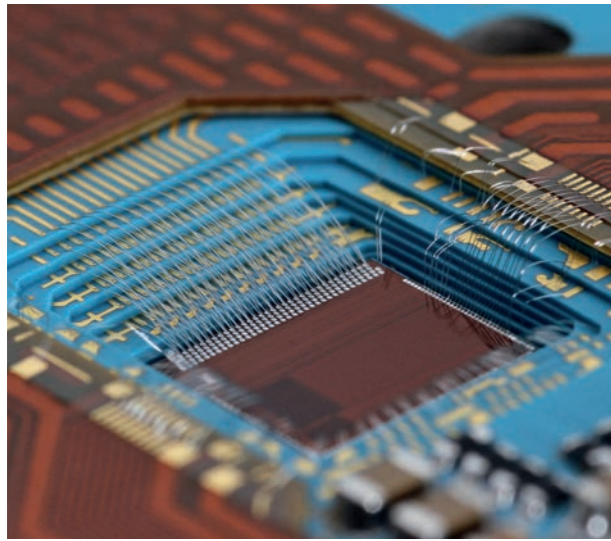


 **LTCC - CERAMIC MULTILAYER CIRCUITS**

# LTCC – Multi layer ceramics

Special requirements for electronic circuits that conventional board technologies can not cover require the benefits of ceramic substrates:



LTCC multi-chip module with housing functionality in use as radiation sensor on a satellite

## ADVANTAGES OF LTCC

- Wide temperature range (-100° C ... > 200° C)
- Long-term stability (> 20 years)
- High mechanical strength
- Resistance to plasma or ion bombardment
- High degree of miniaturization – 3-D functions such as cavities, stepped bonding shelves, channels and membranes
- High frequency stability
- Permanent hermeticity

Compared to conventional circuit carriers, e.g. FR4, LTCC technology can meet exactly these requirements. The advantage of the material properties is the resistance against many environmental conditions.

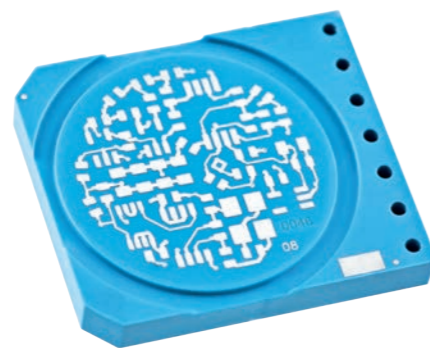
Mechanical stress,  
shock, vibration



Humidity  
Salt Spray



Corrosive gases  
Aggressive gases



Heat/Cold,  
Thermal stress



Magnetic field,  
Electric field



Radiation



➔ Find more information about our products at [www.micro-hybrid.de](http://www.micro-hybrid.de)

## Fields of application for LTCC

The exceptionally robust ceramic carrier material is suitable for high temperature ranges and frequencies. Therefore, LTCC circuits are used in aerospace, telecom, automotive, traffic, defense, medical, radar and sensor technology and convince by stability and reliability. The multilayer technology offers the highest possible system integration.



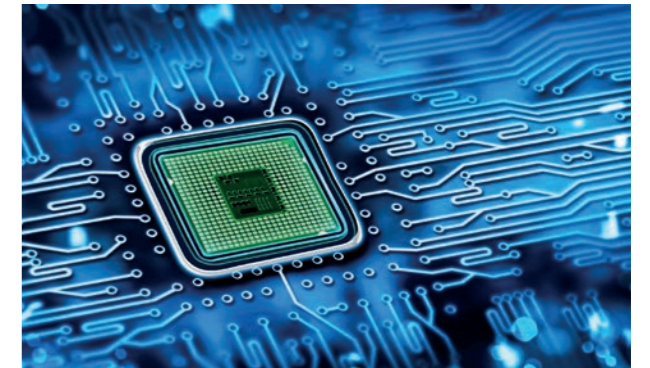
✓ Ceramic circuits are **resistant against mechanical stress** like vibrations as well as chemical loads.



✓ **Extreme reliability** for circuits and materials in the manufacture of implants, diagnostic and surgical technology.



✓ The **high frequency properties** of the material are particularly advantageous for telecommunication applications and antenna construction.



✓ **Vacuum resistance** of the carrier material is required in lithography machines for the production of micro chips.

## ADDED VALUE

- + Design & Engineering
- + Development
- + Inhouse production of LTCC substrates



Find out if an LTCC based electronic Micro System fits your requirements. Our Micro-Hybrid application experts will gladly advise you.

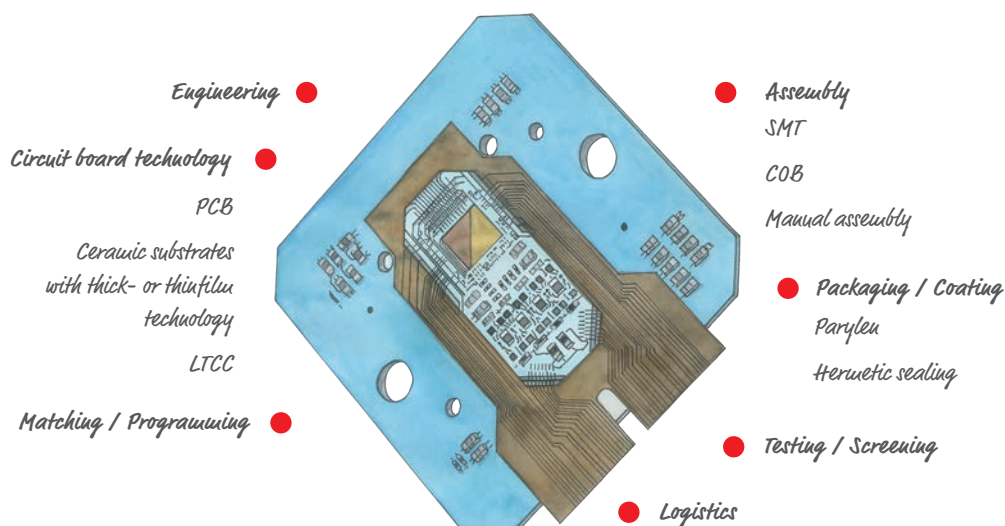
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