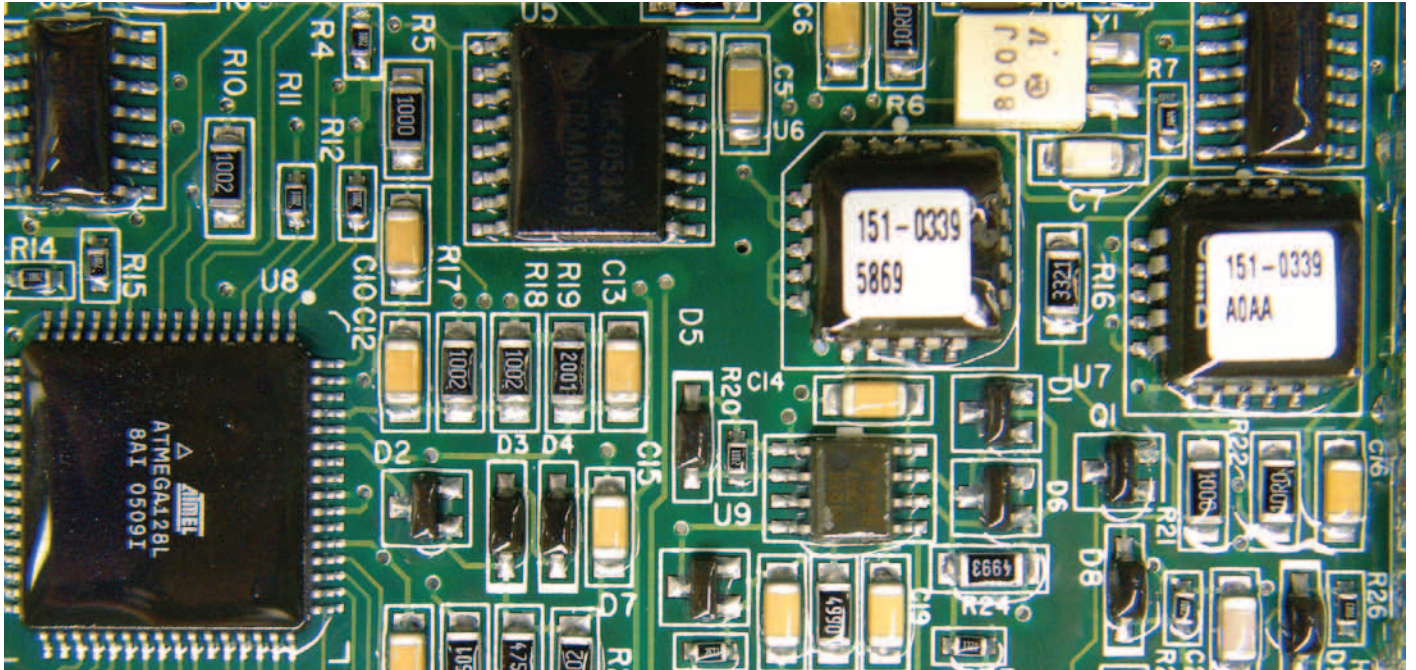


# Conformal Coating



Make the World's Most Reliable Relays Even Tougher



*Add an extra level of protection to printed circuit boards.*

## Features and Benefits

### Environmental Protection

Protects circuit boards from the effects of contaminants in the air. Contaminants like hydrogen sulfide (H<sub>2</sub>S), chlorine (Cl), and salts are isolated from circuit board components.

### Mechanical Protection

Conformal coating works to shield and protect the circuit board from dust, insects, dropped screws, drill shavings, and abrasion.

### Resists Dendrite Growth

Coated circuit boards resist dendrite growth between conductors. SEL coatings conform to the peaks and recesses of the board, providing complete coverage of critical components.

### Moisture Protection

Conformal coating provides a moisture-resistant barrier, preventing unwanted conduction paths and board damage.

### Precision Robotic Application

SEL conformal coating is precisely applied to surfaces intended for coating while avoiding grounding and connecting areas. Computer-controlled, five-axes application gives uniform coating to exact specifications, resulting in superior reliability.



***Making Electric Power Safer, More Reliable, and More Economical®***

# Conformal Coating

## Conformal Coating Adds an Extra Level of Protection to Printed Circuit Boards (PCBs)

SEL makes the most reliable products in the industry. Conformal coating provides an additional barrier to harsh environments, such as high humidity and airborne contaminants. SEL offers conformal coating on select products used in demanding locations.

