

As the UK continues to work under tight Covid measures, the latest product launches from Charcroft's franchised manufacturers offer you improved performance and reliability for demanding applications.

The new products range from oscillators for **high-end audio and LEO satellites**, as well as **automotive-grade** and **ruggedised passives, switches and power ICs**.

The recent acquisition of **ICW and ClarityCap audio capacitors** enables Charcroft to offer additional specialist products to existing customers, maintaining UK-based technical support & manufacture of these capacitors.

Availability is tightening for 0201 and 0402 MLCCs and axial aluminium electrolytics, but alternatives can be recommended to ease the supply.

You can access support on the new products in this Engineering Intelligence, or on your other design challenges, by having a virtual meeting over Microsoft Teams, Skype or Zoom with a Charcroft Product Specialist or with sales.

To request a sample, use the links below, or contact me directly on [Roger.Tall@charcroft.com](mailto:Roger.Tall@charcroft.com) to discuss how we can help you to meet your design goals for 2021.



**Roger Tall**

**Sales Manager**

### New Product Introductions

#### Capacitors for high capacity, voltage & power

- Power film capacitors for high voltage, density
- High-power pulse and high-frequency capacitors

#### Automotive-grade capacitors

- Class X2 EMI suppression capacitors
- Metal foil on ceramic resistor for current sensing

#### Anti-sulphur precision chip resistors

- Chip resistors offer tight tolerance and TCR

#### High-end audio & rugged oscillators

- Audio oscillator with ultra-low jitter
- Radiation-tolerant oscillators for LEO
- Ruggedised industrial clock oscillator

#### Pressure sensors & inclinometer

- Pressure sensors for harsh environments
- Analogue inclinometer for aerospace & lifts

#### Slide switch

- Unique SP3T function in small package

#### New Power IC catalogue

- Introduces three new controllers



## Capacitors and resistors offer higher performance

### Power film can capacitors with high-voltage, high-capacitance

For filtering and storage applications, the **aluminium can C44 series** of polypropylene metallized film capacitors from Kemet are filled with resin and feature high-torque screw terminals, self-healing and a long lifetime.

For DC filtering and energy storage, the C44U M series offers voltage from 600V to 1,800V and capacitance up to 2,100 $\mu$ F.

The C44P R capacitor for PFC and AC filtering integrates an overpressure safety device. Voltage is from 330VAC to 1,000VAC, 700VDC to 2,300VDC and capacitance is from 10 $\mu$ F to 600 $\mu$ F.



**KEMET**  
a YAGEO company

[C44U M Datasheet](#)  
[C44P R Datasheet](#)

[Request a Sample](#)

#### Features

##### High-capacitance C44U M

- Low loss, high ripple current

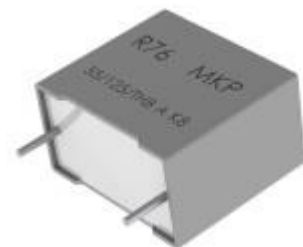
##### High-voltage C44P R

- Overpressure safety, high peak current

### Pulse and high-frequency capacitors for harsh environments

Delivering high power density for **DC and pulse applications**, Kemet's radial R76H series of polypropylene film capacitors have double-sided metallized polyester film plates and are encapsulated in a self-extinguishing solvent-resistant plastic case with electrically welded leads.

Meeting high voltage and high current requirements, the R76H capacitors operate over a temperature range from -55°C to 125°C. Rated for use in harsh environments, the capacitors offer tolerance down to  $\pm 2.5\%$  and meet climatic category 55/125/56 IEC 60068-1.



**KEMET**  
a YAGEO company

[R76H Datasheet](#)

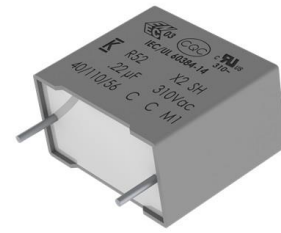
[Request a Sample](#)

#### Features

- 250VDC to 2,000VDC voltage
- 100pF to 15 $\mu$ F capacitance
- 10mm to 37.5mm lead spacing
- Self-healing

## Automotive-grade Class X2 miniature EMI suppression capacitors

Meeting the AEC-Q200 standard, the R52 capacitors from Kemet provide **EMI suppression** in across-the-line applications which need X2 safety classification.



