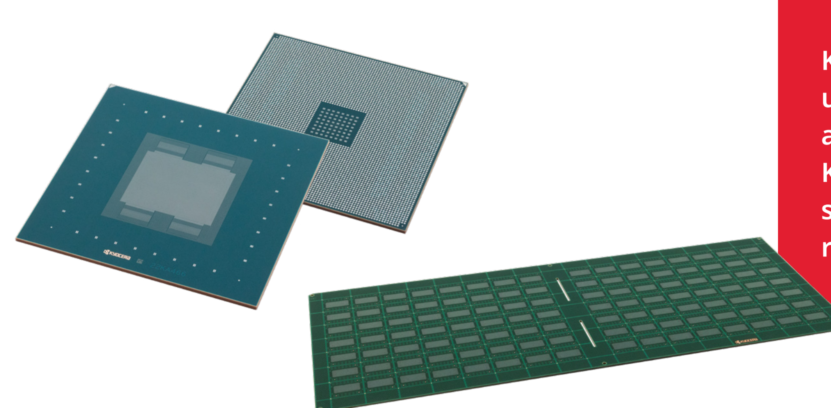
PACKAGE SUBSTRATE SOLUTIONS
FCBGA TECHNOLOGY



Kyocera provides package substrates by using organic products that are ideal for a variety of applications.
Kyocera FCBGA organic substrate solutions meet increasing customer requirements.

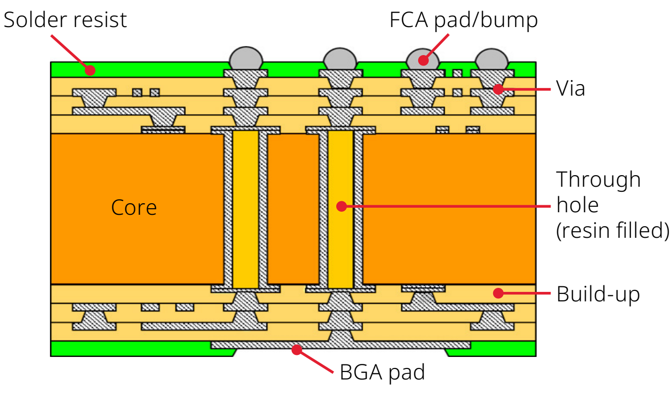
APPLICATIONS

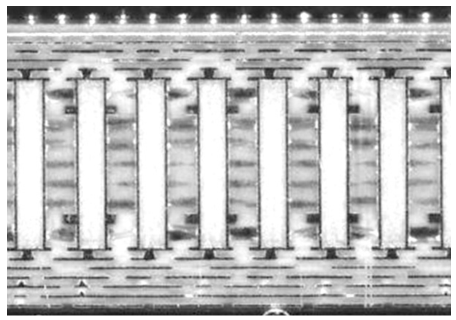
- Processing unit packages e.g.:
  - CPU for servers
  - ASIC for networks
  - SoC for automobiles

FEATURES

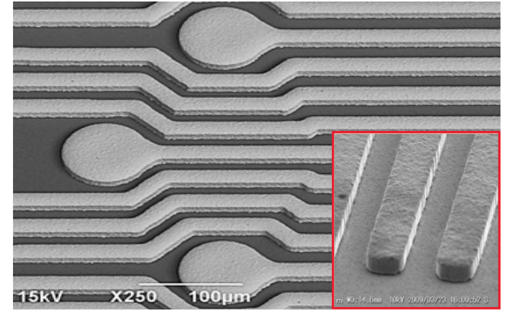
- Large body size (~ 120 mm SQ)
- High layer count (up to 10L/side build-up)
- Fine pattern L/S 9/12 µm
- Impedance control characteristic
- Applicable for low Df build-up materials
- Pb-free / Halogen-free materials

CROSS SECTION IMAGE





ADVANCED TECHNOLOGY



L/S 9/12 µm

- Fine pitch bumping (~ 110 µm)
- Fine pattern L/S 9/12 µm (now) L/S 8/8 (CY24)
- Lower CTE / high modulus core
- Multi-layer core technology

