

Charcroft Engineering Intelligence 20.08

This Engineering Intelligence introduces three new series of high-temperature capacitors, as well as new stacked ceramic capacitors which eliminate the single-source challenge for turbo-charging power supplies. A range of components has also just been launched to support pro-audio applications.

As component manufacturers begin to return to full capacity, Charcroft is fully available to support you with technical advice and to keep you up to date with the latest advances in new components.

We can support you with virtual meetings over Microsoft Teams, Skype or Zoom and by staying in close contact with the component manufacturers, we can help you to address your technical challenges.

You can request a sample of the new products highlighted below, or you can contact me directly on Roger.Tall@charcroft.com.

Roger Tall
Sales Manager



New Product

New capacitors for high-temperature applications

- Stable film capacitors up to 200°C
- Polymer capacitors up to 180°C

High temperature and efficiency for power supplies

- KC-LINK capacitors up to 150°C for power designs

Turbo-charge power supplies with stacked ceramics

- Second-source stacked ceramic capacitors

Highest energy-density aluminium electrolytics & 150A contactor

- Highest energy-density aluminium electrolytics
- GIGAVAC contactor for battery packs up to 150A

Pro-audio applications get new range of potentiometers

- Pro-audio potentiometers and encoders

Industry News

- KEMET and Yageo merger completed
- KEMET Joins OECD Call to Action

New capacitors for high-temperature applications

Stable film capacitors up to 200°C for defence, O&G

The 253P PTFE film caps from Exxelia can replace several X7R caps with no derating and achieve the lowest loss characteristic of below 0.1%. The 253P capacitors are resistant to vibration, shock and over-voltage conditions. The operating temperature range is -55°C to +200°C and standard tolerance is $\pm 10\%$ or $\pm 5\%$.

The US-manufactured capacitors have a rugged and lightweight construction and meet the specifications needed for applications in oil & gas, aerospace, defence and high-temperature modules.

[253P Datasheet](#)

[Request a Sample](#)

Features

- 250V to 800V DC voltage
- 0.22 μ F to 1 μ F capacitance
- $\pm 10\%$, $\pm 5\%$ tolerance
- -55°C to +200°C temperature
- Customisation available



EXXELIA 

High-temperature polymer capacitors up to 180°C

In harsh environments, the 560P polymer film capacitors from Exxelia can be used as an alternative for high-temperature ceramic and tantalum capacitors for DC Link and AC filtering.

Electrical performance is between BOPP and polyester film (PET) capacitors and the 560P polymer film capacitors require no derating up to 150°C. Stability is provided with Temperature Coefficient of Capacitance (TCC) of $< 2.5\%$ and the 560P capacitors are resistant to vibration, shock and over-voltage.

[560P Datasheet](#)

[Request a Sample](#)

Features

- 320V to 800V DC voltage
- 0.022 μ F to 10 μ F capacitance
- $\pm 10\%$, $\pm 5\%$ tolerance
- -55°C to +180°C temperature range
- Customisation available



EXXELIA 

High temperature and efficiency for power supplies

KEMET KC-LINK capacitors up to 150°C for power applications

With high power-density and high efficiency in a small form factor, the high mechanical robustness of Kemet's KC-LINK™ capacitors with KONNEKT™ packaging enables them to be mounted without using lead frames. Mounting in a low-loss orientation also increases power handling.

As a surface-mount multi-chip solution, the KC-LINK capacitors achieve extremely low Effective Series Inductance (ESL) to increase the operating frequency range and support miniaturization.

The low-loss, low-inductance package handles extremely high ripple currents with no capacitance change caused by DC voltage or temperature.

[KC-LINK Datasheet](#)

[Request a Sample](#)

Features

- Extremely low ESR, ESL
- 44nF to 880nF capacitance
- 500V to 1700V DC voltage
- -55°C to +150°C operating temperature
- No capacitance shift with voltage



Turbo-charge power supplies with new stacked ceramics

Stacked ceramic capacitor assemblies overcome sole-source challenges

The SV series of ceramic capacitor assemblies from Knowles combines an X7R dielectric with a high capacitance-to-volume ratio. Low Equivalent Series Resistance (ESR) is combined with low Equivalent Series Inductance (ESL) to enable the assemblies to handle high ripple currents at high frequencies.

Reducing ESR enables less power loss and improves reliability by minimising the impact of self-heating (I²R) losses and degradation.

