

IC PONENTS

Our goal is to become a leader in every market we serve for the benefit of our customers and our mutual long term success. We are committed to achieving this by:

- Understanding our customers' real needs and providing products and services to meet and exceed them
- Providing better products and services than competitors
- Investing in product development, manufacturing processes and people
- Insisting on the highest ethical standards and a business culture of trust, respect and open communication



Satellite communications & space

Medical equipment

Telecommunications

Radar

Military systems



Knowles Capacitors designs, manufactures and sells special electronic components. Our products are used in military, space, telecom infrastructure, medical and industrial applications where function and reliability are crucial.



Knowles (Cazenovia)
2777 Route 20 East, Cazenovia, NY 13035 USA
Phone: +1 315 655 8710
Fax: +1 315 655 0445
DLISales@knowles.com



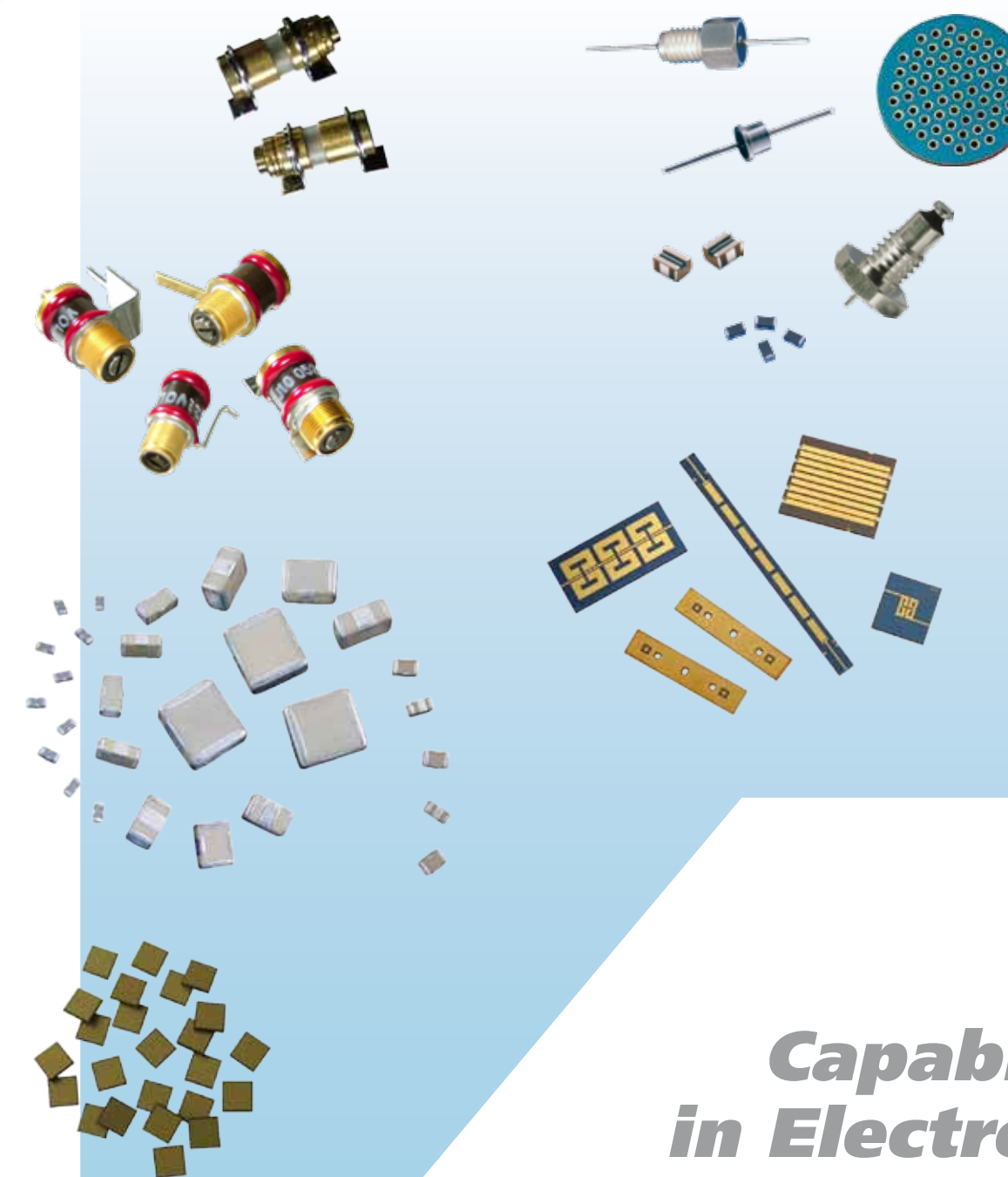
Novacap
25111 Anza Drive, Valencia, CA 91355 USA
Phone: +1 661 295 5920
Fax: +1 661 295 5928
NovacapSales@knowles.com



