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OPTOELECTRONICS & DISPLAYS



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Internet of Things technology poised to take off 'eh'

As Canadian businesses prepare to embrace the arrival of the 'Internet of Things' (IoT) technology, electronic designers wade through their own plan of catching its wave of development – which is expected to arrive like a tsunami.

It certainly stands to reason why 30% of medium and large businesses in Canada plan to deploy IoT technology in the next 24-months, according to an IDC survey commissioned by Telus this Spring.

In the event you have been asleep for the past half-decade, the creeping phenomenon of IoT relates to previously un-networked objects communicating over the Internet. The term was coined by former MIT affiliate Kevin Ashton in the late '90s, and had a big moment at this year's Consumer Electronics Show in Las Vegas. Manufacturers are racing to network everything from cars to thermostats to lightbulbs to garbage cans.

In the next two years machine-to-machine technology is expected to ramp up considerably and Canada appears to be at the cusp of that growth. Just 6% of medium and large Canadian businesses are incorporating IoT technology according to the study results. But, a further 7% were in the midst of deploying or had budgeted funds to do so this year. As well, IoT spending is expected to grow, from \$5.6-billion in 2013 to \$21-billion in 2018.

Hailed as the most comprehensive of its kind, the IDC/Telus

study shows that Canadian adoption of IoT lags that of Asia and Europe, however, there is a fundamental change in attitude among Canadian businesses. Driven by improved connectivity, the IoT movement is projected to grow not only between BtoB players, but also in consumer goods and services.

Users of the technology mark increased productivity as one of the key benefits. Another is the ability to generate huge amounts of data, as it opens up a whole new set of capabilities that weren't even possible before.

As intriguing as it may seem to envision your blender chatting with the washing machine (knowing you are a sloppy cook), the exchange of all this data comes with some security concerns. The vast majority of the survey respondents agreed that ensuring their security of the IoT solution must be considered.

In the end, consumers will decide if they are okay with trading-off these conveniences delivered by IoT technology in exchange for the relinquishment of personal data to the 'universe', which is mostly comprised of advertisers, service providers, or just more machines.

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NEWSWATCH

Keysight's MLab tour touts learning

In an effort to share its latest test equipment with end-users global tests and measurement leader Keysight Technologies Inc. (formerly Agilent Electronic Measurement Group), rolled out its Mobile Measurement Lab (MLab) tour in Canada.

Stopping in Mississauga and Waterloo ON, the day-long MLab sessions were targeted to test engineers, providing hands-on, real life measurement experiences while addressing everyday challenges. Visitors to the MLab received on-site support and instruction from Agilent application engineers.

Situated inside a luxury transport truck, MLabs includes four hands-on workshops, including Advanced analysis with oscilloscopes; Network and impedance analysis; Signal analysis and signal creation; and Portable RF and microwave testing.

NRC releases GaN design kit software

The National Research Council of Canada's (NRC) has released the second version of its gallium nitride (GaN) GaN500v2 Design Kit software. Combined with Canada's only foundry for GaN electronics, the free software package enables industry and academics to create revolutionary technologies and device designs.

The NRC provides the GaN500v2 Design Kit, which describes the GaN electronics fabrication service and includes both a Design Manual and a Physical Design Kit, based on ADS software. Devices are fabricated with 0.5 micron gate length on silicon carbide substrates. The NRC provides complete fabrication processing from 3" GaN on SiC wafers through to characterization and wafer dicing.

The GaN500v2 Design Kit is based on the Agilent ADS CAD tool. The minimum CAD bundle required for running the kit includes the ADS core and layout module. The design kit is compatible with ADS 2014 and earlier.

The design kit supports: Schematic capture; Circuit simulation; Synchronization between the schematic and the layout; Design rule check (DRC); and Exporting layout.

Industry leaders to establish open IoT consortium

Technology industry leaders Atmel Corporation, Broadcom Corporation, Dell, Intel Corporation, Samsung Electronics Co., Ltd., and Wind River, are joining forces to establish a new industry consortium focused on improving interoperability and defining the connectivity requirements for the billions of devices that will make up the Internet of Things (IoT). The Open Interconnect Consortium (OIC) is focused on defining a common communications framework based on industry standard technologies to wirelessly connect and intelligently manage the flow of information among personal computing and emerging IoT devices, regardless of form factor, operating system or service provider.

Member companies will contribute software and engineering resources to the development of a protocol specification, open source implementation, and a certification program, all with a view of accelerating the development of the IoT. The OIC specification will encompass a range of connectivity solutions, utilizing existing and emerging wireless standards and will be designed to be compatible with a variety of operating systems.

Leaders from a broad range of industry vertical segments will participate in the program, helping ensure that OIC specifications and open source implementations will help companies design products that intelligently, reliably and securely manage and exchange information under changing conditions, power and bandwidth, and even without an Internet connection.

Siemens partners with U of Waterloo

Siemens Canada Ltd. and the University of Waterloo will partner on a new youth training and skills development initiative to expand Canada's capacity and research excellence in sustainable green technologies and advanced manufacturing.

The partnership will address the challenges facing the global economy including digital manufacturing and the drive for sustainable economies – challenges to which Siemens' expertise and product portfolio are ideally and uniquely suited.

"We are delighted to explore solutions for some of the challenges facing the world's economy and environment," says Feridun Hamdullahpur, president and vice-chancellor at Waterloo.

Digi-Key's free circuit design tool gets upgraded

Digi-Key Corp. has introduced enhancements to its Scheme-it circuit design tool, available at no cost on the firm's website. The tool was co-designed and built by Aspen Labs LLC, a business-media company focused on the needs of engineers.

The virtual design tool provides users with a simple, free-to-use way to record their circuit design idea in a shareable, electronic form. The tool implements the entire Digi-Key catalog, allowing users to design with actual parts available for immediate shipment from Digi-Key.

"The impetus for developing a tool like Scheme-it revolved around lowering the barrier to design, allowing users to move their design from back of napkin to bill of materials," according to David Sandys, director, Digi-Key supplier marketing.

Upgraded Raspberry Pi board adds connectivity

Offering more sensors and accessories than ever before, the new Raspberry Pi B+ board has been launched and is expected to enable users to build bigger and better projects.

Marking the first significant change to the multi-million selling credit card-sized computer, its advanced power management and enhanced connectivity make it possible to power four USB accessories such as 2.5 inch hard drive through the device. Up to 1.2A can be delivered to the USB ports to connect power-hungry devices and accessories without needing mains power or an external USB hub.

Featuring a 40-pin extended GPIO, even more sensors, connectors and expansion boards can be added to the board, allowing users to increase the complexity of their Raspberry Pi projects. The first 26 pins remain identical to the original Raspberry Pi Model B for 100% backward compatibility.

The Raspberry Pi B+ is based on the same Broadcom BCM2835 Chipset and 512MB of RAM as the previous model. It is powered by micro USB with AV connections through either HDMI or a new four-pole connector replacing the existing analogue audio and composite video ports. The SD card slot has been replaced with a micro-SD, tidying up the board design and helping to protect the card from damage. The B+ board also now uses less power (600mA) than the Model B Board (750mA) when running.

Metz Connect USA appoints Matera in Canada

German-based interconnect specialists, Metz Connect Inc. has appointed Toronto-based Matera Technologies Inc. as its manufacturers' representative in Canada.

Metz Connect specializes in the manufacturer of pcb mount data connectors, including spring and screw clamp terminal blocks & headers, M12 D & X coded, rugged IP67 rated connectors and DIN rail mount RJ45 and fiber connectors, field installable RJ45 toolless plugs and jacks, Cat 6A complete systems for structured cabling, data centers cables & wires, wall outlets, patch panels and I/O components. Metz serves the market segments of industrial Ethernet, data and communication technology and building services engineering, the sophisticated assortment and product design ensures a smooth data flow from the pcb via connectors, thru panel IP67 connectors, assorted RJ45, M12D & X coded cable assemblies, and final connection to a Field Device.

Matera defines itself as a focused rep specializing in electro mechanical, passive & interconnect components to a variety of Canadian electronic and industrial OEMs and distributors.



Ian Bryson, Yves Caron, John Hebert of Matera with Mark Gilliford, channel and business development manager, Metz Connect and Bob Randall, Matera.

SAE and CEA form cooperative partnership

SAE International and the Consumer Electronics Association (CEA) have signed a two-year memorandum of understanding to build a cooperative partnership in the standardization of vehicle electronics and consumer electronics products to improve the driving experience. Both organizations will share information on existing and future standards development in the overlapping areas between consumer electronics and ground vehicles.

"This is an important step in SAE International's continual efforts to reach out to and work with leading standards organizations around the world," said Jack Pokrzywa, manager of Global Ground Vehicle Standards at SAE International. "We've received many requests for collaboration at our respective events, the International CES and SAE Convergence. We are excited and look forward to our partnership with CEA."

PEOPLE & CO.

Modern Tool continues as industry veteran passes

Darrell Vejprava, principal of Modern Tool Electronics in Calgary, passed away on June 16, 2014. He was 52.

Darrell built a career in electronics manufacturing, where he spent many years at Nortel, prior to owning his own business - Modern Tool. He loved the outdoors, spending lots of time at the family's recreational property in Water Valley. Darrell is survived by his loving wife Kim and son Jesse, who will continue to operate Modern Tool Electronics.

MTE is a distribution and manufacturer's representative firm that provides a wide variety of tools, production equipment and consumables for the manufacturing industry. The company stocks locally; solder products, fluxes, pastes, lead free, SN100C, SAC305, soldering tools, hand tools, preforming, chemicals, dispensing equipment, manual and automated processing machinery, workstations, gloves, ESD protection products including; smocks, wrist straps, testers, heel grounders, table mat, sheet protectors and more.

EPTECH draw winner

The winner of the draw held during the EPTECH trade show in Vancouver was Grant Louie, operations and product development director with Western Robotics Ltd. in Surrey BC. He receives a \$500 gift card for Best Buy stores.

Central Semi marks 40 years

Central Semiconductor Corp., Hauppauge NY, is celebrating its 40th anniversary in the industry as a manufacturer of discrete semiconductors. Since its inception, Central has consistently supplied high-quality innovative products, with outstanding service, to a worldwide customer base.

GPSI gains new address

Manufacturers' representative Global Purchasing Services Inc. (GPSI) is now operating out of a new address: 250 Thompson Dr Unit 1, Cambridge ON, N1T 2E3. The firm will also be rolling out a newly designed website soon at www.gpsi.ca.

Simcona appointment

London On-based distributor Simcona Electronics of Canada Inc. appointed Mike Mohammed to the position of field account manager for Toronto and surrounding area. Mohammed has a strong sales and customer service background that will complement Simcona's account management force in the Toronto area.

E-T-A receives supplier award

Recognized for its on time deliveries, E-T-A Circuit Breakers Inc., Richmond Hill ON, has captured the 2013 Delivery Performance Award – Gold Level – from New Flyer Industries Canada, a Winnipeg-based manufacturer of heavy-duty buses.

The award recognizes suppliers who have provided New Flyer with on-time deliveries within New Flyer's established performance standards, consistently over a 12 month period.

ASC adds to Canadian team

American Standard Circuits (ASC) has appointed industry sales veteran Ken Moffat to lead its business development in Canada. Moffat has key sales positions with a number of companies most recently with Dynamic and Proto Circuits.

ASC bills itself as a total solutions provider, manufacturing quality rigid, metal-backed, flex and rigid-flex pcbs as well as RF/microwave pcbs to the medical, automotive, industrial, defense and aerospace markets in volumes from test and prototypes to large production orders.



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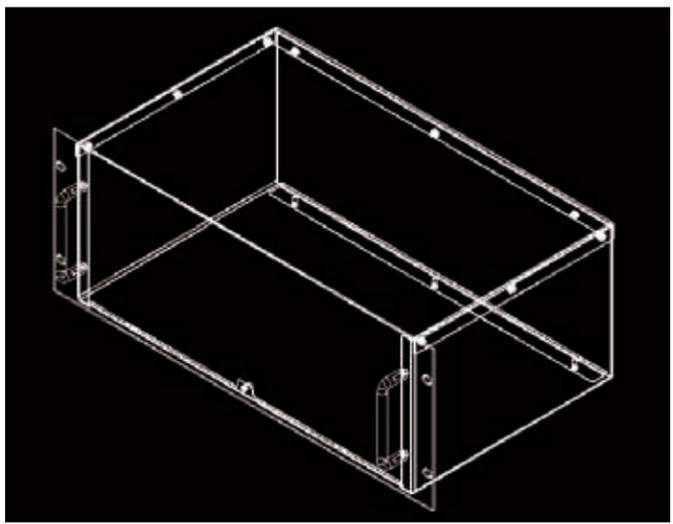
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Try it out for yourself: http://protocase.com/design/template_generator.php

Dalhousie Combined Heat & Power

Group members of Project Micro-CHP (Combined Heat & Power) at Dalhousie University were instructed to engineer and construct a small generator that could both power and heat a single family dwelling and also be adaptable to different energy efficient needs.