Designed to operate in harsh conditions, the metallized polypropylene film encapsulated capacitors have self-extinguishing resin in a box that meets UL 94 V-0. The operating temperature is -40°C to 110°C and the capacitors are 100% factory screened at 1,900VDC.

In addition to approval to THB Grade IIB, the R52 capacitors meet the AEC-Q200 standard.

[R52 Datasheet](#)

[Request a Sample](#)

### Features

- 310VAC voltage
- 0.1µF to 22µF capacitance
- 15.0 to 37.5mm lead spacing

## Resistors for current sensing and sulphur-bearing environments

### Metal foil on ceramic chip resistors for compact current sensing

The metal foil on ceramic MFC chip resistors from TT Electronics enable **compact current sensing** with the heat spreading capabilities of ceramic and the surge tolerance of a bulk metal alloy resistance element.



The MFC resistors provide lower self-heating levels than thick-film or metal strip resistors combined with improved surge tolerance compared to thick-film alternatives.

With tolerance down to  $\pm 0.5\%$  and TCR to  $\pm 50\text{ppm}/^\circ\text{C}$ , the resistors are AEC-Q200-qualified with tolerance of 1%, 2% and 5%.

### Features

- High power density
- 0402 to 2512 cases
- 2mΩ to 200mΩ resistance
- High precision, low TCR

[MFC Datasheet](#)

[Request a Sample](#)

## Anti-sulphur precision chip resistors with tight tolerance and TCR

Qualified for use in environments exposed to sulphur-bearing gasses, the APC surface-mount resistors from TT Electronics deliver thin-film precision and improve the tolerance and TCR of thick-film alternatives by a factor of 10.

Tested to ASTM-B-809-95 and EIA-977, the resistors offer tolerances down to  $\pm 0.05\%$  and TCR to  $\pm 10\text{ppm}/^\circ\text{C}$ . The APC resistors offer resistance values from 4R7 to 1M5 and case sizes from 0402 to 2512 and support high-precision analogue circuits with accuracy and stability to reduce failure in harsh environments.

### Features

- Tested to EIA-977 & ASTM-B-905-95
- $\pm 0.05\%$  tolerance
- $\pm 10\text{ppm}/^\circ\text{C}$  TCR



[APC Datasheet](#)

[Request a Sample](#)

## Oscillators for audio, LEO and industrial applications

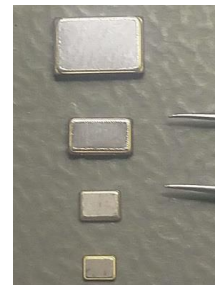
### High-end audio oscillator with ultra-low jitter drop-in replacement

The EQHJ oscillator from Euroquartz achieves ultra-low jitter and is a **drop-in replacement for standard oscillators**.

With ultra-low phase jitter of 50fs, the EQHJ oscillator supports a frequency range from 5.0MHz to 50.0MHz with stability from  $\pm 25\text{ppm}$  over a  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  temperature range. In addition to an LVCMOS output, the oscillator has supply voltages of 1.8V, 2.5V or 3.3V and offers three surface-mount package options with sizes from 3.2 x 2.5 x 1.0mm to 7.0 x 5.0 x 1.4mm.

### Features

- 50fs ultra-low phase jitter
- LVCMOS output
- Frequency stability from  $\pm 25\text{ppm}$
- 1.8V, 2.5V, 3.3V supply voltage



[EQHJ Datasheet](#)

[Request a Sample](#)

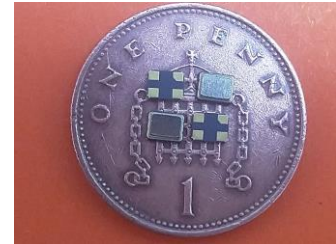
## Radiation-tolerant oscillators with ultra-high shock rating for LEO

With 30kRad radiation tolerance, the Statek CXOXLPNR oscillators from Euroquartz are designed for **Low Earth Orbit (LEO)** applications. The oscillators offer an ultra-high shock rating and low phase-noise oscillators in addition to withstanding shocks of up to 100,000g.

The hermetically-sealed package has low sensitivity to acceleration. The operating temperature range is -55°C to +125°C and output frequencies are from 20MHz to 125MHz with supply voltages from 1.8V to 3.3V. Full military testing is available.