Knowles (UK) Ltd
Old Stoke Road, Arminghall, Norwich, NR14 8SQ UK
Phone: +44 1603 723300
Fax: +44 1603 723301
SyferSales@knowles.com



Voltronics Corporation
2250 Northwood Drive, Salisbury, MD 21801 USA
Phone: +1 410 749 2424
Fax: +1 443 260 2263
VoltronicsSales@knowles.com



**Capability
in Electronic
Components**



Radio communications

ELECTRON COM



Telecom infrastructure



Implantable medical devices



Aerospace



Oil exploration

Knowles Capacitors is the result of the merging of some of the world's leading speciality capacitor manufacturers. With a combined history exceeding 175 years, Dielectric Laboratories (DLI), Novacap, Syfer and Voltronics have come together in a single organisation, with one team of great people sharing a common vision.

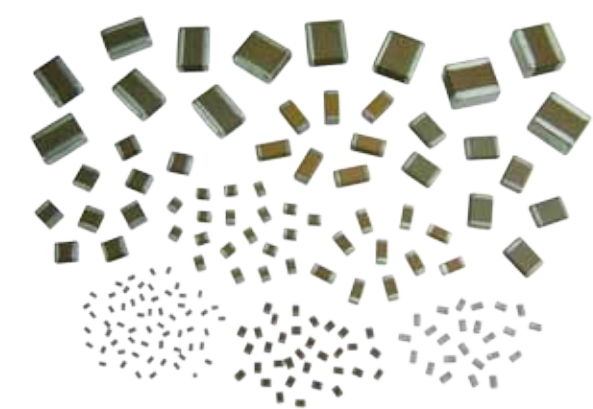
Knowles Capacitors is now a premier global source for Multilayer Ceramic Capacitors, Single Layer Capacitors, EMI suppression filters, Trimmer Capacitors and Thin Film Devices. We serve a variety of markets including military, aerospace/avionics, medical equipment, implantable devices, EMI and connector filtering, oil exploration, instrumentation, industrial electronics, automotive, telecoms and data networks.

MLC capacitors

The Knowles MLC product group offers a wide range of standard and high voltage surface mount chips from 0402 to very large sizes, 3V to >10kV and in a variety of dielectrics. Termination options include the world famous FlexiCap™ polymer system that virtually eliminates flex cracking. Our components are often used in safety critical applications and are backed-up by product certifications including IECQ-CECC, UL, TÜV and AEC-Q200.

New products include ProtectiCap™ and StackiCap™ both significantly extending the range of capacitance and voltage values available in MLCs, a new series of high power RF chips and our ac series, developed specifically for ac applications.

MLC products tend to be based on standard case sizes and materials, often in higher volumes but we're always ready to help when customers have special requirements.



