



**IBM & 3M** building semiconductor adhesives

PAGE 4

**HONEYWELL** powers up GoAir Fleet with APU selection

PAGE 6

**TE CONNECTIVITY** launches USB latching connectors

PAGE 9

**VISHAY** wins EDN 2011 Innovation Award


PAGE 12

February 2012

# TECH FIRST

*a must read for...*

- Electronics Design Engineers
- Maintenance Engineers
- Purchase Managers



# Innovation

THE WORLD LEADERS IN INNOVATION

Findings 2011

Read more on page 3

**Health & Safety** is common sense but seldom practiced.



Interesting read

PAGE 16.

**Semiconductor News**

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**Jokes**

Lots of fun inside...

Our first edition is packed with news and products that you will definitely be interested in.....

# Editorial

Dear Reader,

Thank you for finding us.

We, the team at techFIRST, are pleased and happy with every fresh glance that comes our way because we are not in the business of collecting eyeballs. That's the job of big magazines and bigger newspapers, with big marketing wisdom and big money.

We, with none of the above, are happy with just your mind and support. They told us it was suicidal to launch a newspaper which dealt with news and products at the same time.

They told us our audience is not interested in product news as it's just another form of advertising and "customers hate advertising".

All of us read technology magazines, the best ones from around the world, but never get to see the products that are talked about in them. Hey, it's for the future – they say.

Aren't we are tired of reading only the news that 'will happen'?

techFIRST team has tried to bring to you what is happening / has happened and is available 'as a product' for usage.

But as they say old habits die hard – we have also included some would happen in near future stories – for our sci-fi fans !

Today, each one of us goes through the experience of thinking "what's wrong with attempting something new?". Well, only a few have the courage, confidence and faith to try it out.

We are being bold and are trying our hand at being NEW. Our needs at techFIRST are mere basic. And we repeat - We only want your mind and support.

We also take this opportunity to thank RS India for its support in sharing some exciting prices for our readers. You can order all featured products through RS India.

Over to you, dear reader.

techFIRST team

techfirst@yahoo.com



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# Innovation 2011 .... and beyond

For the past several years, talk about innovation has permeated news stories, corporate board rooms, technology-process-marketing forums.

The term “innovation” has become a buzz word of the 21st century, especially as individuals, companies and nations grapple with a shifting global economy, financial crises of unprecedented proportions and a desire to create the next era of opportunity for future generations.

Patent activity has always been an important indicator of innovation. However, innovation comprises much more than mere patent filing volume. To completely and accurately measure innovation a range of metrics based on various facets of innovation that relate to patenting and science are used. Companies that invent on a significant scale; are working on developments which are acknowledged as innovative by patent offices across the world, and by their peers; and, whose inventions are so important that they seek global protection for them, are rated high on innovation index.

Thomson Reuters recently came out with a list of top 50 global innovators.

The 2011 analysis has following basic observations :

- The United States leads the world in Semiconductor & Electronic Component Manufacturing
- Asia leads the world in Computer Hardware Manufacturing and Automotive Manufacturing
- Europe leads the world in Machinery Manufacturing and has more than half of the top 100 Global Innovators in this category in Sweden
- France leads the world in Scientific Research and is the European nation with the most companies represented in the list

The largest percentage of innovative companies comes from North America and stands at 40%. Asia accounts for 31% of the most innovative companies in the world and Europe for 29%.

In Asia, Japan dominates with 27% of the representation. As a testament to Japan’s solid innovation foundation, it has representative companies in 12 of the 16 industries. The only other Asian nation present is South Korea, with 4% of the companies. The lack of companies from China is noteworthy and underscores the fact that although China is leading the world in patent volume, quantity does not equate to influence and quality.

There is much broader representation across Europe, with six European nations having one or more companies in the Top 100 Innovators list. France is the innovation leader in Europe, with 11 organizations spread across a number of industries. Interestingly, all of the Scientific Research entities in the list are from France: IFP Energies Nouvelles; CNRS, the French National Center for Scientific Research; and Commissariat à l’Énergie Atomique.

Another European surprise is the Principality of Liechtenstein. This country of approximately 62 square miles (just over 160 square kilometers) and approximately 35,000 people is also home to one of the most innovative companies in the world: privately owned machine manufacturer Hilti Corporation.

Manufacturing companies permeate the list, as compared to academic institutions, research laboratories or service-based organizations. The dominance of manufacturing is somewhat expected, as it is these companies that invent new products to bring to market – and they protect them with patents.

The most prevalent industry within the Top 100 list is Semiconductor & Electronic Component Manufacturing; 14 of the 100 companies are from this sector. Fifty percent of these innovation leaders are from North America and 43% are from Asia. The remaining company is from Europe.

In the Chemical Manufacturing sphere, the US continues to lead with 46% of the companies, followed by Europe at 31% and Asia with 23%.

On the industry breakouts for the US, Europe and Japan – in US, the leading industry represented is Semiconductor & Electronic Component Manufacturing at 18%, followed by Chemical Manufacturing at 15%. The US leads the world in Semiconductor & Electronic Component Manufacturing with 50% of the Top 100 Global Innovators. The US has representation in 14 of the 16 industries, the two not represented are Automotive Manufacturing and Scientific Research.

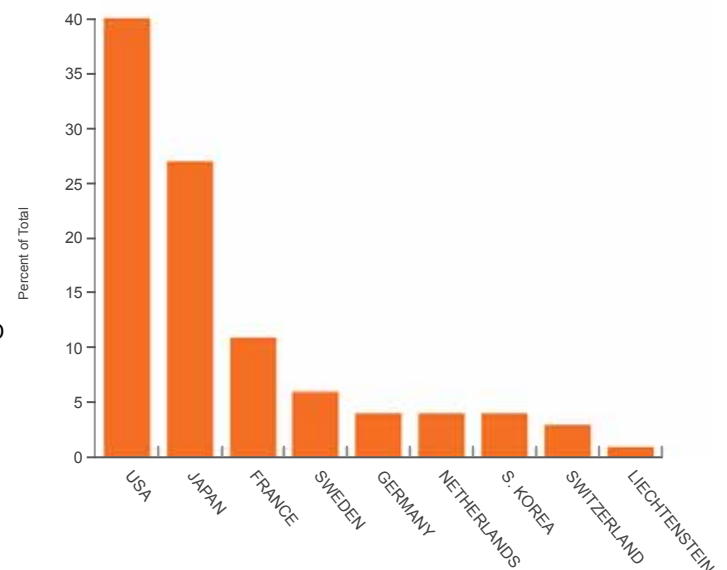
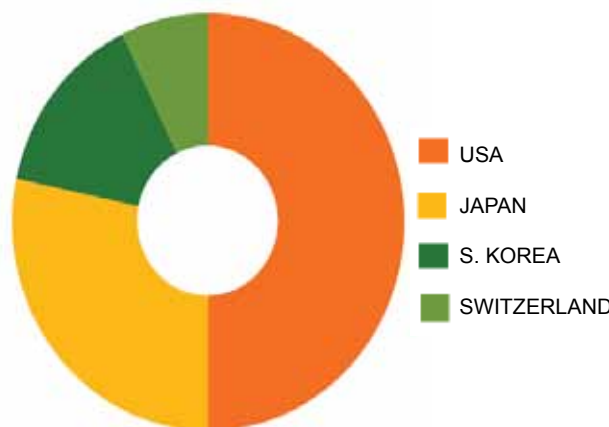
For Europe, the top two industries are Machinery Manufacturing at 17% and Chemical Manufacturing at 13%. Europe leads the world in Machinery Manufacturing; 63% of the Top 100 Global Innovators in Machinery Manufacturing are in Europe, with more than half of them in Sweden.

In Asia, the predominant industry is Computer Hardware Manufacturing at 23% followed by Semiconductor & Electronic Component Manufacturing at 19%. Asia leads the world in Computer Hardware Manufacturing with 64% of the companies and in Automotive Manufacturing with 67% of them.

Intellectual property is the bridge that connects innovation with economic growth. Without it there may be creativity but it won’t have

# THE TOP 50 GLOBAL INNOVATORS

COMPANY	COUNTRY	COMPANY	COUNTRY
3M Company	USA	Daikin Industries, Ltd.	Japan
ABB, Ltd.	Switzerland	Denso Corporation	Japan
Advanced Micro Devices, Inc.	USA	Dow Chemical Company	USA
Airbus	France	DuPont	USA
Alcatel-Lucent	France	Eaton Corporation	USA
Alcon, Inc.	USA	Ericsson	Sweden
Alfa Laval	Sweden	Ethicon Inc.	USA
Analog Devices, Inc.	USA	Exxon Mobil Corporation	USA
Apple, Inc.	USA	Fanuc Ltd.	Japan
Applied Materials, Inc.	USA	Fujitsu Limited	Japan
Arkema	France	General Electric Company	USA
ASML	Netherlands	Goodyear Tire & Rubber Company	USA
Atlas Copco	Sweden	Hamilton Sundstrand Corporation	USA
Avaya, Inc.	USA	Harris Corporation	USA
BASF	Germany	Hewlett-Packard Company	USA
Bayer	Germany	Hilti Corporation	Liechtenstein
Boeing	USA	Hitachi, Ltd.	Japan
Bristol-Myers Squibb Company	USA	Hoffmann La Roche	USA
Brother Industries, Ltd.	Japan	Honda Motor Company Ltd.	Japan
Canon Inc.	Japan	Honeywell International Inc.	USA
Cheil Industries, Inc.	S. Korea	IFP Energies Nouvelles	France
Chevron U.S.A. Inc.	USA	Intel Corporation	USA
CNRS, The French National Center for Scientific Research	France	International Business Machines Corporation	USA
Commissariat à l'énergie atomique	France	Japan Aviation Electronics Industry, Ltd.	Japan
Corning Incorporated	USA	Konami Digital Entertainment Co., Ltd.	Japan



sustained marketability.

The above companies exemplify the essence of innovation and drive inventions for economic growth. They encourage idea generation and the invention process. They have established systems for vetting their innovation funnels and determining which ideas are worthy of protection. They rigorously monitor prior art and the competitive landscape, and prosecute the best-of-the-best in terms of concept generation.

But, that is just the beginning.

The Top 50 Global Innovator companies also look at innovation through a global lens. They determine the market potential of an invention and actively seek protection for it around the world. Their strategic rationale may differ, but they are one in the same when it comes to seeking and capitalizing on the global potential of their inventions.

Finally, they are viewed by their peers, competitors and others as making an impactful difference. Their inventions are oftentimes significantly cited by others and are seen as founding technologies in their respective areas.

We hope we soon have an Indian company on this list .....





