

## ABSTRACT :

Integrated Circuits rule the world of electronics including space electronics. Electronic components are available either in discrete or integrated form. The discrete form is reserved for standalone components only, like a transistor, diode, resistor, capacitor, or inductor. All sorts of circuits – analog, digital and mixed-signal, and all types of components – passive or active can be integrated into an IC.

As the technology advances towards ultra-deep in submicron generations, density and performance of individual chips are continually enhanced. Unfortunately, today, not all of these merits can be translated into system level due to the problem of electronic package, which has presented a bottleneck for increasing system speed, reducing power, and shrinking system size.

In addition, the package itself and on-board interconnects have much larger dimensions than that of the on-chips. They are hence large loads of off-chip drivers. Besides the higher power consumption and larger chip size for these off-chip drivers, system performance is severely degraded. Consequently, preservation of signal integrity and timing becomes a difficult challenge as signals move from chip to chip within the system. It is hence necessary to minimize impedance discontinuities at chip-to-package and package-to-board interconnection junctions and reduce cross-talk noise between adjacent lines.

The packaging of an integrated circuit is as important as the integrated circuit within, and mainly serves three purposes which are:

- protection of the semiconductor circuit from physical impairment or damage,
- protection of the circuit from corrosion,
- and finally and most important, it decides how electrical contacts are laid out from the semiconductor device over a PCB.

The packaging of an IC gets really important when it has to be used on a PCB for space applications. Complementary to ceramic packaging used for legacy, IC's are now being used for new space applications in plastic packages using surface-mount technologies.

SERMA MICROELECTRONICS, is pleased to announce a One-stop shop for design and manufacturing of MSL3 BGA packaging service with full compliance to JEDEC & ESCC standards, and available to the entire European & World Wide Space domain.

We aim to develop solutions which will enable new encapsulation method for ASICs with:

- Ever-greater levels of integration (SiP, embedded components, heterogeneity, etc.)
- Customized solutions: in terms of technology (plastic, ceramic, power, RF packaging) and volume (prototypes and production up to a few thousand ku)
- Proven REX and reliability (35 years' experience, ESCC9030 qualifier)
- New possibilities offered by the addition of metallization levels on chips (UBM, RDL, bumping, etc.)