Find out how Protocase was able to help the group increase the energy capture of an existing diesel generator from 28% to over 75%.

Full story here: <http://www.protocase.com/about/spotlight/micro-chp/>



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Power Sources

Using synthetic diamond for power management

By Bruce Bolliger, Felix Ejeckam, Daniel Twitchen, Thomas Obeloer and Adrian Wilson of Element Six Technologies, US Corp., Santa Clara CA

Introduction

Semiconductor devices are being used today more and more often to either provide power, such as in RF power amplifiers, or control power, such as in power inverters, in electronic systems. These electronic systems range from smart phones

to cellular base stations to radar systems and from electrical vehicles to alternative energy. In all cases, the heat dissipation of these semiconductor devices can often be a significant thermal management, and therefore power management, challenge.

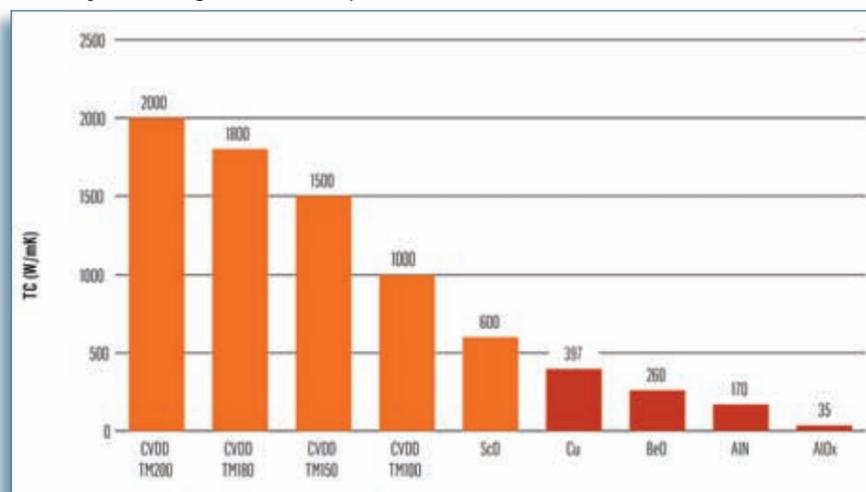
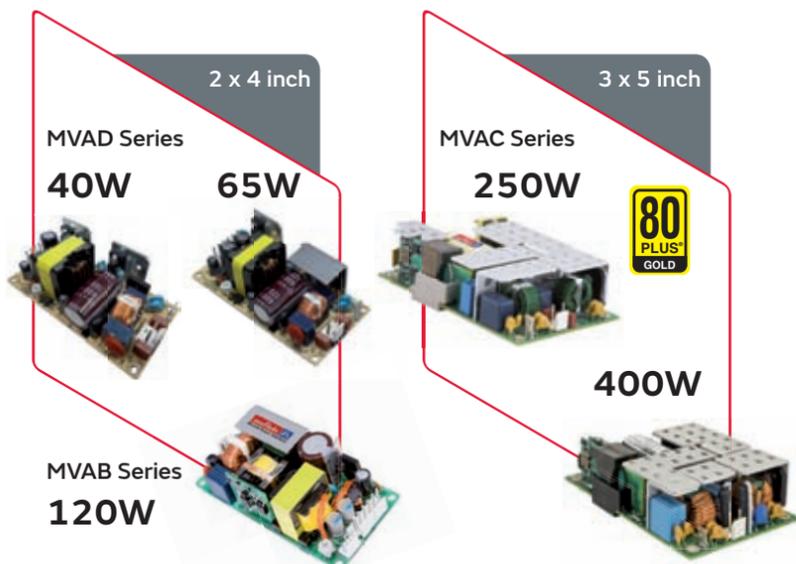


Figure 1. Engineered grades of CVD diamond heat spreaders.

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MVAC250	170W	250W	12/24/50V	93%	3 x 5 x 1.4"
MVAB120	75W	120W	12/24/28/48V	91%	2 x 4 x 1.35"
MVAD065	65W	-	12/24/48V	90%	2 x 4 x 1.3"
MVAD040	40W	-	12/24/48V	89%	2 x 4 x 1.3"

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Synthetic diamond heat spreaders and GaN-on-Diamond wafers have emerged as a leading technology for thermal management of these new high-power semiconductor devices. This is due to diamond's excellent thermal conductivity, the highest of any material at room temperature and as much as five times that of copper. Diamond heat spreaders can be used with any semiconductor material and can lower the temperature of the gate junction of semiconductor devices from 10 to 30%. GaN-on-diamond wafers of course specifically cool GaN devices, but lower gate-junction temperatures by as much as 40 to 50% and enable more than three times the power density compared to similar GaN-on-SiC devices.

Diamond heat spreaders

Element Six synthesizes the diamond for heat spreaders using plasma-assisted microwave CVD (chemical vapor deposition). Synthetic diamond grown with this method can generate free-standing diamond wafers up to 140mm in diameter and up to 1mm thick with thermal conductivities greater than 2000W/mK, five times that of copper as Figure 1 indicates. Also as shown in Figure 1, the use of microwave CVD enables precise engineering of the diamond properties, including a range of thermal conductivities that provide different cost-performance ratios to match any application's specific needs.

Diamond heat spreaders are metallized and then attached to the bottom of semiconductor die, usually with as thin a layer of solder as possible. This attachment method brings the diamond to within 100 to 300 microns of the gate junctions of the device. Figure 2 shows the typical configuration used with diamond heat spreaders, and importantly indicates that diamond spreads heat equally effectively in both lateral and vertical directions; spreading the heat laterally is particularly important for RF power amplifiers which typically have hot spots of less than 1 micron in diameter with intense heat density. The attachment method at TIM1, again as shown in Figure 2, is key to the effectiveness of the diamond heat spreader.

The metallization of the heat spreader and die must be very thin, on the order of a few 100's of nanometers; and the metallization of the diamond must be done carefully with a carbide-forming metal as the first layer. The attachment solder

TYPICAL PACKAGE GEOMETRY WITH CVD DIAMOND MOUNTED IN MODULE

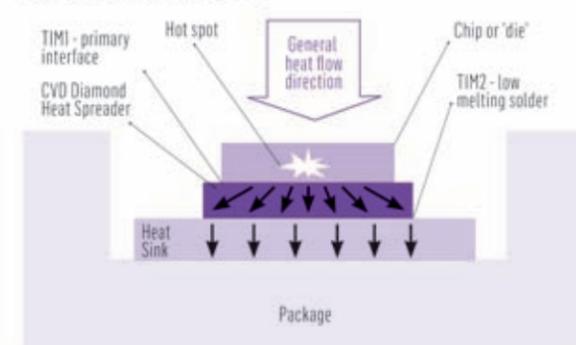


Figure 2. Typical heat spreader configuration

layer should also be as thin as possible, ideally less than 10-microns. If optimally integrated into a package, a diamond heat spreader can reduce gate junction temperatures by as much as 20 to 30% more than ceramic packages without diamond heat spreaders included.

GaN-on-diamond wafers

GaN-on-diamond wafer substrates, available today for beta shipments, will offer for the first time a new thermal management tool for GaN semiconductor devices. Today's GaN-on-SiC semiconductor devices are thermally limited from reaching their intrinsic power capabilities, which can be as high as 40W/mm². The new GaN-on-diamond wafers bring diamond less than 1 micron away from the GaN epitaxial layer, as shown in Figure 3, by removing the original substrate and any interface layers, depositing a new 35-nm dielectric interface layer, and then growing diamond on this new interface layer.



Fig.3: GaN-on-diamond wafer with diamond nucleated onto a thin interface deposited onto GaN.

The close proximity of the GaN epi layer to diamond reduces gate junction temperatures of GaN devices by as much

as 50% more than similar GaN-on-SiC devices and because diamond spreads heat laterally as well as vertically, also enables more than three times the power density of GaN-on-SiC devices. This three-times power density means that either GaN devices can be three times smaller with the same power output or the same size as GaN-on-SiC devices with 3 times more power output, particularly for RF power amplifier devices with their very small hot spots.

Diamond heat spreaders and GaN-on-diamond substrates essentially offer a portfolio of thermal-management solutions with increasing effectiveness for GaN R&F and power devices as indicated in Figure 4. Diamond heat spreaders have approximately 25% lower thermal resistance than ceramic packages without diamond while GaN-on-diamond devices have up to 50% lower thermal resistance relative to similar GaN-on-SiC devices. Thus in the design of RF power amplifiers for radar and communications systems and of power converters and RF power amplifiers for commercial cellular base stations and satellite systems, diamond heat spreaders and GaN-on-diamond devices can be used in varying degrees to reduce cooling complexity and cost or increase lifetimes. In addition, GaN-on-diamond can be used to achieve a three-fold increase in the areal power density of a GaN transistor.

Impact on cooling complexity and costs

A semiconductor's thermal resistance is an important parameter in the design of a microelectronic module and its associated thermal management system. The thermal resistance and desired lifetime drives the entire system design and sets the requirements for the ultimate coolant temperature. The reduced thermal resistance of diamond heat spreaders and GaN-on-diamond substrates can allow simpler, less expensive thermal management systems by enabling higher coolant temperatures because the temperature rise from the coolant to the gate is lower.

The savings is not only in the reduced cost of the cooling sub-system, but also in reduced on-going cost through energy savings. Alternatively, these diamond thermal solutions can enable significantly longer system lifetimes using the same cooling mechanism and thus operating the gate junctions of power devices at lower temperatures. It is estimated that running these power devices at 10°C lower temperatures will double their lifetimes.

Impact of power density on costs

The reduced thermal resistance of GaN-on-Diamond devices enables higher areal power densities. Various groups have recently shown that the GaN HEMT gate fingers on diamond can be brought three-fold closer together on diamond than on SiC. This means devices can be 1/3 the size resulting in smaller and less expensive GaN-on-diamond devices. To the power amplifier merchant seller, processing three times fewer GaN-on-Diamond wafers than GaN-on-SiC to achieve the same RF output power means significant reductions in fab costs assuming that commercial GaN-on-diamond wafers are competitively priced compared to GaN-on-SiC wafers.

If the GaN-on-Diamond wafer price is low enough, then some of the power amplifier seller's savings could be passed on to the system maker in a reduced power amplifier price per watt. In addition, system designers may be able to use fewer power amplifier devices by taking advantage of the higher power density to generate more power per device of the same size. Since each power amplifier requires peripheral circuitry to support it, fewer power amplifiers would mean a reduction in peripheral circuitry, thereby lowering system cost.

Conclusion

As high-power semiconductor devices get smaller and hotter, their increased heat flux presents more challenging thermal management. CVD diamond, with its highest thermal conductivity of any material at room temperature, offers solutions to these thermal management challenges in the form of either heat spreaders or GaN-on-diamond substrates. Both diamond solutions decrease the temperature

delta between device gate junction and package substrate or heat sink, to varying degrees, thus lowering system costs, increasing lifetimes, or both.

Heat spreaders typically are 100 to 300 microns away from device gate junctions; the closer the heat spreader is to the device gate and the higher the thermal conductivity of the material in between, the more effective the diamond. GaN-on-diamond substrates can bring GaN gate junctions to within one micron of the diamond, thereby dramatically increasing the effectiveness of the diamond. Research in academia and other Government institutions around the World continue to look at the Holy Grail of active semiconductor devices made in diamond, to obtain not only the benefits of ultimate cooling, but also leveraging some of diamond's other intrinsic properties such as high combined mobilities and breakdown strength.



For more information on using synthetic diamond for power management from Element Six, go to <http://ept.hotims.com/51126-28>

IMPROVED PERFORMANCE – GETTING DIAMOND CLOSER TO HEAT SOURCE!

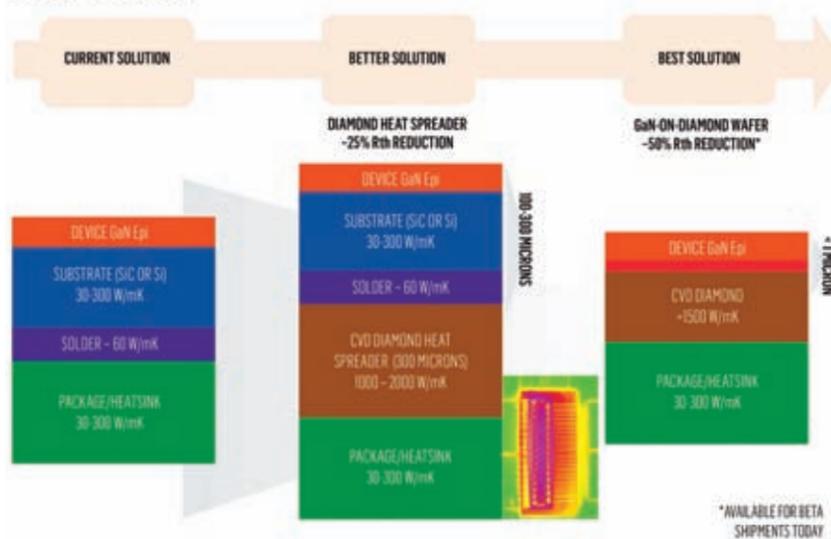


Figure 4. Improving GaN thermal management by bringing diamond closer to the GaN epi layer.

