

BCE APPLICATION NOTE

150mm 6" Stainless Vacuum Heater Chuck

BACKGROUND

An ALD chamber needed to be upgraded to a higher temperature platen, beyond the limits of aluminum. The application involved reducing the cost of a replacement vacuum heater while keeping the heat transfer and uniformity the same or better in vacuum. Vacuum integrity was crucial to the success of the project since it needed to comply with the existing vacuum heater chuck being replaced.



SCOPE

150mm 6" Stainless Vacuum Heater Chuck with the following specs:

- Temperature up to 450°C (+/- 1%) 30 minutes or less
- 304 SS 2.75 CF Flange Feedthrough with Viton O-ring
- 108 mtorr, pass best config. baseline (~0.4 torr/min)
- 120 Volt, 950 Watt (+/-10%), 8 Amp
- Thermocouple built-in to heater source
- Surface Finish: 32 Ra



OUTCOME

- Medium vacuum compatible
- Leak-up rate test for the best tool config. (~0.4 torr/min)
- Good temperature uniformity over 6" dia., up-to 450°C.
- Within $\pm 2.5^{\circ}\text{C}$ over most of the wafer, except the edges of a 6" dia.
- Repeatable and Predictable temperature ramps up to 450°C



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