# LED lighting to reach 52% share of commercial building market by 2021

Market share of LED solid-state lighting (SSL) will reach 52% of the commercial lighting market by 2021, forecasts the report 'Energy Efficient Lighting for Commercial Markets' from Pike Research.

LEDs are gaining significant momentum as an alternative to incandescent and fluorescent lighting in commercial buildings, particularly as the cost of LED lighting technology continues its

rapid decline, notes the market consulting firm, which expects that LED lighting costs for various SSL products will be reduced by 80-90% in many cases during the next decade.

"LEDs represent perhaps the most significant breakthrough of the last 130 years in lighting technology. Rapidly evolving technologies, such as semiconductors and software, are finding their way into the lighting market, catapulting this traditional, historically slow-moving industry into a new era of high technology," comments research analyst Eric Bloom.

Incandescent and less efficient T12 and T8

fluorescent lamps will be almost completely eliminated over the next 10 years, adds Bloom.

Pike Research forecasts that the global market for commercial lighting will reach \$42bn in 2011 and peak at nearly \$54bn in 2012 before gradually declining to about \$30bn by 2021. The decline will be due to the extended lamp life of both fluorescents and LEDs as they become the primary lamp types, increasingly displacing demand for replacements for less efficient and shorter-lived incandescent lamps.

Pike Research's report describes the key factors that are influencing the market for energy-

efficient lighting around the world, including trends in energy codes, rebate and subsidy programs, sustainability/green certifications, raw material supply issues, and geopolitical influences in developing and developed nations. The report describes the influence of industry structure, key applications, and the many technology issues involved in the decision to specify various lighting technologies. Comprehensive unit and dollar forecasts are presented through 2021, segmented by application, lamp type/LED, luminaires, and geographic region.



## High Brightness Surface Mount Lamps

Avago introduces new SMT High Brightness LED Lamps that will allow customers to assemble them utilizing standard industrial SMT manufacturing process. The LEDs are compatible with industrial reflow soldering process. Additionally they deliver on par or slightly less luminous intensity when compared to conventional high brightness through hole LEDs.

These High Brightness LEDs are made with an advanced optical grade epoxy offering superior performance in outdoor sign application to address Electronic Signs & Signals applications.

To facilitate easy pick and place assembly, the LEDs are packed in EIA-compliant tape and reel.

MOSFET optocoupler,  
HCPL3120, DIP8



Offer price  
₹181/-

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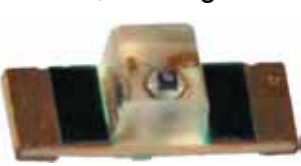
Red dual 7-segment LED,  
HDSP-5521



Offer price  
₹199/-

RS Stock No : 171-1420

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52mW, 170deg



Offer price  
₹9/-

RS Stock No : 691-0420

Opto-isolator, HCPL0701  
2500Vac 8pin SOIC



Offer price  
₹192/-

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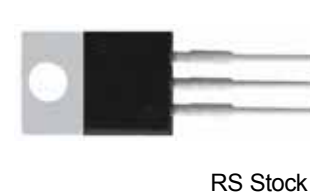


## Cree LMH2 LED Modules Bring Unrivalled Light Quality

Cree, Inc. a market leader in LED lighting, announces the commercial availability of the new LMH2 LED module family, designed to speed time-to-market for high-quality LED luminaires. The modules feature Cree TrueWhite® Technology, a revolutionary way to generate white light with LEDs. The modules deliver high efficiency with beautiful light characteristics and color accuracy while maintaining color consistency over the life of the product.

The compact, two-piece module allows maximum design flexibility—uniquely enabling manufacturers to incorporate their luminaire design into the thermal management system and potentially eliminating the need, and cost, of secondary thermal management.

Schottky Diode, SiC, 10A,  
1200V, TO-220



Offer price  
₹2,400/-

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Schottky Diode, Z-Rec, SiC, 4A,  
600V, DPAK



Offer price  
₹429/-

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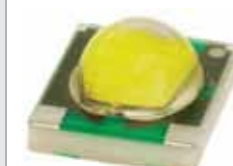
XLamp MC-E Series LEDs



Offer price  
₹1,391/-

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LED, XPG, Warm white, Min  
100lm



Offer price  
₹679/-

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## IBM and 3M are developing semiconductor adhesives Could build multi-chipped layered microprocessors

HIGH TECHNOLOGY FIRMS IBM and 3M are collaborating on work to build adhesives for sticking semiconductors together into silicon towers.

The firms expect that by perfecting the adhesive they will be able to build a commercial semiconductor made up of around 100 layers, with each layer being an individual chip.

"Today's chips, including those containing '3D' transistors, are in fact 2D chips that are still very flat structures," said Bernard Meyerson, VP of research at IBM as he announced the collaboration.

"Our scientists are aiming to develop materials that will allow us to package tremendous amounts of computing power into a new form factor - a silicon 'skyscraper.' We believe we can advance the state-of-art in packaging, and create a new class of semiconductors

that offer more speed and capabilities while they keep power usage low - key requirements for many manufacturers, especially for makers of tablets and smart phones."

Wafers are the key, specifically, bonding them, and the firms said that their adhesives, which will let information travel between chips and take heat away from key areas, could be as much as 1,000 times faster than current 3D packaging methods.

"Capitalising on our joint know-how and industry experience, 3M looks forward to working alongside IBM - a leader in developing pioneering packaging for next-generation semiconductors," said Herve Gindre, division vice president at 3M Electronics Markets Materials Division.

Separately but not unrelated, Invensas said this week

that it would demonstrate the dual-face down (DFD) use of its multi-die face-down (Xfd) packaging technology at the Intel Developers Forum (IDF) next month.

Xfd is a multi-tie wirebond packaging system that, in case you had not guessed, mounts circuits upside down, staggering them in what the firm called a shingle-like configuration. Invensas reckons that this decreases component size, saves around a third in height, improves electrical performance by up to 70 per cent and improves heat transfer by around 25 per cent.

Invensas added that its Xfd technology costs less to manufacture than other multi-die DRAM packages, not least because it uses less gold and other materials.

"We developed the Xfd technology platform in response to continued industry demand for denser, faster and cheaper DRAM solutions for servers and



mobile devices," said Simon McElrea, president of Invensas Corporation.

"Xfd provides single-die package performance in a multi-die configuration as well as delivering significant thickness and thermal advantages. Unlike more complex alternatives, Xfd is manufactured using existing industry manufacturing capacity, significantly reducing the cost, time and risk of high-volume adoption."

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# DesignSpark PCB professional design software tool.....Wins

**D**esignSpark PCB professional design software tool selected as Most Popular Product of the Year in IP/EDA category of the 2011 Annual Creativity in Electronics (ACE) awards.

The ACE awards, organised by EE Times, celebrate the creators of technology who demonstrate leadership and innovation in the global electronics industry. A panel of EE Times editors reviewed the most-viewed product stories of the past year and chose DesignSpark PCB as the winner for the category based on the highest number of online reader page views.

The free, professional DesignSpark PCB tool is available for download at [www.designspark.com/pcb](http://www.designspark.com/pcb), providing access to a full suite of video tutorials, examples and a parts library. Since its introduction in July 2010, DesignSpark PCB has been hugely popular among design engineers, who are converting from other industry products, with more than 100,000 downloads now logged.

Glenn Jarrett, Head of Electronics Marketing for RS Components commented, "This award confirms that there is a growing demand among engineers across the globe for free downloadable tools and we are delighted that RS' fully-featured DesignSpark PCB tool has captured the attention of EE Times readers."

## PCB Design Tools - New Product Introduction Award



Developed by RS, in conjunction with Number One Systems, the latest version of DesignSpark PCB provides extra functionality and enables the PCB design software to be used with Spice simulation tools from several major manufacturers. In addition to the tool's new simulation interface, Version 3 includes enhancements such as component and circuit element grouping, and design calculators, which model circuit performance characteristics.

"The success of DesignSpark PCB, the world's most powerful free PCB design tool, is unparalleled in our industry," said Mark Cundle, Technical Marketing Manager at RS Components. "The release of the third version of this award-winning software clearly demonstrates the



commitment from RS to continually improve this highly successful product. We promise to carry on supporting DesignSpark PCB and continue to make it available free-of-charge to users."

"We've gathered feedback from engineers through our fast-growing DesignSpark community to integrate the new features they've requested in Version 3," added Cundle. "Additionally, the tool is fully functional – with no limitations or locked features – and is well suited to commercial use, which is not always the case with some free tools."

More than 100,000 users have downloaded DesignSpark PCB since its launch in July 2010, with the tool proving to be one of the most popular free PCB design software packages available. Since then, thousands of users have contributed suggestions for development, which has resulted in DesignSpark PCB Version 3 being strengthened in three key areas: simulation interface, groups and design calculators:

The simulation interface means that DesignSpark PCB can be linked to industry-standard Spice simulators that help verify the circuit is operating correctly, before moving to board layout or the next stage of the design. DesignSpark PCB Version 3 currently supports four simulators: LTSpice, LSSpice, TopSpice and TINA.

The 'groups' feature allows multiple items in

the design to be associated, so they act as one unit. Once defined, 'groups' can also assist in the selection of related portions of a circuit. On translation of the schematic circuit into the Autoroute tool, the 'group' information is also transferred along with the components, allowing easy placement.

The design calculators allow the selection of a track or via and perform basic electrical calculations, including: track width required for a given current; track impedance; optimum copper density; approximate temperature rise on a track; and the resistance of a via, given its physical characteristics.

DesignSpark PCB remains unique in the industry as a free and fully featured PCB development environment. The upgraded Version 3 is free to download for new users at [www.designspark.com](http://www.designspark.com). Existing users will be alerted to the upgrade via release alerts in their existing version of the tool. Feedback and user support forums are also available at [www.designspark.com](http://www.designspark.com).

We spoke to a few design engineers who use the designspark software. This is what they had to say



"It is amazing to find such a powerful software for free and that too a full version. The software is really easy to use and definitely very

powerful."

**Suhas Dey** - Electronics Design Engineer  
Bangalore



The software tool is excellent and fully loaded with features, moreover, I have been able to connect to many co-engineers from around the

globe. This has helped me find answers to queries and seek help from guys who are working on an international level

**Pritul Bhave** - Electronics Design Engineer  
Pune



I just cant do without the software, infact all my colleagues in my company have fully shifted to using this tool. I think this is because of the

fact that despite having all features it is a freeware and full version is available to download. Additionally, the Google Sketch-up feature and 3D models have helped our design team with lots of saving on time and effort. Additionally the designspark website is lots of fun, I have now been answering questions from design engineers from around the globe.