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Panasonic Line Extension LF-G Series Non-Polarized Power Relay Now with a 1.8mm Contact Gap!

These new parts can handle switching capacities up to 33A 250VAC, making the LF-G Series perfect for usage in solar applications for AC line switching. Both standard type and high capacity types are available in a 1 formA contact arrangement with Class F coil insulation.



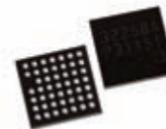
Hybrid Capacitors EEH-ZA & EEH-ZC Series Surface Mount Polymer Aluminum Electrolytic Capacitors

Panasonic Hybrid Capacitors take the benefits of both electrolytic and polymer capacitor technologies and combine them, producing a capacitor with low ESR values of 20mΩ to 120mΩ, low leakage current, high ripple current and smaller case sizes.



New! Wireless Charging Control LSI Qi Compatible, Wireless Power IC

Panasonic's wireless power control ICs support all equipment conforming to WPC 1.1 (Qi Standard) of the Wireless Power Consortium. This product achieves high conversion efficiency over 70% as a Qi standard charger and has a maximum operating power of 5W (WPC specification).





Dc-dc converters handle up to 200W of power

PD150WAF(D) series dc-dc converters provide up to 200 watts of output power. All models provide a 4:1 wide input range, adjustable output voltage and constant current mode output limit. Devices are especially suited to telecom, networking and industrial application. Products provide high efficiency up to 88%. Product has no minimum load and meets EN55022 Class A without external filter.

MEGA ELECTRONICS

<http://ept.hotims.com/51126-29>

Power capacitance device analyzes power circuit design

B1507A Power Device Capacitance Analyzer automatically characterizes power device junction capacitances using real operating voltages. Unit provides a complete solution for measuring and evaluating all parameters for high-frequency switching power supplies. Measurement capabilities include three terminal capacitances (Ciss, Coss and Crss) with high-voltage bias (+/-3 kV), gate resistance and accurate leakage current and breakdown voltage by complementing curve-tracer-type test equipment that evaluates only coarse IV characteristics. Product's intuitive graphical user interface makes it easy for even a novice user to automatically measure all capacitances under a wide range of operating voltages.



KEYSIGHT TECHNOLOGIES

(formerly Agilent Electronic Measurement Group)

<http://ept.hotims.com/51126-30>

Programmable power supply extends to 650V output

Z+ series of 200W and 400W programmable dc power supplies is now available with output voltages of up to 160, 320 or 650Vdc, extending the line-up from 100Vdc maximum. Carrying a 5-year warranty, products have the same features and compact dimensions (2U high and 2.76" wide) as the existing models and achieve efficiencies of up to 86%. Units can operate in either constant current or constant voltage modes and accept a universal 85-265Vac input. Up to 6 units can be connected in parallel (master-slave configuration), or 2 identical units in series with external diodes.



TDK-LAMBDA

<http://ept.hotims.com/51126-33>

10W dc/dc converter delivers wide 4:1 input range



MINMAX MIWI10 series of cost-optimized 10W dc/dc converter modules provides ultra-wide 4:1 input ranges and tightly regulated output voltages. Devices come in a shielded metal package in the standard DIP-24 format.

By state-of-the-art circuit topology a high efficiency could be achieved allowing an operating temperature up to +70°C at full load. Products provide remote ON/OFF, overload protection and internal EMI-filter meeting EN55022, class A and FCC, level A.

MINMAX

<http://ept.hotims.com/51126-34>

Need Power? Think GlobTek

Smart Battery Chargers Offer Three-Phase Operation

Available in versions delivering 4.2V, 8.4V, or 12.6V at 1 A to address single- or multiple-battery configurations, the GTM91128 families of smart Li-



Ion battery chargers from GlobTek offer three charging methods: conditioning, constant current, and constant voltage. The universal-input devices have a minimum current charge termination technique with timer as back up, with LED indication of charging and fully charged states. An additional feature of the smart battery charger family is that they have

...for more click www.globtek.com



Medically-Approved Open-Frame Switchers Deliver Up to 240W

Suitable for use in a variety of medical, ITE, and PoE applications, the GTM91110P240 Family of open-frame AC/DC switchmode power supplies from GlobTek deliver up to 240W in a 3 x 5-inch footprint. The devices are provided in factory-configured outputs from 12 to 55 V (in 0.1-V increments). Available in Class I or II versions, the 1.75-high power supplies are 85% efficient at full load and include features such as active PFC, a built-in EMI filter, and a 12-V fan output as well as DC-input versions from 130VDC to 380VDC. "Our switchers are versatile power supplies; you can use them in just about any indoor applica-

Rechargeable Battery Pack Provides Fuel Gauge Data

Providing smart rechargeable power capability to advanced portable and remote devices, the BL3100C1865004S1PSQA Li-Ion Battery Pack from GlobTek incorporates fuel-gauge functionality to provide important power status information. The 14.4V pack has a 3.1Ah capacity and includes a built-in protection circuit as well. "You can no longer put a battery in one of today's products without providing a means to check on the power status, as device operating life is a critical aspect of a device's performance."

...for more click www.globtek.com



www.globtek.com

<http://ept.hotims.com/51126-6>

Semi-shielded power inductor enhances magnetic shielding

SRN model series of semi-shielded power inductors combines the features of non-shielded and shielded inductors, making them suitable for use in dc-dc converters. Available in models SRN2010, SRN2012, SRN2510, SRN2512, SRN4012, SRN4026, SRN5040 and SRN6028, product family delivers high inductance with an inductance range of 0.24 to 220µH. Products provide high-rated current with Irms up to 4.7A and Isat up to 8A. Models are RoHS compliant and halogen free.



BOURNS

<http://ept.hotims.com/51126-31>

600V simulating dc load module tests LED drivers

63115A LED simulating dc electronic load 10A/600V/300W module is an addition to firm's line of the industry's LED simulating 63110A/13A electronic loads. Unit simulates LED characteristics in order to test the functions of LED drivers. Product tests in stable conditions, as well as also providing test turn on, PWM dimming characteristics of the LED driver, while the Rd value can be adjusted according to the LED V-I curve.

CHROMA SYSTEMS SOLUTIONS

<http://ept.hotims.com/51126-32>



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<http://ept.hotims.com/51126-7>

newswatch

Murata and Ericsson to collaborate on digital power products

Murata Power Solutions Inc. and Ericsson, a world leader in communications technology and services, have entered into a technical collaboration agreement with the goal of accelerating the adoption of digital power products.

Under the terms of this agreement each company will introduce a range of standardized digital power modules. This will result in the availability of multiple product sources to manufacturers that are considering migrating designs from analog to digitally monitored and controlled units.

Bel to acquire Emerson Network Power Connectivity Solutions

Bel Fuse Inc. Jersey City NJ, has entered into a definitive agreement to acquire the Emerson Network Power Connectivity Solutions (ECS) business of Emerson Inc.

Bel will pay approximately \$98-million in cash to acquire the ECS business, which had 2013 revenue of approximately \$83-million. The acquisition, which is subject to regulatory clearance and other customary closing conditions, is expected to close in the second quarter of 2014 and to be immediately accretive to Bel's earnings.

Mornsun appoints Irwin as disty for Canada

Leading manufacturer of power converters Mornsun America LLC has appointed Irwin Industrial Agencies Limited to be its authorized distributor in Canada and North America.

Mornsun will be working closely with Irwin to provide quality products and local services to the customers, including the company's complete product lines with local stock for quicker deliveries. Mornsun's product lines include dc-dc converter, ac-dc converter, isolation amplifier, communication interface module, IGBT/LED driver and EMC filter.

Mornsun will continue to expand its product range in power converters, as well as power related products. Earlier in the year, Mornsun expanded its manufacturing and R&D facilities in pursuit of furthering its power strategy.



From left are Trevor Sinclair of Irwin with Franky Li of Mornsun and Brad Jolly of Irwin.



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Medical power supply delivers between 100-240V

GTM41133-90VV-x.x-T3, medical power supply provides desktop and external, regulated switchmode ac-dc, input rating of 100-240V~, 50-60Hz, IEC 60320/C14 ac inlet connector, Class I, earth ground, output rating: 90 Watts, 12-24V in 0.1V increments. Product meets approvals: C-Tick, CB, CCC, CE, China RoHS, Class I, FCC, GOST-R, IRAM, Korea, Korea (48V Only), Level V, LPS, NEMKO, NrcAN, PSE, RoHS 2, Taiwan BSMI, Ukraine, UL/cUL, VCCI, WEEE.

GLOBTEK

<http://ept.hotims.com/51126-35>



Intelligent auto-tuning 60A POL converter has PMBus communication



iJB series of POL (Point of Load) 60 Ampere dc-dc converters provide intelligent auto-tuning technology and improved performance, system stability, plus accurate current read-back. Operating from an 8 to 14Vdc input, devices can provide output voltages of 0.6 to 2V, with a precision set point accuracy of 0.5%. The surface mount devices occupy one-square-inch of board space, while optimizing components using digital control, enabling high current output in high temperature environments.

TDK-LAMBDA

<http://ept.hotims.com/51126-39>

2W dc-dc converter suits 'high/low side' IGBT drive apps



MGJ2 series of 2 Watt high isolation dual output dc-dc converters are compact encapsulated devices suitable for powering 'high side' and 'low side' gate drives in bridge circuits using insulated-gate bipolar transistors (IGBTs) and MOSFETs.

Devices provide basic and supplementary insulation, with an isolation test voltage of 5.2kVDC and conforming to the internationally recognized safety standard UL60950 (pending). Products can provide a key element of the end-product's safety insulation system.

MURATA

<http://ept.hotims.com/51126-36>

PSUs boost power density in compact 1U package



XSolo family of 1U-high, single-output switching power supply units (PSUs) are available in a convection-cooled 504W open-frame U-channel form-factor model (6.8 W/cu.in.) and an enclosed, fan-cooled chassis model that delivers up to 1008W (13.6 W/cu.in.). Capable of achieving 92% efficiency, these ultra-compact and rugged PSUs meet the exacting requirements of medical, industrial, IT and military COTs applications.

EXCELSYS

<http://ept.hotims.com/51126-37>

Online design tool permits power supply pcb layout, export to CAD

WEBENCH Power Designer online tool allows users to quickly create a power supply printed circuit board (pcb) layout and export it to industry-leading computer-aided design (CAD) development platforms. Product uses powerful design algorithms to quickly create a custom pcb board layout with minimal noise and thermal issues. Footprints for each component are included and the power supply design is created with the push of a button. Tool quickly exports the complete design into the engineer's favorite CAD tool.

TEXAS INSTRUMENTS



<http://ept.hotims.com/51126-38>

Dc-dc converters deliver bipolar dual output voltages

SHHN000A3CL isolated dc-dc converters provide a bipolar dual-output module in a compact (1-inch-by-1-inch brick) footprint. Unit features a wide input voltage range of 9-36 volts dc and a bipolar dual output, precisely regulated output voltage at 15 volts dc and -15 volts dc, 9 watts output power and a 0.3-amp output current. Product includes remote on/off, remote sense and output voltage adjustment. Module is fully self-protected with output over-current and over-voltage, over-temperature and input under-voltage shutdown control.

GE-CRITICAL POWER

<http://ept.hotims.com/51126-40>



Shielded SMD power inductors boost inductances



CDRH3D23 Series magnetically shielded power inductors are suitable for high-density power circuitry. With ferrite drum construction, devices yield higher inductance values than other inductors with a similar footprint. Product measures 3.92 x 3.92 x 2.5mm and inductance values range from 0.47μH to 47μH. RoHS compliant and halogen-free device delivers above average current handling capabilities. Device provides a full-rated temperature range of -40C to +105C, and solder reflow temperature to 260C peak.

SUMIDA

<http://ept.hotims.com/51126-41>

Output dc-dc converters meet low power, high reliability needs

D Series of low power radiation-tolerant output dc-dc converters meet the high reliability design needs of satellite power systems. Models D28xxD and D50xxxP provide extremely low output noise, guaranteed End-of-Life (EOL) output voltage drift with excellent output cross regulation. Each converter output is independently regulated with 5W maximum rated output power or 10W total output power.

INTERNATIONAL RECTIFIER

<http://ept.hotims.com/51126-42>



Pure sine wave dc-ac inverters deliver 1kVA

CSI 1K-3U3LN series of low noise dc-ac inverter systems generates up to 1kVA output power with pure sine wave output voltage. The input and output are filtered for low noise. The output has a second-stage high performance filter which reduces the residual output ripple to less than 100mVrms and delivers a very smooth pure sine wave output. Product's input meets the requirements for EN55022 Class A for conducted noise and radiated emissions with wide margins. Very low output noise ensures that the system can be used to power sensitive electrical and electronic equipment in a broad spectrum of applications. Devices provide a single, regulated output of 115Vac continuous at 60Hz or 400Hz, or 230Vac continuous at 50Hz.

