

Meeting the challenge for eco-friendly power designs

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C&K expands sealed tactile switches

Bourns rewards Avnet Abacus for fastest growth in 2010

Avnet Abacus has received an award for achieving the fastest growth during 2010 from Bourns, a global supplier of electronic components and integrated solutions. The award is the result of Avnet Abacus' promotional activities to champion Bourns products and solutions to its customers throughout Europe.

Graham McBeth, President, Avnet Abacus responded, "We are delighted to have received this award from Bourns. It is confirmation and reward for the efforts and knowledge that we have put in place to enable customers to access Bourns products. Our aim to continue implementing activities that assist our customers in component selection and design, while offering a first class service and recognition from a key supplier such as Bourns, shows we are on the right track".



Avnet Abacus has recently launched an online virtual sample kit for Bourns' sensing and control components. The online sample kit enables design engineers to view product specifications and request samples for a selection of products. The online sample kit can be found at www.avnet-abacus.eu/bournssamplekit

BOURNS®

TDK-EPC recognises Avnet Abacus for 2010 sales achievement

Avnet Abacus has received an award for outstanding sales achievement in 2010 from TDK-EPC, the new global force in electronic components, modules and systems.

Commenting, Joachim Thiele, Executive Vice President Corporate Sales, TDK-EPC said "Avnet Abacus has had a long term relationship with both TDK and EPCOS and, over the last year, following the foundation of TDK-EPC, has made great strides to develop its European sales channel and enhance the technical support resources available to our customers. This resulted in a remarkable increase in our business with Avnet Abacus. The presentation of this award is fully merited and we are confident of seeing continued sales growth in Europe with Avnet Abacus in the future."

Graham McBeth, President, Avnet Abacus responded, "The new TDK-EPC organisation is a powerful force in the passive components market and the team at Avnet Abacus has seized the opportunity to take this new, innovative and comprehensive product portfolio to market. In delivering outstanding sales to TDK-EPC, Avnet Abacus has leveraged its expansive sales and technical resource across Europe and we look forward to continued success with this strategic franchise."



TDK-EPC

Avnet Abacus shines for Kingbright

Avnet Abacus has been presented with a distributor of the year award by Kingbright, a global supplier of solid state lighting products. The award has been made as a result of Avnet Abacus' success in exceeding its sales targets during 2009/10.

Udo Reinhold, Managing Director Kingbright commented, "2009 provided a very challenging business environment during which Avnet Abacus excelled in their pro-active efforts to promote and market Kingbright components and product solutions. The presentation of this award is fully merited and we look forward to continued success."



Alan Jermyn, vice president of Marketing, Avnet Abacus, commented "We distribute a comprehensive portfolio of passive components, and the opportunity to offer the Kingbright range of LEDs to our customers compliments our product offering. Our success with Kingbright is due to their commitment to work with our extensive sales team across Europe to deliver the wide portfolio of LEDs to a large customer base."

Kingbright has been developing and delivering innovative LED solutions for over 25 years.

Kingbright®



Welcome

Welcome to our latest edition of focus from Avnet Abacus. We have included our new power brochure 'The Power Behind Your Design' in this edition, which we launched at electronica, a useful guide to the extensive range of power supplies we stock.

We will be following this up in the coming months with a series of seminars focusing on power - there will be more information in the next issue.

For more information about any of the items you've seen featured in this issue, please contact your local office (see back page for contact information) or email focus@avnet-abacus.eu

President
Avnet Abacus

Avnet Abacus powers ahead for VARTA Microbattery

Avnet Abacus has been appointed as the first and currently only pan-European distributor for the full range of CellPac lithium batteries from VARTA Microbattery, including custom-designed units as well as standardised battery packs. This follows a strong sales performance from Avnet Abacus in 2010 where they were also awarded pan-European Distributor of the Year by VARTA.

CellPac batteries provide a plug-in solution containing required battery-management and protection circuitry and meeting all applicable regulations. The full portfolio includes CellPac LITE standardised battery packs from 150mAh to 2600mAh and sizes from 4 x 20 x 26mm (402025) to 11 x 36 x 65mm (2x503562), with a variety of connector and wiring configurations.

Alongside these standard products, the CellPac PLUS service supports custom design of battery packs meeting individual



project requirements. Avnet Abacus is the first and only distributor to support this service in Europe.

"By providing both off-the-shelf and custom products, the CellPac range brings the high energy density, ruggedness and versatility of lithium battery technology to mass industrial applications," said Tim Parker, European Battery Manager, Avnet Abacus. "We have over five years' experience in handling and designing-in lithium battery products, making Avnet Abacus the ideal partner to support VARTA's CellPac PLUS service in addition to the standard CellPac LITE range. Avnet Abacus will provide support at all stages of the design process from small quantity prototyping to volume production".



Digital point of load modules

OPTIMISE SYSTEM DENSITY AND EFFICIENCY WHILE ACCELERATING NEW PRODUCT DEVELOPMENT

BY KARIM WASSEF, MBA ,PHD

Lineage Power has been providing high efficiency, reliable power to the communications industry for nearly 100 years based on their Bell Labs heritage. Today, they are changing the landscape in DC-DC power conversion with the DLynx™ family of DC-DC Point-of-Load (POL) non-isolated converters.

The DLynx portfolio offers DOSA-based digital and analog versions to efficiently power silicon devices such as processors and memory devices on circuit boards. The digital DLynx can operate in the absence of digital communication reducing risk and simplifying design. The 12A PicoDLynx (12mmx12mm) delivers an industry-leading module density of 8.1A/cm² complemented by the space/capacitance-saving Tunable Loop™ technology. Integrated digital with an industry-standard PMBus™ interface further reduces board area, enabling more compact and cost effective system solutions while optimising energy efficiency to lower total cost of ownership

(TCO). As part of the Lineage Power Total Efficiency™ architecture, DLynx modules deliver efficiency of 96 percent and are priced lower than conventional analog POLs to encourage rapid industry adoption.

