Power Products Article Archive

Articles published in the January through December 2017 issues

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**January 2017:**

*Power IC Model Library For PSpice Adds Automotive Test,* From EMA Design Automation, ver.4.2 of AEi Systems’ Power IC Model Library

*Rad Hard MOSFETs Deliver Lower On-Resistance, Higher Current Rating,* IR HiRel’s IRHNJ9A7130 and IRHNJ9A3130 rad hard MOSFETs

*Encapsulated 80-W AC-DC Modules Offer Small Footprint,* XP Power’s ECE80 series power supplies

**February 2017:**

*GaN Power ICs Enter The Market,* Navitas Semiconductor’s NV6131, NV6105 and NV6115 iDrive Gallium Nitride power ICs

*Coreless Buck Converter Provides Efficient Point-Of-Load Power In MRIs And Particle Accelerators,* Powerbox’s GB350 buck-converter module

*Battery Charger Extends Backup Battery Life In Automotive eCall Systems,* Intersil’s ISL78693 3.6-V battery charger IC

*Motor Driver IC Requires Only Four External Components,* Allegro MicroSystems Europe’s A3916 motor driver IC

*Industrial Sinewave Inverters Deliver 400-VA From 600-Vdc Input,* ABSOPULSE Electronics’ CSH-400-F6 series of sinewave inverters
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**Intelligent Power Modules Offer More Packages, More Features For Appliances, STMicroelectronics’ SLLIMM nano series of Intelligent Power Modules for motor drives**

**March 2017:**

**Inductorless Converter Delivers 10 A With Over 98% Efficiency,** Dialog Semiconductor’s DA9313 switched-capacitor dc-dc converter

**48-V Buck Regulator Delivers 20 A In Less Than 740-mm² Footprint,** Vicor’s PI3525-00-LGIZ 48-V Cool-Power ZVS buck regulator

**900-V MOSFETs Enhance Power And Efficiency Of Flyback Converters,** STMicroelectronics’ MDmesh K5 superjunction MOSFETs

**April 2017:**

**HV Fiber-Optically Isolated Probe Measures Gate Drive And Control Signals,** Teledyne LeCroy’s HVFO high-voltage isolated oscilloscope probe

**Buck-Boost Controller Is Tailored To Dual Automotive Battery Systems,** Texas Instruments’ LM5170-Q1 multiphase bidirectional dc-dc current controller.

**Power IC Combines Fifth-Gen Flyback Controller With Latest MOSFETs,** Infineon Technologies’s Gen5 CoolSET power ICs

**Universal Input, AC-DC Power Supplies Project 30-Year Operating Life,** ABSOPULSE Electronics’ PHR series of industrial quality ac-dc power supplies

**Free Instructional Videos Explain Numerous Topics In Power Electronics,** Sam Ben-Yaakov’s video series on power electronics topics
May 2017:

**Buck Converter Optimizes DC Fan Motor Control For Refrigerators**, Rohm’s BD9227F buck converter for dc fan motors  
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**GaN FETs Meet Hybrid, Electric Vehicle Needs**, Transphorm’s TPH3205WSBQ 650-V GaN FET  
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**100-V Power Stage Module Satisfies Cloud Infrastructure Requirements**, ON Semiconductor’s FDMF8811 100-V bridge power stage module  
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**10-A Power Modules Provide Complete Stepdown Solutions In Tiny Footprints**, Texas Instruments’ TPSM84A21 and TPSM84A22 stepdown power modules  
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**PMIC Increases Power Efficiency For Digital SLR Cameras**, Dialog Semiconductor’s DA6102 integrated power management IC  
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**LED Driver ICs Combine High Efficiency, Small Size**, Peregrine Semiconductor’s ARC3C family of LED driver ICs  
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June 2017:

**A New Power Management Tool For Portable Product Designers**, Silego Technology’s SLG46580 GreenPAK programmable mixed-signal IC  
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**Power Management IC Is 91% Efficient**, Reduces Space Needs 40%, Intersil’s ISL91211 PMIC  
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**1200-V SiC Diodes Improve Performance Of Appliances, Vehicle Chargers**, STMicroelectronics’ 1200-V SiC Schottky diodes  
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**Isolated IGBT Package Improves Thermal Performance, Reduces Assembly Time**, Infineon Technologies’ TRENCHSTOP Advanced Isolation package  
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Stepdown Converters Cut Power Dissipation And Size For Industrial Applications, Maxim Integrated’s MAX17572 and MAX17574 Himalaya synchronous stepdown dc-dc converters