**Subramaniam T** - Electronics engineer  
Hyderabad

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Which motor is NOT suitable for use as a DC machine?

- 1) Permanent magnet motor
- 2) Series motor
- 3) Squirrel cage motor
- 4) Synchronous motor

What is the process responsible for producing photons in a diode laser?

- 1) Fermi level shift
- 2) Majority carrier injection
- 3) Carrier freeze out
- 4) Electron-hole recombination

The sampling rate, for a CD is...?

- 1) 48.4 kHz
- 2) 22,050 Hz
- 3) 44.1 kHz
- 4) 48 kHz

Which motor is NOT suitable for use as a DC machine?

- 1) Permanent magnet motor
- 2) Series motor
- 3) Squirrel cage motor
- 4) Synchronous motor

# Honeywell Powers Up GoAir Fleet With APU Selection

*Honeywell's 131-9A APU Series to cut GoAir's fuel burn on new A320 jets by up to 4.5 percent*

Honeywell has extended its agreements with GoAir, for the installation and maintenance of 131-9A Auxiliary Power Units (APU) on ten more of the airline's new Airbus A320 aircraft to provide auxiliary power and reduced operational costs.

"We have more than 50 years' experience in the development of APUs and are harnessing this understanding to provide GoAir with a critical technology that simultaneously delivers robust performance, increased APU life, and easy maintainability for a lower cost of operation and ownership" said John Ashton, VP airlines EMEA, Honeywell Aerospace.

Honeywell's 131-9A Series APU will save GoAir up to 3.4 percent fuel burn and provide a 10 per cent power advantage over other APUs, allowing it to cool or heat the cabin two minutes faster.

In addition, GoAir has de-rated a majority of the APUs on its existing fleet to deliver reduced

fuel consumption through Environmental Control System performance adjustments. This inbuilt



option provides a total fuel burn benefit of 4.5 percent, per aircraft duty cycle, over its original settings.

"As passenger demand for our flights increases, our number one priority is to ensure we continue to offer value for money, while also equipping

our aircraft with the most competitive technology around," said Babu Peter, executive vice president of engineering, GoAir.

The 131-9A APU will start and operate from ground level to 41,000 feet. Its generator is capable of supplying full electrical power for the aircraft in the event of an emergency.

Based in Phoenix, Arizona, Honeywell's aerospace business is a leading global provider of integrated avionics, engines, systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military, space and airport operations.

Honeywell International is a Fortune 100 diversified technology and manufacturing leader, serving customers worldwide with aerospace products and services; control technologies for buildings, homes and industry; automotive products; turbochargers; and speciality materials.

Apart from aerospace, Honeywell also has leadership in the Sensing & Control segment. They have more than 50,000 sensing, switching, and control products. Their Sensor range covers :

- Airflow Sensors
- Current Sensors
- Flexible heaters
- Force Sensors
- Humidity Sensors
- Infrared Sensors
- Magnetic Sensors
- Position Sensors
- Pressure Sensors
- Proximity Sensors
- Rotary position Sensors
- Speed Sensors
- Temperature Sensors
- Thermostats

Honeywell Switches (Micro Switch) range covers :

- Snap Action Switch
- Hazardous Area Switch
- Key and Rotary Switch
- Limit Switch
- Sealed and High Accuracy Switch
- Push Button Switch
- Rocker Switch
- Toggle Switch
- Aerospace Grade Pressure Switch
- Pressure and Vacuum Switch
- Wireless Switch

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Barbed Port, non-  
compensated**



RS Stock No : OS00518 Best offer : ₹ 1,267/-

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Top Pin Plunger**



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Type, M8, NO, NP Pre  
Wired Style, Shielded;  
with 2 meter cable**



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range, Shielded**



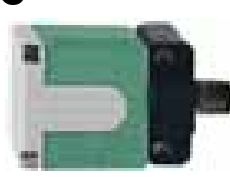
RS Stock No : OS00503 Best offer : ₹ 823/-

**Proximity Switch - DC  
Type, M12, NO, NPN  
with 4mm Sensing  
range, Shielded**



RS Stock No : OS00511 Best offer : ₹ 823/-

**Proximity Switch - DC  
Type, M12, PNP, NC,  
with 4mm sensing  
range, Shielded**



RS Stock No : OS00512 Best offer : ₹ 823/-

# Coming Soon - a Resistor that changes into a Capacitor that changes into a Rectifier that changes into a Transistor.....

The research team from Northwestern University in Michigan, are researching on an entirely new platform to build circuits of the future. As circuits gets smaller and smaller, it is said that they will soon reach a physical barrier where size reduction will change properties of materials. So, will reduction in size stop here? Not exactly, the new road goes towards developing circuits in three dimensions, by stacking components on top

of each other. A similar technique has been used by Intel early this year. direct current flow through a piece of continuous material," said Professor Bartosz Grzybowski, who led the research. "Like redirecting a river, streams of electrons can be steered in multiple directions through a block of the material; even multiple streams flowing in opposing directions at the same time."

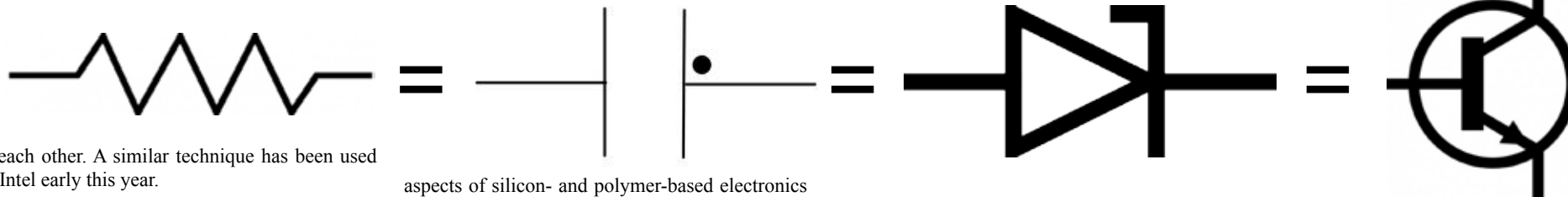
The team's nanomaterial combines different

of negatively charged atoms that balance out the positive charges fixed on the particles. By applying an electrical charge across the material, the small negative atoms can be moved and reconfigured, but the relatively larger positive particles are not able to move.

By moving this sea of negative atoms around

multiple types of nanoparticles are used.

Future mobile devices may be able to reconfigure themselves to meet new demands, according to researchers that have developed a nanomaterial that can "steer" electrical currents. The discovery could lead to the development of



of each other. A similar technique has been used by Intel early this year.

However, the team said that it has taken a fundamentally different approach by making reconfigurable electronic materials that can rearrange themselves to meet different computational needs at different times.

The team is aiming to create a single device able to reconfigure itself into a resistor, a rectifier, a diode and a transistor based on signals from a computer. The multi-dimensional circuitry could be reconfigured into new electronic circuits using a varied input sequence of electrical pulses, the team said.

"Our new steering technology allows use to

aspects of silicon- and polymer-based electronics to create a new classification of electronic materials: nanoparticle-based electronics.

"Besides acting as three-dimensional bridges between existing technologies, the reversible nature of this new material could allow a computer to redirect and adapt its own circuitry to what is required at a specific moment in time," said David Walker, an author of the study and a graduate student in Prof Grzybowski's research group.

The hybrid material is composed of electrically conductive particles, each five nanometers in width, coated with a special positively charged chemical. The particles are surrounded by a sea

the material, regions of low and high conductance can be modulated; the result is the creation of a directed path that allows electrons to flow through the material. Old paths can be erased and new paths created by pushing and pulling the sea of negative atoms. More complex electrical components, such as diodes and transistors, can be made when

smart phones and devices that can reconfigure their internal 'wiring' and evolve into an entirely different and new device, to reflect the changing needs of consumers.

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## Forget touch and slide ..... Gesture Based Phones are here

Pantech, Korea's third handset manufacturer, has taken the jump into gesture-based recognition with its latest handset, which incorporates technology from eyeSight.

What that means is that users can answer a call, navigate through images and generally interact with the handset using nothing more than a flick of the wrist, even if that wrist is connected to a hand which shouldn't be used to touch anything.

Qualcomm demonstrated much the same thing in Istanbul last month, but that was using a prototype handset relying on ultrasound to track nearby gestures. eyeSight achieves the same thing using the phone's camera, or at least claims to: the company's API was deployed in a few Symbian applications but never made the jump to Android as a software solution.



eyeSight is also pushing into Android televisions, recently announcing a deal with Hisense to bring gesture control to televisions.

Gesture-based interactivity is an obvious evolution, and one which will come when the technology is up to it. X-Box Kinect feels like the future, but a future which hasn't quite arrived


yet and while it should be possible to interpret gestures from an image (as humans seem to manage), it's instructive that Qualcomm chose to demonstrate a using an entirely different technology.

Games developers have been experimenting with the 3DS, using the two cameras on the rear to create a three-dimensional model of what's being seen for the purposes of augmenting reality in 3D. The same process could be used to more accurately recognise gestures, but that research showed the 3DS lacked the processing power to model reality at an acceptable speed.

We're looking forward to trying an eyeSight-equipped mobile phone, and will let you know if it exceeds our expectations, but

gesture-recognition is still a few years off being more than a novelty experience. ®

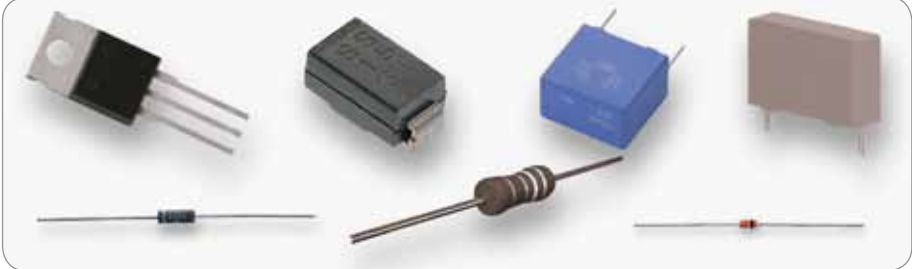
The Pantech Vega LTE sports a 4.5" 1280 x 720p HD display, a dual-core 1.5 GHz processor, 1GB of RAM, 4G LTE speeds and a sizable 1860 mAh battery too. Currently only available in South Korea we'd all love to get our hands on this phone !!



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# Tektronix launches New Handheld Oscilloscope Family

Tektronix, Inc., the world's leading manufacturer of oscilloscopes, today unveiled the THS3000 handheld oscilloscope series that bring a new level of measurement precision and accuracy to engineers and technicians who need to debug, install and repair complex electronic systems in both field and lab environments.