ABSOPULSE ELECTRONICS

<http://ept.hotims.com/51126-43>

Ac power transformers drive sensors, controllers

Series APT ac power transformer are used to step-down line voltage supplies to an isolated 24Vac output. Devices are designed to power sensors and controllers in many common circuits. Models can be ordered with either single or dual 1/2" NPT threaded hub mounts and also come standard with 8.5" 18AWG wire leads. UL listed 40, 50, 75, or 96VA rated models are available to meet the needs of many building automation and control system applications.

DWYER INSTRUMENTS

<http://ept.hotims.com/51126-44>



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- Operating temperature range: -40°C ~ +125°C

6-30W wide input

- Ripple & noise down to 45mVp-p
- 13A max. I_{SR} (25°C) (ISO9001, ISO14000, OHSAS18000, TS16949 certified)

1-3W wide input

- Ripple & noise down to 45mVp-p
- Consistency and stability greatly improved

0.5-1A non-isolated series

- Efficiency up to 95%
- Support negative output

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<http://ept.hotims.com/51126-10>

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* For 'Standard Control' products. Source: *Automation World Magazine* – 2011, 2012, 2013

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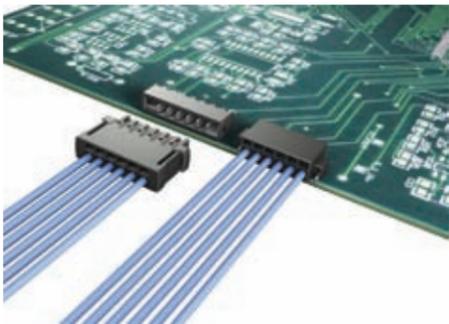
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Connector boosts wire-to-board flexibility



har-flexicon series of discrete wire-to-board connectors and terminal blocks improve PCB performance and density with robust connectivity. The miniature devices provide design and manufacturing flexibility, whatever the termination technology, that make possible a lower all-in cost of the PCB. The SMT (Surface Mount Termination) devices suitable for plug-gable single conductor wiring of I/O signals are available in two main pitch categories: traditional 3.5 mm–5.08mm sizes. Products have standard contact spacing and screw or push-in (spring cage) wire termination and

SMC (Surface Mount Compatible) termination to the board. Device side connectors can be directly wired to create a horizontal or vertical terminal block with high vibration and shock resistance.

HARTING

<http://ept.hotims.com/51126-45>



Colourful terminal blocks solve wiring problems

JB Series Terminal Blocks provide colorful ways of solving field wiring problems. Single circuit modules snap together to form nearly infinite circuit configurations. Modules may be separated with a special tool if desired. Standard design features include break resistant barriers, standoffs for flux cleaning and ready-to-wire screws. A full range of terminal configurations are offered on industry standard center to center spacings of 3/8" - (0.375" or 9.50 mm) and 7/16" - (0.4375" or 11.11 mm). Products provide the ability to color code each terminal to match customer wiring.

BLOCKMASTER ELECTRONICS

<http://ept.hotims.com/51126-46>



RF upconverter yields compact vector signal generator

R&S SGU100A RF upconverter extends the frequency range of the R&S SGS100A vector signal generator from 12.75 GHz to 20 GHz. By combining the two instruments, users can now generate vector signals continuously from 80MHz to 20GHz, e.g. for use in test systems in the aerospace & defense sector. Once combined, the R&S SGS100A and R&S SGU100A act as a single unit with one I/Q input and one RF output. This combined unit can also be controlled remotely or manually just like a single instrument.

ROHDE & SCHWARZ

<http://ept.hotims.com/51126-47>

8 Channel oscilloscope boosts channels definition, bandwidth

HD08000 oscilloscope product line with 8 analog input channels, 12-bits of vertical resolution utilizes firm's HD4096 technology and up to 1GHz of bandwidth. Products improve performance, going further (8 channels), with finer resolution (12-bits) and faster (up to 1GHz bandwidth). A wide variety of mixed-signal, serial data, long memory and probe options and accessories are available. Unit is suitable

for high-power three-phase power electronics system analysis.

TELEDYNE LECROY

<http://ept.hotims.com/51126-48>

32kHz MEMS caters to wearables, IoT markets

SiT1552 MEMS TCXO provides tiny footprint and ultra-low power consumption enabling a paradigm shift in the size and battery life of wearable electronics and Internet of Things (IoT). Such benefits are not available from legacy quartz devices. Product is available in a 1.5 x 0.8mm chip scale package (CSP) and can perform reference for real time clock (RTC) function. Device provides sleep clock for connectivity.

SITIME

<http://ept.hotims.com/51126-49>

Benchtop test unit integrates 5 key measurement devices

VirtualBench all-in-one instrument integrates a mixed-signal oscilloscope, function generator, digital multimeter, programmable dc power supply and digital I/O. Users interact with product through software applications that run on PCs or iPads. Device provides the most common functionality affordably and opens up new possibilities for how engineers can use benchtop instruments. Product takes up minimal space on a desktop or benchtop and simplifies instrument configuration through consistent, user-friendly interfaces.

NATIONAL INSTRUMENTS

<http://ept.hotims.com/51126-50>



west tech report

Kodak Canada – Continuously collaborating and innovating Firm improves output, reduces environmental impact, cost and waste



Sohail Kamal
West Coast
Correspondent

Functional printing is getting smarter, and it's doing so by improving graphics quality, expanding production capabilities as well as decreasing cost and waste. One BC company has been on the cutting edge of this industry for a long time. Welcome to Kodak Canada. One of BC's tech industry jewels, they are a major BC employer with one of the largest Kodak offices outside of Rochester, NY.

Kodak's imaging system, SQUAREspot, is the key technology in their consumer packaging hardware offerings. SQUAREspot provides the differentiation of the system, leads the market in terms of imaging technology and is proudly developed and manufactured in BC. I recently had a chance to talk to Paul Beaumont, Director of output devices, at Kodak Graphic Communications Canada in Burnaby BC, about the factors that contributed to their success.

Q: Kodak Canada continues to develop SQUAREspot, leveraging improvements to thermal imaging technology. Can you tell us a bit more about this technology?

"How SQUAREspot works is our trade secret, but the end result is that SQUAREspot images a 2 by 10 micron laser spot on a plate/media. That is extremely high resolution," explains Beaumont. By achieving such an accurate energy spot, Kodak adds process stability. Lasers are used in making masters of printing plates, that master is highly stable to facilitate use in different applications. The success and effectiveness of the product has been rewarded by the market as they recently shipped their 20,000th SQUAREspot image head.

Q: So where do we find examples of Kodak's work?

"People are exposed to the quality of our products every day, whether flipping through their favourite magazine, browsing through the newspaper, eating breakfast out of a cereal box, or walking on the pattern that is applied to their laminate flooring in their home," says Beaumont.

Q: SQUAREspot, as I understand it, provides the key differentiation of your computer packaging system. Can you talk about one of your recent innovations that uses SQUAREspot?

"A recent innovation is the launch of our Flexcel NX system for the Corrugated Packaging market," says Beaumont. "At its core, the Flexcel NX systems utilize SQUAREspot imaging and it empowers customers in the post-print and pre-print corrugated markets to drive significant print quality improvements while taking advantage of increased print stability and pressroom efficiencies".

Q: What have been the benefits of founding the original company in Burnaby, BC?

"Globally we are an 8,800 employee company with Kodak Canada as one of the largest Kodak facilities. We have been hiring with the recent expansion of our Burnaby based Technical Response Centre, and the expansion of manufacturing for some of our Very Large Format systems in Burnaby," Beaumont says, and adds, "Being in Vancouver is key to working with our other manufacturing locations in areas such as Shanghai." Ironically, it might even be what Vancouver lacks that sets the table for Kodak Canada's success. The limited resources and limited large scale clients in Western Canada, compared to major population density areas such as China and the manufacturing powerhouses in the United States, forces Kodak to be collaborative.

Q: So building partnerships with customers and suppliers has helped Kodak, can you describe how it keeps Kodak at the forefront of the digital printing technology industry?

"Kodak has always stayed close to the customer. This is key to understanding their needs, and their customers needs, and is absolutely critical to developing the right products and features," says Beaumont. "This means direct contact not only through our sales and marketing teams but enabling effective communication directly with our product management and Engineering teams when defining product requirements." In the last West Tech Report, I wrote about how the decreasing size and cost of processing power and other components is opening the door to innovation in wearable technology. Innovation has been one of Kodak Canada's achievements over the long term, to continue to analyze and anticipate customer needs and use the latest technology to deliver high quality, robust solutions.

Q: Kodak Canada has a long history of success with being nimble and innovative. What tips can you share about how Kodak has carved a competitive edge?

"Stay close to your customers and don't be afraid to take risks, as that is the key source of innovation. Don't get complacent - embrace, drive and lead change even when it may feel uncomfortable," says Beaumont.

Q: Any words of advice for a budding tech entrepreneur?

Beaumont shares one of his favourite Japanese proverbs: "Challenge the larger projects, the small ones will not lead you anywhere, and have the vision/plan to drive you, and your organization, past your goal."

For more information about Kodak go to www.kodak.ca, or for information on their technologies check out (SQUAREspot) www.youtube.com/watch?v=BiJeRpoenM8, (Flexcel) www.youtube.com/watch?v=IFK5i6JWgc.

Mini 3D printer is plug and play

OK International QUANT 3D Q150 desktop mini 3D printer provides an enclosed housing door and printing resolution of 200, 250, 300, 350, 400 microns. Unit is ready to print within minutes and comes with a heated platform, intuitive user software and high quality plastic filaments. Plug and play unit fits on any workbench or desk and provides see-through enclosure panel for safety and in-action visibility.

EMX ENTERPRISES

<http://ept.hotims.com/51126-51>

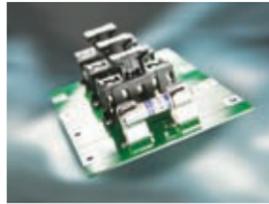




Industrial Automation

Fuse cover is touch-safe

ESO 10.3x38 touch-safe fuse cover is designed to safely and securely insert and extract 10.3x38mm fuses. After inserting the ESO 10.3x38 with captive fuse into the fuse clips, the complete installation provides a touch-safe cover according to IP20 specifications; additionally the cover serves to extract a blown fuse. No additional tools are required. Product is suitable for applications that include solar inverters, string fuse boxes, battery charge controllers and in the energy and industrial sectors.



SCHURTER

<http://ept.hotims.com/51126-52>



Mid-mount modular jacks withstand high temperatures

GMJXHT-MM-S-88 high temperature mid-mount modular jack is shielded and available with 8 positions, 8 pins and optional tape and reel packaging. The mid-mount device provides flexibility to board mount designs in applications requiring smaller, lower profile, components. Product has standard gold flash plated contacts with an option for 50u. Ideal for low profile applications and composed of high temperature material, device is rated 94 V-0.

KYCON

<http://ept.hotims.com/51126-53>

Compact M12 RTD temperature transmitters are programmable

M12TXC series of compact and programmable M12 RTD temperature transmitters provide a 4 to 20mA output and come with a probe suitable for areas with space limitations where traditional head connections are too large to fit. Product's M12 thread design provides a secure industrial fit.



OMEGA

<http://ept.hotims.com/51126-54>

Bayonet-to-bayonet coupled connectors are IP67 sealed



Firm supplements the product families of IP67 RJ45 / USB / LC Duplex with an inline coupler variant having Bayonet locking on both ends, not just the outside connection. With that double-sided bayonet locking, an IP67 protected cable-to-cable connection can be established. The new inline coupler variants can be used for front and back panel mounting, or no panel at all. Housing materials in black plastic or metalized plastic are available.

CONEC

<http://ept.hotims.com/51126-55>

Push button box line comes with plastic option

PBB Push Button Box line of NEMA plastic enclosures for automation applications reduces costs compared to steel versions. Products provide the advantage of higher corrosion resistance in washdown, humid and outdoor environments. Products are 20 times lighter than comparable steel boxes, making them easier to handle and install. Devices have a NEMA 4X / IP67 rating that keeps out dust and water in extreme conditions and meeting the requirements of UL 746C with respect to ultraviolet light and water exposure.



BUD INDUSTRIES

<http://ept.hotims.com/51126-56>



Cable gland speeds installation

Icotek's KVT cable gland is a circular split frame for quick and easy installation of cables or complete cable harnesses. Special locknuts are supplied for routing cables terminated with SUB-D, DVI or PROFIBUS plugs. Device provides protection class IP54. Retrofitting and maintenance can be carried out easily and quickly. Products come in high packing density and wide variety. Suitable for standard or metric cut-outs, products are available in all sizes from M25 to M63. Warranty of pre-terminated cables remains.