Synchronous Rectifier Controller Eases Power System Design, ON Semiconductor’s FAN6248 synchronous rectifier controller for LLC resonant converters

High-Voltage Bus Converter Achieves High Density And Efficiency
Vicor’s BCM6123TD1E2663Txx 24-V output fixed-ratio dc-dc converter in ChiP package

High-Input-Voltage DC-DC Converters Operate Up To 85°C, ABSOPULSE Electronics’ HHT 500-FX series of dc-dc converters

July 2017:

GaN Power ICs Enable Smallest Power Adapters For Ultra-Thin TVs And Laptops, Navitas Semiconductor’s 150-W ac-dc reference design using GaN power ICs

DC Power Supplies Operate With Tight Regulation, Low Ripple And Noise, Glassman Europe’s GX Series programmable, dc power supplies

High-Reliability Power Solution Suits Subsea Applications, Powerbox’s PRBX VB410-380 power solution

Mid-Range Oscilloscope Offers More than 4 Channels, Has Advanced User Interface, Tektronix’s 5 Series MSO mixed signal oscilloscope

Triple-Output Power Supplies Have Large Display, Exhibit High Stability, Keysight Technologies’ E36300 series programmable dc power supplies
August 2017:

**GaN-Based Inverter Reference Design Raises Performance For AC Servo Drives**, Texas Instruments’ three-phase, GaN-based inverter reference design
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**50-V Halfbrick Converters Enable GaN Wireless Power Amps**, Artesyn Embedded Technologies’ AVE450, AVE500 and ADH700 dc-dc converters
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**150-A IGBT Modules Boost Power Density**, Infineon Technologies’ EconoPIM 3 IGBT modules
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**PMICs Increase Battery Life In “Hearables”**, Maxim Integrated’s MAX77650/MAX77651 power management ICs (PMICs)
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**1000-V Input Industrial DC-DC Converters Deliver 500 W**, ABSOPULSE Electronics’ HVI 500-1K-XX-FX series dc-dc converters
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**Smart Gate Driver Photocoupler Features Improved Desaturation Sensing**, Toshiba America Electronic Components’ TLP5214A smart gate driver photocoupler
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**Power Supplies Keep Railway Systems On Track**

DC-DC Converters featured here include:
- Schaefer’s 6000-W C/B5600 series
- Artesyn Embedded Technologies’ 10-W and 20-W ERM family
- ABSOPULSE Electronics’ 30-W DCR 30R-F0 series
- ABSOPULSE Electronics’ 250-W RWR 252-P400 series
- MTM Power’s 150-W PCMDS19 150
- MTM Power’s 30-W PMDS/PCMDS30
- MTM Power 14-W PMGS/PCMGS14 series
- Murata’s 100-W IRQ series
- Minimax Technology’s 20-W MKZI10/20 series
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September 2017:

**Modular System Speeds Development Of Motion Control Designs**, ACS Motion Control’s MP4U motion control system

**Offline Flyback Switcher ICs Deliver 94% Efficiency Over Line And Load**, Power Integrations’ InnoSwitch3 family of offline flyback switcher ICs

**Isolated DC-DC Converters Deliver High Efficiency For Mil/Aerospace Applications**, Modular Devices’ Models 3715, 3716, 3717 and 3718 dc-dc converters

October 2017:

**Power Amplifier ICs Deliver High Voltage, High Output Current In Compact Package**, Apex Microtechnology’s PA164 and PA165 power amplifiers

**Buck Converter IC Delivers Extreme Voltage Stepdown For Mild Hyrid Vehicles**, ROHM Semiconductor’s BD9V100MUF-C dc-dc converter IC

**IC Boosts Power Measurement Accuracy In Windows 10 Devices**, Microchip Technology’s PAC1934 power and energy monitoring chip

**1000-W, Three-Phase Power Supplies Suit Rugged Industrial Applications**, ABSOPULSE Electronics’ HTP 1K-F6W high input voltage ac-dc power supplies

**P-Channel Zero-Threshold MOSFET Array Creates New Possibilities In Energy Harvesting**, Advanced Linear Devices’ ALD310700A/ALD310700 quad zero-threshold MOSFET array

**40-A Buck Converter Chip Features Novel Control Topology**, Texas Instruments’ TPS543C20 synchronous buck converter IC
November 2017:

**Power ICs Offer Many Options For Expanded Power Delivery Via USB Type C**

- **USB-C Buck-Boost Regulator Enables Bidirectional Voltage Regulation For Tablets, Ultrabooks And Power Banks**, Intersil’s ISL95338 USB-C buck-boost regulator
- **Reference Design Simplifies Development Of USB Type-C Rechargeable Battery Packs**, Silicon Labs’ USB type-C rechargeable battery pack reference design
- **Buck-Boost Battery Charge Controllers Maximize Input Power For 1S To 4S Applications**, Texas Instruments’ bq25703A and bq25700A synchronous charge controllers
- **Eval Boards Ease Development Of USB PD Applications From Mobile To 100 W**, Rohm’s USB power delivery (USBPD) compatible transmitter/receiver evaluation boards
- **Robust USB Type-C Controllers With Internal Protection Save Space And Enhance Safety**, STMicroelectronics’ STUSB4710 and STUSB1602 USB Type-C-certified port-controller ICs
- **USB-PD Interface IC Is Optimized For Power Supplies**, Dialog Semiconductor’s iW656 state-machine-based USB Power Delivery interface IC
- **Power Converter ICs Complete Smartphone Direct Charging Solution**, Dialog Semiconductor’s DA9318 series of power converter ICs (can be combined with the iW656 listed above)
- **18-W USB PD Reference Design Delivers High Efficiency And Compact Footprint**, Power Integrations’ DER-567 USB PD compliant, ac-dc power converter reference design
- **Complete USB Type-C Solutions For Rapid Charging And High-Speed Data Transfer**, ON Semiconductor’s portfolio of solutions for the implementation of USB type-C applications includes intelligent charge controllers, port control ICs, data multiplexers, integrated re-drivers, high voltage protection switches, and ESD protection components
- **USB-C Buck-Boost Battery Chargers Add 5-V To 20-V Reverse Boost For USB On-The-Go Charging**, Intersil’s ISL9238 and ISL9238A single-chip battery chargers
- **USB-C Buck-Boost Battery Charger Reduces BOM Costs**, Intersil’s single-chip ISL9237 Narrow VDC battery charger

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Power Supply Sequencers Are Rad Hard, Intersil’s ISL70321SEH and ISL73321SEH quad power supply sequencers

GaN Eval Board Simplifies MegaHertz Power For Audio And Other Applications, GaN Systems’ GS61004B-EVBDC evaluation board

Digital POL Generates Five Outputs In Compact, Infineon Technologies’ IRPS5401 digital point-of-load regulator

Chip Enables Faster Wireless Charging Of Smartphones And Tablets, STMicroelectronics’ STWBC-EP wireless-charging controllers

100-VA Sinewave Inverters Operate Over 20-V to 60-V Input Range, ABSOPULSE Electronics’ CSI 100-3W-F1 series dc-ac inverters deliver

December 2017:

SJ MOSFETs Are Optimized For High-Power Soft-Switching Topologies, Infineon Technologies’ CoolMOS CFD7 family of SJ MOSFETs

5-A Peak-Current Gate Drivers Reduce System Complexity And Cost, Power Integrations’ SID1102K gate driver IC

Configurable Power Supply Series Adds 600-W 24-V Bulk Power Module, Excelsys Technologies’ CmE 600-W bulk power module

Power Electronics Simulator Adds Support For SiC & GaN Modules And More, Powersim’s PSIM simulator, version 11.1

Nanopower PMICs Extend Battery Life For IoT Products, Dialog Semiconductor’s DA9230 and DA9231 nanopower PMICs

Monitor Detects Presence Of Backup Battery In Industrial Systems, ABSOPULSE Electronics’ BPM 300-F0 battery-presence monitor
Supercomputers Leverage 48-V And Power-on-Package Solutions To Win Top Honors For Power Efficiency, PEZy supercomputers leverage Vicor’s 48-V Factorized Power architecture and PEZy’s CPUs are co-packaged with Vicor’s Power-on-Package Modular Current Multipliers

