High Temperature Packaging

High temperature packaging is critical for operation of high performance SiC based electronics. Since 2002, Aegis Technology has developed expertise in the design of electronics packaging at the device, component, and system levels. Our high temperature packages are composed of AlN or SiN ceramics.

We have developed a novel process known as ***Parallel Plate Direct Area Bonding (PPDAB)*** that allows for packaging without the use of Al-wire bonding. Our packages can withstand operation at high temperatures (up to 600°C) under wide temperature ranges. In addition, our packages have a high degree of hermeticity.

With a wide flexibility of designs, high temperature packaging can be used in a variety of situations with no degradation even at high and low air pressures. Such packaging finds broad applications for various applications including high temperature electronics and sensors operating at high temperatures. Customized metals and thicknesses are available upon request.

High Thermal Conductivity Substrates

- Aluminum Nitride (AlN) substrates with Au, Cu-Ag, or Mo metallization with 8X greater heat dissipation over conventional alumina ceramics
- Silicon Nitride substrates with Cu-Ag and molybdenum (Mo) metallization

High Temperature Joining and Brazing

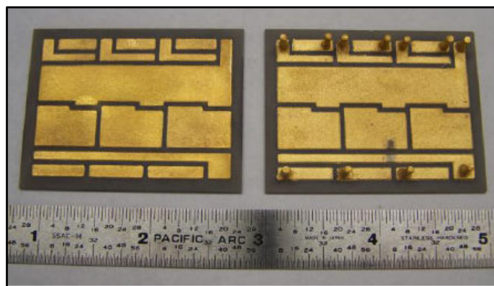
- Au or Ag based brazing

High Temperature Interconnections

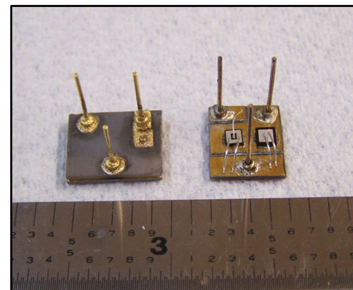
- Wirebonding and Flip Chip

Silicon on Insulator (SOI)

- SOI technology for high temperature gate drivers (required for SiC power inverters and converters)



a)



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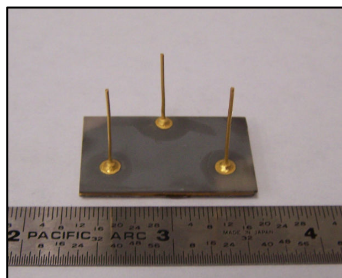

c)

a) AlN substrate with Cu-Ag metallization and Kovar pins,
b) Comparison of PPDAB packages to conventional Al-wire bonding,
c) PPDAB process used for packaging Si IGBT and freewheel diode

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