EML REP

<http://ept.hotims.com/51126-57>

Rugged metal nano-connectors are light-weight

Metal Nano-Connectors are high-density, multi-position devices made with break-away or threaded metal housings for a positive lock and environmental seal. Built to meet or exceed military specifications, the small, lightweight, but strong devices are suitable for mission critical applications where size, weight and reliability are crucial, such as on board unmanned aerial vehicles (UAMs). Board mounted versions mate up with pre-wired connector/cables for instrument wiring. Products are available in four shell sizes: 6, 11, 16, and 28 positions arranged on a .025" (.64 mm) pitch and are capable of 1 amp per contact.



OMNETICS

<http://ept.hotims.com/51126-58>

High density monoblock inserts coincide with modular connectors

Han-Eco monoblock E inserts are high density monoblock inserts that expand the capabilities of firm's Han-Eco and Han-Yellock modular connector series. Using these inserts, a single connector can replace a bigger connector or multiple units for significant space savings on the device or control cabinet. Devices come with screw termination and are designed as snap-in modules for fast, tool-free assembly. Products use the same Han E contacts with wire protection that have already proven themselves in millions of applications, and provide up to 67% more contact density than Han E inserts.



HARTING CANADA

<http://ept.hotims.com/51126-59>

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Taking Productivity to New Levels

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"The CrimpCenter 36 S gives us the best accuracy and flexibility to run a wide range of wire types and sizes. Schleuniger gives us world class service to match the outstanding ability of the CrimpCenter 36 S. An unbeatable combination!" **Donnie Hill, Precision Manufacturing Co. Inc.**

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<http://ept.hotims.com/51126-12>

Ethernet switches boost efficiency, performance

Ha-VIS eCon Unmanaged Ethernet Switches provide high efficiency and performance, along with simple and quick operation. Optimized and designed for jobs in harsh industrial environments, over 150 new unmanaged Ha-VIS eCon Ethernet Switches equally enable the cost-effective expansion of existing network infrastructures, as well as the development of new industrial networks. The compact, cost-effective plug & play switches can be easily and quickly put into operation. Devices reduce the energy usage by up to 50% along with lower heat generation.

HARTING NORTH AMERICA

<http://ept.hotims.com/51126-60>



Illuminated pushbutton switch is splash, vandal resistant

DH Series splash, vandal resistant illuminated pushbutton switch is available in 22mm, 25mm and custom sizes up to 40mm. Heavy-duty, rugged panel mount line is available as momentary or latching in both SPST and DPST, normally open and normally closed. Flush actuator styles provide non-illuminated, bi-color ring illumination or dot illumination. Color choices are Red, Yellow, Green, Blue, White and Orange. LED voltage choices range from 6V to 220V. Product delivers electrical rating of the DH series is 2A at 24 or 125Vac and 1A at 250Vac.

CIT RELAY & SWITCH

<http://ept.hotims.com/51126-61>

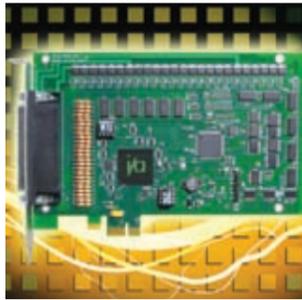


PCI Express I/O card provides 24 isolated digital inputs

Model PCIe-IDIO-24 PCI Express I/O cards provide 24 optically isolated digital inputs and 24 solid state FET relay outputs. Suitable for high-voltage protection in industrial control and monitoring applications, the x1 PCI Express device can be used in any available PCI Express slot. Optocouplers on the card are rated for 2,500V isolation and help protect systems in industrial environments against high voltages or currents caused by line surges or ground loops. The solid state outputs are capable of switching from 5-34dc at 2A continuous.

ACCES I/O PRODUCTS

<http://ept.hotims.com/51126-62>



API Delevan to carry Harowe brand resolvers

API Delevan, manufacturer and designer of magnetic components for RF and power applications, announced that it will be expanding its product portfolio to include the well-known Harowe brand of resolvers.

The Harowe brand includes a wide range of standardized and custom solutions of frameless resolvers from size 10 through size 55, along with housed resolvers ranging from standard-grade size 8 to heavy-duty industrial-grade size 25.

Used by manufacturing and design engineers to provide highly accurate feedback of position, speed-sensing and pole detection for motors, Harowe resolvers excel in applications where high reliability and durability is required, such as high temperature high vibration extremes, oily and dirty environments and other harsh environment extremes.

Push-in connectors handle solid or stranded wire



Clear Connects WPC300 Series solid or stranded wire push-in wire connectors are faster and safer and eliminate need for twisting or taping. Transparent products are color-coded, reusable and easy to use, and are color-coded for easy identification, indicating number of positions. Touch-Safe product provides wires that are safely shrouded by connector housing. Clear housing provides visual confirmation and individually held wires eliminate loose connections. Made with highly conductive copper, device accepts solid and tinned stranded wire 22-12AWG.

BLOCKMASTER

<http://ept.hotims.com/51126-63>

1.25mm connectors boost performance

High rel, low profile Gecko connectors provide high performance in a miniature package. The 1.25mm pin spacing results in a 35% space saving over other high-performance connectors such as Micro-D. Rated to handle 2A per contact, devices are tested and proven to allow high performance in extreme conditions, operate within a wide temperature range (-65C to +150C) and under extreme vibration (Z axis 100g 6m/s). This high performance is made possible by firm's four-finger patented copper alloy contact.

HARWIN

<http://ept.hotims.com/51126-64>



SMD MLCC in quad 2525 case size boosts Q, lowers ESR

QUAD HIFREQ 2525 case high-power surface-mount multilayer ceramic chip capacitor (MLCC) is suitable for high-frequency RF applications. Device provides an ultra-high Q (> 4000 at 10MHz, 1pF), ultra-low ESR down to 0.018ohms, and dc voltage ratings up to 3600V. Based on a stable ceramic dielectric and high serial resonant frequency (SRF) and parallel resonant frequency (PRF), product improves performance in critical applications. Device provides a broad working voltage from 300V to 3600V and a wide capacitance range from 1.0pF to 2700pF. It also delivers tight tolerances to ± 0.1pF, an aging rate of 0% per decade and an operating temperature range of 55C to +125C.



VISHAY INTERTECHNOLOGY

<http://ept.hotims.com/51126-65>

Multi-wavelength IR temperature sensors boost accuracy, reliability



Pro 100 and Pro 200 Series multi-wavelength infrared temperature sensors are suitable for multiple industrial applications where devices such as thermocouples and RTDs would be inaccurate, too slow, or difficult to use. Devices use ESP algorithms to provide 'aim-and-read' capabilities for non-grey body materials (annealed, galvanized and stainless steel; aluminum; brass; copper; zinc; etc.) that are not accurately measured by single- or dual-wavelength sensors because their change in emissivity varies by wavelength. Products measure the amount of infrared energy emitted by an object's surface, then convert this signal into a temperature value between 95C and 2500C. Accuracy is within 2C or 0.25% of the reading (whichever is greater).

WILLIAMSON

<http://ept.hotims.com/51126-66>

Miniature triaxial rate sensor withstands high shock testing

ARS3 PRO Triaxial Angular Rate Sensor accurately measures high rates of angular velocity, even in excessive shock and vibration environments. The high-performance Gyroscope combines three angular rate sensors into an extremely small, rugged aluminum enclosure that measures 19 x 19 x 12.5mm (0.75 x 0.75 x 0.49") and weighs 9g (0.35oz). For tight constraint applications requiring three independent sensors to measure pitch, roll and yaw, this design eliminates the need for a mounting block that consumes additional space and adds weight.

DTS

<http://ept.hotims.com/51126-67>



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Connectors & Medical Grade Cable Assemblies

Medical applications require a consistently reliable connector that can withstand the harsh environment of the medical world. ODU provides cable assemblies with rugged, flexible, medical grade cables in a wide variety of colors and materials. Additionally, ODU connectors and assemblies come in models that are disposable and autoclavable. Please contact our sales department for more information.



ODU MEDI-SNAP

ODU MINI-SNAP



Modular for Medical

ODU-MAC modular connectors combine power, signal, pneumatic and fiber optic in one housing. Non magnetic is also available for MRI applications.



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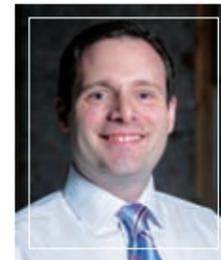
(805) 484-7458

sales@odu-usa.com

<http://ept.hotims.com/51126-14>

The state of IAC in North America

Industrial automation in North America is a \$22 billion market. Whatever the size of the manufacturing line, we are seeing three distinct trends in North America: sustainability and efficiency, sophistication, and the leveraging of system data. These trends are influencing the development of technologies that are driving real change in industrial automation across markets.



By Richard Halliday,
global product director,
Newark element14

Industry trends

For both small and large industrial operations, long-lasting lines and lower impact power grids are critical. Manufacturers need their lines to run with the highest level of efficiency and when they don't run efficiently, to have the lowest down time possible. Most manufacturers in North America are running lean operations and those systems must be able to survive in the long term with relative ease.

The second trend we're seeing in North American industrial automation is increasingly sophisticated system applications within existing infrastructures. Most installations take the form of retrofits or upgrades, and those are done incrementally, as opposed to a completely new automation system. As a result, manufacturers need sophisticated systems that allow for greater functionality and interoperability with what's already in place.

With these new levels of sophistication, manufacturers face an interesting dichotomy. Though the systems are advanced, the operators on the production lines are not necessarily any more available than they have been in the past. For these systems that can do far more than was possible even just 3-5 years ago, their installation, maintenance and repair must be as simple as possible.

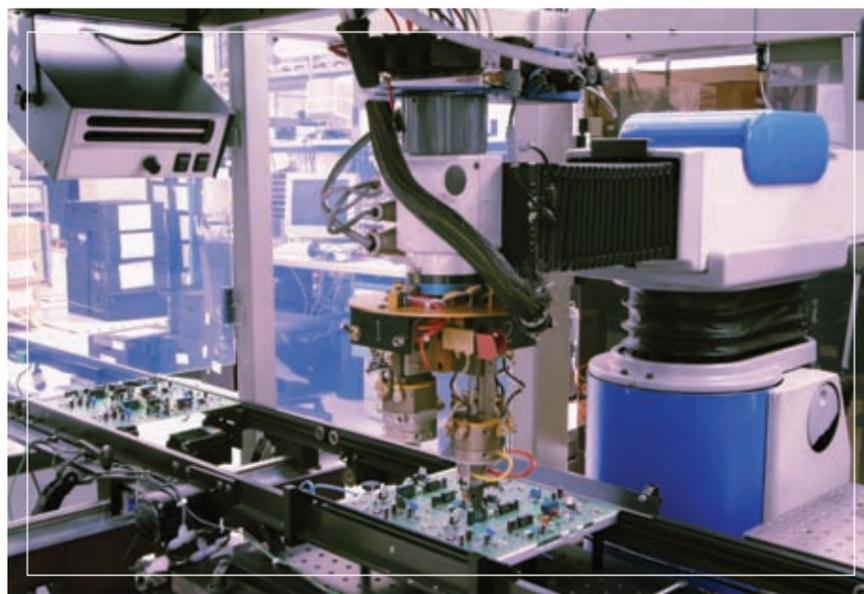
The third and final trend we are seeing in North American industrial automation is the application of system data into other components of the manufacturing process. Everyone is familiar with the concept of "big data," but that data is exceptionally important to even the most minor changes in how production lines are run. One example of this is predictive maintenance, or using analytics to predict problems before they occur. This allows manufacturers to avoid interruptions in production and decrease the amount of down-time on a line. The implications of system data are huge in terms of efficiency. Time is money for the professionals working at the production level, and predictive maintenance can decrease the amount of time needed to repair a line so it's up and running right away.

Key tech developments

There have been a number of improvements over time to the key product areas involved with industrial automation and control, but three are complimentary to

each other with direct connections to the most rapidly growing markets: PC-based programmable logic controllers, drives and motors, and industrial computers/Human Machine Interface(HMI).

There is a wide range of PC-based PLCs available today, all increasingly sophisticated. These controllers require complex coding work to function with other key elements of an overall industrial automation control design. In North America specifically, manufacturing lines are experiencing an increased need for that sufficiency and sustainability outlined above. PC-based PLCs provide a much simpler user interface in that they



can program devices to control a line without the support of an engineer who has 20 years of industry experience.

For both small and medium-sized operations, where engineers don't necessarily have access to the kind of legacy knowledge required of more sophisticated PLCs, lower-end or mid-range PLCs increase sustainability and efficiency.

The second key product line, drives and motors, are a large and vital segment to the business. You can't have industrial automation without drives and motors. Specifically where energy efficiency is concerned, drives and motors are the largest power consumers on a production line. As a result, we're seeing in newer drives and motors increased efficiency, greater longevity and an ability to provide data to systems that are about to wear out or break down. Again, this type predictive maintenance is critical because a line doesn't move without drives and motors.

Industrial computers and HMIs, the final key product line, play into the efficiency and system data trends mentioned above. These are the components that allow engineers running product lines to understand what its efficiency levels are and how well industrial computers interface with the other systems in that line. In the last two years, we have seen an increased number of offerings from suppliers providing PLCs and HMI together as a packaged solution. Schneider Electric, Omron, Eaton and IDEC are a few of the major North American industrial automation companies combining solutions – proving the importance of this trend.

