EMBEDDING TECHNOLOGY

Indicators for technology use

**SOLDER: embedding**
- Active components that are not available as a bare die
- Active and passive components
- Range of the solid SMD components can be used (with restrictions)

**MICROVIA: embedding**
- Combination of active and passive components
- Highly reliable assembly and packaging technology
- Copper or nickel-palladium pad metallisation on the components

**FLIP-CHIP: embedding**
- Active components, which were previously wire-bonded
- Components need to be bumped (Nickel Gold or Gold stud bumps) or can be bumped at WE (Gold bumps)
- No passive components possible
- Active components with pitch < 250 μm possible

Component positioning – resin flow

The following applies to the cut-outs milled in prepreg:
- Component positioning – resin flow
- All points within the cut-out must be accessible at a distance of ≤ 5.0 mm from the boundary of the cut-out.

Components in general
- All components must fit into the actual layer stack-up
- No component may protrude in the z-axis
- Max. component size: 10 × 10 mm²
- Components must not contain cavities (e.g. Quartz Crystal devices) or liquids (e.g. liquid electrolytes).

Placement of components
- Occupation of an inner layer with components
  - Max. 40 % of the available area
  - Max. size of the group: each point in the group must be reachable from the group edge within 5 mm to ensure the resin flow into the cavity of each group
- Max. component size: 10 × 10 mm²
- No component may protrude in the z-axis
- All components must fit into the actual layer stack-up

Unless otherwise agreed, IPC-7092 applies to all products with embedded components.
The associated PCB production corresponds to IPC-A-600 Class II and the assembly to IPC-A-610 Class II.

Depending on the design and final build-up of the PCB with embedded components, the design rules/design guides currently valid at Würth Elektronik „Basic Design Guide“, „Flex-Rigid Design Guide“, „Heat Management Design Guide“ and the „HDI Design Guide“ apply. If you have different requirements, please contact us directly!

**EMERGING TECHNOLOGIES FOR INNOVATIVE SOLUTIONS**

**Minaturisation**
- Package replacement
- Space savings of assembly area on the outer layers

**Performance/Function**
- Integrated shielding
- Short signal paths
- Protection against plagiarism
- Secure and full-surface fixing
- Thermal management

**Reliability**
- Protection against environmental influences
- EMI/RFI (Electromagnetic Interference/ Radio Frequency Interference)
- Reliable and low-maintenance connection
- Piping and plumbing systems

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