The Top 101 Components: What Products You're Looking For Most

Mat Dirjish | *Electronic Design* — *May 4, 2010*

LD24E dc-dc LED drivers

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It's that time of the year when we take a look at what products *Electronic Design* readers sought out in the components category of our *Products of the Week* newsletter. Each week, this newsletter features the latest and most innovative semiconductors, components, boards and modules, and design, assembly, and test products. Data culled from these newsletters, such as the number of clicks on specific items and follow-throughs to company Web sites, enable us to deduce which products were the most popular—the ones you were looking for most—over the past year.

Before embarking further, it should be clear that any product's position or ranking on our list is in no way a figure of its merit, performance, or quality over any other similar product or other components in general that appear in the list *(see the table)*. For example, say 100 readers take interest in an 80-W switch-mode power supply while only 40 view a 20-W unit. Yes, 80 W is more power than 20 W, but the 20-W unit is not underperforming the 80-W supply. At that given point in time, most likely more designers were in need of the higher-power product—no more, no less.

POWER SOURCES DOMINATE TOP 10

Power sources occupy five of the top 10 slots in this year's list, two of which come from

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Micropower Direct *(see the table, again)*. Also in the top slots are entries from the sensors, interconnects, passive components, and display/indicator sectors *(see "Compiling The Top 101 Components List")*.

Taking the first position, the LD24E series dc-dc LED drivers *(Fig. 1)* from Micropower Direct enable pulse-width modulation (PWM) dimming and deliver 17 W of output power via a constant current output and an efficiency up to 95%. Five models in the series operate from an input voltage range of 5.5 to 36 V dc and deliver constant-current outputs of 300, 350, 500, 600, or 700 mA.

Other features of the series include short-circuit protection, remote on/off inputs, and a mean time before failure (MTBF) beyond 2 million hours as per MIL HDBK 217F. The components come in miniature 0.9- by 0.4-in. packages with industry-standard pin outs and specify an industrial operating temperature range from –40°C to 85°C ambient with no derating or heatsinking. Cooling is via free-air convection.

In second place, also from Micropower Direct, the MPS-03S series single-output, switching power supplies *(Fig. 2)* pack up to 3 W of output power. Available in compact single-inline packages (SIPs), six standard models operate from a universal input of 85 to 264 V ac and provide regulated outputs of 3.3, 5, 9, 12, 15, or 24 V dc. The modules also suit applications with an input of 100 to 400 V dc. Standard features include continuous short-circuit protection, an I/O isolation of 2 kV ac, and very low leakage current.

Murata Electronics North America takes the third slot with its MYLG miniature dc-dc converters *(Fig. 3)* for both intermediate bus and distributed power architectures in the telecom and data-communications sectors. Measuring 12.4 by 12.4 by 5.6 mm, the 3-A and 6-A converters feature a unique land-grid-array (LGA) structure that enables an easy board-mount inspection and a low profile. The components also provide efficiencies up to 93%, wide input voltage ranges, programmable output voltages, plus tracking and remote logic features.

Coming in at number nine on the list, the 48525 and 48530 smart battery isolators *(Fig. 4)* from Cole Hersee promise to prevent loads on the auxiliary battery from draining the starting battery. According to the company, they're more flexible than traditional isolators since they aren't specific to an alternator type.

The isolators are smaller and lighter and generate less heat than comparable components. They also reduce charging system workloads by not connecting to the auxiliary battery until the primary battery charges to 13.2 V. As a result, there is less strain on the charging components. The smart battery isolators are available in 85-A and 200-A versions.

Taking tenth place, Foster Transformer addresses green issues with its dimmable LED power supply *(Fig. 5)*. Designed to be easy to install and use, the unit works with many household dimmer switches. Patented short-circuit and overload protection makes the supply suitable for commercial, residential, industrial, and institutional applications.

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Encapsulated with epoxy in a 304 stainless-steel enclosure, the supply is virtually impervious to dirt, moisture, and corrosive elements and can withstand a direct short in excess of 15 days with no external fusing necessary. It accepts multiple input voltages including 120 V, 240 V, and 277 V, 50/60 Hz, with outputs configurable for 12 or 24 V dc up to 60 W.