With a weight of 4.8 lbs, seven hours of battery life and four isolated channels, the rugged yet lightweight THS3000 series is built for use in even the most demanding conditions. Models are available with either 100 MHz and 2.5 GS/s maximum sampling rate or 200 MHz and 5 GS/s sample rate performance. With a 10,000 point record length per each of four channels, users can capture extensive signal information at high sample rates to clearly see signal details.

"As electrical systems have become more complex and pervasive, there is a growing need for engineers to correlate field and lab measurements



Tektronix is *sure to have* the instrument you need for digital design verification and debug

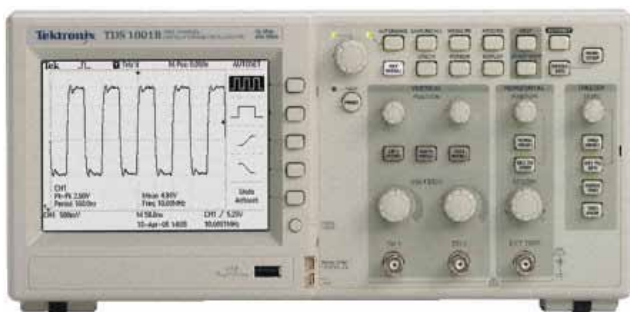
and to perform advanced debugging and analysis in the field," said Roy Siegel, general manager for oscilloscopes at Tektronix. "As the first true high-performance handheld oscilloscope, the THS3000 Series has the technical performance for analysis

of low voltage analog and digital control signals. In addition, the THS3000 Series offers isolated inputs for safely making high voltage floating or differential measurements."

For more than sixty years, engineers have turned to Tektronix to solve design challenges, improve productivity and dramatically reduce time to market.

Some of Tektronix's fast moving oscilloscopes in India include the following :

## TDS1001B Oscilloscope 40MHz, mono



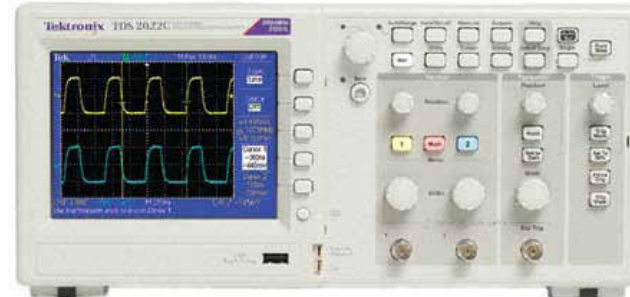
• 40MHz, single channel, Mono • Sample rate : 500 Ms/s

Best offer  
₹57,380

RS Stock number  
617-0048

**NEXT  
DAY  
DELIVERY**

## TDS2004C Oscilloscope 70MHz, 4 channel



• 70MHz, 4 channel, Colour • Sample rate : 1.0 Gs/s

Best offer  
₹94,050

RS Stock number  
715-8695

**NEXT  
DAY  
DELIVERY**

## TDS2014C Oscilloscope 100MHz, 4 channel

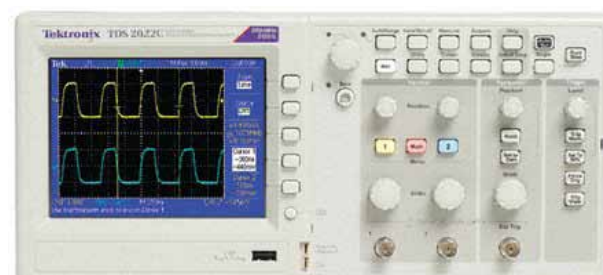


• 100MHz, 4 channel, Colour • Sample rate : 2.0 Gs/s

Best offer  
₹1,12,100

RS Stock number  
715-8692

## TDS2012C Oscilloscope 100MHz, 2 channel



• 100MHz, 2 channel, Colour • Sample rate : 2.0 Gs/s

Best offer  
₹74,575

RS Stock number  
715-8698



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### If Heaven & Hell were controlled by Technology Giants

#### The Heaven :

The management would be from Intel,  
The design and construction would be done by Apple,  
The marketing would be done by Microsoft,  
IBM would provide the support,  
Gateway would determine the pricing.

#### The Hell:

The management would be from Apple,  
Microsoft would do the design and construction,  
IBM would handle the marketing,  
The support would be from Gateway,  
Intel would set the price.



# TE Expands portfolio with industry first USB latching and circular sealed connectors



To support the increasingly wide-spread use of the USB standard in industrial applications, TE Connectivity has added the latching USB and circular sealed USB connectors to its USB connector family. The latching version adds retention force to USB connections and features a latching plug and receptacle with standard IP 20 protection. This USB connector adds 40 Newtons of locking strength with an integrated, positive latching mechanism and offers 1,500 mating and unmating cycles. The latching mechanism helps avoid downtime caused by accidental unplugging and an audible and tactile feedback confirms that the connector is fully engaged.

Typical applications are in the field data collection systems, keyboard, video mouse (KVM) extensions, human machine interfaces, industrial control panels, motion & control - robotics, diagnostic equipment, mobile segment such as handheld devices with a controller-to-peripheral interconnection.

Cable assemblies of 1 to 5 meters in length make it easy to use the latching feature without

having to assemble cables. Customers simply need to design-in the latching receptacle to the board side of their product. If more than one USB



port is required, a double-row latching receptacle can be used. Versions are available in standard

Type A configurations.

Typical applications include field data collection systems, keyboard, video mouse (KVM) extensions, human machine interfaces and industrial control panels. TE's circular sealed USB 2.0 plugs and receptacles are particularly suitable for these applications, as they protect the USB connection against water and dust ingress to IP 67 level. The connector halves are durably interlocked and quickly fastened by a 1/4-turn bayonet latch. To offer application flexibility, the plugs and receptacles are available with plastic or metal housings. Versions are available both in standard Type A and Type B configurations. The integrated silicone seal provides the benefits of the USB high-speed standard in applications where an unsealed USB port will not work reliably. The connectors are compatible with existing USB plugs and USB flash drives. The circular sealed USB connectors are equipped with brass contacts, plated with gold over nickel.

Some of the fast moving TE products are given below :

**CONN HOUSING RCP 2 POS ST Bulk**



Best offer **₹ 260/-**

RS Stock No : OS00341

**Horizontal 8 way Header – Dynamic 3000 Series**



Best offer **₹ 320/-**

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**Headers & Wire Housings HDR 4 POS STR TIN**



Best offer **₹ 93/-**

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**Single turn Cermet Trimmer**



Best offer **₹ 60/-**

RS Stock No : 652-4653

**Power resistor, SMD, 5W, R33**



Best offer **₹ 133/-**

RS Stock No : 664-1556

**BNC 90° PCB Mounting Socket**



Best offer **₹ 1050/-**

RS Stock No : 710-0475

**Wire-wound HF inductor, 15uH**



Best offer **₹ 45/-**

RS Stock No : 532-4244

**Miniature Power PCB Relay**



Best offer **₹ 259/-**

RS Stock No : 680-4170

**CPF0402 Chip Resistor 5K36 25PPM**



Best offer **₹ 31/-**

RS Stock No : 701-5501

**Vitreous Wirewound Resistor, 10R 14W**



Best offer **₹ 143/-**

RS Stock No : 666-1581

**Quiz**

Who invented Automobiles using gasoline?

- 1) Leo H Baekeland
- 2) Karl Benz
- 3) Evangelista Torricelli
- 4) Kirkpatrick Macmillan

Who invented Ball-Point Pen?

- 1) Dr. Alan M. Turing
- 2) John J. Loud
- 3) Otto
- 4) Roger Bacon

## Circuit Protection

- Hybrid Devices
- Over Voltage Devices
- Fuses

## Inductors

## Resistors

## Heat Sinks

## Relays

- Control Relays
- Automotive Relays
- Communications Relays
- Force Guided Contact Relays
- High Voltage Relays
- Latching, Impulse and Rotary Relays
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- Mid-Range High Performance Relays
- PC Board Relays
- Sensors & Protective Relays
- Solid State Relays
- Time Delay Relays and Timing Modules

## Circuit Breakers

- Magnetic Circuit Breakers
- Thermal Circuit Breakers
- VESA Vacuum Circuit Breakers

## Connector Systems

- Board-to-Board Connectors
- Cable/Wire Applied Interconnects
- Input/Output
- Power Products
- RF & Coax
- Socket/Card Products
- Terminal Blocks, Splices & Strips

## Wire & Cable

- Aerospace, Defense & Marine
- Coaxial Cable
- Commercial Wire
- Computing and Mass Storage Cables
- Fiber Optic Cable
- Flat Ribbon Cable
- High Flexibility Cable
- Industrial Cables
- Power Cables
- Serial Communication Cable
- Telecommunications Cable
- Video Cable

## Tooling

- SDE Crimp Tooling
- CERTI-CRIMP Hand Tools
- Battery Crimp Tool Kit
- Pneumatic Tool System
- Hydraulic Crimp Tooling
- Pistol Grip Tooling

# Bourns Introduces Non-Contacting Rotary Position Sensor

Bourns, Inc., a leading manufacturer and supplier of automotive sensors, circuit protection solutions, magnetic products, microelectronic modules, precision potentiometers, panel controls and encoders and resistive products announced the availability of a new non-contacting magnetic rotary position sensor which can help increase product lifespan and reliability of applications that operate in harsh and high vibration environments. This sensor utilizes magnetic hall-effect technology that enables high performance operation even in severe temperature or unclean conditions. Bourns® non-contacting rotary position sensor is an ideal solution for value and actuator position feedback, camera and antenna location identification and precision positioning requirements in a wide range of applications that include medical diagnostic and general industrial equipment.

“Designed to maintain its magnetic orientation even during redundant mechanical operation, this new sensor provides an excellent solution to applications that are dormant for extended periods of time but require precise position information on demand” said John Kelly, General Manager Industrial Market at Bourns, Inc



RS Stock No : 745-7034

Offer price : ₹2,239/-

Telecom Resettable Fuses,  
20% 50R 65mA



Offer price  
₹44/-

RS Stock No : 692-6778

Power inductor SMD shielded  
27uH 2.55A



Offer price  
₹78/-

RS Stock No : 727-2215

3310C conductive plastic pot,  
2K lin 9mm



Offer price  
₹142/-

RS Stock No : 522-0467

SMD D2PAK power resistor  
35W 33K 5%



Offer price  
₹205/-

RS Stock No : 733-2547



## EPCOS develops low insertion height capacitors

EPCOS a group company of the TDK Corporation, has developed film capacitors with low insertion heights. The new capacitors with a lead spacing of 37.5 mm feature insertion heights of only 15 or 19 mm. These are designed for rated voltages of between 63 and 2000 V DC or 250 to 400 V AC. Their capacitance ranges from 0.1 to 82 µF.