Industrial computers and HMIs are easily programmable and can communicate with other pieces of the automation line.

need to survive various, hostile environments with onshore drilling and fracking. The alternative energy market has also seen tremendous double-digit growth in wind turbines, and large solar arrays across the United States. At the industrial level, they are being used to better manage facilities. Both drives and motors have become more sophisticated in their design and functionality, but also simpler to control and use in a way that lets manufacturers understand where in the production process their inefficiencies lie.

Just as the energy industry demands independence, so does the food and beverage industry demand a sterile environment. Industrial automation plants in the food and beverage markets can decrease the amount of time needed to clean a line if the technology they are using withstands the cleaning process. As a result, moisture resistant or moisture-proof products have become more prominent and an undeniable advantage to have.

Lastly, the automotive and medical industries present tremendous opportunities for the second and third tier markets to upgrade their production lines and increase efficiency on the floor – especially in Canada and Mexico. The tier 1 manufacturers are already well automated relying heavily on robotics, but the supporting markets can upgrade their systems to last longer and easily switch from one set of products off of a line to another. With sophisticated but easily programmable PLCs and simple HMI for support, the drives and motors pushing these production lines forward efficiently – making the jobs of the manufacturers and the engineers overseeing those operations easier.

For more information on the industrial automation market in North America from Newark element14, go to <http://ept.hotims.com/51126-68>





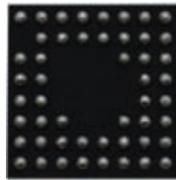
Optoelectronics & Displays

LED matrix drivers boost resolution

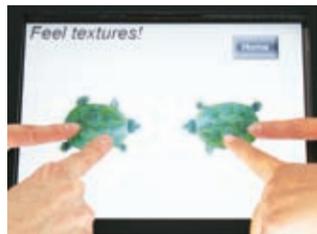
AN3x Series LED Matrix Drivers are high resolution, 256-step LED matrix drivers with built-in lighting effects. Each device is a single chip solution which can drive from 3 to 288 single color LEDs or from 1 to 96RBD LEDs. With automatic LED lighting effect control over an I²C/SPI interface, device can implement special lighting effects with minimum software control. Product reduces the total operation current of the LED array.

PANASONIC ELECTRONIC COMPONENTS

<http://ept.hotims.com/51126-69>



Tactile touch technology delivers multi-finger localized interaction



NLT Technologies LCD prototype with tactile touch technology recreates the sense of tactile texture to the users by using electric vibrations and reproduces skin sensations as if they are tracing actual objects on the display. Device provides texture via skin sensation when the user traces the surface of the display where the image is shown. If multiple fingers touch the display at the same time, the digits on the area where the image is shown

can feel the appropriate texture, but the digits on the area without the image will not feel the texture. This enables users to identify which area on a display the image is shown, not only visually, but also through tactile feel. The stimulus can be localized in conjunction with the image object, enabling each finger to sense its own stimulus, so the display can accommodate multi-finger or multi-person tactile interaction with visual information.

TIANMA NLT AMERICA

<http://ept.hotims.com/51126-70>

Sunlight viewable pilot lights vary voltage options

AP22M sunlight viewable pilot lights use high-intensity LEDs to provide ultra-bright visibility even in direct sunlight. A unique optical design makes them twice as bright as standard pilot lights when viewed from the front and up to 100 times brighter than standard pilot lights when viewed from the side. Available in 12Vdc, 24Vac/dc or 120Vac, devices are suitable for applications that require accurate recognition, regardless of external conditions.

IDEC

<http://ept.hotims.com/51126-71>

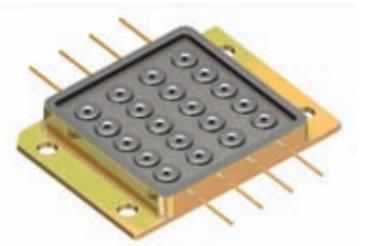


Multi-chip laser diode module delivers 50W optical output

PLPM4 450 compact laser multi-chip package can pack up to 20 blue laser chips into a single 'butterfly' package for projection applications. Device doubles the optical output of the individual chips, providing an overall blue light output of 50W. Blue laser diodes in combination with a converter wheel, which converts part of the blue light into the two primary colors of red and green, are used as the light source for laser projectors. Product dimensions are 25.5mm x 35mm (emission surface 16mm x 16.5mm), with optical output power of 50W (at a package temperature of 50C). Product's wavelength is 440nm to 460nm, plus a lifetime (50% reduction in light), up to 20,000-hours (depending on ambient conditions).

OSRAM OPTO SEMICONDUCTORS

<http://ept.hotims.com/51126-72>



1200V MOSFET shatters on-resistance barrier

C2M0025120D silicon carbide (SiC) 1200V MOSFET with an RDS(ON) of 25mΩ in an industry standard TO-247-3 package shatters the on-resistance barrier of traditional 1200V MOSFET technology. Device has a pulsed current rating (IDS Pulse) of 250A and a positive temperature coefficient, improving design flexibility to explore new design concepts. The high IDS Pulse rating makes the device suitable for pulsed power applications and the positive temperature coefficient allows the devices to be paralleled to achieve even higher power levels.

CREE

<http://ept.hotims.com/51126-73>



Industrial TFT LCD display is ruggedized

ADM - 5800 Series ruggedized industrial 15"- 19" Active Max TFT LCD display is NEMA 4X / waterproof and made with a stainless steel enclosure. Unit comes with optional 5-Wire resistive touch screen. Product provides integrated VGA extender and a transmission length up to 330meters(1,000ft) over CAT5e cable. Unit provides adjustable equalization and gain control. De-skew compensation is available for RGB delay control.

ARISTA

<http://ept.hotims.com/51126-74>



AEC-Q101-qualified, proximity light sensor delivers robustness

VCNL4020X01 AEC-Q101-qualified, fully integrated proximity and ambient light optical sensor provides an operating temperature range to +105C and combines an IR emitter, a photo-pin-diode for proximity, an ambient light detector, a signal processing IC, and a 16-bit ADC in one small 4.8mm x 2.3mm x 0.8mm rectangular lead-less (LLP) package. The three-in-one sensor provides an interrupt function, supports I²C bus communication interface, and greatly simplifies window and sensor placement.

VISHAY INTERTECHNOLOGY

<http://ept.hotims.com/51126-75>



Rugged LCD touchscreen displays enhance airborne surveillance

AVDU3000 12.1" and **AVDU3600** 14.1" high reliability, feature-rich, rugged touchscreen LCD displays speed and simplify the integration of HD video for use by airborne surveillance crew members. Both units provide sophisticated control and video handling capabilities designed specifically for the unique demands of airborne law enforcement applications such as surveillance, patrol and search & rescue. Products enable flight crewmembers to control the aircraft's video recorders and video switches without having to divert their eyes from the screen. Products improve levels of reliability, flexibility and quality, including fully bonded optical construction, enhanced sunlight readability and full night vision (NVIS) compatibility.

CURTISS-WRIGHT DEFENSE SOLUTIONS

<http://ept.hotims.com/51126-76>



newswatch

UL streamlines cert for portable LED luminaires

UL, Northbrook IL, a global safety science leader, introduced a new global certification program for portable luminaires, the most popular type of LED luminaires.

This is the first time a certified testing laboratory has created a single set of samples and tests that combine the requirements of both North American and International Electrotechnical Commission (IEC) standards that have not been formally harmonized as part of the CB Scheme, an international network of product certification organizations.

According to a McKinsey study, LED

lighting will grow 840% globally from 2010 to 2020, with LEDs projected to account for 60 percent of the total lighting market. UL is working with manufacturers on efficient testing and certification processes to help meet consumer demand while maintaining product safety levels.

In addition to the streamlined process, the program permits the substitution of certain components and the alteration of various aesthetic elements in many luminaire designs. This allows manufacturers to update their product lines more quickly to meet changing customer tastes.

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Contract Manufacturing & Electronics Assembly

Outsourcing cost analysis:

A formula for success

By George Henning, president, OCM Manufacturing, Ottawa

What would it cost to outsource the manufacturing fulfillment of your electronics-based product or sub-system? What would it cost to manufacture it in-house?



The outsourcing decision involves a variety of factors, and a systematic approach to calculating your options is critical. Going with gut instinct is risky with so much of your team's time, effort and money on the line.

In this article, I hope to improve your chances for success by providing insight and tools that you can use to conduct an organized, thorough and rigorous Outsourcing Cost Analysis. I'll help you to build an Outsourcing Cost Analysis Spreadsheet that you'll refine and reuse over the life of your product. I've provided a sample sheet with hypothetical numbers to get you started.

Whether you're planning your first product introduction or considering getting out of production yourself and moving fulfillment to a Contract Manufacturer (CM), the following system will help to reduce the risk to your enterprise and quantify the potential benefits.

Know your cost items related to production

Begin by creating a list of items that identifies the key cost drivers of your project. Any number of cost items could be involved in a project and these will become part of your calculations. Be sure

to consider each of these cost elements, in addition to any that may be unique to your product or industry:

- purchasing
- supplier management
- manufacturing engineering
- inventory control
- shipping
- receiving
- customs brokerage
- inventory space
- equipment costs
- maintenance costs
- production space costs
- energy costs
- rework (costs of poor quality)
- test development and support costs
- calibration costs
- IT costs
- training
- environmental compliance

You may also consider adding amounts for intangible items. Outsourcing manufacturing may have a positive effect on innovation. It may allow your sales and marketing team to better focus on new products and markets. Outsourcing allows you to focus on strategic strengths. These value-adds should be factored in to your calculations as well.

The spreadsheet workbook has a first sheet (named "Outsourcing Cost Impact") with a starting list. Your cost model will evolve over time; you will refine it as you move forward with the project planning.

Cost of Capital

When assessing the viability of a project like this, it's important to have a good estimate of your Weighted Average Cost of Capital (WACC). While a thorough discussion of this subject is beyond this article, many resources are readily available to help you with this portion of the task if it's new to you.

Forecasting Profit and Loss

Next, make a copy of your Income Statement to use for the analysis. Create a column with your expected values for the current year (like column B in the sample). This is the base case; there is no change from your current operations.

Adjust this model to create an approximation for cash flow at the bottom of the column. Add back estimates for non-cash items and changes in working capital. The result at the bottom of the column (cell B43 in the sample) is an estimate of the net cash flow for this scenario.

Next, we need to model the outsourcing scenario in the starting year. Take a copy of your base case (column B) and paste it beside in column C. Consider each of the items you listed before and estimate how outsourcing will impact your company financially. Include items that may generate cash on a one-time basis. You can generate cash by selling inventories of raw

materials, and equipment. You may also want to factor in changes to the timing of your cash cycle if that is significant (perhaps Accounts Payable will drop).

Update the items on the outsourcing scenario to reflect revised values that result from outsourcing. Continue this until you are happy with the net cash flow estimate for the outsourcing scenario for year 0. If you like, you can simplify by consolidating lines that don't change between scenarios.

As you populate the cells of the calculation spreadsheet with numbers, it is important that the figures you use are not merely assumptions. Talk to an experienced CM to get a realistic idea of the specific costs involved. For example, the costs associated with stencils, documentation, programming, and testing can vary sharply. You want to have real sense of what these costs will be relevant to your project. The CM should be willing to sit down with you to go through these costs in detail.

To evaluate the impact of outsourcing over a longer period (perhaps 2 years or 5 years), take copies of your year 0 analysis and to update for future years. In addition to costs, you'll also want to consider incomes. Outsourcing can allow a company to focus on core strengths to drive growth.

Differential Analysis

The difference between the net cash flow number for the outsource scenario and the in-house scenario is the net value of the proposed change. In the sample spreadsheet, this is shown on row 44 as Savings.

If you are analyzing over a longer period of time, you need to discount future savings using your WACC to account for the time value of money (i.e. \$1000 in hand now is more valuable than \$1000 delivered 5 years from now due to interest that could be earned).

This is not difficult and is already shown in the sample spreadsheet on row 45 as Present Value of Savings. The sum of all the discounted savings is the estimated Net Present Value of outsourcing. If this value is positive, outsourcing is a viable project for you to undertake. At this point, your model is pretty much complete.

It does take a little time and effort to produce a model like this, but, as you can see, the tool is a powerful one. A change such as outsourcing can be significant for a business, so it really makes sense to take the time to model the potential results and convince yourself of the benefits before beginning.

