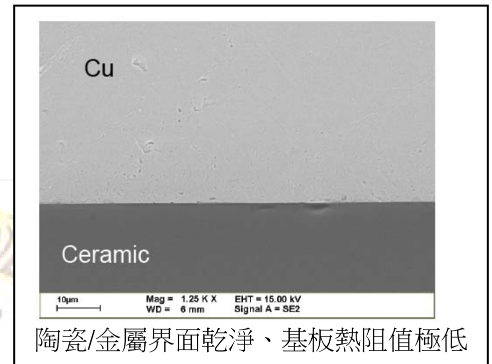
高導熱陶瓷/金屬複合基板



陶瓷/金屬界面乾淨、基板熱阻值極低

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簡　歷： 請點選此連結

市場及需求：

本發明揭露一種陶瓷與金屬的直接接合技術，經此技術接合之陶瓷/金屬複合基板具很高的熱傳導能力，且陶瓷與金屬間具有高鍵結強度。

技術摘要(含成果)：

本技術涵蓋製造陶瓷/金屬複合基板所需之創新製程、結構，以及創新陶瓷與金屬的結構設計。本技術以 12 件專利組合保護，其中 11 件已獲證，1 件申請中。

優勢：

陶瓷與金屬之間鍵結強度高、熱傳導能力佳，且已透過試產驗證，所開發出之本技術確實具量產能量。

競爭產品：

目前市面上之高導熱基板；然而現有之基板都有陶瓷與金屬之間鍵結強度低、熱傳導能力差之缺點。

專利現況：

已領證--中華民國(共 4 件)、美國(共 4 件)、中國(共 3 件)；申請中--美國(共 1 件)

1. 〝散熱載板結構改良〞，中華民國新型第 M 328763 號專利.
2. 〝陶瓷/金屬複合結構之製造方法〞，中華民國發明第 I 347,825 號專利.
3. 〝陶瓷/金屬複合結構之製造方法〞，中華民國發明第 I 335,792 號專利.
4. 〝全反光型高導熱電氣模組及其製造方法〞，中華民國發明第 I 422,553 號專利.
5. 〝Package assembly with heat dissipating structure〞, US 7,746,644.
6. 〝Ceramic/metal composite structure and method of manufacturing the same〞, US 8,127,441
7. 〝Method of manufacturing ceramic/metal composite structure〞, US 7,806,311.
8. 〝Fully reflective and highly thermoconductive electronic module and method of manufacturing the same〞, US 8,304,660.
9. 〝陶瓷/金屬複合結構〞(中國，實用新型)；CN201149866 Y.
10. 〝陶瓷/金屬複合結構及其製造方法〞(中國，發明)；CN101439984 B.
11. 〝陶瓷/金属复合结构的制造方法〞(中國，發明)；CN101439983 B.
12. (本案申請中) 〝Ceramic/metal composite structure and method of manufacturing the same〞 申請案號: 13/354,176

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Ceramic/metal thermal dissipation substrate

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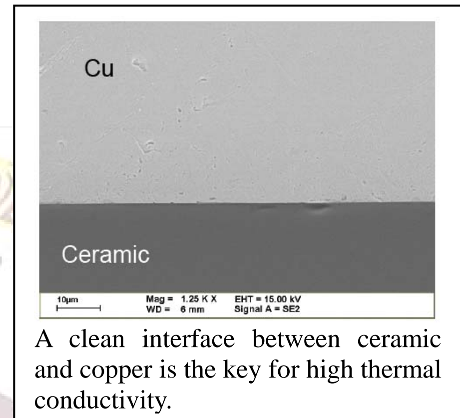

A clean interface between ceramic and copper is the key for high thermal conductivity.

Experience:
http://www.mse.ntu.edu.tw/index.php?option=com_zoo&task=item&item_id=33&category_id=26&Itemid=725&lang=tw

Market Needs:

A novel direct-bonding copper (DBC) technique to prepare the ceramic/copper thermal dissipation substrate with high thermal conductivity coefficient is now available. The technique covers novel design on processing, structure and interface between ceramic and copper.

Our Technology:

Our technique would produce ceramic/copper substrate with clean and strong interface.

Strength:

The unique design on interface ensures a high reliability for the ceramic/copper substrates. The thermal conductivity of the substrate is higher than the DPC (direct plating copper) substrates.

Competing Products:

The ceramic/metal substrates prepared by our DBC technique exhibit a thermal conductivity higher than that of the DPC substrates which have been available on the market for sometime already.

Intellectual Properties: included 11 granted patents and 1 pending US patent

1. STRUCTURE OF HEAT DISSIPATION SUBSTRATE. R.O.C PATENT M 328,763.
2. METHOD OF MANUFACTURING CERAMIC/METAL COMPOSITE STRUCTURE.TW PATENT I 347,825.
3. CERAMIC/METAL COMPOSITE STRUCTURE AND METHOD OF MANUFACTURING THE SAME. TW PATENT I 335,792.
4. FULLY REFLECTIVE AND HIGHLY THERMOCONDUCTIVE ELECTRONIC MODULE AND METHOD OF MANUFACTURING THE SAME. TW I 422,553.
5. PACKAGE ASSEMBLY WITH HEAT DISSIPATING STRUCTURE, US 7,746,644.
6. CERAMIC/METAL COMPOSITE STRUCTURE AND METHOD OF MANUFACTURING THE SAME, US 8,127,441
7. METHOD OF MANUFACTURING CERAMIC/METAL COMPOSITE STRUCTURE, US 7,806,311.
8. FULLY REFLECTIVE AND HIGHLY THERMOCONDUCTIVE ELECTRONIC MODULE AND METHOD OF MANUFACTURING THE SAME, US 8,304,660.
9. STRUCTURE OF HEAT DISSIPATION SUBSTRATE. CN201149866 Y.
10. CERAMIC/METAL COMPOSITE STRUCTURE AND METHOD OF MANUFACTURING THE SAME, CN101439984 B.
11. METHOD OF MANUFACTURING CERAMIC/METAL COMPOSITE STRUCTURE. CN101439983 B.
12. CERAMIC/METAL COMPOSITE STRUCTURE AND METHOD OF MANUFACTURING THE SAME. US 13/354,176 (PENDING)

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