“Digital DC-DC technology adoption has been challenged by intellectual property, standardisation and cost issues,” noted Linnea Brush, senior research analyst, Darnell Group. “Digital power products designed to be backwards-compatible, standards-based and cost-effective will have a competitive advantage through better performance and features for power design engineering, and multi-sourcing options for supply chain efficiency.”

Each member of the DLynx portfolio conserves space, lowers cost, reduces development time and avoids risk while delivering proven quality. Lineage POLs demonstrate reliability measured in billions of hours.

For more information, please visit www.dlynx.info/avnet



Five questions to ask your digital POL supplier

- 1 Are your digital modules standards-based and backwards compatible with my existing analog designs?
- 2 Can I design for digital and go to volume production with analog modules?
- 3 What is your experience in the POL industry and can you offer design assistance advice?
- 4 What are the reliability metrics, density and efficiency for your modules?
- 5 Is there a cost premium for digital power features compared to today's analog solutions?

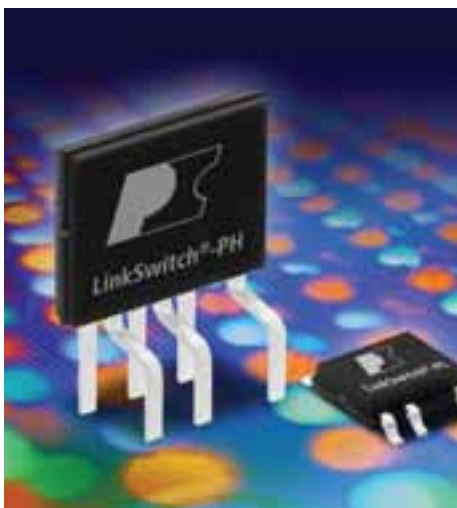


Power Integrations' new LinkSwitch®-PH and LinkSwitch®-PL LED driver ICs deliver flicker-free TRIAC dimming in solid-state lighting applications

SINGLE-STAGE POWER FACTOR CORRECTION WITH ACCURATE CONSTANT-CURRENT OUTPUT REDUCES COMPONENT COUNT IN OFFLINE LED DRIVERS

Power Integrations, the leader in high-voltage integrated circuits for energy-efficient power conversion, has announced two new families of TRIAC-dimmable, single-stage, power-factor-corrected LED driver ICs targeting solid-state lighting (SSL) applications. LinkSwitch-PH (optimised for isolated systems) and LinkSwitch-PL (optimised for non-isolated systems) deliver flicker-free monotonic TRIAC dimming and a user experience similar to that provided by incandescent illumination.

The LinkSwitch-PH and LinkSwitch-PL product families feature integrated single-stage power factor correction (PFC), enabling SSL luminaires to achieve PF > 0.9. LinkSwitch-PH devices incorporate primary-side-control technology, which eliminates the optocoupler and supporting components used in traditional isolated flyback designs. Non-isolated LinkSwitch-PL designs further



reduce component count, resulting in improved reliability and a reduced bill of materials (BOM). Both IC families are monolithic – incorporating the controller and MOSFET onto a single silicon die – which simplifies PCB layout by minimising component count and eliminating parasitics between the controller and power MOSFET. These new LinkSwitch products are

optimised for high efficiency in simple flyback designs and operate at input voltages up to 305 VAC, enabling the development of both single-voltage and universal-input products suitable for residential and commercial lighting applications worldwide.

When operated within manufacturers' temperature and drive-current guidelines, LEDs can be expected to operate for more than 50,000 hours. The weakest link in an LED lighting system is the driver circuitry, which is burdened with unreliable optocouplers and electrolytic capacitors. Power Integrations' accurate primary-side-control technology, featured in LinkSwitch products, eliminates the optocoupler, and the new LinkSwitch LED driver IC product families do not require the use of electrolytic bulk capacitors. Designers using the LinkSwitch-PL and LinkSwitch-PH for SSL products can expect the operational life of the driver to match that of its accurately controlled LED array.



Tyco Electronics connectors for power applications

RAPID LOCK

Tyco Electronics' RAPID LOCK connectors offer quick connect/disconnect capabilities for torque-less power applications. The connectors can be used as a replacement for threaded studs, thus eliminating any loose nuts with no fretting or heat rise. Using reliable CROWN BAND contact technology, Tyco Electronics' RAPID LOCK connectors handle currents from 60 to 300 Amps and are available for wire sizes from 10mm to 95mm². RAPID LOCK connectors are available with colour coding for easy identification, including protective cable and crimp covers, and work with industry standard crimp tooling.

RAPID LOCK BUS BAR CONNECTORS

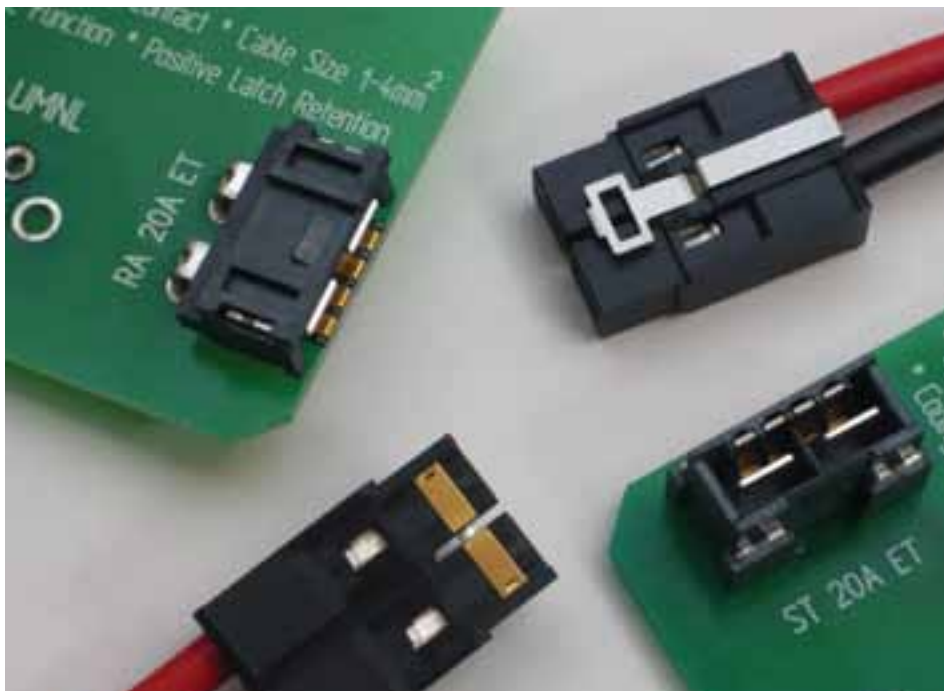
- » Locking feature retains each contact to mating pin
- » No installation tools required
- » Fast, reliable replacement for power lugs
- » Up to 300 Amps per contact: very low contact resistance
- » Low voltage drop
- » Low temperature rise



