and circuit of wind mill

2ndpart Solor applications

Chapter 5 Key is the detection of energy remaining amount and charge-discharge management
118 Solar light system ① ...Competition solar car

Chapter 6 Quick drawing energy stored in lead battery in 30 sec
130 Solar light system ② ...Solar boat

Chapter 7 Key is the estimation of optimum cell number, series number and parallel number
137 Solar light system ③ ...Satellite

Appendix 5 Load a storage battery repeating charge-discharge at 27500 cycles in 5 years
143 Energy management of earth orbiting satellite

Chapter 8 From intensity calculation to construction, wiring and application
145 Solar light system ④ ...Residential solar photovoltaic system

Chapter 9 Configuration of power plant capable of power supply necessary for single household and part selection
154 Solar light system ⑤ ...Wind power + sunlight hybrid power generation system

Fabrication

- 167** Realize the brightness of 60W incandescent lamp with 6W 1sq.mm chip
Latest report of lighting white LED
-
- 168** Loss measurement technique of high-efficiency power MOSFET <1>
Proper measurement of switching voltage between drain and source
-
- 175** Character input device by pressing 6 keys simultaneously
USB braille keyboard capable of reading out the words
-
- 188** Recommendation to utilize Transistor Gijutsu Special Number
Efficient development environment without usage restrictions of H8 microcomputer and debugger
-
- 191** Easy to make by using USB PIC microcomputer board and free software
Fabrication of download cable for writing circuits on FPGA
-
- 201** Fabrication of PC communication data logger using free development environment
Simple USB connection - ARM microcomputer "AT91SAM7X256" with built-in bootloader

Serialization

- 161** Natural energy use in eco-era <2>
100V AC inverter made with compact hydroelectric generator
-
- 210** Introduction to digital filter without mathematical formula <6>
Noises that can be removed only by analog filter
-
- 217** Challenge to CMOS analog IC design <9>
Layout of CMOS analog IC with free tools (1)
-
- 225** Prescription for surge precaution
Measurement equipments for pulse noise suppression test
-
- 228** Learn from one's mistakes <3>
Bit error trouble in memory IC
-
- 230** Circuit quiz <4>
Avoid a oscillation by resistance load and volume overload
-
- 231** Reader's Forum **232** Information **234** Next issue/Editorial voice

Supplemental Book

Well-selected standard circuits by using basic elements of analog circuit

Design book for OP amplifier circuit

Chapter 1 : Sensor peripheral circuit, Chapter 2 : Measurement circuit, Chapter 3 : Power circuit,
Chapter 4 : Filter/oscillation circuit, Chapter 5 : Power circuit, Chapter 6 : Audio/video circuit

CQ Publishing Co., Ltd.
1-14-2 Sugamo Toshima ward Tokyo,170-8461 JAPAN
Phone : Sales +81-3-5395-2141
Advertisement +81-3-5395-2131
Editorial +81-3-5395-2123
Postal Transfer : 00100-7-10665

Publisher : Sanae Mizoguchi
Editor-in-chief : Yuji Teramae
Copyright © 2010 by CQ Publishing Co., Ltd.
Issue : March 1st, 2010 (Monthly issued on the 1st day)
Joint to the Japan Audit Bureau of Circulations
(ABC)
(Retail price is on the back cover)

Printing : Sanko Printing Co., Ltd. / Dainippon Printing Co., Ltd. /
Miwa Printing Co., Ltd. / Sankyo Graphics Co., Ltd. /
Kuni-media Co., Ltd.
Binding : Hoshino Binding Books Co., Ltd.
Printed in Japan