SEL products with conformal coating have been tested and approved by an independent laboratory to the following specifications for mixed flowing gas, hygroscopic dust, and damp heat:

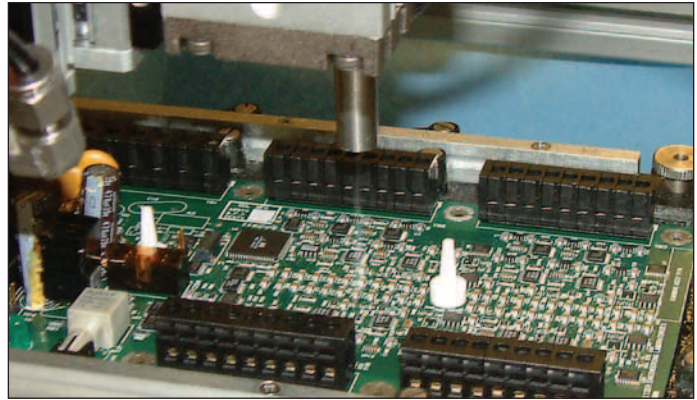
- *Telcordia Technologies GR-63-CORE*, Issue 2, April 2002, Network Equipment-Building System (NEBS) Requirements: physical protection (modified—test duration extended)
- EIA 364-65A Class IIIA (modified—test duration extended)
- IEC 60068-2-30-1980, 1985, *Basic Environmental Testing Procedures*, Part 2: Tests—Test Db and guidance: damp heat, cyclic (12 + 12-hour cycle), severity level 25° to 55°C, 6 cycles, relative humidity 95 percent

Mixed flowing gas includes contaminants, such as Cl<sub>2</sub>, H<sub>2</sub>S, NO<sub>2</sub>, and SO<sub>2</sub>. Hygroscopic dust includes water-soluble salts, sulfates, nitrites, volatile organic compounds, SO<sub>2</sub>, H<sub>2</sub>S, ammonia, NO, NO<sub>2</sub>, HNO<sub>2</sub>, ozone, and gaseous chlorine.

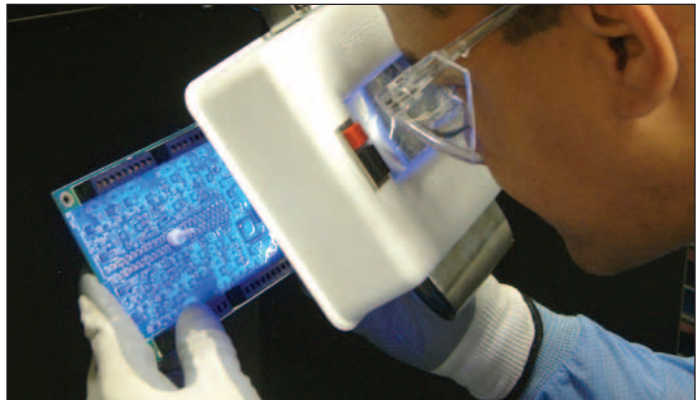
Conformal coating is specially formulated to protect PCBs and related equipment from the environment. This improves and extends the working life of the PCB and ensures security and reliability. The coating conforms to the shape of the board and its components, creating a protective layer that is both lightweight and flexible.

SEL meets Mil-1-46058C Type UR conformal coating requirements. Material used for conformal coating is approved to the following specifications:

- IPC-CC-830, Qualification and Performance of Electrical Insulating Compounds for Printed Board Assemblies
- UL 746E, Polymeric Materials—Industrial Laminates, Filament Wound Tubing, Vulcanized Fiber, and Materials Used in Printed Wiring Boards
- IEC 60664-3, Insulation Coordination for Equipment Within Low-Voltage Systems, Part 3: Use of Coatings to Achieve Insulation Coordination of Printed Board Assemblies



*Computer-controlled, five-axes application gives uniform coating to exact specifications, resulting in superior reliability.*



*Ultraviolet light provides clear visual inspection of conformal-coated circuit boards.*

This durable protective coating increases circuit board resistivity to hazards, such as chemicals (e.g., fuels, coolants, and gases), vibration, moisture, salt spray, humidity, fungus, and corrosion.

SEL provides conformal coating on most SEL products as an ordering option. Check with your SEL customer service representative on the availability. Operating temperature for some UL and CSA conformal-coated boards is -40° to +75°C (-40° to +160°F).



Pullman, Washington USA  
Tel: +1.509.332.1890 • Fax: +1.509.332.7990 • [www.selinc.com](http://www.selinc.com) • [info@selinc.com](mailto:info@selinc.com)

© 2009-2012 by Schweitzer Engineering Laboratories, Inc. PF00119 • 20120207

