

新コンセプト高温(200°C)対応MLCC

New concept of MLCC operating at 200 ° C

New proposal for SiC power electronics

SiC power electronicsへ新提案

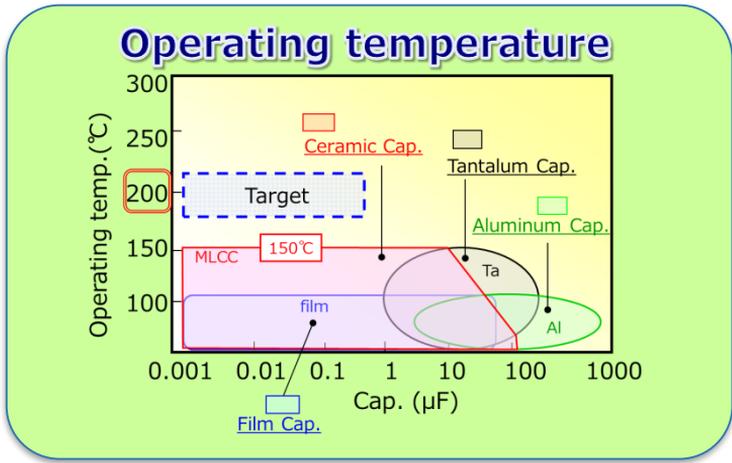
Features

- 使用温度範囲：-55°C~+200°C
Operating temperature range : -55°C~+200°C
- 車載用に適した高耐圧(定格630Vdc)設計
耐熱性の高い端子電極設計
630Vdc rated voltage for automotive
Termination design with high heat resistance
- 静電容量の温度特性：±20%以内
Capacitance tolerance : ±20%

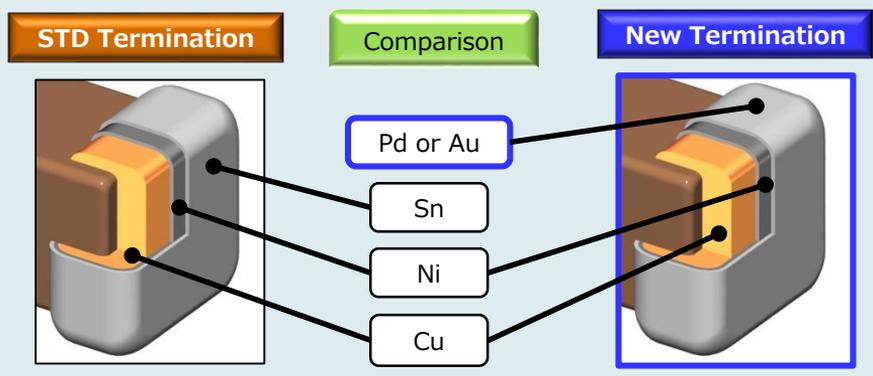
Applications

- 電動自動車等のSiCインバータのスナバ用途
snubber capacitor of SiC inverter for EV, HEV, etc

Characteristics



Termination Structure

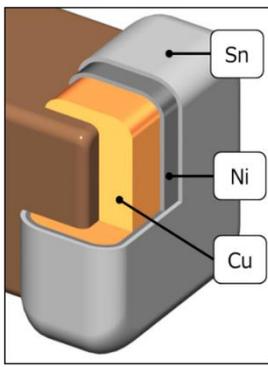


新コンセプト高温(200°C)対応MLCC New concept of MLCC operating at 200 ° C

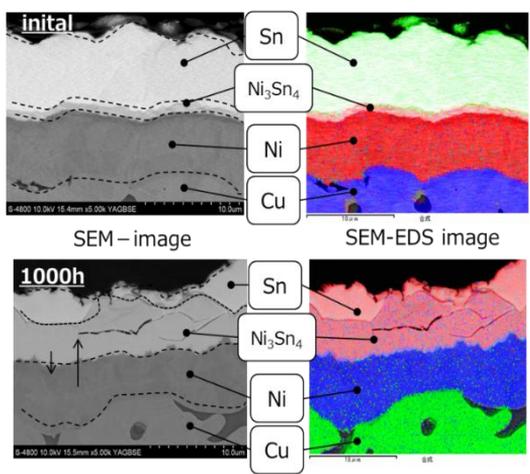
Characteristics

- 【150°C以下対応端子電極】 Cu/Ni/Snの場合
 - Snメッキ層とNiメッキ層の界面に形成された金属間化合物であるNi₃Sn₄の領域が拡大し、クラック発生
 - 200°C-1000h放置すると、Snメッキ層の最表面酸化層厚みが8nm→130nmに増加

