



## APPLICATION SUCCESS STORY

# ROGERS ENABLES COMPACT DESIGN FOR HIGH DENSITY POWER SUPPLY

## Rogers' ARLON® Secure® 1500FG Structural Adhesive Delivers Thermal and Electrical Reliability Without Bulky Metal Fasteners

### CUSTOMER PROBLEM

Increasing power density is a hot topic in data center design. Rising power demand coupled with space limitations make packing more resources into each rack an obvious solution. Addressing this growing trend, designers for one power supply manufacturer faced challenges as they worked to develop a high-density power supply with a smaller profile in both height and width. The traditional solution used mechanical fasteners which limited design flexibility. As the package was reduced in size, the screws would block wind flow critical to the safety and reliability of the power unit. To replace the mechanical screws, they would need to find an electrical insulator with high adhesion reliability that could satisfy their stringent thermal and dielectric requirements.

### THE ROGERS SOLUTION

Rogers recommended ARLON® Secure® 1500FG Structural Adhesive, an adhesive film composed of uncured silicone rubber with functional additives formulated to deliver exceptional thermal, physical, and electrical properties. Developed specifically for power applications where long-term reliability is critical, Secure adhesives form chemical bonds with the substrates they are in contact with during cure to produce robust adhesion that is resistant to heat, humidity, and shock – eliminating the need for mechanical fasteners. With a UL94 V-0 flame rating and a 150°C relative thermal index (RTI) for both mechanical and electrical, the adhesives not only meet the thermal and dielectric requirements, but are also RoHS compliant and free of halogenated flame retardants. Rogers' technical team worked closely with the customer's design team to define production parameters for the fixture design, and to clarify parameters under various process conditions.

### RESULT

The customer successfully commercialized their streamlined, higher power density module using ARLON Secure 1500FG Structural Adhesive to isolate the power transistor from the heat sink. Rogers' robust adhesive eliminated the need for mechanical fasteners, improved consistency of the thermal path to the heat sink, and enabled a smaller, more compact design. Due to this success, Secure adhesives are now an insulator platform for the customer's next generation designs as the trend towards higher power density continues to heat up.

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