The RAPID LOCK connector is a single-pole, quick connect/disconnect replacement for lug connections, used in bus bar and backplane power distribution applications. RAPID LOCK connectors allow a reliable and safe connection, as well as better serviceability, than bolt-fitted lugs. The cable mounted sockets have a right-angle configuration, and feature an insulator cap that provides the retention mechanism on the pin. The pin contacts can be attached to a bus bar by screw or swage, and to a backplane by press fit and backup screw.

SECURE POWER DISTRIBUTION

By replacing power lugs fitted using nuts and bolts, the RAPID LOCK connector offers an extremely secure interconnect mechanism



that totally frees the power distribution system from the risk of loose connections, which can cause arcing.

SAFETY LOCKING FEATURE

A locking feature is provided on the pins for protection against accidental unlatching of the cable. Although connection of the cable is easily performed by hand, disconnection requires a simple tool to provide the leverage needed to overcome the locking feature.

IMPROVED EASE OF SERVICE

Service in the field becomes very easy with RAPID LOCK connectors because there are no nuts and washers to lose in the equipment. The RAPID LOCK connector is available with red or black colour insulators.

CROWN BAND TECHNOLOGY

The RAPID LOCK connector enjoys all the benefits of reliable CROWN BAND technology, providing a stable connection with excellent mechanical and electrical performance with ratings up to 300 Amps depending on wire gauge and application.

ET CONNECTOR

Tyco Electronics has released its new ET connector. Designed for low-profile power distribution units requiring a small form-factor interface, this new connector is a low loss, highly reliable and cost-effective solution

for cable-to-printed circuit board (PCB) applications. This new ET connector series offers unique integrated coding contacts, which allows different electronic functions such as sense and enable to be designed into the PDU electronics, with activation on full insertion of the cable connector. The cable connector uses crimp contacts from the industry proven "Standard Power Timer" range with current ratings of 20 A with 2.5mm² cable. Contacts accepting cable with a cross-sectional area of 4mm² with a 35A rating are available. Tyco Electronics' ET cable connectors are available in trays with contacts on reels for customer assembly or fully assembled to specific customer requirements. A right-angle pick-n-place PCB mount version, which stands less than 8mm above the PCB, is currently available. A vertical mount version is also available.

ET POWER CONNECTOR

- » Up to 35 Amps per contact
- » End-to-end stackability
- » Low profile, less than 8mm above PCB
- » Cable-to-PCB applications
- » Positive latch retention
- » Right angle and vertical mounts



Tyco Electronics

Authorized Distributor

Meeting the challenge for eco



by Cor van Dam ~ European Marketing Director, Power

Following the introduction of the EU's Ecodesign directive, most designers recognise the need to minimise the environmental impact of their products. However, they also need to ensure that performance is not impacted. Distributors like Avnet Abacus can help, offering a portfolio of innovative and effective technologies to manage and reduce energy consumption, backed by in depth technical support to speed their integration into customers' designs.

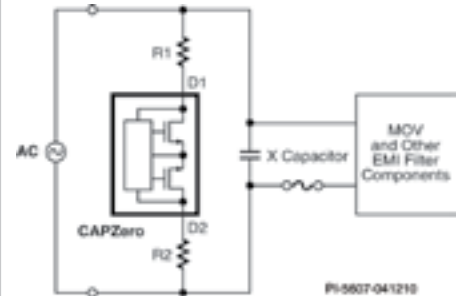
THE ECODESIGN DIRECTIVE AND STANDBY POWER

The EU's Ecodesign directive establishes a framework under which manufacturers of energy using products (EuP) are obliged to consider environmental impact and energy consumption at the design stage. It sets out design criteria and specifies mandatory compliance dates which potentially could have a huge impact: the new design requirements for boilers and water heaters alone could provide a saving of an estimated 210 mega-tons of CO² and around €44bn in energy bills.

The Ecodesign directive also addresses standby power and requires that domestic electrical and electronic equipment such as washing machines, televisions or personal computers do not consume more than 1W in off mode as of 2010, and not more than 0.5W after 2013. However, such eco-design requirements must not lower the functionality of a product, its safety, or have a negative impact on its affordability or the consumer's health.

Avnet Abacus has partnered with Power Integrations to address the EuP challenge and meet 2013 requirements with a wealth of reference designs and online tools. These are based on Power Integrations latest, innovative devices, specifically tailored to reduce power losses and improve efficiency. Take for example Power Integrations SENZero, CAPZero and LinkZero-AX products:

CAPZero™ Family



Designed to reduce unnecessary power loss in switching supplies associated with the X capacitor discharge resistors to meet zero-load and no-load regulations

Automatic X Capacitor Discharge

Features

- > Blocks current through X cap discharge resistors when AC voltage is connected: increases efficiency
- > Automatically discharges X capacitors through discharge resistors when AC is disconnected
- > Self supplied. >4 mm creepage

Applications

- > All ACDC converters with X capacitors >100 nF
- > Appliances requiring EuP Lot 6 compliance
- > Adapters requiring ultra low no-load consumption
- > All converters requiring very low standby power

SENZero Family



Zero Loss High Voltage Sense Signal Disconnect IC

Features

- > Eliminates significant standby losses
- > Disconnects unnecessary circuit blocks during standby, remote-off, or light-load conditions

-friendly power designs

- > Ultra low leakage (maximum 1 mA) 650 V MOSFETs
- > <0.5 mW per channel during standby
- > Single component provides remote disconnect functionality
- > No external components or additional bias supply needed for remote-off

