



MicroTechnology

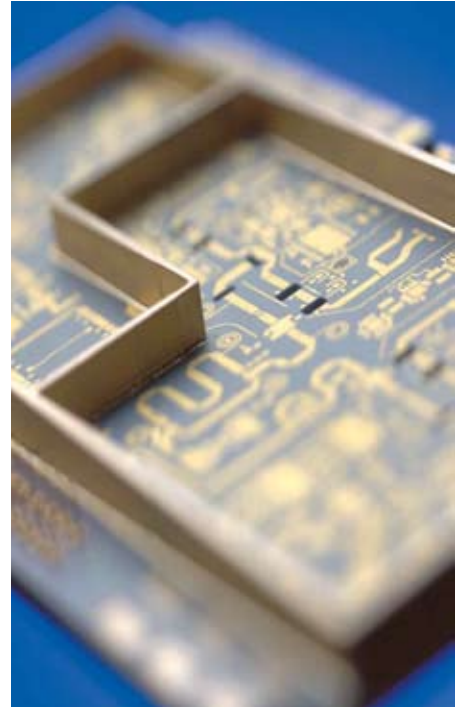
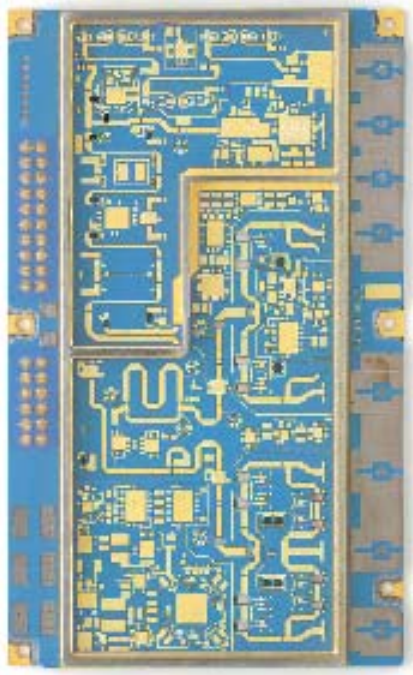
LTCC

(Low Temperature Co-fired Ceramic)

LTCC is used to create three-dimensional circuits bringing together passive elements and semiconductor components into one high-density and highly versatile electronic module solution.

LTCC satisfies the needs of engineers who are seeking:

- » Outstanding reliability
- » Multiple component modules
- » Low development costs
- » High density packaging
- » Low-medium volume manufacture
- » Consistently high quality



At C-MAC we use our extensive knowledge and experience of multi-layer ceramic structures to design buried passive components, including resistors, inductors and capacitors. Our comprehensive technology range includes:

- » An evolving library of lumped and distributed, passive circuit component elements
- » A range of ferrite-based and high dielectric constant tape systems
- » Complex mechanical configuration of substrates with holes, voids and cavities
- » Simplified design and simulation tools

The solution in detail:

Substrates and tapes:

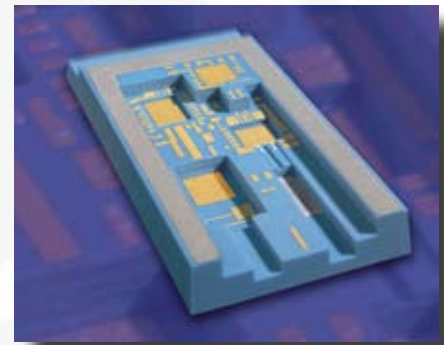
Range of LTCC tape materials from DuPont and Ferro.

Conductors:

Silver, gold, platinum, palladium silver and platinum silver

Track width: Standard = 200 - 250um
High Density = 100 - 150 um

Separation: Standard = 200 - 250um
High Density = 100 - 125 um



Resistors, capacitors, inductors

Infinite range of values with sheet resistivities from 10 Ohms - 100k Ohms on the surface or embedded in the structure.

Resistors: Surface tolerance: +/-1%
Embedded tolerance: +/-15% of type

Capacitors: X7R dielectric: up to 3000pF +/-20%
NPO dielectric: up to 200pF +/-10%

Inductors/transformers

Wide range available based on standard tape or ferrite tape material systems and configured as spirals or helical coils.

Vias

Vias can be stacked, staggered, buried or blind. Hermeticity is achieved with a dielectric barrier

Dielectric vias: Standard = 150 - 250um
High density = 100 - 150um

Via pitch: Standard = 3x - 4x via size
High density = 2.5x via size

Cavities

Components may be mounted in cavities so that the active surface is co-planar with the substrate surface and therefore minimise module height, and enable short and controlled impedance wirebonds.

For further information contact us at:

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January 2008