STD Termination

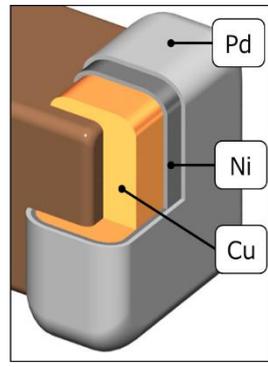


High temperature storage test(200°C)

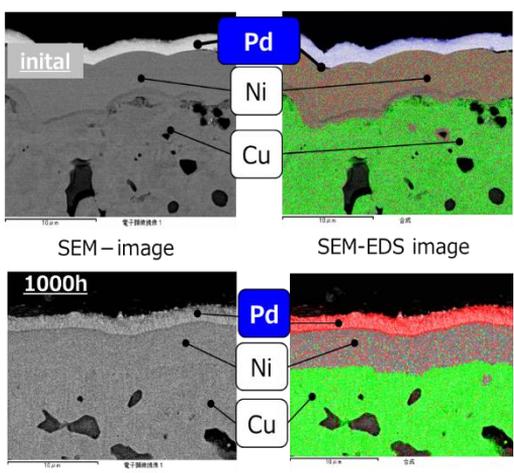


- 【200°C対応端子電極】
 - Cu/Ni/**Sn**⇒Cu/Ni/**Pd**に変更
 - Ni₃Sn₄の領域を制限することで、クラック抑制
 - 200°C-1000h放置しても、Pdメッキ層の最表面酸化層厚み1nm以下

New Termination for 200°C



High temperature storage test(200°C)

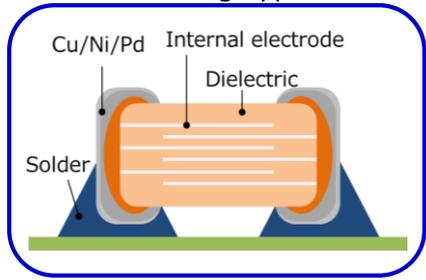


新概念高温(200°C)対応MLCC New concept of MLCC operating at 200 ° C

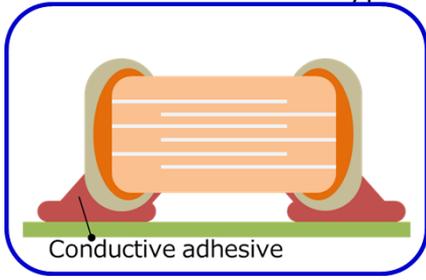
Characteristics

- その他の高温対応の端子電極候補

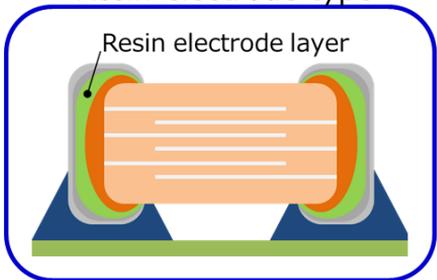
Plating type



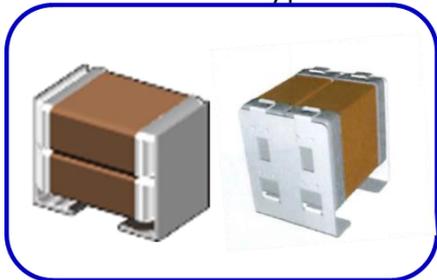
Conductive adhesive type



Resin electrode type



MEGACAP type



Lead type



Mold type