The SV series is 100% tested for dielectric withstanding voltage, insulation resistance, capacitance and dissipation factor.

[SV2220 Datasheet](#)

[Request a Sample](#)

Features

- 25V, 50V, 100V
- Capacitance from 14μF to 220μF
- High capacitance to volume ratio
- Low ESR and low ESL
- Handles high ripple current at high frequency



Highest energy-density aluminium electrolytics & 150A contactor

Highest energy-density, high-voltage aluminium electrolytic capacitors

The high-voltage FELSIC HC and SNAPSIC HC aluminium electrolytic capacitors from Exxelia increase energy density to reduce board space and weight. Six FELSIC HC capacitors can replace 12 standard capacitors and the full voltage range is from 10V to 500V, with capacitance values from 100 μ F to 2.7F.

The SNAPSIC HC capacitors simplify battery assembly and can meet custom designs. The voltage range is 25V to 500V and capacitance values are from 33 μ F to 47,000 μ F across 24 case sizes.

[FELSIC HC Datasheet](#) [SNAPSIC HC Datasheet](#)

[Request a Sample](#)

Features

- High energy density
- Low ESR
- Long lifetime 8000h @85°C
- Customisable
- Up to 450V



GIGAVAC contactor for high-power battery packs up to 150A

As the main contactor, or as a pre-charge contactor in larger battery packs, the GV210 series of GIGAVAC contactors from Sensata continuously carries up to 150A with low power losses. Capable of high pulse currents for fuse coordination, the contactor can switch loads to enable safe operation.

The hermetic seal exceeds IP67 and IP69 and prevents oxidation for reliable operation in corrosive or wet applications. The long mechanical lifetime is for one million cycles. The mounting position is not sensitive and the GV210 is suitable for use in hazardous operating environments.

[GV210 Datasheet](#) [Request a Sample](#)

Features

- Hermetically sealed to IP67/IP69
- Not sensitive to mounting position
- Hazardous/classified environments
- High voltage isolation
- 1 million cycles mechanical life



Pro-audio applications get new range of potentiometers

Pro-audio potentiometers and encoders added by TT Electronics

The new range of rotary potentiometers from TT Electronics is IP40 rated and provides resistance values from 1K Ω to 1M Ω . The potentiometers feature metal shaft and bushing as well as options for vertical or horizontal PCB mounting.

The slide potentiometers provide options for slide travel ranging from 20mm to 100mm, in addition to resistance from 1K Ω to 1M Ω . The LM1001 is the first motorized slide potentiometer from TT Electronics which can change between pre-set positions or physical feedback from virtual controllers.

The EN09 encoders are rated to IP40 and deliver high reliability with 10 pulses per rotation. The encoders also integrate a push-on switch option which is non-latching.

Features

- IP40-rated rotary potentiometers P161, P162, P163, P164, P165
- Slide potentiometers PSS1, PSS2, PSL2
- Motorized slide potentiometer LM1001
- IP40-rated encoders EN09



[Rotary Potentiometers](#)

[Slide Potentiometers](#)

[Motorized Slide Pot](#)

[Audio Encoders](#)

[Request a Sample](#)



INDUSTRY NEWS

KEMET and Yageo merger completed

The merger of KEMET and Yageo has been completed and KEMET is now a wholly-owned subsidiary of Yageo. The merger provides a combined total of 42 manufacturing plants and 14 dedicated R&D centres worldwide.

KEMET holds more than 1,600 patents and trademarks worldwide and the merger will provide support for a range of passive components. These components include polymer, tantalum, ceramic, film and electrolytic capacitors in addition to chip resistors, circuit protection devices, magnetics, sensors and actuators.

These components are used in sectors which include advanced automotive electronics, aerospace, medical and industrial applications, as well as alternative energy and 5G technology.

[View KEMET range](#)

KEMET Joins OECD Call to Action

As the world's largest user of element 73, tantalum, KEMET took an early leadership position in obtaining certified conflict-free minerals and the company understands the impact of sustainability on direct operations and the supply chain



The supply chains of mineral resources have been severely disrupted by the COVID-19 pandemic. The pandemic has also depressed international prices and forced mining sites and processing facilities to close or suspend operations.

[View Conflict Minerals Statement](#)

Contact Us

Thank you for trusting Charcroft to help you to find a solution to your design challenges.

If you have any questions, please contact me on Roger.Tall@charcroft.com.

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