Chip on Board (COB)

C-MAC MicroTechnology's COB design and manufacturing method allows additional functionality to be introduced within the footprint constraints of existing components, eliminating the need to redesign the product package.

We can upgrade or fix your product faster than using an ASIC and more quickly and cheaply than redesigning from scratch.

We can save you time and extend the life of your product.

The benefits of COB:

- High packing density
- Quick turnaround
- Applicable to most substrates
- Can mix standard assembly technologies
- Enhanced thermal characteristics
- Adapted to high frequencies (higher than IC in an SMD package)

WHAT IS CHIP ON BOARD?

Chip on board is a high-density MCM (Multi-Chip Module) technology that integrates bare semiconductor chips directly on to the interconnect substrate. It is a manufacturing solution that allows fast modification of existing product designs, even where space is at a premium.

In COB manufacturing, an unpackaged silicon die is attached directly onto the surface of an FR4, flexible PCB or ceramic substrate and wire bonded to form the electrical connections. An epoxy resin or a silicone coating is then applied on top of the die to encapsulate and protect.

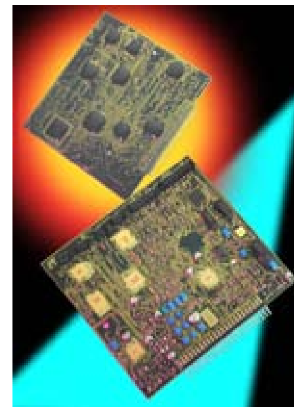
Epoxy encapsulants can take the form of a single shot dispense (glob top) or by using a dam and fill technique incorporating different viscosity materials. Silicone encapsulant is usually flooded over a wider area of board and constrained by the outer package or by a ring frame for more localised protection. Silicone is often used where the product will experience wide temperature variations since it's greater compliance provides a flexible environmental barrier.

Product Variants

Our technique provides the ability to enable variants of the main system without significant cost or time penalty.

Thermal Management

Efficient heat dissipation is a further advantage of COB. C-MAC can supply modules with elaborate thermal management and heat sinking to conduct heat directly from the bare die(s) to the exterior of the package.



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