### Features

- 30kRad (Si) Total Ionizing Dose
- Shock resistance up to 100,000g
- 3.2 x 2.5mm ceramic package
- CMOS output with Enable/Disable
- Low phase noise and jitter



[CXOXLPNR Datasheet](#)

## Ruggedised clock oscillator with extended industrial temperature

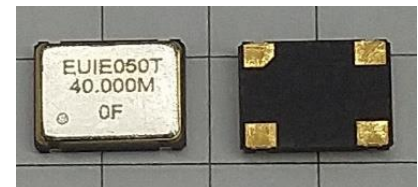
The ruggedised EQXO-75UIE clock oscillators from Euroquartz are manufactured in the UK and feature an extended Industrial temperature range of -40°C to +105°C.

The clock oscillator achieves **1500g mechanical shock survivability** and offers superior phase noise. Stability to  $\pm 50$ ppm is ensured with a standard 96-hour crystal stabilisation pre-age bake process. The operating voltage is 2.5V, 3.3V or 5V.

Manufactured to order, the oscillators are available in small quantities on a short lead time and are free from ITAR restrictions.

### Features

- 2.0MHz to 60.0MHz frequency
- -40C +105C temperature range
- 1500g mechanical shock
- 7 x 5mm ceramic package



[EQXO-75UIE Datasheet](#)

[Request a Sample](#)

## Pressure sensors with steel housing withstand extreme shock

### Pressure sensors deliver accuracy for harsh environments

For use in tough environments, the PTE7100 and PTE7300 hermetic pressure sensors from Sensata provide **accurate measurement for mid- to high-pressure** HVAC, hydraulic & pneumatic systems. The sensors feature Sensata's Microfused Strain Gauge (MSG) and offer a range of ports and connectors as well as analogue and digital outputs.



The stainless steel housings have no o-ring and the sensors withstand extreme shock and pressure and operate from -40°C to 100°C.



#### Features

PTE7300 pressure & temperature sensor

- 0-230 to 0-5800 psi
- 2.7V to 5.5V DC
- I<sup>2</sup>C with CRC

PTE7100 pressure

- 0-725 to 0-8700 psi
- 8V to 32V DC

[PTE7300 Datasheet](#)

[PTE7100 Datasheet](#)

[Request a Sample](#)

## Inclinometer offers flexibility and slide switch has unique function

### Single-axis analogue inclinometer meets demanding applications

The ApexOne™ F160-21A-018-00 single-axis analogue inclinometer from Fredericks is engineered to perform in the most demanding environments including **RV levelling and aerospace**, agricultural machinery, scissor lifts and boom lifts.



In addition to a 0.5V to 4.5V analogue output, the inclinometer integrates a  $\pm 50^\circ$  linear operating range in an enclosure which can be mounted vertically or horizontally. Repeatability of  $\pm 0.1^\circ$  is combined with  $\leq 0.01^\circ$ . Protection is integrated against reverse polarity, over-voltage and short-circuit.



[F160-21A-018-00 Datasheet](#)

#### Features

- High resolution, repeatability, and accuracy
- Designed for extreme environments
- IP67, UV stable

[Request a Sample](#)

## Slide switch features unique SP3T function in small package

As a **right-angle surface-mount SP3T switch** from E-Switch, the EG1312 offers a unique function compared to other slide switches. In the left and centre position, the switch is maintained on, but the right position is on momentarily.

The compact 9.9 x 3 x 1.5mm package size supports small handheld devices and the EG1312 has 1.50mm travel from each position to the next position. Contact resistance is 1 $\Omega$  maximum and minimum insulation resistance is 1M $\Omega$ . The switch operates over a temperature range from -10°C to 60°C and has 150gF actuation force.



### Features

- Compact design
- SP3T contacts
- 30mA @ 15VDC contact rating

[EG1312 Datasheet](#)

[Request a Sample](#)

## New Power IC Catalogue from X-Rel

### The Power IC catalogue introduces three new power ICs

The **XTR3002x DC-DC buck PWM controllers** operate up to **35V** and frequencies up to 800kHz with functionality guaranteed from -60°C to +230°C. An XTR30011 and two XTR2081X are integrated into a single package.

The **XTR7503x low-power negative voltage regulators** deliver extreme reliability with input voltages from -35V to -2.8V. The XTR7503x supplies up to 50mA at +230°C and offers ten output voltages from the same regulator as a drop-in replacement.

The **XER30019 PWM controller** supports extreme reliability and high temperature operation in a small footprint. Input voltage is up to 35V, with frequencies up to 800kHz with low-cost external passive components. The QFP44 plastic package operates from -50°C to +175°C.



[X-Rel Catalogue](#)