Applications include DC link circuits as well as DC or AC filtering in converters and power supplies. Their reduced insertion heights make them suitable for applications that require a low-profile design for constructional reasons. These include induction cookers, photovoltaic micro inverters, power supplies for flat-screen TV sets and LED lighting. They offer very high mechanical resistance to vibrations and shocks, making them equally suitable for subassemblies in automotive electronics.

SIOV Metal Oxide Varistor,  
60Vrms, 0.25W



Offer price  
₹29/-

RS Stock No : 204-1845

Varistor 1210 CT1210K35G



Offer price  
₹34/-

RS Stock No : 703-1714

Inductor SMD SIMID 03  
3.9uH 410mA



Offer price  
₹96/-

RS Stock No : 254-7107

Snap-in Al electro cap, 250V  
85deg 150uF



Offer price  
₹242/-

RS Stock No : 496-2132



Altera Corporation is the pioneer of programmable logic solutions, enabling system and semiconductor companies to rapidly and cost effectively innovate, differentiate, and win in their markets.

## Power in your hands ... FPGAs

Altera offers FPGAs (field programmable gate arrays), SoC FPGAs, CPLDs, and ASICs in combination with software tools, intellectual property, embedded processors and customer support to provide high-value programmable solutions to over 13,000 customers worldwide. TECHFIRST brings you some newest and most widely used Altera products.

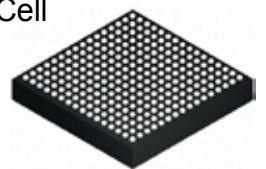
SMD D2PAK power resistor  
35W 33K 5%

Offer price : ₹7,738/-  
RS Stock No : 690-8884



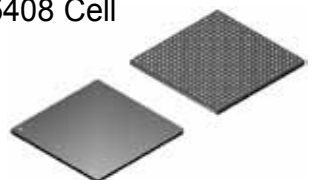
FPGA Cyclone III 5136 Cell  
FBGA256

Offer price : ₹1,942/-  
RS Stock No : 729-3739



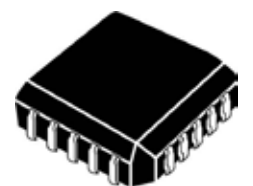
FPGA Cyclone III 15408 Cell  
FBGA484

Offer price : ₹4,321/-  
RS Stock No : 729-3723



Configuration device,  
EPC1LC20 1046496x1b

Offer price : ₹1,261/-  
RS Stock No : 545-8971



AVX Corporation, a leading manufacturer of passive components announced that all its current tantalum powder are fully compliant with the independently-audited Conflict-Free Smelter Program (CFS). Going forward, AVX will exclusively use tantalum powder from conflict-free compliant smelters.

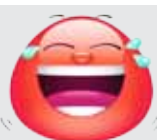
Capacitor tantalum TPS 1210  
33uF 6.3V

Offer price : ₹34/-  
RS Stock No : 699-3416



Resonator 8.00MHz  
M SMD

Offer price : ₹39/-  
RS Stock No : 702-7336




JOKES

A communication technician drafted by the army was at a firing range. At the range, he was given some instruction, a rifle and 50 rounds. He fired several shots at the target. The report came from the target area that all attempts had completely missed the target.

The technician looked at his weapon, and then at the target. He looked at the weapon again, and then at the target again. He then put his finger over the end of the rifle barrel and squeezed the trigger with his other hand. The end of his finger was blown off, whereupon he yelled toward the target area: "It's leaving here just fine, the trouble must be at your end!"

# Maxim launches Ultra-precise, low-noise dual op amp

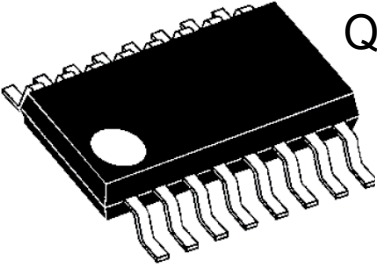
Maxim Integrated Products, world's leading manufacturer of highly integrated analog and mixed-signal semiconductors, introduces a 20V, ultra-precise, low-noise dual op amp that extends system uptime, decreases system maintenance and maximizes sensor performance. Proprietary auto zero technology enables continuous self-calibration which, in turn, ensures system accuracy over time, temperature, and power-supply variations. The precision (< 6µV offset) over the wide 2.7V to 20V operating range is unmatched by the competition. This excellent precision improves system accuracy and minimizes errors during signal conditioning.



**Comparator Single R-R O/P  
2.75V/5.5V**

Offer price : ₹70/-

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**Quad RS-422/485 Receiver**

Offer price : ₹307/-

RS Stock No : 732-9121



**LED display driver, MAX7221CWG+**

Was : ₹974/-

Offer price : ₹851/-


RS Stock No : 622-7728



**High-Voltage, Step-Down DC-DC Controller**

Offer price : ₹739/-

RS Stock No : 732-8793



**DS1624 thermometer & EEPROM I2C DIP8**

Offer price : ₹563/-

RS Stock No : 540-2091

# IXYS-Westcode Launch New Range of 2.5kV GTO Thyristor

IXYS Corporation an international power and IC semiconductor company, launched three new 2.5kV gate turn-off (GTO) thyristors with maximum controllable turn-off current ratings from 2kA to 3kA. The new asymmetric blocking devices offer an improved gate geometry and more robust mechanical structure. Typical applications for these devices include: Traction drives and auxiliaries for main line trains, light rail and trams, as well as AC drives for motor control.

Some popular IXYS products are shown above and below.



**Rectifier three phase  
1200V 70A**

Offer price  
₹8,186/-


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**600V 170A IGBT 6 Pack CBI 3  
package NPT**

Offer price  
₹19,932/-

RS Stock No : 194-906



**Fast recovery/ultra soft  
diode 10A 1200V**

Offer price  
₹158/-

RS Stock No : 462-231



**Rectifier 1 phase half cont  
1600V 28A**

Offer price  
₹2,649/-

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After the first photons of light are produced, which process is responsible for amplification of the light?

- 1) Blackbody radiation
- 2) Stimulated emission
- 3) Planck's radiation
- 4) Einstein oscillation

Name the oldest mountain range of India...?

- 1) Himalayas
- 2) Nilgiris
- 3) Aravallis
- 4) Vindhyas

## Fairchild Semiconductor wins 'Supplier of the Year in Quality 2011' Award

Fairchild Semiconductor, a leading global supplier of high performance power and mobile products, received Continental Automotive Korea's 'Supplier of the Year in Quality 2011' award. Continental Automotive Korea, an affiliated company of Continental Automotive, is a leading supplier of automotive electronics for the automotive industry in Korea, delivering automotive electronics for vehicle safety, comfort and power train performance.

Continental Automotive consists of 44 plants, research centers and test tracks in 15 countries including ten joint ventures in Asia.

"Fairchild is a great example of the vision that our award displays and richly deserves the award," said Continental Automotive Korea President. "Fairchild's commitment to excellent design support, manufacturing process and quality improvement is outstanding and an important part to our product quality. We have always known their excellence, and it's good to see their efforts recognized."

"Continental Automotive Korea has extensive and stringent quality performance criteria," said Chan Goo Park, Fairchild's senior vice president for Korea-Japan Sales and Marketing. "By working with the Continental Automotive Korea, we were able to meet all of their requirements. We are extremely pleased to have received the 'Supplier of the Year in Quality 2011 award. This award validates the processes we have put in place during the design and manufacture of our products."

Fairchild provides leading-edge silicon and packaging technologies, manufacturing strength and system expertise for consumer, communications, industrial, portable, computing and automotive systems. An application-driven, solution-based semiconductor supplier, Fairchild provides online design tools and design centers worldwide as part of its comprehensive commitment to customer satisfaction.

### TVS Diode Bidirectional 600W 13V DO-15



Offer price : ₹4,693/-

RS Stock No : 739-5083

### Trans MOSFET P-CH 20V 0.15A 3-Pin SC-89



Offer price: ₹13/-

RS Stock No  
671-0848

### Trans MOSFET N-CH 100V 90A 3-Pin TO-220



Offer price: ₹365/-

RS Stock No: 671-5193

## World's Smallest Digital Camera

This is the world's smallest digital camera, measuring just over one inch in all dimensions and weighing only half an ounce. Reminiscent of devices employed by Cold War-era operatives for intelligence gathering, the camera appears to require Lilliputian agility, yet its one-button operation provides easy picture taking. Providing automatic focus, it uses a 2 MP image sensor that takes still images at 1600 x 1200 resolution and captures video at 30 fps at 640 x 480 resolution. Images are taken as JPEGs and videos as AVIs, both saved onto an included 2 GB microSD card (supports up to 32 GB cards). Images and video can be viewed when connecting it to a computer running Windows 7, XP, or Vista using the included USB 2.0 cable. Rechargeable battery provides up to 30 minutes of operation from a one-hour charge via USB. Includes wrist lanyard. 1 1/8" L x 1" W x 1 1/16" D. (1/2 oz.)



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An engineer's son asks his father: "Papa, why the sun rises at the east and goes down at the west?"

The engineer answers immediately: "Son, if it isn't broken, don't fix it, just leave it like that"

"And why it is so hot today?" the kid continues to ask.

"If it's bothering you, turn it off and then turn on again".

In a small town of the industrial belt, there is a factory that hires only married men.

Concerned about this, a local woman called on the manager and asked him, "Why is it you limit your employees to married men? Is it because you think women are weak, dumb, ..or what?"

"Not at all, Ma'am," the manager replied. "It is because our employees are used to obeying orders, are accustomed to being shoved around, know how to keep their mouths shut and don't react when I yell at them."

## Vishay's power MOSFET and Hall effect sensor win EDN 2011 Innovation Awards.

Vishay Intertechnology, Inc. the world's largest manufacturers of discrete semiconductors and passive electronic components, today announced that its power MOSFET and the Hall effect sensor have won EDN China 2011 Innovation Awards. Presented at an award ceremony on Dec. 1 in Shanghai, the SiR870DP received a Best Product Award in the Power Device and Module category, while the 34 THE was honored with a Leading Product Award in the Passive Component and Sensor category.

Utilizing Vishay's new ThunderFET technology, the 100 V SiR870DP offers an industry-low on-resistance of 7.8 mΩ at 4.5 V, in addition to a very low on-resistance of 6 mΩ at 10 V. For designers,

the device's lower on-resistance translates into lower conduction losses and reduced power consumption for energy-saving green solutions.

