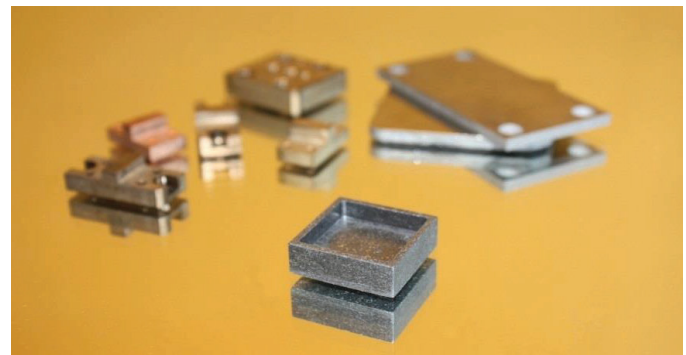


Copper Diamond Composite Die Tab Materials

Overview



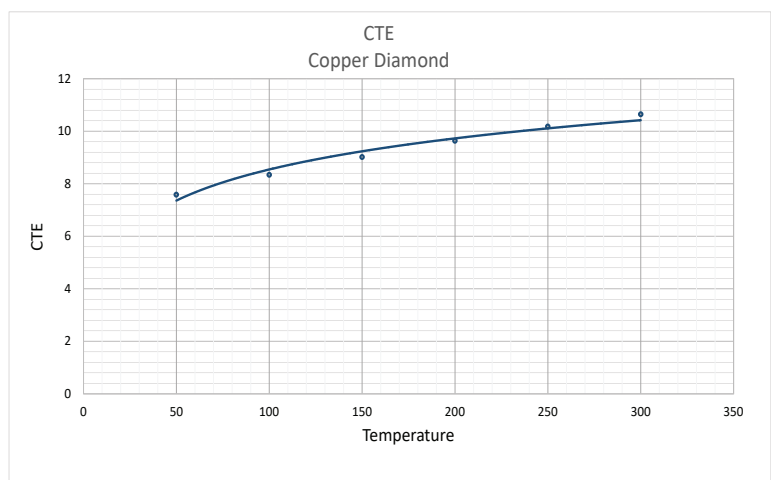
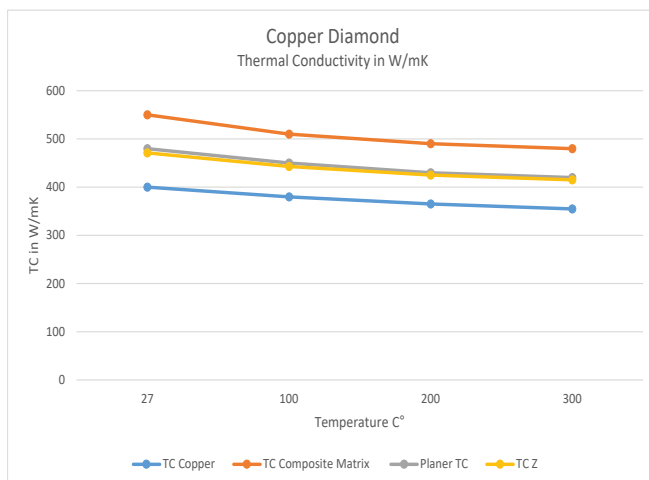
The Hermetic Solutions Group's (HSG's) copper diamond composite materials for heat sinks, die tabs and heat spreaders provide our customers with significant advantages over more conventional laminate or MMC materials.



HSG's DiaCool™ materials deliver a device-friendly coefficient of thermal expansion (CTE) and very high thermal conductivity that can satisfy the most demanding high power density applications. Our DiaCool materials exhibit excellent surface quality for all your die attach and soldering needs. DiaCool is easily adaptable to customer specific designs and is a cost-effective solution to increase the long-term reliability of power, RF, laser, and any applications where thermal management is vital to long term reliability.

Technical Specifications

Our DiaCool copper diamond composite materials for high-performance thermal management applications exhibit a CTE of 7-9 ppm and thermal conductivity in the 425-475W/mK range.

