

### Galium Arsenide Wafer Production

- Objective:** To heat a carbon graphite susceptor to 1200°C for use in the deposition of Galium Arsenide. By heating the carbon graphite to the above temperature and blowing Helium gas across and through the susceptor, Galium Arsenide can be deposited and form a wafer. The application is run within a water cooled quartz tube with forty (40) liters of Helium gas being pumped through per minute. It is necessary that heating occurs in a very accurate, repeatable and uniform manner.
- Material:** Carbon Graphite Susceptor measuring 3" in diameter and 1" thick.
- Temperature:** 1200°C
- Application:** Through the use of the Ameritherm SP 15, 15 kW output solid state induction power supply along with a water cooled quartz tube, helium gas, and a four (4) turn helical coil, the following results were achieved:
- Forty (40) liters of Helium per minute was delivered through the 4" diameter quartz tube.
  - 1200°C was reached in forty five (45) seconds.
  - A uniform heating pattern was observed using an IR Optical Pyrometer.
- Equipment:** Ameritherm SP 15, 15 kW output solid state induction power supply including one (1) remote heat station containing four (4) capacitors totaling 1.0  $\mu$ F, a four (4) turn helical coil made from 1/4" copper tubing with a 5 1/2" inside diameter, and an IR optical pyrometer.
- Frequency:** 93 kHz

\*Application Illustration Located on Reverse

# Induction Heating Application Notes

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