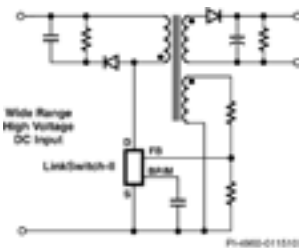
EcoSmart® – Energy Efficient

- > <3 mW loss at 230 VAC in off/standby mode
- > Available in 2 (SEN012) and 3 (SEN013) channel versions

Applications

- > ACDC converters with high-voltage resistive signal paths
- > Ideal for all very low standby systems such as those meeting EuP Lot 6 and similar energy efficiency standards

LinkSwitch Family



LinkSwitch Family products incorporate a high-voltage power MOSFET, oscillator, simple ON/OFF control scheme, a high-voltage switched current source, frequency jittering, cycle-by-cycle current limit and thermal shut down circuitry into a monolithic IC

EcoSmart® technology enables designs to easily meet current no-load consumption efficiency standards

Features

- > LinkSwitch-PH offline LED to 50W
- > LinkSwitch-PL offline LED to 16W
- > LinkSwitch-CV –no optocoupler- no Sec. Control- 5W-10W offline PSU
- > LinkSwitch-II no optocoupler- no Sec. Control- 2W-6.1W offline PSU

Applications

- > LED lighting flickerfree TRIAC dimming PFC corrected
- > No or small non-electrolytic bulk capacitor designs possible

- > Special optimised models for specific markets / applications
- > Chargers CC/CV

Highly efficient, lowest part count power supplies, expert software, reference designs & web support

Features

- > LinkSwitch-LP offline lowest part count 1,9W-3W linear transformer replacement
- > LinkSwitch-TN offline CAPdropper replacement 63mA-360mA
- > LinkSwitch-XT offline optocoupler controlled 2.8W-6.0W PSU

Applications

- > Battery chargers
- > Stand-by and auxiliary supplies
- > Utility meters, LED lighting
- > Small home appliances, timers
- > Appliances, metering (industrial)
- > Chargers

ENERGY STAR

Voluntary labeling programs such as Energy Star from the U.S. Environmental Protection Agency and the U.S. Department of Energy have no legal force. However, the Energy Star label is now used on most major appliances. Consumers recognise that efficient products save them money, as well as reduce greenhouse gases, and resist buying products with a poor rating.

REDUCING TIME TO MARKET

Competitive pressure to be first to market can make plug-in solutions a better option for many OEMs to ensure they are in line with Energy Star requirements. Avnet Abacus and Emerson Network Power offer Energy Star backed products to cover many applications:

The Emerson Network Power DS 1050-3 power supply



- » Power density of 19W/inch³
- » Can achieve a 92% typical conversion efficiency at 50% of full load
- » Ideal for applications using distributed power architectures (e.g. computing, storage, networking, datacom, and test and measurement systems)
- » Digitally programmable
- » I2C interface supporting the PMBus™
- » Contains a memory device (EEPROM) that is preprogrammed with data about the unit (including its type, serial number and date of manufacture) to facilitate field replacement

The Emerson Network Power NPS20-M power supply



- » Medical and IT equipment safety approvals
- » Compact 2" x 4" footprint and a height of 1",
- » Supports up to 25W with convection cooling and up to 40W with forced air cooling
- » Under normal operating conditions requires

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less than 49W of input power and consumes less than 300mW of power under no-load conditions

- » An average efficiency of 87%
- » Meets Energy Star 2.0, California Energy Commission (CeC) and International Efficiency Level V

POWERING LED LIGHTING

Efficient technologies like LED lighting rely on well designed power supply solutions if they are to achieve their full potential. Power supply manufacturer Mean Well recently announced the HSP-250 series:

Mean Well HSP-250 series

- » 125-250W AC/DC high efficiency enclosed type power supply for LED display applications
- » Features an active PFC function
- » Provides three low output voltage models (2.5V, 3.6V, 5V at 50A) designed to drive the RGB LED chips

This new system design concept can greatly increase the overall efficiency when driving RGB LEDs by using lower driving voltages (e.g. 2.5V, 3.6V) directly and realise energy savings.

Mean Well has also released four new high efficiency and high IP level LED power supplies that meet harmonic current limitations as detailed in EN61000-3-2 Class C. They also fulfill a power factor of greater than 0.9 if loading is over 50-60% and possess 4KV surge immunity (EN61000-4-5) ability which complies with the requirements of street lighting. In addition, these power units are fully potted in a heat dissipating glue, so they can be used in IP65 or IP67 waterproof/dustproof level applications. Users can adjust the DC output voltage range from 90% to 110% and current range from 50% to 100% by removing a rubber stopper on the cover.

Visit the Avnet Abacus lighting microsite for more information about LED power supplies www.avnet-abacus.eu/lighting

MAXIMISING EFFICIENCY FOR A GREENER FUTURE

The best way to ensure compliance with current and forthcoming eco-friendly regulations is to adopt the latest in efficient power technologies. Avnet Abacus is partnering with market leading manufacturers to bring customers state of the art energy saving power supplies. These are sourced from market leading manufacturers like Murata, Power-One and Ericsson.

Murata Power Solutions has introduced the HPQ-12/25-D48:



- » 300W, 12V supply boasting a high efficiency of up to 94.5%.
- » Features a wide 2:1 input range of 36V to 75V and output of 12V, plus high output current of up to 25A in an industry standard quarter-brick package (2.3" x 1.45" x 0.44").
- » Ideal for a wide range of markets and applications, ranging from industrial and instrumentation to computers and office equipment.
- » Excellent ripple and noise specifications ensure compatibility with circuits using CPUs, ASICs, programmable logic and FPGAs.
- » Ideal for battery powered and telecom equipment, including small instruments, area-limited microcontrollers, data communications equipment, remote sensor systems, vehicle and portable electronics.
- » Designed to meet UL/EN/IEC 60950-1 2nd edition safety approvals and is RoHS-6 compliant.
- » Optional features include: a baseplate, which boosts the HPQ-12/25-D48's impressive thermal performance, conformal coating, trim and sense functionality, and various pin lengths.