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ENHANCED THIN CORE (ETC) FCBGA TECHNOLOGY

ADVANTAGES

- **Electrical performance improvement** due to reduced core thickness and Cu filled vias
- **Higher integration thanks to advanced design rules**
  - Smaller drill/hole size due to thin core
    → higher amout of holes possible
  - Fine pattern on core
- **Less layer count** (and/or smaller body size)
  - Design to cost
  - Improved manufacturing lead time

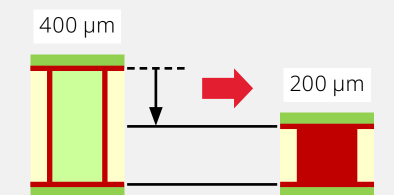
Kyocera's "ETC-FCBGA" uses low CTE thin core technology with laser through holes to provide increased performance.

FEATURES

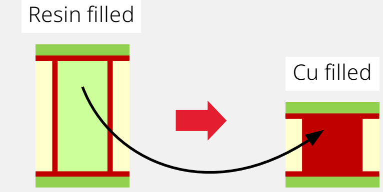
- High layer count (up to 6L/side build-up)
- Fine pattern on core layer by MSAP
- Fine pattern L/S 9/12 µm
- Fine pitch TH (~160 µm)
- Capable for strip / singulated form

ELECTRICAL PERFORMANCE

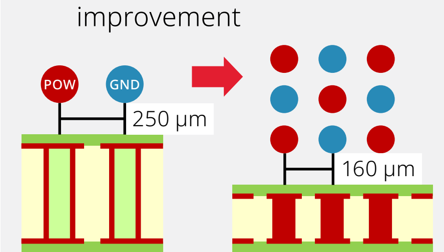
- Thin core
  → Self inductance improvement
  → DC resistance improvement



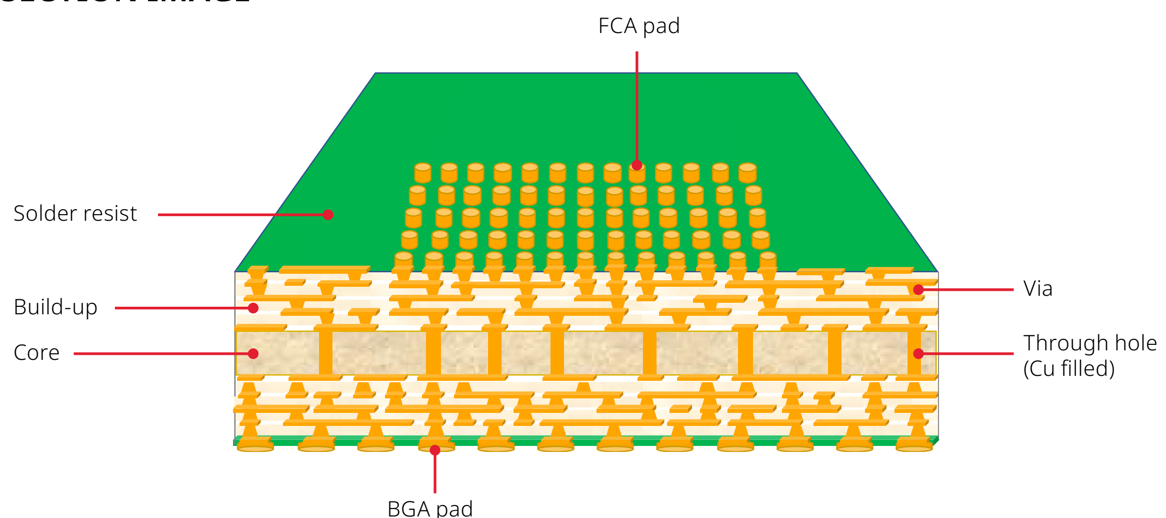
- Cu filled through hole
  → DC resistance improvement



- Fine pitch through holes
  → Mutual inductance improvement



CROSS SECTION IMAGE



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