For more information on outsourcing the manufacture of your niche (low- to mid-volume) electronics product fro OCM Manufacturing, go to <http://ept.hotims.com/51126-87>

Differential Analysis - Outsourcing Production

Weighted Average Cost of Capital		14%					
Period		Year 0		Year 1		Year 2	
Scenario		In-house	Outsource	In-house	Outsource	In-house	Outsource
Column A	B	C	D	E	F	G	
Revenue							
1 Product Line A	6,000,000	6,000,000	6,900,000	7,000,000	7,935,000	8,100,000	
2 Product Line B	12,000,000	12,000,000	13,800,000	14,100,000	15,870,000	16,100,000	
3 Other	0	0	0	0	0	0	
4 Total Revenue	18,000,000	18,000,000	20,700,000	21,100,000	23,805,000	24,200,000	
Cost of Goods Sold							
5 Prod A - Material	2,880,000	3,456,000	3,312,000	3,974,400	3,808,800	4,570,560	
6 Prod A - Labour	720,000	0	828,000	0	952,200	0	
7 Prod B - Material	6,720,000	8,064,000	7,728,000	9,273,600	8,887,200	10,664,640	
8 Prod B - Labour	1,680,000	0	1,932,000	0	2,221,800	0	
9 Inventory Adjustments	30,000	10,000	30,000	10,000	30,000	10,000	
10 Indirect Labour	144,000	30,000	144,000	30,000	144,000	30,000	
11 CPP, EHT, EI, WSIB, Benefits	132,000	3,000	132,000	3,000	132,000	3,000	
12 Bad Debts	12,000	12,000	12,000	12,000	12,000	12,000	
13 Commissions	60,000	60,000	60,000	60,000	60,000	60,000	
14 Discounts	0	0	0	0	0	0	
15 Freight	240,000	140,000	240,000	140,000	240,000	140,000	
16 Brokerage	120,000	10,000	120,000	10,000	120,000	10,000	
17 Purchase Returns	48,000	0	48,000	0	48,000	0	
18 Maintenance	60,000	5,000	60,000	5,000	60,000	5,000	
19 Supplies	96,000	2,000	96,000	2,000	96,000	2,000	
20 Other CoGS	0	0	0	0	0	0	
21 Total Cost of Goods Sold	12,942,000	11,792,000	14,742,000	13,520,000	16,812,000	15,507,200	
22 Gross Profit	5,058,000	6,208,000	5,958,000	7,580,000	6,993,000	8,692,800	
23	28%	34%	29%	36%	29%	36%	
Operating Expenses							
24 Inventory	15,000	2,000	15,000	2,000	15,000	2,000	
25 Shipping/Receiving	15,000	2,000	15,000	2,000	15,000	2,000	
26 Supply Chain	15,000	7,500	15,000	2,000	15,000	2,000	
27 Mfg Engineering	25,000	25,000	25,000	8,000	25,000	8,000	
28 Administration	25,000	18,000	25,000	18,000	25,000	18,000	
29 Marketing & Sales	15,000	25,000	15,000	25,000	15,000	25,000	
30 Facilities	65,000	40,000	65,000	30,000	65,000	30,000	
31 Interest	7,500	7,500	7,500	7,500	7,500	7,500	
32 Depreciation	25,000	5,000	25,000	5,000	25,000	5,000	
33 Total Operating Expenses	207,500	132,000	207,500	99,500	207,500	99,500	
34 Net Earnings (Loss) for the Period	4,850,500	6,076,000	5,750,500	7,480,500	6,785,500	8,593,300	
35 Add back Depreciation	25,000	5,000	25,000	5,000	25,000	5,000	
36 Add back debt repayment	5,000	5,000	5,000	4,000	5,000	4,000	
37 Change in AR	0	50,000	0	0	0	0	
38 Change in Inventory	0	600,000	0	0	0	0	
39 Change in WIP	0	200,000	0	0	0	0	
40 Change in Prepaid Expenses	0	0	0	0	0	0	
41 Change in AP	0	200,000	0	0	0	0	
42 Change in Equipment	0	150,000	0	0	0	0	
43 Approximate Cash Flow	4,880,500	7,286,000	5,780,500	7,489,500	6,815,500	8,602,300	
44 Cash Savings		2,405,500		1,709,000		1,786,800	
45 Present Value of Savings		2,405,500		1,499,123		1,374,885	
46 Net Present Value		5,279,507					



Dorigo expansion driven by consistent sales growth

Burnaby-based electronics manufacturing services (EMS) provider Dorigo Systems Ltd. has enjoyed sustained positive growth through much of its 26 years of operation. This is no small achievement in a market that continues to push OEMs to be highly cost-effective and cost-sensitive.

Dorigo is one of the Pacific Northwest's leading contract manufacturers of printed circuit board assemblies (PCBA), and touts its stability, loyalty and longevity as the pillars to its success.

Specializing in low to mid volume orders combined with mid to high complexity, Dorigo serves some of the most respected OEM's in the industry. That privilege didn't come easily, but was achieved through quality workmanship, responsiveness and superior customer service, according to company founder and president Mark Pillon, P.Eng.

"Our attention to detail shows in all that we do," says Pillon. "Our customers have a real feeling of being taken care of, which ultimately leads to satisfaction."

With the support and efforts of its 90+ employees, privately-held Dorigo will exceed \$26-million in sales this year. The firm handles 300 open production orders in process at two operating plants for more than 30 active customers at any given time. The firm operates 45,000-square-feet of high profile manufacturing space in Burnaby, which includes a relatively new facility on Dawson Street.



"We have an excellent reputation for high quality manufacturing combined with strong ties within the electronic component supply chain," says Pillon. Dorigo's ability to be responsive to demanding customer production schedules has distinguished the company from other local EMS providers, with one customer going so far as to name Dorigo as a critical 'safety net' in their overall manufacturing process.

Dorigo is often involved in the early stages of product development with its innovative customers, which are primarily in the Pacific Northwest and Western Canada. Dorigo has seen increased order activity with new customers throughout the rest of Canada due to their reputation for high quality assembly. Together, they go through the process of Design for Manufacturability, ensuring that everyone is on the same page. This collaborative effort ensures that boards are built correctly, while delivered on-time and within budget, Pillon states.

"Dorigo was built on the philosophy of maintaining close attention to detail in all steps of the manufacturing process," says Paul Vasvary, business development manager. Dorigo prides itself on identifying potential problems before board assembly and we are experts on how to build boards cost-effectively.

"From a prototyping standpoint, we work with customers during the design phase to suggest design alternatives which will improve the manufacturability of the product," says Vasvary. "We are set up to do re-work but that is the last thing we want to do. Instead, let's work together to get it right the first time."

"We're constantly striving to respond to growing customer requirements by expanding our operations, streamlining our production process and providing the timely delivery and superior quality our customers expect," says Pillon. "We are committed to manufacturing the highest quality electronic assemblies to assist our customers in taking their product from prototype to production. This is the key principle responsible for the company's growth over the past 26 years."

"We are set up to do re-work but that is the last thing we want to do. Instead, let's work together to get it right the first time"

- Paul Vasvary, Dorigo business development manager

Corporate rebranding, coupled with a new website, will permit Dorigo to reach out in different ways and directions it had not before. Pillon expects these moves to serve as a catalyst in moving forward and how the firm attracts new business.

"We are speaking more to our strengths now and cultivating more recognition and a little more awareness," Pillon adds.

The organization is poised for expansion and continued growth, encouraging companies who are seeking EMS providers to discover Dorigo's capabilities and resources to handle the entire production process; from sourcing components and building boards to final assembly (box build), configuration management, testing and shipping of finished products.

"With our current facilities, I feel that we can easily move into the \$30-million range - after that we will have to begin taking steps towards expansion - via either another satellite facility or a consolidated commercial building. Acquisitions are not on our radar, we are more interested in organic growth," Pillon says.



"We have an excellent reputation for high quality manufacturing combined with strong ties within the electronic component supply chain"

- Mark Pillon, Dorigo president

Design service targets custom electronics assembly workspaces



ListaWorks complimentary design assistance for customizing electronics assembly workspaces provides high-quality, custom-configurable solutions

to precisely fit each customer's needs. Experts examine and predict current and future storage and workspace requirements, and propose solutions that provide high-density, reduced-footprint storage and offer the greatest workspace productivity. The detailed, personalized plan maximizes efficiency, flexibility and profitability while optimizing your space. Beginning with customized surveys and layout development, the process includes a detailed floorspace utilization analysis and is fully integrated with architectural and construction planning. ListaWorks even includes 3D layouts of the facility so that customers can visualize how the suggested solution will work in their specific space.

LISTA INTERNATIONAL

<http://ept.hotims.com/51126-88>

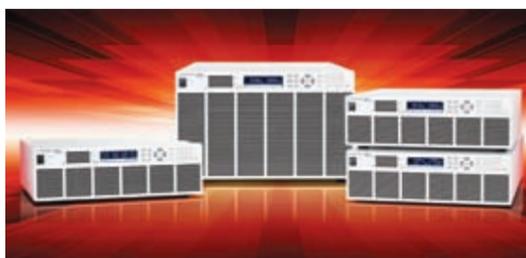
Infrared heat tools shrink tubing quickly, safely

Glo-Ring Infrared Heat Tools can be used for many applications, including heat shrinking, plastic tube bending, soldering, adhesive curing, and more. Products use quartz encapsulated heating elements which open and close to encircle work pieces with instant radiant heat at temperatures up to 1500F. Product is activated by an electrical foot switch to open and close the heating elements around a work piece. A solid state heat control allows for temperature adjustment for quick and even heat shrinking.



ERASER

<http://ept.hotims.com/51126-89>



Basic ac power sources test reliably with repeatable results

AC6800 Series of basic ac power sources deliver stable, reliable power for testing electronic devices during design and manufacturing. Product family includes four models from 500 to 4000VA output power, all with the quality and capability required for basic testing. Units provide intuitive user interfaces that make it easy for engineers to access and view setup and measurement information directly from the front panel or programmatically via SCPI (Standard Commands for Programmable Instruments) commands.

KEYSIGHT TECHNOLOGIES

(formerly Agilent Electronic Measurement Group)

<http://ept.hotims.com/51126-90>

Tabletop robot boosts payload, enhances speed, rigidity

Intelligent Actuator TTA Series Tabletop Robots provide significantly higher payload and maximum speed. Product delivers a maximum payload of Work Part Side (X Axis): 20 kg, Tool Side (Z Axis): 5 kg. Product provides a max speed including X Axis: 800 mm/sec, Y Axis: 800 mm/sec, Z Axis: 400 mm/sec. Unit's memory lets you store much more programs and positions. The additional data recovery function makes sure the original data can be restored should writing to a FLASH drive fails due to a power failure.



ELECTROMATE

<http://ept.hotims.com/51126-91>

Solder mask withstand high temps

Chemtronics Chemask HT solder mask is a high temperature, peelable, temporary mask safe for use on sensitive metals. Product is stable to 288°C, as well as at long temperature exposure up to 300F.

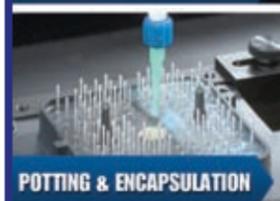
Chemask Aqua solder mask is a high temperature, water soluble, temporary mask safe for use on component-free areas. Product protects boards from molten solder to 268C (515F). Product prolongs deionized water system life.

EMX ENTERPRISES

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Smart nodes at the edge of the industrial Internet of Things

By Marcel Kuba, director of field application engineering, Spansion
Wolf Fronauer, industrial marketing and application manager, Spansion

We live in a connected world

where the Internet brings us more information than ever before at ever increasing speeds through millions of connected devices. This Internet of Things (IoT) is poised to revolutionize our world, enhancing ease-of-use, performance, efficiency and access. And, industrial automation will lead the way with smart nodes at the edge. However, to support the performance and cost parameters that will spur adoption of IoT industrial devices and solutions, embedded designers will need to use the right mix of processors, memory, connectivity, sensors, security, power and operating systems to deliver economical solutions that can be broadly adopted and maintained.

Connecting electronics to the Internet in all manufacturing brings a huge opportunity for increased production. Fortunately, the system-level hardware components of this manufacturing template already exist. Just look at current and emerging robotics, automation, enterprise resource planning software, server processing capabilities and network fabrics.

Making industrial IoT a reality

Making industrial IoT a reality involves creating an infrastructure for highly optimized and intelligent manufacturing, the right system configuration and an increase in memory needs, connectivity requirements and a focus on reduced system latency.

Latency can be improved in many different ways including both hardware and software optimizations.

For example:

- Higher memory and processor bandwidth
- Upgrading connectivity to Ethernet or EtherCat increases network latency
- Software systems partition in ways that allow certain code to execute from memory directly
- ERP systems leverage faster memory such as Flash over HDD to improve latency
- Server virtualization increases utilization and optimizes scheduling

Reducing latency at the system level must be a key focus for industrial IoT. Benefits can be achieved by shifting the compute power of today's central processing to a wide network of application-specific nodes, configurable for core functions within the overall system. Connected by a shared network, this fabric of 'smart' nodes can usher in greater efficiencies by automatically sensing environmental changes, reacting with quick parameterizations, storing valuable information, processing and executing tasks and streaming data to the cloud and other systems.

The market is exploring the need for this new smart compute fabric and how general purpose and application-specific processors will enable the transformation, as well as the necessity for more or faster memory throughout the system and the demands hardware components will need to face. One of the main demands is to increase the memory data throughput

while at the same time decreasing the pin count. Here, a main bottle neck in a typical microcontroller-flash system is the interface between the flash memory and the microcontroller.