With its industry-low 208 mΩ-nC on-resistance times gate charge at 4.5 V — a key figure of merit (FOM) for MOSFETs in DC/DC converter applications — the SiR870DP combines low conduction and switching losses for higher frequency and switching applications. The MOSFET's 4.5 V on-resistance rating allows a wide range of PWM and gate driver ICs to be considered in isolated DC/DC power supply designs for telecom brick and bus converter applications.

For applications in harsh environments requiring long-life sensors, the 34 THE Hall effect sensor is the industry's first multi-turn sensor to feature non-contact technology.

This true power-on position sensor offers a very long life of 50 million cycles with a servo mount and 10 million cycles with a bushing mount, which is at least 10x longer than wirewound multi-turn sensors. The long life of the 34 THE makes it ideal for servo control of steering wheels in marine and off-road applications.

## Ti9 Thermal Imager

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Capture the hotspots that warn of imminent equipment failure.

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- SmartView® software
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### IRFD9120PBF



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### Analog SW Quad SPST 16-Pin SOIC N



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HellermannTyton is a leading global manufacturer offering high performance fastening, connecting, routing, protecting, and identifying solutions to diverse markets. They develop market solutions that uniquely meet an industry's needs - solving an application requirement, saving installation and component costs, and improving the quality of the end product - no matter what your industry. HellermannTyton is ISO 9001:2000 and ISO 14001 certified.

techFIRST bring you some interesting products out of the 2000+ range that is readily available to order on RS India website.

Solar Energy Sector



Wind Energy Sector



Rail Transportation Sector



Automotive Industry



Electrical Wholesale



Electronics Industry



Electrical Installation



Aerospace Industry



Offshore Industry




Shipbuilding



Defence Industry



Telecommunication

**Cable Tie and Mount Kit**

RS Stock No : 708-4636

Offer price : ₹1,514/-



**Heat Shrink Tubing HIS-3-Bag**

RS Stock No : 712-3658

Offer price : ₹1,046/-



**Clip on cable marker, size 3 letter set-1**

RS Stock No : 408-4872

Offer price : ₹548/-

## RS India Welcomes You

**Stall no E1 (Hall no. 11)**



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# Facom launches new Electronic Torque wrench



Facom is the leading European brand in hand tools, working for over ninety years with automotive and industrial maintenance professionals. A player in the hand-tool sector since 1918, Facom is synonymous with quality.

Facom offers a full range of over 8000 products through its distribution network, which include the storage product range (trolleys, cabinets, benches, portable storage etc.), standard tools (wrenches, screwdrivers, pliers, hammers etc.) and specialist tools (Automotive, Electrical, Aerospace etc.) to meet the needs of all repair technicians.

Thanks to its knowledge of the market and daily contact with professional users, Facom has succeeded in developing tough, innovative and safe high-performance tools.

Facom has recently launched the **E series range of Electronic Torque Wrenches**. These are high performance wrenches even in intensive use (accurate  $\pm 2\% \pm 1$  digit) and have preset of 9 torque targets and a 250 memory with USB link. Measuring Units are N.m, ft.lb, in.lb, Kg.cm

**Though a little expensive, they are most suited for automotive industry, especially premium performance cars and trucks.**

## Electronic Torque wrench 135 Nm



Offer price  
**₹51,470/-**

RS Stock No : **722-7151**

- High performance wrench even in intensive use
- Preset of 9 torque targets
- 250 memory with USB link
- Measuring Units N.m, ft.lb, in.lb, Kg.cm

# Damaged threads on bolts ?

## Don't worry, STUDSAVER is here !



RS Stock No.  
**194-0139**

Offer price  
**₹1,811/-**

The studsaver is a simple, highly effective tool for repairing damaged threads. Due to the special design it will repair M6 to M20 and M22 to M38 as well as 1/4 in. to 1 1/2 in. UNC and UNF thread types.

- Will repair threads even when they are covered with paint, concrete or rust
- Available in two sizes
- Spare blade sets are available separately

### Note

The studsaver must be used in conjunction with a lubricant, preferably a cutting type oil.

## Air Operated Grease Gun



Offer price  
**₹6,624/-**

RS Stock No : **809-015**

- Accepts standard 400cc cartridges or can be bulk filled
- Allows wide angle operation in a narrow space
- Supplied complete with one rigid and one flexible nozzle
- Working Pressure 30-150 psi
- 1/4in BSP Inlet
- Weight 1.5 kg

## 110 PIECES TOOLKIT



Was : ~~₹15,865/-~~

Offer price  
**₹14,645/-**

RS Stock No : **482-2494**



J  
O  
K  
E  
S

A programmer and an engineer are travelling on an airplane. The programmer asks the engineer if he wants to play a game. The engineer just wants to sleep so he politely declines, and tries to sleep. The programmer persists and explains, "I'll ask a question and if can't answer you pay me ₹100. Then you ask me a question and if I can't answer I'll pay you ₹100." Again, the engineer again declines. The agitated programmer, says, "OK, if you can't answer, you pay me ₹100, and if I don't answer, I'll pay you ₹5000 !" Now, that got the engineer's attention, so he agrees to the game. The programmer asks the first question, "what is the distance from the earth to the moon?" The engineer doesn't say a word and just hands the programmer ₹100. Now, the engineer asks the programmer, "what goes up a hill with three legs and comes down on four?" The programmer looks at him with a puzzled look, takes out his laptop and after about an hour wakes the engineer and hands him ₹5000. The engineer politely takes the money, turns away, and tries to return to sleep. The programmer, a little miffed, asks, "Well? What's the answer to the question?" Without a word, the engineer reaches into his wallet, hands ₹100 to the programmer and returns to sleep.

# 0% Sales Tax

## a success story

RS India has always been at the forefront of 'High Service Distribution' in the Indian market. RS India has many firsts to its name, the most recent being introducing 0% sales tax billing without hassles of issuance of C-Form / I-Form. RS India has obtained an advance ruling covered under section 5(2) of Uttar Pradesh VAT Act to carry on 0% sales tax billing.

Some other unmatched differentiators include free door step delivery within 5 to 6 working days.

We spoke to the RS India CEO Mr Shiv Bhambri. Some excerpts

**TF: Is there a benefit to the Customer and can you put a financial value to it?**

Yes, buying from RS India will give them cost benefit of either

- 2% (IF they used C-Form earlier)
- 5% or 13.5% (IF they didn't use C-Form earlier, based on applicable tax rates)

In both cases above, 0% Sales Tax would apply, along with ease to buy without hassles of issuance of C-Form / I-Form.

**TF: Can you state what other benefit has this given us over the competition?**

RS India now delivers on 6th day - one day less than our previous delivery time of 7 days.

**TF: What will be your position regarding interstate sale against C Form? What benefit would this deliver?**

With X-Docking, C-Form / I-Form is not required. And more importantly this will drive 2% cost advantage for the customer and hassle free transactions.

Internally, at RS India operations, this has also resulted in saving one day in delivery to customer.

**TF: Why we alone (in our kind of industry) can provide this service to Customer?**

We are the first to launch this in India.

Apart from us (in other kind of Industry) Dell Computers offer similar service to Indian Customers.

Our operations team along with UK operations team has done extensive work to bring this to Indian Customers.

**TF: How can we sell without Sales Tax and/ or concessional tax forms like C Form / I-Forms etc?**

These transactions are executed as 'Sales in the course of Import'.

Goods get identified, picked and packed in the name of Customer before leaving from origin. This type of a transaction is covered under section 5(2) of Central Sales Tax Act and does not attract any sales tax.

The customer need not worry of any future problems, because Sales Tax is collected by seller and the seller only is responsible for it

(not the buyer)

If Customer wants to know more - please connect them with HO Taxation Team (Pradeep Goswami and/or Jagdeep Bundel).

**TF: What exactly would a customer need to do to avail this offer/ benefit?**

RS India customers don't need to do anything extra to avail 0% sales zero tax benefit.

The customers can continue to place order in a usual way (whether offline or online). And as material is imported for the customers, every procedure will be followed by the RS operations team in India and UK to give the customer 0% sales tax benefit.

These transactions will be executed as 'Sales in the course of import'.

No headache for customer.

**TF: Do customer need to place order to RS UK to avail this facility?**

Not at all. Customers will have to place orders to the RS India only. (just as before)

**TF: Can customer get this benefit on INR billing?**

Yes, customer will get this benefit on the usual INR billing.

**TF: Can customer do online business and still avail this benefit?**

Yes, irrespective of online or offline customer can avail the 0% sales tax benefit.

**TF: What are the limitations of X-dock, if any?**

There are 3 exceptions when 0% sales tax benefit is not applicable

- India Stocked Items (which are locally sourced from key suppliers in India)

• Extended Range (not in UK warehouse - range with 10 digit part numbers)

• Hazardous items like lithium batteries, Aerosols, Chemicals etc

**TF: Does the customer need to inform the tax authorities before entering such transactions with us?**

No, Customers need not to do anything extra. RS India has obtained an advance ruling covered under section 5(2) of Uttar Pradesh VAT Act to carry on 0% sales tax billing.

**TF: How is this offer different from Pound / Dollar billing?**

This is entirely different than GBP orders. GBP offer is usually beneficial to Customers in EOUs or Special Trade Zones but X-Dock offer of 0% sales tax is beneficial for all.

**TF: Has RS India increased prices to absorb the sales tax?**

No, prices (exclusive of tax) are available on RS India website and are applicable for both option, with or without X-Dock.



**Shiv Bhambri**  
CEO - RS India

**12 piece**  
service and  
repair toolkit



Offer price

**₹9,689/-**

RS Stock No : 228-4301

**66 piece**  
universal torque  
driver set



Offer price

**₹23,877/-**

RS Stock No : 499-2537

**88 piece**  
1/4in 3/8in  
socket bit set



Offer price

**₹11,873/-**

RS Stock No : 531-4809

**95 piece**  
industrial grade  
mechanics tool kit



Offer price

**₹59,435/-**

RS Stock No : 604-781

# HEALTH

# SAFETY



Fed up of hearing the phrase “Health & Safety is just common sense”.

techFIRST spoke to around 100 people from different industrial backgrounds (including Mark Twain !) and this is what they had to say. Read on .....