Power Magnetics Component Roundup

Power Inductors

- Molded Power Inductors Feature Specialized Terminations, Coilcraft’s XTL7030 and XAR7030 series of molded power inductors
- Automotive-grade Power Inductors Offer Superior Performance In Compact Package, Coilcraft’s SRT8045 series of magnetically shielded power inductors
- Inductors Enhance Automotive Reliability In Lighting, Powertrain, Infotainment and Telematics, Eaton’s HCM1A product line of high-current power inductors
- High-Current Inductors Shorten Lead Times, MPS Industries’ HWI57A2 and H1300 series high-power inductors
- 6-mm² and 10-mm² High-Rel Inductors Withstand 150°C, Murata Manufacturing’s MDH6045C/MDH10060C series of winding power inductors for automotive electronic equipment
- 22-µH Inductor Features 0.6-mm Profile For Wearable Devices, Murata Manufacturing’s LQH2HPN_DR series of 2.5-mm x 2.0-mm winding power inductors
- 15-µH Inductor Comes In 0402 Size, Murata Manufacturing’s LQW15DN series inductor for smartphones
- Metal Alloy Inductors Shrink Into 0603 Case Size, Murata Manufacturing’s DFE18SA series of metal alloy type inductors
- Shielded Metal-Hybrid Inductors Offer Higher Inductances In Small Footprint, Sumida’s CDMT40 series of metal hybrid inductors
- Thin-film Metal Inductors Deliver Low DCR For Power Supply Circuits, TDK’s TFM160808ALC thin-film inductor
- Robust SMT Inductors For High Efficiency, Automotive DC-DC Converters, TT Electronics’ HM73E-10 series of SMT miniature power inductors
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- **Coupled Inductors Target Specific DC-DC Topologies For Automotive Applications**, TT Electronics’ HA78D series of coupled inductors
- **E-Shield Inductor Reduces Electric Fields 20 dB At 1 cm**, Vishay Intertechnology’s Vishay Dale IHLE-2525CD-51, IHLE-3232DD-51, and IHLE-4040DD-51 series of low-profile, high-current inductors
- **Inductor Offers High Temperature Performance for Extreme Environments**, Vishay Intertechnology’s Vishay Dale IHLP-1616BZ-51 low-profile, high-current inductor
- **High-Frequency Inductors Boost DC-DC Efficiency**, Vishay Intertechnology’s IHLP-1616BZ-0H extended-frequency inductor
- **E-Shield Inductors Lower Costs and Save Space In Automotive Designs**, Vishay Intertechnology’s Vishay Dale IHLE-2525CD-5A, IHLE-3232DD-5A, and IHLE-4040DD-5A low-profile, high-current inductors
- **Low-Profile Inductors Save Space in Portable Electronics**, Vishay Intertechnology’s Vishay Dale IFL and IFLS series of low-profile power inductors
- **Space-Saving Inductors Operate To +155°C For Under-Hood Automotive Applications**, Vishay Intertechnology’s Vishay Dale IHLP1616BZ-5A low-profile, high-current inductors

**Chokes And Ferrite Beads**
- **Common-Mode Inductors Suit Aerospace And Other High-Rel Applications**, Exxelia’s TCM series common-mode inductors
- **0402 Ferrite Bead Suppresses Noise Over Wide Frequency Range**, Murata Manufacturing’s BLM15EG_SH1 series chip ferrite bead
- **Ferrite Bead Extends Impedance To 1000 Ω In 0603 Case Size**, Murata Manufacturing’s BLM18KG series of high-current, 0603 size ferrite beads
- **Power Line Inductors Support High-Speed PoC interface In Automotive Applications**, Murata Manufacturing’s LQW32FT series inductors for automotive PoC circuits
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- **Common-Mode Chokes Suppress Noise In Powertrain And Safety System ECUs**, Murata Manufacturing’s DLW5ATH/DLW5BTH series of common-mode choke coils

- **Soft Termination Protects Beads And Inductors Against Board Flexure And Solder Cracks**, TDK’s KMZ1608 and KPZ1608 series multilayer chip beads and the KLZ1608 and KLZ2012 series multilayer inductors

- **Chokes For Automotive Power Over Coax**, TDK’s ADL3225V choke for automotive power over coax (PoC) applications

**Transformers**

- **Flyback Transformer Delivers High Isolation For Motor Control And Inverter Applications**, TT Electronics’ HM210-05K060LFTR flyback transformer for use with Avago’s ACPL-32JT/302J IGBT chipset

- **Planar Transformers For Mil/Aerospace Target Popular Power Supply Topologies**, Pulse Electronics Military & Aerospace’s PL102XX (140 W) and PL103XX (250 W) planar transformer families

- **Offline Transformers For LLC Resonant Half-Bridge Converters Up To 400 W**, Wurth Electronics Midcom’s MID-LLCEPC series of offline transformers

- **Custom Capabilities Catalog Includes Three New Toroidal Packages**, Wurth Electronics Midcom’s newest Capabilities Catalog

- **Transformers Sense Current Up To 40 A**, Coilcraft’s CST2020 series current sense transformers

- **1000Base-T PoE Parts Support 140 W Power Delivery**, Pulse Electronics’ HX6098NL Ethernet transformer/choke, JK0-0229NL connector module and J0B-3563NL connector module

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