SENSORS TAKE THEIR BOWS

Sensors also landed in the top 10 with offerings from Avago Technologies and Murata Electronics North America. Introduced as the world's smallest pyroelectric infrared (PIR) sensor, Murata's IRS-B210ST01-RI measures 5 by 4.7 by 2.4 mm.

The component also lays claim as the only surface-mount PIR sensor *(Fig. 6)* available on the market. It includes dual 0.85- by 1.2-mm electrodes with a field of vision of ±70° horizontal and ±50° vertical. Operating temperature range is –40°C to 70°C, and operating voltage is in the range of 2 to 15 V.

Targeting a variety of mobile and consumer electronics such as cell phones, MP3 players, miniature PCs, game pads, digital cameras, and keyboards, Avago's miniature optical finger navigation input system *(Fig. 7)* features a low-power architecture and power-management modes. It's also capable of motion detection at rates up to 15 inches per second. Its on-chip oscillator and LED minimize external components.

Further, precise optical alignment isn't required, enabling high-volume assembly. Other features include a self-adjusting frame rate, motion-detect-pin output, internal oscillator, selectable 250-, 500-, 750-, 1000-, and 1250-cpi (characters per inch) resolution or auto, dual 2.8/1.8-V or single 2.8-V supply options, and a selectable I/O voltage at 2.8 V or 1.8 V nominal.

MORE VIEWS FROM THE TOP

Interconnects captured fifth place on our list with the PX0885 self-pairing Bluetooth cable replacements *(Fig. 8)* from Elektron Components. Promising to eliminate data cables and allow equipment with RS-485 or RS-232 data ports to communicate using wireless Bluetooth technology, the components carry an IP68 rating and reside in environmentally sealed enclosures. The PX0885 mounts internally or externally for maximum flexibility and optimum range.

Wireless point-to-point or multi-drop data connections are quick and easy between serial interfaces or dumb devices, according to the company. Additionally, they work transparently without any need for a PC, programmable logic controller (PLC), or Bluetooth software. The master and slave units automatically establish a data link between themselves with no intervention or special serial commands required. The master automatically connects with up to six slave units to form a multi-drop network.

Under the passive components banner, Epcos grabbed sixth place with the

CA04F2FT5AAUD010G dual electrostatic discharge/electromagnetic interference (ESD/EMI) audio filter *(Fig. 9)* for stereo headsets, mobile phones, portable multimedia players, PDAs, and notebook computers. The filter effectively reduces parasitic noise and increases audio quality. It combines EMI filtering and ESD protection in an EIA-0405, two-fold array package.

With a cutoff frequency of 20 MHz and low serial resistance of 0.2 Ω, the component is useful in applications requiring low bandpass attenuation. At frequencies from 200 MHz to 4 GHz, attenuation is higher than –20 dB for all quad-band GSM (850/890/1800 MHz) and UMTS standards (2.1 GHz) as well as for GPRS/WLAN and Bluetooth (2.4 GHz). At 900 MHz, it offers attenuation beyond –60 dB.

The component's internal structure provides a double-clamping function and therefore can reduce ESD pulses from 8 kV to 70 V. It measures 1.37 by 1.0 mm^2 and specifies a maximum operating voltage of 5.5 V dc and a typical insertion loss of –20 dB to –60 dB.

In the displays category, Cree took seventh with the ScreenMaster CLV6A-FKB, a water-resistant, surface-mount, high-brightness tri-color LED *(Fig. 10)* for use in outdoor video screens. The RGB LED carries an IPx5 rating, meaning the component includes protection against low-pressure jets of water from all directions. It relies on a black face to improve contrast in full-color video screens, decorative lighting, and amusement applications.

Designed to be unique, the LED employs an encapsulation resin with ultraviolet (UV) inhibitors that minimizes the effects of long-term exposure to direct sunlight. According to Cree, this improves light output stability over the life of the LED. Measuring 5.5 by 5.5 mm, the component also employs a matched horizontal radiation pattern that enhances color mixing and pixel-to-pixel consistency.

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