

Low Di-electric Impedance Metal Core PCB

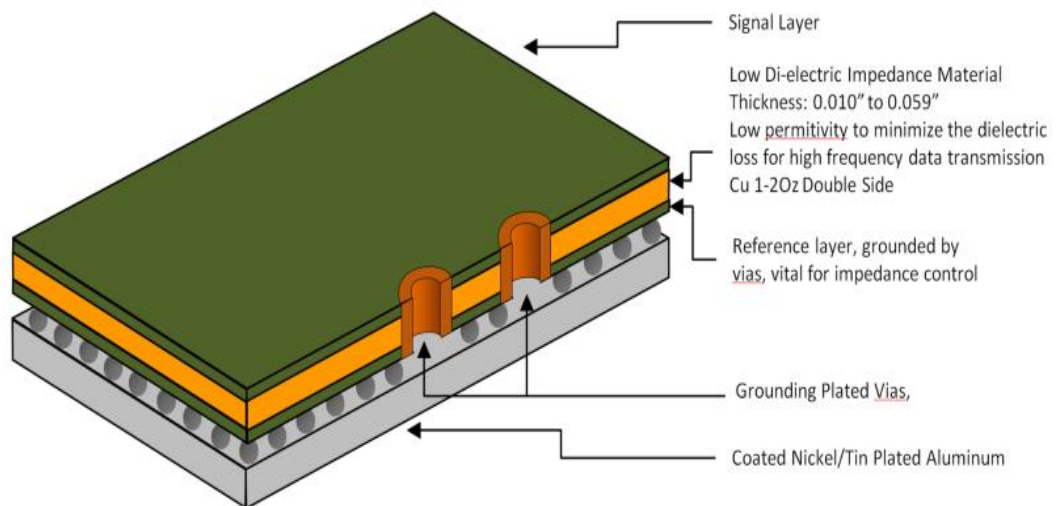
Satellite and Microwave OEMs and CMs are posed with a challenge to bond RF boards on an aluminum carrier for subsequent assembly as LNA or power amplifier module in microwave communication circuits. The real challenge lies on bonding these circuits on a metal carrier using solder bumps which, by current standards are either done manually or semi-automatic. Nonetheless, it is an arduous and cumbersome process that is messy, unreliable, inconsistent and produces low yield result. More often than not, it is the CM who deals with the problem of mating the RF boards to the metal base in the assembly process rather than the board manufacturer, primarily for the reason that not all pcb manufacturers have the ability to do so. What makes the process even more challenging is the type and nature of di-electric that they deal with in high frequency signal boards. Most of the problems that arise during and post SMT assembly are high failure rate, delamination, voids and misalignment.

Cofan USA, a US registered Technology company that specializes in Thermal Management System, through its R&D team has developed a process that completely addressed such problems and failures faced by the assemblers in mating the two materials. Our team was able to successfully eliminate these process variables and was able to bond a two layer high frequency board on an aluminum base and achieved 100% process repeatability with high degree of confidence that the two materials will not separate during the reflow stage in the pcb assembly process. Proper grounding of first (signal) and 2nd (reference) layers for impedance control is achieved through electrically

grounded via holes. Careful attention was given to maintaining an electrically and thermally conductive solder paste to achieve uniform bonding quality across the layer surface to avoid charge accumulation which could create capacitance effect, and to maximize thermal dissipation from the component layer to the metal carrier. Since the RF board and aluminum carriers are delivered to the assembly line as mated units and as a module, the assembly process was drastically simplified on the SMT side. The financial benefit of this proprietary and cost effective bonding process is realized by both the CM and the OEM through high process yield and the high reliability and ruggedness of the boards.

About Cofan USA

Cofan USA is in the business of thermal management systems with head office and R&D located in Fremont, California, Sales and Engineering support in Vaughan, Ontario Canada and manufacturing facilities in Taipei and Dongguan, China. We are a turnkey solutions provider with focus on effective heat management in electronic devices and products and have several US patented technologies in thermal management. Our products





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include fans, heat sinks, heat pipes, metal core and FR4 pcbs. Our metal core pcbs are used in a broad range of applications; from high intensity LED lighting, to luminaires, marine and underwater lighting, power distribution circuits, AC/DC converters, microwave telecommunication devices and any electronic product that requires an effective way to draw and dissipate heat from the source to improve the performance, power management and life of the product.



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