

Issue #295 — February 2015

PROJECT FILES

All of the project files for this issue are available: ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2015/

ARTICLE MATERIALS

Solid-State Lighting (Part 1)

An Introduction to Electroluminescence

By Jeff Bachiochi

RESOURCES

Edison Tech Center, "Electroluminescent Lamps," 2013,
www.edisontechcenter.org/electroluminescent.html.

What-When-How.com, "Organic Photovoltaic Cells (OPVCs)," <http://what-when-how.com/electronic-properties-of-materials/applications-optical-properties-of-materials-part-7/>.

Essential Electromagnetic Compliance (Part 3)

Practical EMC Requirements

By George Novacek

REFERENCE

[1] RTCA, "DO-160G Environmental Conditions and Test Procedures for Airborne Equipment," 2010.

RESOURCE

K. Armstrong, Interference Technology Webinar, www.interferencetechnology.com.

O. Hartal, Electromagnetic Compatibility by Design, R&BV Enterprises, 1993.

Reverse Engineering Review

Insights from Four Projects

By Fergus Dixon

RESOURCE

Digital Millennium Act, http://en.wikipedia.org/wiki/Digital_Millennium_Copyright_Act.

SOURCES

PIC12F675 Microcontroller and PICkit2
Microchip Technology | www.microchip.com

RFID cards and card readers
STid | www.stid.com

X2 Self-healing capacitors
Vishay Intertechnology | www.vishay.com

Electronics Testing Platform (Part 1)

Base Unit Construction

By Gerard Fonte

SOURCES

HDM16216 LCD

Hantronix | www.hantronix.com

PIC16F887 Microcontroller

Microchip | www.microchip.com

Let's Count Errors

An Introduction to BER Testers

By Robert Lacoste

REFERENCESC. Bianchi and A. Meloni, "Natural and Man-Made Terrestrial Electromagnetic Noise: An Outlook," Annals of Geophysics, Vol. 50, No. 3, 2007, www.earth-prints.org/bitstream/2122/3674/1/11bianchi.pdf.C. Maxfield, "Tutorial: Linear Feedback Shift Registers (LFSRs) - Part 1," EETimes.com, 2006, www.eetimes.com/document.asp?doc_id=1274550.**SOURCES**

Fastbit FB100A Error rate tester

Aeroflex | www.aeroflex.com

Agilent 33521A arbitrary signal generator (discontinued)

www.keysight.com

Proteus CAD tool suite and simulator

Labcenter | www.labcenter.co.uk

Waverunner 610ZI oscilloscope

Teledyne LeCroy | www.teledynelecroy.com

Five-Function, Network-Connected Signal Analyzer

By Neal Martini

SOURCES

ADP151 Low-dropout low noise voltage regulator

Analog Devices | www.analog.com

dsPIC33EP512MC502 Digital signal controller

Microchip Technology | www.microchip.com

WIZ550io Ethernet module

WIZnet | www.wiznet.co.kr

Budgie

An Arduino-Based Tube Stereo Preamplifier

By Shannon Parks

RESOURCES

Future Technology Devices International (FTDI), Ltd., www.ftdichip.com.

Parks Audio, LLC, www.parksaudiollc.com/arduino.

SOURCES

RK168 Series volume potentiometers

Alps Electric Co., Ltd. | www.alps.com

Arduino Nano

Arduino | <http://arduino.cc/en/main/software>

ATmega328 Microcontroller

Atmel, Corp. | www.atmel.com

TPIC6C595 Shift register and SN754410NE IC

Texas Instruments, Inc. | www.ti.com