- H&S is not common sense, it is based on the law and needs to be approached with intelligence and an inquiring mind.
- A control measure that would have prevented a mishap is often glaringly obvious after the event. In other words, hindsight tends to be a wonderful thing. We have a tendency to call this common sense.
- Everybody gets so much information all day long that they lose their common sense.
- Common sense is an excuse for not thinking, and at its worse merely reflects ignorance of the man. Common sense will tell you that the Sun moves round the Earth, that humans were created by God, and that lightning comes down from the sky.
- It forbids enquiry, and would, for example, permit falsehoods.
- No amount of common sense can tell you if an electrical switch has a hidden fault or if ceiling fan is loose.
- Most accidents happen on roads with a dark coloured surface - Common sense is that changing the colour to a light one will reduce accidents!
- An example of a young child putting their hand into a cup of steaming water. Common sense will tell adults that if there is steam rising then it is hot, but as a child has not experienced this he has no “common sense”, which is not correct. Common sense is based on experience and training. Don't wait for someone to have an accident to get common sense.
- Once there has been an accident you realise common sense is not quite as common as you thought.
- Buying tools of low quality or compromising with safety gear in a bid to save cost looks so common sense but changes to a 'preventive sad incident' later. Common sense fails again.
- Common sense is a learned behaviour. Therefore, 'common sense' is only 'common' when you have an awareness and understanding of the topic and/ or environment in which it is to be applied.
- The majority of health and safety practice is just GOOD sense.

techFIRST requests all our readers to have a good sense and practice Health & Safety rules. Your safety and eventually your family's future is in your hands. Some key & must have products have also been listed on this & following page.



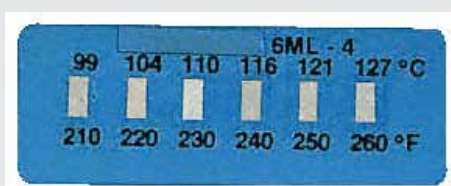
## Headtorch HD5 5 LED

- Lamp Type.....LED
- Torch Style.....Head Torch
- Range.....100 m
- Batteries.....3 x AAA
- Case Material.....Aluminium
- Luminosity.....40 lm
- Head Diameter.....29 mm
- Colour.....Black

Offer price : ₹1,159/-

RS Stock No : 698-8849

## 6 level temperature sensitive label



RS Stock No : 285-936

- Immediate response to temperature (<1 sec)
- Accurate to  $\pm 1^{\circ}\text{C}$  below  $100^{\circ}\text{C}$  and  $\pm 1\%$  above
- 65 to  $93^{\circ}\text{C}$  range
- Unbreakable, self adhesive

Offer price

₹102/-

To order products listed in this edition, please contact :

RS Components & Controls (I) Ltd

1800-180-7746

enquiry@rs-components.co.in

www.rsindia.com



## Multi-Voltage Xenon Beacons

A low current consumption beacon, weatherproof to IP56 with a broad voltage range, ideal for battery powered vehicles such as forklift trucks



Single point fix

RS Stock No : 236-127

- Broad voltage range: 10-100Vdc
- Rugged design, sealed to IP56
- Choose from either a 2W or 6W version
- Nominal flash rate: 75 fpm
- Temperature range: -30°C to + 50°C
- 130mm height
- All Beacons available in Amber, Red, Green & Blue

Offer price  
**₹3,858/-**

### General purpose ear defender w/headband



RS Stock No : 228-7827

Offer price  
**₹1,357/-**

### Blue Nitrile - Powder Free



RS Stock No : 508-1587

Offer price  
**₹1,434/-**

### Lockout Hasp 38mm



RS Stock No : 489-147

Offer price  
**₹1,141/-**

### Oil absorbent sheet, 40x50cm, 1.3 litre



RS Stock No : 711-889

Offer price  
**₹123/-**

## KPEG1600 Piezo Siren

- These products are suitable for noisy environments
- Sound output 105dB
- Sound Output Frequency is 2000 – 4000Hz
- Sound Current Consumption is 260mA at 12V



Offer price  
**₹1,376/-**

RS Stock No : 622-1310

## Lane Marking Tapes

Applications : gangways in factories, warehouses, hospitals, schools, sports halls and other public buildings.

- High abrasion resistance for foot & machinery traffic
- Can be walked on immediately after application
- Available in a selection of colours



Offer price  
**₹1,729/-**

RS Stock No : 420-261

## Body Protector -M White

- Made from Polypropylene
- Strong and durable fabric
- Storm flap over the zip
- Elasticated hood

**Best Sellers**

Offer price  
**₹581/-**

RS Stock No : 405-373



# TURN A HOT IDEA INTO A COOL SOLUTION

## DesignSpark chipKIT™ Challenge

Challenge your talent against other engineers worldwide to produce an open source energy-efficient design solution using the Free DesignSpark PCB software and the chipKIT™ development board.

Achieve the most energy-efficient design and you could win a share of \$10,000 cash!

Plus, keep the DesignSpark community regularly informed through posts on the DesignSpark Project Pages and your updates will make you eligible for Community Choice Awards & random prize drawings.

Find out more - <http://www.designspark.com/chipkitchallenge>

**\$10,000**  
in cash prizes!

The following prizes will be awarded:

- \$5,000 First Prize
- \$3,000 Second Prize
- \$1,000 Third Prize
- Five \$200 Honorable Mention prizes

POWERED BY



## SMC among Forbes "100 Most Innovative Companies"

Listed among powerful giants such as Apple, Google, and Amazon. Forbes Inc has named SMC Corporation the 49th most innovative company in the world in their August 2011 issue.

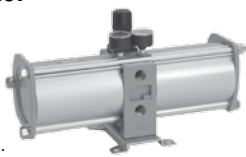
Rank	Company	5-Year Avg. Sales Growth (%)	5-Year Avg. Net Income Growth (%)	Enterprise Value (\$bil)	Innovation Premium*
46	Hershey	---	---	---	---
47	Avon Products	---	---	---	---
48	Paccar	---	---	---	---
49	SMC Corp	---	---	---	---
50	PepsiCo	---	---	---	---

Based on expectations of future innovative results (new products, services and markets), this elite list illustrates confidence in the current and future performance of SMC. In 2011, SMC products continue to move into new peripherals and pneumatics related markets.

A heavy emphasis on innovation is key to SMC's activities, investing more than 5% of turnover into research and development initiatives. The company launches around 50 new products every year, in addition to its standard product offering of 11,000 products and 600,000 variant options.

### Booster Regulator Series VBA

Can increase factory pressure to up to 4 times power supply not required.



RS Stock No : 6674008 Best Offer : ₹1,29,439/-

### Digital Flow Meter for Air Series PF2A

Set flow range up to 12000 lpm. Switch output, Accumulated output, Analog output.



RS Stock No : OS01399 Best Offer : ₹24,203/-

### Digital Pressure Switch Series ISE30A

High precision 2-color display suitable for vacuum, compound & positive pressure



RS Stock No : OS00802 Best Offer : ₹4,080/-

### Ionizer Series IZS31

Suitable for rapid elimination of static electricity. Discharge time : 0.3 sec.



RS Stock No : 7008852 Best Offer : ₹1,86,838/-

### Refrigerated Air Dryer Series IDFA

Improved corrosion resistance with the stainless steel heat exchanger.



RS Stock No : OS00780 Best Offer : ₹41,359/-

### Roundline Cylinder C85

Single acting Stainless Steel barrel Bore x Stroke



RS Stock No : 4358808 Best Offer : ₹4,070/-

### Electro-Pneumatic Regulator Series ITV

Stepless control of air pressure in proportion to electrical signal



RS Stock No : OS02042 Best Offer : ₹17,363/-

### Soft PU Tubing Series TD

Maximum operating temperature 80 °C Fluid : Air & Water



RS Stock No : OS01971 Best Offer : ₹74/-

### Water Separator Series AMG

Water drop removal ratio : 99% Flow rate : up to 12000 lpm.



RS Stock No : OS00768 Best Offer : ₹6,268/-

## Ionize your static away - SMC Ionizer Series IZS 31

SMC Ionizer series IZS 31 is an ideal and most reliable way to eliminate statics in your production and manufacturing processes. Some situations where SMC ionizers are most suitable to eliminate static electricity :

- PET bottle manufacturing line
- Film manufacturing belts
- Moulded goods production
- Electric substrate in PCB manufacturing (put pictures from brochure attached)

This series score a point over competition by removal of electrostatic charge in fractions of a second thru DC based ion generation technology with three different emission modes

The product has a controller integrated into the ionizer bar and has two types of electrostatic sensors available. The air purge feature allows static elimination up to 2 m away from the bar with an extremely low power consumption of less than 5 W. The series is available in bar lengths from 300 to 2300 mm

A first in industry, 'Energy saving mode' stops generating ions after static electricity removal to reduce power consumption. Air consumption can also be reduced by switching a pneumatic valve with the static electricity removal completion signal.

Additionally, after static electricity removal,

the ionizer changes to pulse DC operation and continues to remove static electricity to make it approach 0 V even if the ion balance is below 30V



### Actuators

- Linear Actuators
- Guided Actuators
- Grippers & Escapements
- Rotary Actuators
- Rodless Actuators
- Speciality Actuators
- Electric Actuators
- Actuator Accessories

### Valves and Manifolds

- Solenoid Valves & Manifolds
- Air Pilot Valves
- Manual Valves
- Mechanically Actuated Valves
- Valve Accessories

### Connectors

- Fittings
- Speed Controllers
- Tubing
- Manifolds
- Accessories

### Airline Equipment

- Combination Units
- Regulators
- Filters
- Lubricators
- Dryers
- Precision Regulator
- Nozzles
- Parts & Accessories
- Miscellaneous Equipment

### Instrumentation

- Electronic Regulator
- Pressure Switches
- Vacuum Switches
- Flow Switches

### Vacuum Products

- Suction Cups
- Vacuum Ejectors
- Vacuum Filters
- Vacuum Switches
- Vacuum Regulators
- Non-contact Vacuum Pads

### Accessories

- Cylinder Accessories
- Valve Accessories

### Speciality Equipment

- Clean Room Products
- High Purity Products
- Ionizer
- Thermo-control Units
- High Vacuum Products
- Process Pumps

# Are you still stuck with Offline ordering?



Offline	Online
• Involves paperwork	• Paperless
• Time consuming	• Quick
• Tedious process	• Instant
• Human intervention	• Automated
• Higher chances of clerical mistakes	• Foolproof
• Normal order processing	• Order processing on First Priority



Let us help you **move to online ordering.**  
Does following questions match your current scenario?