Standard capacitor ranges
ProtectiCap™ capacitors
StackiCap™ capacitors
FlexiCap™ capacitors
TCC/VCC capacitors
High Q capacitors
Ultra-low ESR capacitors
Non-magnetic capacitors
Open Mode and Tandem capacitors
IECQ-CECC qualified capacitors
AEC-Q200 qualified capacitors
Safety Certified capacitors
Specialty products
Application specific

Hi-Rel products

The High Reliability product range includes MLCs made for stringent, safety critical requirements including Medical Implantable, Military, Space and Down-hole applications. This product group also offers a series of other technologies described with a "high", including high temperature, high energy, high CV, high Q and also leaded and stacked chips.

Solutions are often customer-specific, utilizing many material and design options and can result in non-standard case sizes providing the best combination of capacitance and reliability optimized for the available board space. The manufacturing process is widely scalable from small to large volumes.

We have the product knowledge, combined with extensive burn-in and reliability test capabilities to deliver to your most demanding Hi-Rel specifications.

EMI filters

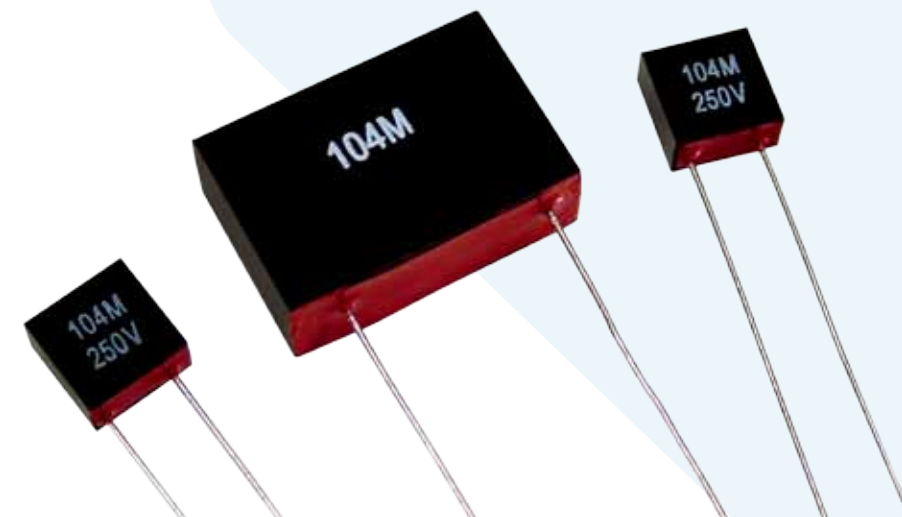
We have a broad range of EMI filters in 3 categories; surface mount, panel mount and planar arrays. Surface mount products are available as C, Pi and X2Y devices, with current carrying capabilities up to 20A and are typically used to protect general purpose electronics.

Our panel mount devices are all built around multilayer discoidal elements, making them much more reliable than common tube-based designs. These components are frequently used in Defense and Aerospace applications requiring Hi-Rel capabilities.

Knowles is one of the world's leading manufacturers of capacitive and varistor planar arrays. They are usually tailored to specific customer requirements for high end connector and medical implant applications.



Space grade surface mount capacitors
MIL grade surface mount capacitors
Medical Implant grade capacitors
Radial Leaded capacitors
StackiCap™ capacitors
High Temperature capacitors
High Energy capacitors
EMI filter products
Discoidal capacitors and Planar Arrays
Special filters and assemblies
Specialty products



Precision multi-turn
Half-turn
Non-magnetic products

Trimmer capacitors

Knowles is a world leader in the supply of precision, multi-turn trimmer capacitors used to optimize tuned circuits. Our trimmers offer high linearity and stability and employ extensive design and materials expertise to meet capacitance, voltage, frequency and mounting requirements. Many of our products are custom designs and include solutions using air, glass, sapphire, and PTFE dielectrics that can be used from 1 MHz to over 2 GHz, voltages up to 20kV and down to cryogenic temperatures.

A range of standard half-turn trimmer products is also available providing the benefits of reduced cost in a low drift, high voltage and temperature stable product.