Murata Power Solutions is set to change the shape of 1W isolated surface-mount DC-DC converters. The introduction of its new high performance MTU1 series marks a step change in the miniaturisation of power modules, setting new standards for footprint, load regulation and efficiency. The series is suited for industrial, test and measurement, process control applications and all application segments where an isolated surface mount DC-DC is needed.

MTU1 series:



- » Dimensions are 8.2mm x 8.4mm x 8.5mm, representing a footprint reduction of 50% compared to the previous generation.
- » Power density is 1.71 W/cm³ and the series features wide temperature performance at full 1W load, between -40°C and 85°C. The series' load regulation has been enhanced to only 7.5%, a change of 40%.
- » The DC-DC converter also features 56% less power dissipation and lower running temperatures than its predecessor, improving overall efficiency by more than a fifth to 89%.
- » The increase in efficiency and benefit of reduction in power dissipation enables the series' open frame design.
- » The greatly improved efficiency of the MTU1 series also contributes to its lower energy consumption and greater reliability.

Murata Power Solutions has also introduced the UEI25-120-D48 series of 25W output, 2:1 input range DC-DC converters. The 12V output can be trimmed +/-10% with an external trim resistor, efficiency can reach 87.5%, ensuring minimal heat build-up and allowing 'no-fan' operation.

These DC-DC converters include full magnetic isolation with basic insulation, up to 2250VDC. For powering digital systems, the outputs offer fast settling to step transients

and will accept higher capacitive loads. Excellent ripple and noise specifications assure compatibility to noise susceptible circuits. For systems requiring a controlled start-up/shut-down and external remote on/off control this may be implemented by using a switch, transistor or digital logic.

EFFICIENT SERVER POWER SUPPLY

Power-One has introduced the highest power density, greenest server power supply with the lowest direct and indirect running costs and enhanced reliability:

PFE1100 1100W front-end AC-DC power:



- » 54mm form factor.
- » Provides a 12VDC output with 5V or 3.3V pin selectable standby.
- » Exceeding CSCI Platinum targets, the new PFE1100 product line has the world's lowest power dissipation.
- » The PFE1100 can be used in data centres, servers, and storage equipment, providing them with reliable power and high efficiency.
- » Higher efficiency means less energy wasted within the product, and less energy used in cooling infrastructure.
- » The cost of exchanging an ordinary power supply for a Power-One PFE1100 supply can be recovered in just a few months.
- » In addition, products which incorporate energy efficient power supplies like the PFE1100 often qualify for rebates from energy utilities, thus offering a saving from day one.

Point of Load converters

The TLynx® family of non-isolated DC-DC modules is the 3rd generation of Lineage Power's world class point-of-load (POL) converters:

TLynx®



- » Available in four nest-able footprints: Pico 2A-6A, Micro 12A, Mega 20A-30A and Giga 50A for high flexibility and reduced risk.
- » These high efficiency, superior thermal derating modules operate over a wide range of input voltage options (2.4VDC-5.5VDC, 4.5VDC-14VDC, 3VDC-14VDC and 8VDC-16VDC) and provide a precisely regulated output voltage ranging from 0.59VDC to 8VDC, programmable via an external resistor.
- » Standard features include remote On/Off, programmable output voltage, monotonic start-up/shut-down, over-current and over-temperature protection and output voltage sequencing.
- » The powerful tunable Loop&trade feature allows the user to optimise the dynamic response of the converter to match the load and significantly improve transient response while simultaneously reducing the amount of external filtering.

Ericsson cuts carbon footprint

Ericsson has been recognised for environmental excellence, having been presented with two e-Legacy awards for Investment in the Environment by the UK magazine Electronic Product Design. Ericsson's entry, its 3E concept of enhanced performance, energy management, and end-user value, together with Design for Environment (DfE) working practices, will contribute to reducing the carbon footprint of Ericsson's products by 40% by 2013, from a 2008 baseline.

The DfE strategy minimises the environmental impact of products throughout their life cycle, with an emphasis on energy efficiency when the products are operating. Ericsson's DC-DC converters are up to 96% efficient, thereby decreasing the energy consumption of end-user equipment. This, combined with Ericsson's 3E digital power

control and management, significantly reduces energy consumption and environmental impact.

With its 3E concept Ericsson was the first company in the world to offer a complete on-board power solution (isolated + non-isolated) digitally controlled and PMBus compliant DC-DC power modules.

Design for the environment

To keep customers ahead in the power design game, the Avnet Abacus field applications engineering team has access to an exceptionally wide range of products that can boost the efficiency of customers' next generation products. Working with its specialists, customers can integrate these solutions into their design quickly and easily, giving the design team more time to focus on features that differentiate the product, and ensuring that the time to market window is not missed.

Visit our power microsite for more information about our power products www.avnet-abacus.eu/power

How VARTA is leading the way with environmentally friendly designs

Designing products for a greener planet is getting increasingly difficult and keeping up-to-date on the core issues can be daunting. When it comes to choosing batteries for a design, it is increasingly difficult for a non-specialist.

Amongst reputable battery manufacturers, VARTA Microbattery is justifiably proud of its environmental record, and customers have the assurance of exceeding green industry standards and norms.

The most significant obligation in legislative terms is the EU Directive 2006/66/EC, commonly known as the Battery Directive, which, as well as establishing maximum quantities for certain chemicals and metals in batteries, encourages improvements to their environmental performance and establishes rules for collection, recycling, treatment and disposal. The directive runs in parallel with other EU rules, such as the Restriction of Hazardous Substances (RoHS), Waste Electrical and Electronic Equipment (WEEE) and Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) directives.



One immediate impact VARTA has observed is increased demand for holders, connectors and chargers, since all batteries have to be removable from a product for recycling. In addition, although cells themselves are exempt from RoHS, all VARTA assembly components used to make battery packs are RoHS compliant.

VARTA has made substantial efforts towards finding alternatives to polluting materials such as cadmium and mercury. Whilst the dangers of mercury are well-known, cadmium is also an extremely toxic substance regulated because of its toxicity, persistence, and tendency to accumulate in the biosphere.