<b>Do you have to keep records of the complete transactions?</b>	Online orders can be printed & stored for future references. Moreover, our website gives you the flexibility to save 13 months order history. Print whenever you want it.
<b>Do you enjoy the benefits of Credit term?</b>	Orders can be placed on our website and you can continue to use the same payment terms as you usually do.
<b>You can place the web order but can't pay by credit card?</b>	<b>NO PROBLEM</b> Our website allows you to place your orders with payments through; <ul style="list-style-type: none"> <li>• Credit card</li> <li>• Cash on delivery</li> <li>• Even Credit (for select customers only - please contact us to check your eligibility for credit on web orders).</li> </ul> Unlike other websites, credit card payment ISN'T mandatory at <a href="http://www.rsindia.com">www.rsindia.com</a>
<b>Do you enjoy any special discounts/annual rate contracts?</b>	You can continue to enjoy the benefits of any special discounts/annual rate contracts through our online ordering too.
<b>Afraid of making mistakes while placing online order?</b>	You can easily view the product specifications, pictures and other useful details through datasheet before placing your order, hence leaving very less chances of making mistakes. You can also confirm product specs by calling our technical team.

**Online ordering is just 1 min job.....**



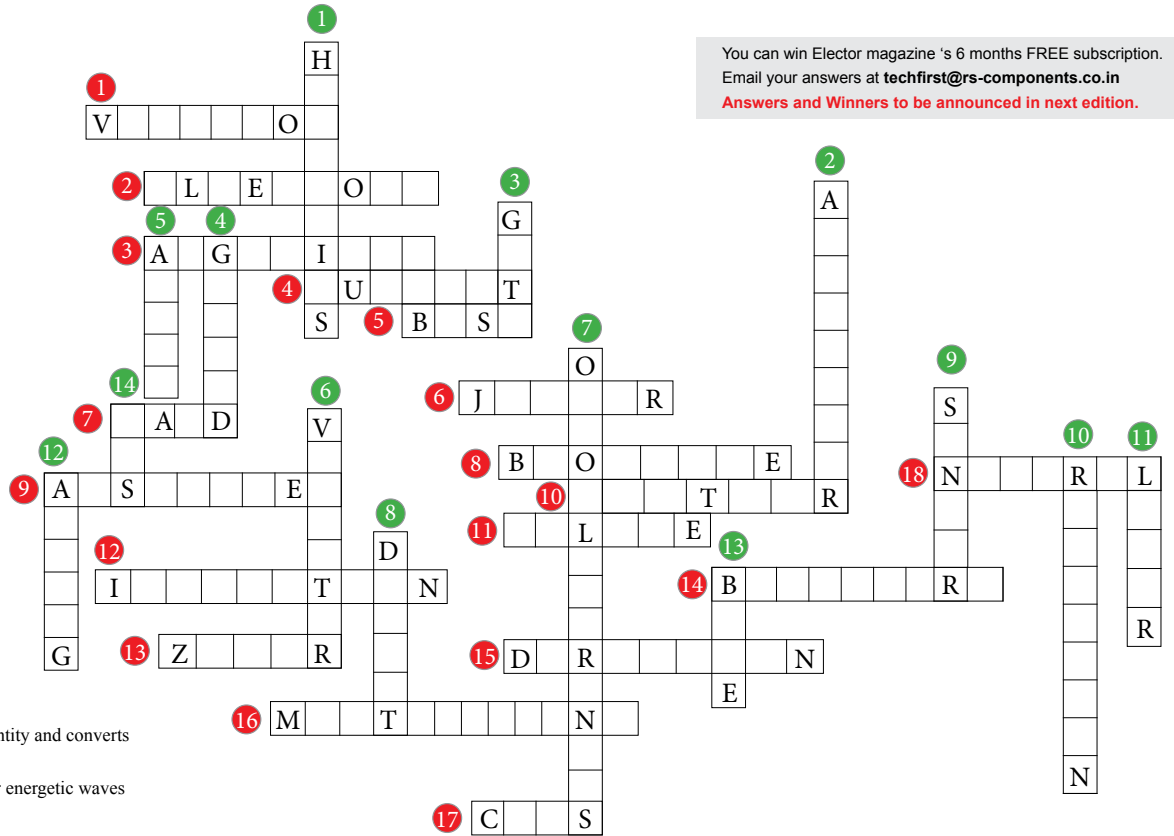
*"We were really searching for a capacitor baring high voltage rating. We searched every where in our locality. Even the big electronic shops failed to give the product. Then we came across the name RS Components. Then we searched the site, and for our astonishment there is a large number of products for the same specifications. I can choose from different products what I need. That too from the comfort of office. Now I don't want to go to the market and search for the specific product. I can easily search for the products in RS from my office itself. Thank you RS."*

**Vikas LS**  
OptoElectronic Devices Laboratory  
Bangalore

Switch to faster and reliable ONLINE ORDERING.  
Register today at [www.rsindia.com](http://www.rsindia.com) and enjoy the benefits.

## ACROSS

- 1 Over-voltage protective device
- 2 A Danish king of the 10th century who unified Denmark and Norway
- 3 Mathematical equation that produces in a fixed number of steps towards the solution to a problem.
- 4 Movement of electrons per second through a conductor
- 5 The input terminal of a bipolar transistor
- 6 A component or wire that forms a discrete electrical connection on the external surface of a circuit board
- 7 Measure of speed of transferring information between sections of a computer system, or between computers.
- 8 A void in the solder connection created by volatile contaminants, air or trapped gas
- 9 A program that converts symbolic instructions into the binary code
- 10 Terminal of a bipolar transistor
- 11 A non-separable junction joining two fiber optic conductors
- 12 Breakdown of an inert gas when a high voltage is applied across the terminals of the component
- 13 Maintains a constant value of reverse voltage across it
- 14 Type of testing of electrical connectivity and isolation carried out on the unassembled circuit board
- 15 A pair of bipolar transistors connected in a Darlington configuration to provide very high current gain and often used as the photodetector section of an opto-coupler
- 16 A display drive technique used with multiple-digit (four or more) displays
- 17 Combination of an N and P channel MOSFETs in a single switching circuit.
- 18 A circuit conductor which is connected to earth



You can win Elektor magazine's 6 months FREE subscription. Email your answers at [techfirst@rs-components.co.in](mailto:techfirst@rs-components.co.in). Answers and Winners to be announced in next edition.

## DOWN

- 1 Multiples of a single sine wave
- 2 Is a device for increasing the power of a signal
- 3 Control terminal of an SCR, TRIAC, or FET
- 4 Reference for the voltages existing in a circuit or system
- 5 One of the two terminals of a diode
- 6 Diode that acts as a variable capacitor
- 7 Technology that merges the sciences of electronics and optics
- 8 Added to the semiconductor substrate to create a P-type or N-type region.
- 9 Is a device that measures a physical quantity and converts it into a signal
- 10 A process in which energetic particles or energetic waves travel through a medium or space
- 11 A device that emits light in form of electromagnetic radiation through a process of optical amplification
- 12 Something that isn't digital
- 13 A number of binary bits
- 14 Series of transmission lines for distribution of data and control signals

## My Space

Next time you could be writing here...

## Time Management

1. **Populate and Delete** Populate your task list. Basis importance, prioritise and delete (if it isn't important get it off your to do list)
2. **Daily goals.** Without a clear focus, it's too easy to succumb to distractions. Set targets for each day in advance. Decide what you'll do; then do it.
3. **Worst first.** Tackle your most unpleasant task first thing in the morning instead of delaying it. This small victory will set the tone for a very productive day.
4. **Peak times.** Identify your peak cycles of productivity, and schedule your most important tasks for those times.
5. **Mini-milestones.** When you begin a task, identify the target you must reach before you can stop working. Hit your target no matter what.
6. **Time-Boxing.** Give yourself a fixed time period, like 30 minutes, to make a dent in a task. Don't worry about how far you get. Just put in the time.
7. **Batching.** Batch similar tasks like phone calls or errands into a single chunk, and knock them off in a single session.
8. **Tempo.** Deliberately pick up the pace, and try to move a little faster than usual. Speak faster. Walk faster. Type faster. Read faster. Go home sooner.
9. **Agendas.** Provide clear written agendas to meeting participants in advance. This greatly improves meeting focus and efficiency. You can use it for phone calls too.
10. **Pareto.** Pareto principle states that 80% of the value of a task comes from 20% of the effort. Focus your energy on that critical 20%, and don't over engineer the non-critical 80%.
11. **Ready-fire-aim.** Bust delays by taking action immediately after setting a goal, even if the action isn't perfectly planned. You can always adjust course along the way.
12. **Deadline.** Set a deadline for task completion, and use it as a focal point to stay on track.
13. **Continuum.** At the end of your workday, identify the first task you'll work on the next day, and set out the materials in advance.
14. **15 days.** Commit to sticking with above regimen for just 15 days. A temporary commitment is much easier to keep than a permanent one.



Please share your articles – technical or otherwise at [techfirst@yahoo.com](mailto:techfirst@yahoo.com)  
Selected articles will win a 6 months subscription

of Elektor / Industrial Automation Magazine + **FREE REEBOK Watch**

## Coming Soon

## Print Your OLED Display

OLED displays are everywhere today - in cell phones, digital cameras etc. But a lower-cost method for producing such displays is complicated by the difficulties of incorporating thin-film transistors (TFT) that use amorphous silicon and polysilicon into the production. Researchers from Aneve Nanotech, have used low-cost ink-jet printing to fabricate the first circuits composed of fully printed back-gated and top-gated carbon nanotube-based electronics for use with OLED displays. The team here made carbon nanotube TFT with high mobility and a



high on-off ratio, completely based on ink-jet printing. They demonstrated the first fully printed single-pixel OLED control circuits, and their fully printed thin-film circuits showed significant performance advantages over traditional organic-based printed electronics. This distinct process utilizes an ink-jet printing that eliminates the need for expensive vacuum equipment. The process also solved many material integration problems, developed new cleaning processes and created new methods for negotiating nano-based ink solutions.

**elektor** INDIA

Dec '11 / Jan '12 Bi-monthly • Vol.28 • No.8  
US \$ 4.00 ₹ 100.00

**Robotics Special**

**Elektor Wheelie**  
The electronics behind a rather special kind of vehicle

**Which Brain for my Robot?**  
A mini practical guide

**CMUCam1 Vision System**  
Seattle Robotics gives BoeBot (and other robots) vision!

**MotoBox**  
Drives stepper, DC and servo motors

**ALSO IN THIS ISSUE**

- Ultrasonic Distant Obstacle Detector • 1 Amp PWM DC Motor Controller • Burn or Turn? • Stereo Robot Ears
- Get your robot to home-in on a sound source • Satnav for Robots • GPS guidance for autonomous vehicles
- 2.4 GHz Antenna for Robotics Vehicles • Robot Voice • Balancing Robot • Design Tips • Study Article • AVR Baucorn-6