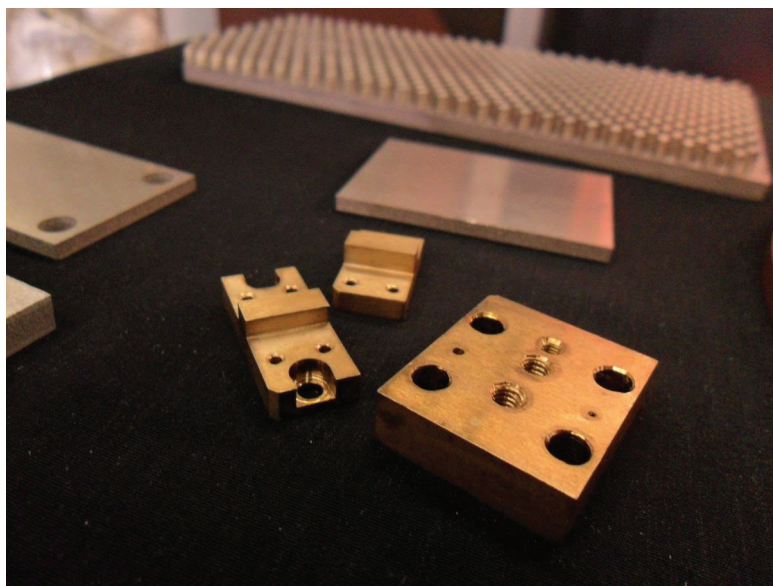
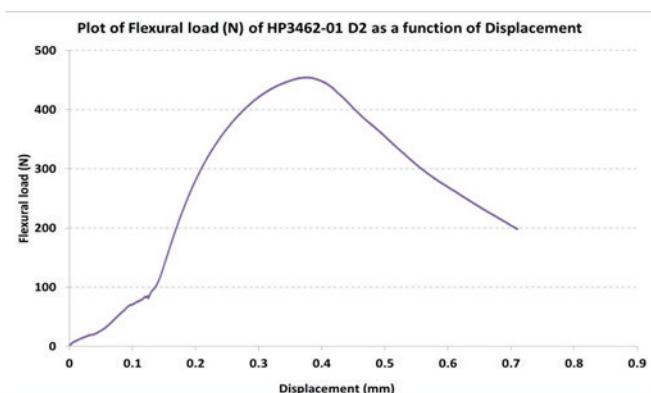


The material is manufactured in a 'sandwich' style structure with the composite material located between layers of pure copper metal. The material can be fabricated to deliver an Ra of <0.8µm and a flatness of <50µm.

Stock material is available in core thicknesses of 1, 2 and 3mm.

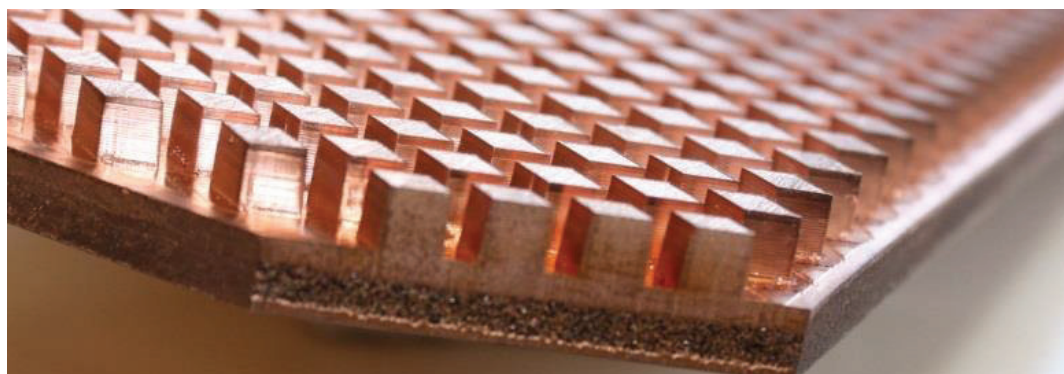
Mechanical Properties

- Elastic modulus: 230 ± 15 GPa
- Flexural strength: 220 ± 10 MPa



Additional Benefits

HSG's DiaCool composite materials allow the product engineer the ability to design additional features and functionality into the product. This novel technology can integrate a thick, pure copper skin on each side of the matrix that provides the designer with a conventionally machinable surface on each side of the composite structure allowing for the addition of integrated features.



Hi-Rel Alloys Division
6934 Kinsmen Ct
Niagara Falls, Ontario
Canada, L2H 0Y5
289-296-4078

Litron Division
207 Bowles Road
Agawam, MA 01001
866-548-7661

Hi-Rel Lids Division
Fuller Road
Harleston, Norfolk
IP20 9EA UK
+44(0)1379-853944

PA&E Division
434 Olds Station Road
Wenatchee, WA 98801
855-285-5200

Hi-Rel Products Division
16 Plains Road
Essex, CT 06426
860-767-9031

Sinclair Manufacturing Division
PO Box 398, 12 South Worcester St.
Chartley, MA 02712
508-222-7440