CONFORMAL COATINGS

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Introduction

The primary purpose for conformal coating of printed circuit boards is to provide protection from environmental contaminants including particles, dust, dirt, moisture, corrosive vapours, and fungus.

Why Use Conformal Coating

- Electronic assemblies that are exposed to harsh environments such as marine, geothermal and other outdoor or corrosive environments are susceptible to an accelerated rate of contamination during normal use because of the environment they operate in. These types of assemblies are usually coated as standard practise.
- Many modern electronic assemblies are so tightly packed with components that the spaces between the conductors are greatly reduced. These tightly packed components are susceptible to an accelerated rate of contamination during normal use simply because of the close proximity of the conductors. These types of assemblies can benefit from conformal coating extending their expected service life.

What Does the Conformal Coating Do?

Particles, that settle onto electronic modules during production, testing or alternately as contamination that occurs during normal operations can contact and span two or more closely spaced conductors may result in a short circuit, leading to potentially serious electrical failures. Despite efforts to keep electronic assemblies clean and free from contaminants, the possibility that stray particles, metal shavings, dust, and dirt will be present exists. Conformal coating provides a layer of electrical insulation preventing contact between physical contaminants and conductive features on PCB modules.

Moisture and corrosive vapours over time may result in corrosion of metals in PCB assemblies. Though conformal coatings are not hermetic and thus do not seal electronics from moisture and solvent vapours, they do act as barriers to slow diffusion of moisture and corrosive vapours through the polymer before reaching electronics.

Biological contaminants such as fungus may also lead to degradation of PCB assemblies. Conformal coatings help to protect electronics from biological contaminants.

Selection Criteria

With a wide range of Conformal Coatings available, all with different features and benefits, it is important that the correct coating and method of application be chosen. The main questions to be addressed are; environment, electrical requirements, board layout, method of application and the ease of rework and repair

Conclusion

In today's busy and cost conscious environment, the reliability of electronic equipment is a major issue. In most cases the application of a conformal coating, either during manufacture or as a retrofit solution can contribute to significant maintenance cost reductions. Contact us today for an obligation free estimate and coating plan tailored suit your particular application.