For these reasons, rechargeable batteries are increasingly moving from nickel-cadmium



(NiCad) to nickel-metal-hydride (NiMH) chemistries. VARTA replaced its NiCad range of batteries with the cleaner NiMH types as long ago as 2002 - long before it was legally required to. However there is a performance penalty to the greener option. In particular NiMH batteries cannot handle the high rate of charging or discharge that NiCad can, and they have faster self-discharge rates, so need to be charged more frequently.

On the plus side, VARTA's NiMH batteries offer greater capacity, so they are greener to transport and last longer before they need to be recycled. Plus, they are increasingly providing an alternative to primary cells for applications like backup. Furthermore, the small size of NiMH cells makes them the ideal choice for emerging energy harvesting and low-power wireless technologies. Small rechargeable batteries are making a significant contribution towards the development of new environmentally friendly products.

SAFER, BETTER, PRIMARY CELLS

There are applications that still rely on primary cells. For example, VARTA supplies the world with close on 350million zinc air batteries for hearing aids every year. Users have to put new batteries in every 10 days or so, creating a significant amount of waste and recycling - and providing a major incentive to look for alternatives. VARTA's development of rechargeable alternatives to zinc-air chemistries represents a considerable milestone towards reducing the environmental load.

Button cells like those used in watches and hearing aids are legally permitted to have mercury content up to 2%. Despite this concession, VARTA is nevertheless working to remove mercury completely from its watch cells;

and, whilst continuing to develop rechargeable alternatives, is on-target to make its zinc-air hearing aid line-up fully mercury-free before the end of 2011.

One of the most innovative alternatives to mercury in button cells is VARTA's Mercury-Free Silver-Oxide technology. Their reliability and performance make them the preferred power source for miniature medical devices and many other OEM designs. Even these versions of silver oxide cells are not without their challenges, especially regarding the scarcity of precious metal resources and volatility of silver prices. VARTA has therefore developed a new type of cell capable of replacing Silver Oxide in terms of performance, but without the dependency on silver raw materials, providing a reduced-cost alternative with a reduced impact on core materials like silver.

THE TOTAL ENVIRONMENTAL FOOTPRINT

If raw materials are a primary focus, then manufacturing processes are not very far behind in considering the whole lifecycle of the product.

Environmental management and incident systems help battery manufacturers not only to comply with environmental guidelines but also provide a framework for continual improvements. VARTA regularly reviews its system, setting specific environmental goals to improve environmental protection efforts. There have been some formidable achievements. For example, over the last six years VARTA has reduced its waste output - and its consumption of heat, electric power and water - by 50% normalised to production output.

In the end it is designers that reap the benefits, not only of legal compliance, but of cost savings and technical innovations -and helping to save the planet, too.

For more information visit
www.avnet-abacus.eu/VARTA



From 25W to 60W with safety approvals & efficiency level V



for more
information go to
[www.avnet-abacus.eu/
emerson](http://www.avnet-abacus.eu/emerson)

Emerson Network Power's growing collection of compact open frame power supplies covering the 25 to 60 Watt range features comprehensive medical and IT equipment safety approvals and meets the stringent Energy Star 2.0 Efficiency Level V standard.

With a compact 2x4 inch footprint and a height of just 1 inch, Emerson's NPS line (NPS20-M, NPS40-M and NPS60-M series) features a high typical full-load efficiency of 87% and meets the stringent Energy Star 2.0 Efficiency Level V standard. Backed by a comprehensive set of worldwide IT equipment (ITE) and non-patient contact and non-patient critical medical safety approvals, the power supplies are also ideal for use in light industrial, instrumentation and process systems as well as in low-power dental and laboratory equipment.

The latest is the NPS63-M, a 12V standard power supply that supports up to 60W with convection cooling. The NPS20-M and NPS40-M series are available in output voltages ranging from 5V to 48V.

Output capacity is adjustable by plus or minus 20 percent, and the power supplies accept a wide universal input voltage range of 90 to 264 Vac (127 to 300 Vdc), enabling them to be used anywhere in the world.

Under normal operating conditions, the power supplies consume less than 300 milliwatts of power under no-load conditions. They can operate at full load in temperatures ranging from zero to 50 degrees Celsius and up to 80 degrees Celsius with derating. They are comprehensively protected against overload and overvoltage conditions and deliver a demonstrated mean time between failures (MTBF) of more than 550,000 hours at full load in ambient conditions of 25 degrees Celsius. An optional enclosure kit (LPX50) is also available to ensure maximum component protection.

These new standard products are backed by one of the largest power supply manufacturers in the world, giving you confidence in your next design decision.



EMERSON[™]
Network Power

Modular Power meeting the market demands

by Dermot Flynn
 Director of Sales,
 Excelsys Technologies

MODULAR POWER SUPPLIES OFFER FLEXIBLE SOLUTIONS TO SYSTEM DESIGNERS

Changes in the electronics industry and today's tough market conditions have brought about many new innovations as companies seek to gain competitive market advantage. The market demands rapid time to market, smaller systems, increased functionality and lower running costs. These are the key design challenges that the system designer faces.

REDUCING THE TIME TO MARKET

The pace of new innovation set by industry leaders has resulted in shorter product life cycles across the industry. Product concepts must move into production in the shortest possible time. This trend is prevalent in all industries from Communications, Computing, Industrial and Medical Electronics.

The innovative Plug and Play architecture employed in the Xgen from Excelsys Technologies virtually eliminates lead-time associated with power supplies. The designer can configure and build their custom power supply from the range of standard modules in a matter of minutes. The user configurability ensures that as the system design evolves, the power supply can evolve in parallel. The tools even extend to online ordering facilities such as those provided by Excelsys on www.excelsys.com/online_configurator/configure.cgi

The Xgen power supply can deliver up to 12 isolated DC outputs ranging from 1.0V to 58V. Outputs can be parallel connected for higher current or series connected for higher voltages. No matter what the requirements, there is an Xgen for application.

Pre-series units can be ordered and delivered in 1 week when the power requirements are completely defined, with volume shipments just a matter of weeks later. Shorter power supply lead-times allow manufacturers to be more reactive to market needs, with minimal disruption to their production.

