



Hermetically sealing glass-enclosed resistors

Objective Provide a hermetic seal of glass enclosed resistor to a lead

Material Resistor
Kovar rings, 0.1 inch (0.254cm) diameter
Glass tube slightly larger than 0.1 inch (0.254cm) diameter,
0.5 (1.27) inch length
Metal lead

Temperature 900 °F (482) °C

Frequency 324 kHz

Equipment

- Ambrell 7.5 kW induction heating system, equipped with a remote workhead containing two (2) 1.5 μ F capacitors (for a total of 0.75 μ F).
- An induction heating coil designed and developed specifically for this application.

Process A three turn concentrator plate coil is used to heat the Kovar ring for 500 milliseconds. This causes the glass to melt and seal one side of the resistor. The resistor is then turned over and the process is repeated to seal the other side using a second Kovar ring.

Results/Benefits Induction heating provides precise, consistent heat to very small parts resulting in repeatable, quality seals. By heating with medium frequency, arcing (which occurs at high frequencies) is avoided.

(photos on next page)