Developers moving towards low-pin-count interfaces

More and more developers move away from using the parallel interface to low-pin-count interfaces like serial peripheral interface (SPI) or Quad-SPI. However, there are already new bus interfaces that increase performance more than five times over traditional Quad-SPI flash. This kind of interface needs only 12 pins and can run up to 166MHz at double data rate and provides a max data throughput of 333MB/second. Furthermore the new bus interface overlays on the pin-out of a common 6mm x 8mm BGA package for a Quad-SPI memory and can be used for fastest boot or even execute-in-place (XiP) applications to reduce DRAM or to extend the embedded flash.

A smart node in this context is able to handle different communication protocols and front-ends to different applications, providing a holistic platform approach. These are highly reusable, scalable and quickly adoptable during development. For example, a designer can use the same core platform to build a wide range of devices such as a motion controller, a sensor phalanx, a gateway controller, a data concentrator, a monitor or an HMI console system. Additionally, designers can reconfigure the smart nodes in real-time to handle many different products. The possibility of self-determined control units becomes very real.

Connectivity is only 1 facet to IoT

Connectivity is just one facet of achieving industrial automation for Industrial IoT to become a reality. There are a number of key semiconductor device elements necessary to building this topography. For example:

Memory:

- Larger embedded density enables

more complex execute in place software

- Higher densities also enable on-die data logging and storage
- Faster CPUs and integration of additional features such as communication-interfaces

Connectivity:

- Microprocessor support for multi-protocol supports all environments
- Multipoint interfaces provides broad connectivity

Security:

- Boot block protection and sector erase are important embedded security features
- Microcontroller based encryption

Safety:

- More periodic self-testing routines of hardware functions must be included in application software
- Redundancy, reliability, quality and endurance
- Combinations of dedicated hardware blocks and software routines can significantly increase functional safety

Enabling a system that decentralizes critical decision making functions requires many fail-safe features. Functional safety

becomes an extremely important aspect of this feature set. In order to identify random failures during operation time of the system, more and more periodic self-testing routines of hardware functions must be included in application software. For example, CPU registers and program counters are checked against stuck-at errors and digital and analog I/Os of a controller are checked against fault conditions. Those tests are called BIST (built in self-test).

Combinations of dedicated hardware blocks and software routines can significantly increase functional safety. Growing requirements regarding risk reduction necessitate more and more dedicated hardware and software routines and therefore can also be seen as a driving factor toward more processing performance and a higher amount of embedded memories to host the additional functions.

With precise scalable solutions, micro-controllers designed for the industrial market with options from low power to performance that allows for differentiated features such as touch, connectivity and inverter drives, are essential for industrial automation. The combination of the MCU and software support will help customers simplify system design and accelerate time to market.

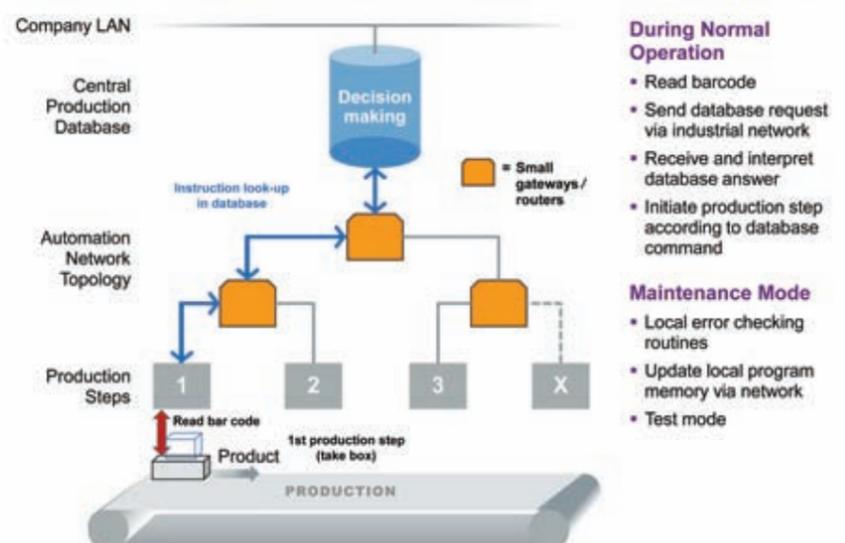
Conclusion

To make industrial IoT a reality, companies must address increased demands for better infrastructure, system configuration and reduced system latency. The right combination of memory, processing power, connectivity, power and security are also necessary to create intelligent nodes for machine-to-machine and human-machine interaction. Enabling a system that decentralizes critical decision making functions will revolutionize manufacturing. Industry will be better equipped to compete through this next wave of industrial revolution.

For more information on industrial IoT from Spansion, go to <http://ept.hotims.com/51126-93>

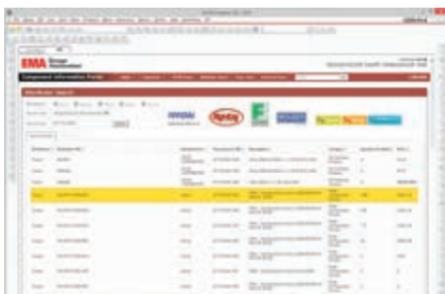


Smart Nodes: Global vs. Local Node



Web portal integrates aspects of new part creation

Component Information Portal (CIP) 5.0 provides a tight integration with Cadence OrCAD Capture CIS and EMA EDABuilder for a complete part search and new part introduction flow including automated symbol creation. Product fulfills the automated new part introduction vision, providing design teams with a complete methodology to identify, manage, and define part data. Product is web-based pcb library management solution with integration to component part supplier data from Digikey, Mouser, Farnell, Future, and Arrow that allows access within the CAD environment as well as from a web browser. Product provides users the option to define bill of materials (BOM) templates that can then be applied during BOM report generation.



EMA DESIGN AUTOMATION

<http://ept.hotims.com/51126-77>

Software speeds development of cable modems, Comm devices

M9099 Waveform Creator 2.0 software provides new capabilities for engineers working on the development of radars, satellite communications, military radios and the next generation of DOCSIS 3.1 cable modems. Product provides new waveform segment types that are easily combined into multiple tracks and can be aggregated into one composite waveform. Software enables R&D and manufacturing test engineers to build or import a variety of signals; mix them together; and add IQ impairments and noise to simulate real-world environments.



The complex composite waveforms are easily created using the software's intuitive drag-and-drop interface.

KEYSIGHT TECHNOLOGIES
(formerly Agilent Electronic Measurement Group)

<http://ept.hotims.com/51126-78>



Smart Arduino board operates on-the-fly

RedBear Company Blend is a Nordic nRF8001 Connectivity IC-based single board Bluetooth Smart Arduino solution that supports over-the-air updates on-the-fly from Bluetooth Smart Ready smartphones and tablets. Product eliminates the need for an extra, separate shielding board and is both smaller and up to half the cost of previous two-board Arduino Bluetooth Smart solutions. Product is simple and easy to use because it requires no additional wiring or soldering, or indeed potential troubleshooting if the shielding board doesn't function as desired.

NORDIC SEMICONDUCTOR

<http://ept.hotims.com/51126-79>

SMT components simplify EMC, cable mgmt

EZ BoardWare products comprise surface mount solutions that improve manufacturing flexibility, reduce manufacturing costs and simplify field maintenance. Components can all be surface mounted along with other components, saving space as well as reducing time and costs. This is unlike traditional methods used to solve cable management, test and EMC problems and battery retention, which often require secondary, manual processing. All products are available on tape and reel packaging for automated assembly.



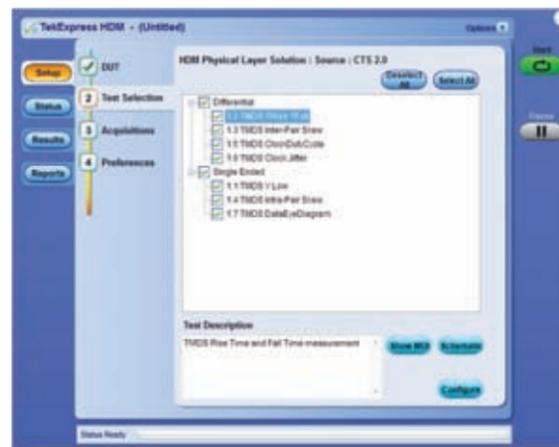
HARWIN

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HDMI 2.0 compliance test, debug support speeds accurate results

HDMI 2.0 test solution provides comprehensive coverage of the required HDMI 2.0 transmitter and receiver electrical PHY tests to ensure consistent interoperability between suppliers. Solution increases bandwidth to 18Gbps and adds such features as 32 audio channels and simultaneous delivery of video and audio streams to multiple users. Solution reduces test set-up complexity through the use of new automation framework for transmitter testing and a direct synthesis approach for receiver testing that eliminates the need for additional equipment like cable emulators and noise stressors. The successor to the widely adopted HDMI 1.4a/b standard, product meets bandwidth requirements of forthcoming Ultra HD or 4K televisions while using existing cabling for backward compatibility.

TEKTRONIX



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products on review

Design software collaborates data management

Altium Vault 2.0, next-generation enterprise data management software provides a centralized platform to support design teams and entire companies to easily manage and automate all the small yet crucial details to maintain focus on designing. Product centralizes, manages and formalizes component libraries, allowing users to achieve significant productivity improvements and reduce potentially costly errors.

ALTIUM

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NTC disc thermistors deliver broad range of resistance, precision

Negative Temperature Coefficient (NTC) disc thermistors provide a wide range of resistance values and precision tolerances to 1% for high-accuracy temperature measurement. Devices deliver high stability and maximum sensitivity for temperature measurement, compensation and control in applications such as fan motor controls, fluid levels and temperature sensors in a wide range of end products. With diameters from 2.54mm to 12.7mm and profiles from 0.64mm to 5.33mm, devices provide resistance at 25C from 4-ohm to 150k-ohm, Beta from 3000K to 5000K, and high-temperature operation to +150C.

AMETHERM

<http://ept.hotims.com/51126-84>



Temperature controlled thermal platform integrates with hot plate

HP289-PM temperature controlled thermal platform integrates with Keysight Technologies (formerly Agilent Electronic Measurement Group) B1506A Power Device Analyzer permits automated control of platform temperature, from enclosure ambient to 250C, for characterization of power devices such as IGBTs and MOSFETs. The newly designed hot plate comprises a thermal plate, controller and connection harnesses to interface with the Analyzer. By placing the platform in the Analyzer's test fixture, it minimizes cable length and reduces risk of oscillation that can corrupt measurement data.

INTEST THERMAL SOLUTIONS

<http://ept.hotims.com/51126-83>



Enhanced switch guards withstand harsh environments

MSG Switch Guard Series accessory line meets the requirements of demanding environments, particularly: defense, aeronautics, off-road vehicles and industrial automation. Devices are resistant to hydrocarbons, acid, high temperature and saline environments. The side switch guards avoid inadvertent actuation and all models can be installed with seals to reinforce switch actuation control. Products are designed with a large marking surface and improved handgrip, even with gloves. Sand and dust cannot collect in the mobile parts of the guards thereby eliminating the risk of jamming. The safety guards also have a double end stop so there is no distortion or break in cases of crushing.

APEM

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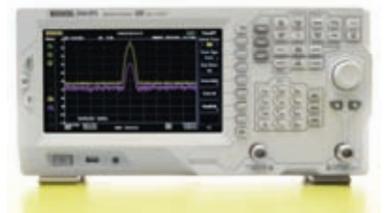


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DSA832 and **DSA875** high-performance, high frequency spectrum analyzers expand the DSA800 series to 3.2 and 7.5GHz respectively. Products enable direct measurements of higher performance signals and systems. Products provide a VSWR measurement toolkit for configuring and evaluating antennas, as well as an advanced measurement kit (DSA800-AMK) that enables additional measurement functions including channel boundaries and signal to noise ratio factors. Accessories include the 8GHz VSWR bridge or directional coupler (VB1080) as well as new accessory packs for 75 Ohm work (RF CATV Kit), and attenuator sets for higher power work including the RF Attenuator Kit which includes 6 and 10dB attenuators or the model ATTO3301H 30 dB high power attenuator.

RIGOL TECHNOLOGIES

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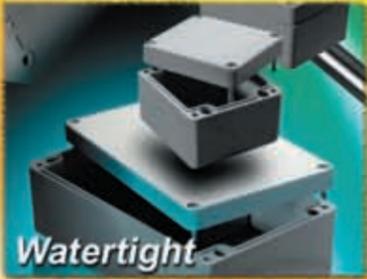
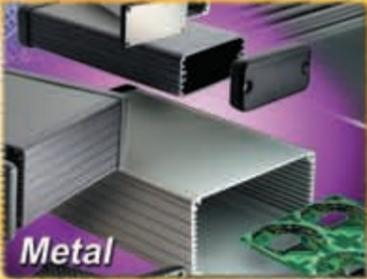


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