This type of power platform provides a number of advantages to the system designer



and manufacturer. From a design perspective, they provide the exact power supply required at prototyping stage, with minimal delivery time. They also provide a pre-approved power supply meeting safety agency approvals, reducing safety costs significantly, and more importantly, the time associated with these securing these approvals. EN60601-1 (medically approved) versions are also available as standard.

SYSTEM SIZE AND FUNCTIONALITY

System designers consistently face the dual challenges of system size reduction, without impacting functionality. In fact the market regularly demands increased functionality in conjunction with size reduction. The Xgen from Excelsys boasts 17W/ in³ with up to 1450W output power and measures just 260mm x 127mm x 1U. The 4 slot package can deliver up to 750W in a 260mm x 89mm x 1U package.

This is up to 2.5 times smaller than the industry standard, thus saving the system designer valuable system real estate.

EFFICIENCY AND ENVIRONMENTAL CHALLENGES

System efficiency is rapidly becoming an environmental issue. Increasing environmental awareness being raised by groups such as the Energy Star is demanding higher system efficiencies. A significant benefit of higher

efficiency is the reduction of system running costs. Moving from 75% to 90% efficient power supplies can reduce system running costs by greater than 10%.

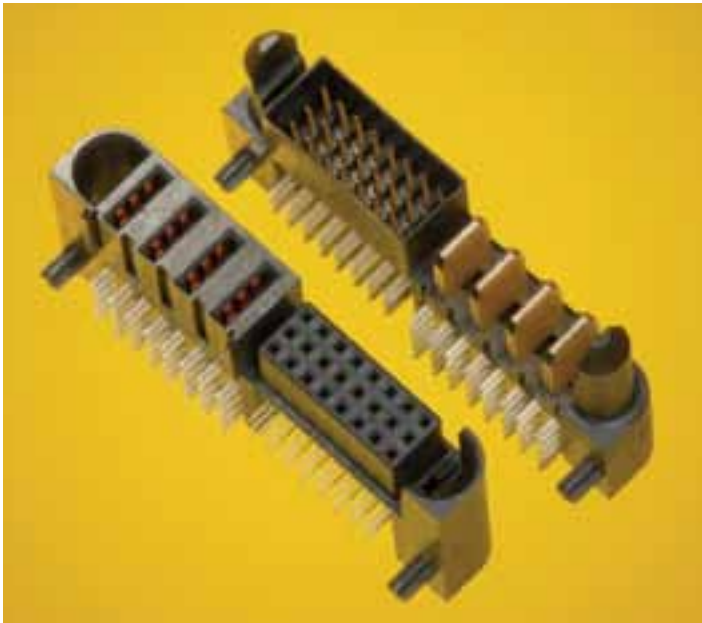
Higher efficiencies also improve system reliability. Efficiencies of 90% significantly reduce system heat losses and greatly simplify system thermal design. For example comparing a 1200W output power supply with 80% versus 90% efficiency, results in a reduction of 166W in heat loss, greater than 50% less heat generated in the system.

In summary, designers are facing significant technological and commercial challenges in system design. Standardising on higher efficiency, higher power density Xgen can provide businesses a significant competitive advantage. Simplified system design and approvals, reduces design cycle time and improved time to market and can reduce life cycle costs significantly for the user and will improve bottom line profitability.

www.excelsys.com
 Excelsys Technologies Limited

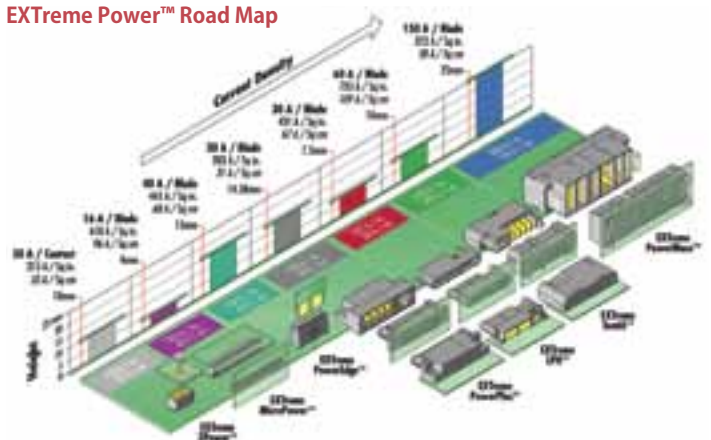


Range of EXTreme Power products from Molex



EXTreme Power™ products offer high-current interconnect solutions with best in class power densities. The extensive product offering ranges from EXTreme Micro-Power 16.0A blades to EXTreme Power-Mass 150.0A modules. Molex EXTreme Power products – made for your high-current applications.

EXTreme Power™ Road Map



MTU1 Series
1 Watt isolated DC/DC converters

Actual size

Innovation³

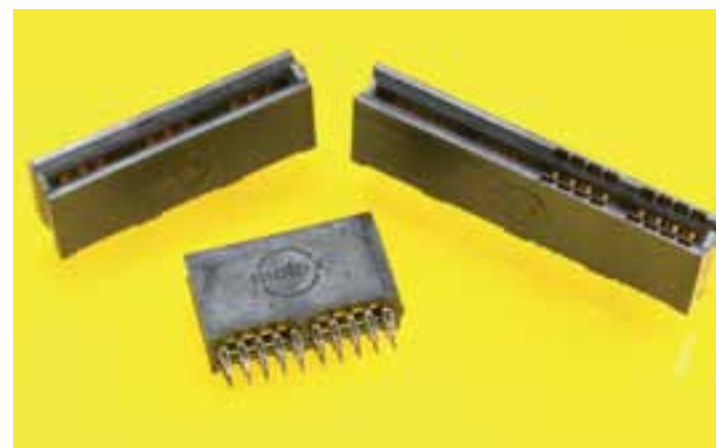
We're Changing the Shape of DC/DC Converters

- Footprint reduced by 50%
- 56% less power dissipation
- Lower running temperatures
- Load regulation from 3.2%

Part No.	Vin V	Vout V	Iout mA	Load Regulation %
MTU1S0505MC	5	5	200	7.3
MTU1S0509MC	5	9	111	6.1
MTU1S0512MC	5	12	83	5.6
MTU1S0515MC	5	15	66	5.3
MTU1S1205MC	12	5	200	5.8
MTU1S1209MC	12	9	111	3.9
MTU1S1212MC	12	12	83	3.5
MTU1S1215MC	12	15	66	3.2



www.murata-ps.com/mtu



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one company > a world of innovation

C&K expands family of sealed tactile switches with high reliability, low profile devices

C&K Components, a leading international supplier of tact switches, toggle, rocker and pushbutton switches and smart card interconnect devices, has expanded its family of KSC Series tactile switches.

