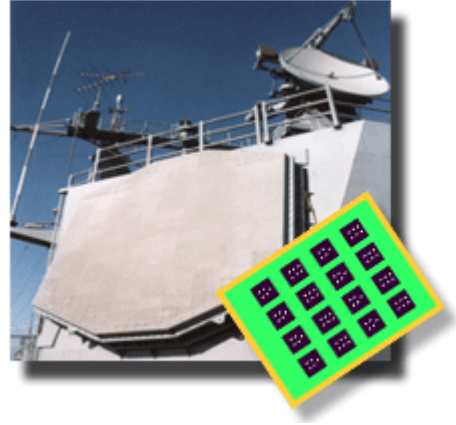


DD(X) Search Radar

The current movement in the worldwide RF electronics industry is toward plastic packages and assemblies is for light weight and low cost as compared to the traditional hermetic ceramic module packages.

This movement concentrates primarily on the commercial rather than military markets. Part of the reason for this is the 98% electronics market share enjoyed by commercial applications, compared to only 2% of the market being Department of Defense (DoD) applications.

One commercial method towards all-plastic RF electronic packaging is to utilize the concept of “Functional Hermeticity.” This concept allows the use of high performance organic materials for encapsulation to provide the required amount of hermeticity, as measured by the Highly Accelerated Stress Test (HAST) for the particular application. Hermeticity has a range of values from simple plastic packages up to a true hermetic DIP response to HAST testing.



In order to take advantage of this trend, Dow Corning has commercially introduced their Chip Seal ® die level coating on the wafer (die before singulation) level.

This technique, applying such a multi-stage hermetic coating to the RF die in the wafer form, represents significant cost and weight advantages over traditional ceramic packaging and is actively being pursued by some major defense contractors.

In order to further lower the cost of RF electronic modules (e.g. T/R Modules for Phased Array Radars), and also allow the application of a hermetic coating to a multi-chip assembly, the commercial industry, as well as the EMPF teaming with Raytheon and Dow Corning are actively pursuing introduction of inorganic and/or organic functional hermetic solutions that, unlike the wafer level Chipseal type chip coating, can be applied at both the wafer and the module level to all types of chips being used to assemble the RF module.

Funding for this effort is being supplied through Title 3, ManTech, and through teaming with MDA (Missile Defense Agency/Manufacturing and Producibility). The objective of this thrust is significant AESA Radar T/R module cost and weight reduction.