ROGERS CORPORATION

APPLICATION SUCCESS STORY

ARLON® Silicone Dielectric Substrates Key for Semiconductor Manufacturers

Dielectric Substrates Heat Intricate Valve Systems of Semiconductor Processing Equipment

CUSTOMER PROBLEM

Semiconductor processing equipment manufacturing is complicated, involving intricate procedures that require absolute precision to produce a reliable, consistent product. One of the more complex portions of semiconductor processing includes the consistent heating of intricate valves. These valves often have complex geometries, so a flexible heater is the best design choice as other heater options lack the necessary flexibility to wrap around these complex geometries.

One semiconductor manufacturer was on the search for a flexible heater material that would effectively address the issue of consistently heating valves during the manufacturing process. Important design considerations included the material's flexibility, moldability, thin profile, and cleanliness. Other requirements were that the material be low outgassing, provide excellent heat transfer, be UL certified and have a high-temperature rating.

THE ROGERS SOLUTION

ARLON® Silicone Dielectric Substrates from Rogers Corporation were chosen due to the materials meeting all the semiconductor manufacturer's design requirements. Due to the material's thin construction, it easily wrapped around intricate valve shapes, offered great dielectric properties, heated quickly, and delivered efficient heat transfer. Additionally, the material offers low outgassing and low particle production, both of which are features critical to reducing overall process contamination during semiconductor production, which requires a high degree of cleanliness to maintain precision. Additionally, ARLON Substrates are able to withstand extreme temperatures - up to 232 °C (450 °F) - and are UL-rated to 220ºC/220ºC (428ºF/428ºF) RTI.

RESULT

Due to the excellent material properties of ARLON Silicone Dielectric Substrates, the manufacturer's requirements were achieved. As a result, the manufacturer was able to efficiently and cleanly heat several complex valves during semiconductor processing.

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