Designated the KSC741 and KSC721 devices, the low profile tactile switches are offered with gold or silver plating and feature temperature ranges from -40°C to $+125^{\circ}\text{C}$, sealing to IP67 standards and an extended life to 300.000 actuations, making them ideal for high reliability applications.

"The new KSC switches feature an anti-corrosion contact and are offered with gold or silver plating, allowing us to meet different temperature and corrosion resistance classes," said Eric Grange, product manager for C&K Components. "Due in part to the 4.3mm height, the switches serve as a highly reliable, cost-effective drop-in replacement solution for

customers who want or need to change the switch they are currently using but don't want to redesign the application.

The low profile KSC7 Series switches are ideal for a variety of applications including automotive, consumer electronics such as cellular phones, network infrastructure and IT, and industrial electronics.

In general, the sealed KSC Series switches feature a positive tactile feel in a range of six actuation forces, with an extended life to one million actuations. Current rating for the momentary action, SPST, normally open devices ranges from 1mA to 50mA for silver plating and 1mA to 10mA for the gold plating. Contact resistance is less than $100\text{m}\Omega$. Maximum power rating for the silver and gold plating is 1VA and 0.2VA, respectively, with a maximum voltage of 32VDC. Operating temperature ranges from -40°C to $+125^{\circ}\text{C}$, depending on plating.



The KSC Series switches feature J bend and gullwing terminals, and are available on tape and reel packaging for automated assembly.

For further details visit www.avnet-abacus.eu/c&k

C&K

Panasonic ideas for life

PANASONIC LAUNCHES TYPE 18650 LI-ION BATTERIES WITH A PEAK CAPACITY OF 3.1 AH

For use in portable equipment of all kinds, the Panasonic Industrial Batteries Division is now launching two particularly powerful 3.6 V Lithium-Ion batteries in accordance with the 18650 standard. Thanks to innovative NNP technology, the NCR18650 and NCR18650A types achieve capacities of 2.9 Ah and 3.1 Ah respectively. At the same time, special HRL technology guarantees maximum safety.

Panasonic uses its Nickel Oxide based New Platform (NNP) technology for the new Type 18650 batteries (18 mm diameter x 65 mm length), which are the standard for many mobile applications. The heart of the battery is a newly developed nickel-based positive electrode which has been patented on behalf Panasonic and enables very high capacities to be achieved. In addition, the material and process technology prevent an alloy negative electrode deforming with repeated charging.

This enables the new batteries, with reduced weight, to achieve the highest capacity on the market of 2.9 Ah and 3.1 Ah respectively and corresponding energy densities of 620 Wh/L (NCR18650) and 675 Wh/L (NCR18650A). Added to this are high cycle stability and excellent charging behaviour as well as

MODEL	NCR18650	NCR18650A
Capacity (Ah)	2.9	3.1
Energy density (Wh/L)	620	675
Diameter	18.6 + 0/-0.7	18.6 + 0/-0.7
Height (mm)	65.2 + 0/-1.0	65.2 + 0/-1.0
Weight (g)	approx. 44	approx. 44.5
Nominal voltage (V)	3.6	3.6
Charging voltage (V)	4.2	4.2
Energy (Wh)	10.4	11.2

outstanding storage capability thanks to very low self-discharge. This results in excellent overall performance over the whole life cycle. In spite of the increased power, which normally gives rise to an increased safety

risk, Panasonic batteries remain particularly safe thanks to the patented Heat Resistant Layer (HRL) technology. This solution consists of an insulated metal oxide film between the electrodes, which prevents overheating even in the case of an internal short-circuit.

With its robust and powerful Li-Ion batteries, Panasonic is responding to the increasing demand for batteries for mobile use, for example in laptops and notebooks, handhelds and portable televisions. In appropriate battery pack assemblies, these batteries can also be used for driving electric bicycles. Batteries with a capacity of 3.4 Ah and 4.0 Ah respectively are being developed.

Panasonic is able to call upon many years of experience as one of the world's leading battery manufacturers. Numerous patents demonstrate the company's technological leadership in this field. The new batteries are produced in a facility which the company has recently set up in Suminoe, Japan, with an investment of one billion dollars. It naturally complies with all international requirements for quality and environmental management.

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<http://industrial.panasonic.com/eu>

 **Panasonic** BATTERIES
Quality is our Business.



Celebrating Avnet's 50th year on the New York Stock Exchange.



Roy Vallee
Chairman and CEO, Avnet

Founder/CEO Charles Avnet (middle) flanked by sons Lester and Robert Avnet, who both served as Avnet CEO after their father.

A Legacy of Industry Leadership

Since the Avnet family started selling surplus radio parts in New York City in 1921, Avnet's leaders and talented employees have defined what makes a world-class company. On December 15, 2010, Avnet commemorated a milestone that only 350 other companies have ever achieved in the history of the New York Stock Exchange – we celebrated our 50th anniversary on the NYSE. This special historical marker distinguishes Avnet as a premier company – one with financial strength, global scale and scope,

adaptability and innovation. Avnet would like to thank our 16,000 plus employees who have made our company so great, our trading partners who have placed their trust in us to deliver the highest service and value, our shareholders who invest in us as well as our business and community partners who work with us to help make the world a better place to live and work. We are proud of our legacy and look forward to achieving far more in the next 50 years than we can only imagine today!

View Avnet's history on www.avnetondemand.com



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