In addition Knowles also offers a complete line of non-magnetic components for the MRI and NMR industries, including trimmer and chip capacitors, coils, baluns, diodes and fasteners. We understand the importance of quality and performance in this specialized market and have all the non-magnetic components coil designers need.

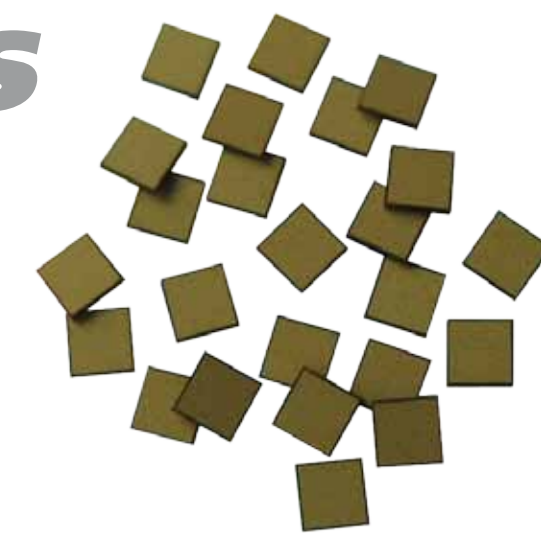


Single Layer capacitors

We are one of the world's largest suppliers of Hi-Q single layer capacitors. Our range offers the broadest selection of material and device options; with over 25 specially developed high frequency dielectrics and 7 major product families we have the knowledge and experience to meet your needs, whether developing next generation military modules, point-to-point radios or satellite communication systems. We specialize in high reliability products for Defense and Space applications and are proud of this heritage.

Additionally we provide customer specified heat sinks, used as substrates for mounting heat emitting devices. The mounting surface can contain complex drive circuitry used to connect to the devices.

If you don't see the ideal part we are happy to make you what you want to your specification.



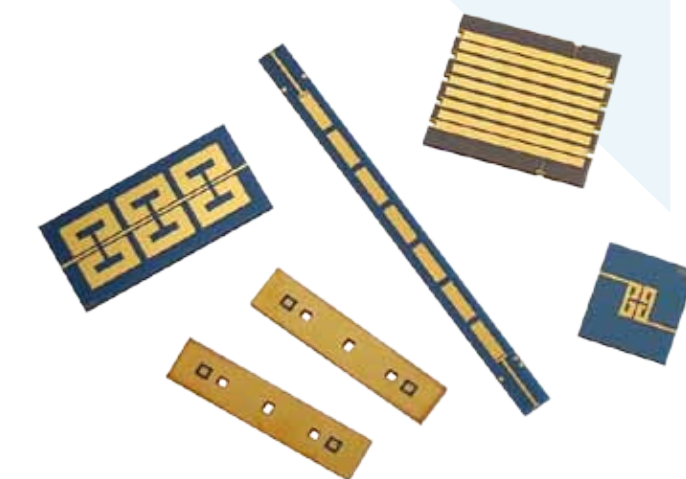
SLC
Hi-Rel
Heat sinks

Thin Film Technology

Our growing range of thin film devices includes filters, gain equalizers, resonators and integrated passive networks. Using in-house dielectrics, our filters are smaller, lighter and more temperature stable than many alternates and are widely used in high reliability Defense and Space applications. New products include a series of standard catalogue filters from 1-18 GHz.

Gain Equalizers integrate precision thin film RC values on high K ceramics for superior RF performance repeatability and the desired gain slope. The new standard catalogue EW series adds to the range of equalizers for applications from 6 GHz to over 40 GHz, all smaller than 0302 case size.

Our custom ceramics are available as bare or metallized substrates; the combination of high K and temperature stability provides a great starting point for your own designs. If you prefer we offer Build-to-Print thin film services to manufacture your design in our facility. With our capabilities to ship RF-tested product you won't own the yield loss of other suppliers.



Filters
Equalizers
Integrated Passive Devices
Substrates
Build-to-Print

